



City of Fort Bragg

416 N Franklin Street
Fort Bragg, CA 95437
Phone: (707) 961-2823
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Meeting Agenda Special City Council

**THE FORT BRAGG CITY COUNCIL MEETS CONCURRENTLY
AS THE FORT BRAGG MUNICIPAL IMPROVEMENT DISTRICT
NO. 1 AND THE FORT BRAGG REDEVELOPMENT SUCCESSOR
AGENCY**

Monday, September 19, 2016

10:00 AM

Town Hall, 363 N Main Street

Special Joint City Council/Board of Supervisors Meeting

MEETING CALLED TO ORDER

PLEDGE OF ALLEGIANCE

ROLL CALL

1. PUBLIC HEARING

When a Public Hearing has been underway for a period of 60 minutes, the Council must vote on whether to continue with the hearing or to continue the hearing to another meeting.

- 1A. [16-371](#)** Receive Report, Conduct Public Hearing, and Consider Adoption of City Council Resolution Certifying the Environmental Impact Report for the Central Coast Transfer Station Project, Adopting Findings of Fact, Adopting a Mitigation Monitoring Program, and Approving the Implementation of the Project

Attachments: [09192016 Central Coast TS Approvals Report](#)
[Att 1-Central Coast TS Draft EIR \(Feb 2015\)](#)
[Att 2-Central Coast TS- RTC-FEIR \(June 2015\)](#)
[Att 3-Central Coast TS Revised Draft EIR \(April 2016\)](#)
[Att 4-Central Coast TS RTC-Revised Final EIR \(Sept 2016\)](#)
[Att 5-Central Coast TS Memo from M Sweeney](#)
[Att 6-RESO Central Coast TS Project Approvals](#)
[Att 7- RESO Exhibit A- Findings of Fact](#)
[Att 8- RESO Exhibit B- MMRP](#)
[Att 9-Cal Pub Resources Code 4659](#)
[Item handed out at Meeting](#)

2. CONDUCT OF BUSINESS



City of Fort Bragg

416 N Franklin Street
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Phone: (707) 961-2823
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Text File

File Number: 16-371

Agenda Date: 9/19/2016

Version: 1

Status: Public Hearing

In Control: Special City Council

File Type: Staff Report

Agenda Number: 1A.

Receive Report, Conduct Public Hearing, and Consider Adoption of City Council Resolution Certifying the Environmental Impact Report for the Central Coast Transfer Station Project, Adopting Findings of Fact, Adopting a Mitigation Monitoring Program, and Approving the Implementation of the Project



AGENCY: City Council
MEETING DATE: September 19, 2016
DEPARTMENT: Administration
PRESENTED BY: M. Sweeney (MSWMA)

AGENDA ITEM SUMMARY

TITLE:

RECEIVE REPORT, CONDUCT PUBLIC HEARING, AND CONSIDER ADOPTION OF CITY COUNCIL RESOLUTION CERTIFYING THE ENVIRONMENTAL IMPACT REPORT FOR THE CENTRAL COAST TRANSFER STATION PROJECT, ADOPTING FINDINGS OF FACT, ADOPTING A MITIGATION MONITORING PROGRAM, AND APPROVING THE IMPLEMENTATION OF THE PROJECT

ISSUE:

The Mendocino County Board of Supervisors and the Fort Bragg City Council will conduct a joint meeting to consider certification of the Final Environmental Impact Report and approval of the implementation for the Central Coast Transfer Station project.

RECOMMENDED ACTION:

Adopt City Council resolution certifying the Environmental Impact Report for the Central Coast Transfer Station Project, adopting Findings of Fact, adopting a Mitigation Monitoring Program, and approving the implementation of the project.

ALTERNATIVE ACTION(S):

1. No action. Under this alternative, no action would be taken and a commercial, long haul transfer station would not be developed to serve the central coast region.
2. Continue action. Under this alternative, the Council would continue action on the project and provide direction to staff regarding additional information that is needed in order to inform its decision on the project.

ANALYSIS:

This agenda packet includes the following documents that provide information and analysis of the project:

1. Draft Environmental Impact Report (EIR) – Feb 2015
2. Response to Comments (RTC)/Final EIR – June 2015
3. Revised Draft EIR – April 2016
4. Response to Comments/Revised Final EIR – Sept 2016
5. Memo to Board of Supervisors and City Council from Mike Sweeney
6. Resolution for Project Approvals
7. Exhibit A to Resolution for Project Approvals – Findings of Fact
8. Exhibit B to Resolution for Project Approvals – Mitigation Monitoring and Reporting Program
9. Cal Public Resources Code Section 4659 – “Land Swap” Legislation

FISCAL IMPACT:

To date, the funding source for the work on the Central Coast Transfer Station has been primarily the Caspar Transfer Station “rent surcharge” which yields approximately \$50,000/year. Design, construction, and operation of the new Transfer Station would be undertaken by a private-industry entity under contract with the County. These costs would be offset by the tipping fees at the Transfer Station.

Ultimately, the transfer station will have a positive fiscal impact on both the City and the County, in general, and on tipping fees for disposal of solid waste. Currently, solid waste from the north coastal area is trucked to the Willits Transfer Station where it is then loaded into long-haul trailers and shipped to the Potrero Hills Landfill. By loading the waste at a local transfer station, transportation costs and, consequently, tipping fees will be reduced. It is estimated that savings will be approximately \$350,000 per year. Ballpark estimates for construction of the facility, without land acquisition costs, are in the \$4-5 million range. This estimate includes costs for permitting, environmental review, design and engineering, construction, and equipment.

IMPLEMENTATION/TIMEFRAMES:

If the City Council and Board of Supervisors agree to move forward with the new transfer station project, the next step is for the County to exercise the option to acquire the project site. Then a request for proposals will be issued, followed by negotiation of a contract with a private-industry entity that will design, build and operate the facility.

ATTACHMENTS:

1. Draft Environmental Impact Report (EIR) – Feb 2015
2. Response to Comments (RTC)/Final EIR – June 2015
3. Revised Draft EIR – April 2016
4. Response to Comments/Revised Final EIR – Sept 2016
5. Memo to Board of Supervisors and City Council from Mike Sweeney
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8. Exhibit B to Resolution for Project Approvals – Mitigation Monitoring and Reporting Program
9. Cal Public Resources Code Section 4659 – “Land Swap” Legislation

NOTIFICATION:

Notices of the September 19, 2016 meeting were mailed to approximately 400 property owners; emailed to the City’s and MSWMA’s interested parties email list; published in Fort Bragg Advocate-News and the Ukiah Daily Journal; posted on City and MSWMA websites; posted in the City’s notice case; and a press release was issued.

City Clerk’s Office Use Only

| | | | |
|--|-----------------------------------|---------------------------------|--|
| Agency Action | <input type="checkbox"/> Approved | <input type="checkbox"/> Denied | <input type="checkbox"/> Approved as Amended |
| Resolution No.: | _____ | Ordinance No.: | _____ |
| Moved by: | _____ | Seconded by: | _____ |
| Vote: | _____ | | |
| <input type="checkbox"/> Deferred/Continued to meeting of: | _____ | | |
| <input type="checkbox"/> Referred to: | _____ | | |



Mendocino Solid Waste Management Authority

Central Coast Transfer Station

Draft Environmental Impact Report

SCH # 2014012058

February 2015

Draft Environmental Impact Report for the
Central Coast Transfer Station

SCH # 2014012058

Prepared for:

Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

Attention: Mike Sweeney
General Manager
(707) 468-9710

Prepared by:

GHD Inc.
718 Third Street
Eureka, CA 95501

Contact: Misha Schwarz
Project Manager
(707) 443-8326

Project Ref#: 0016201-8411065

February 2015

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Appendix G - Hydrological Study

Appendix H - Traffic Impact Study

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Appendix J - Forester: Jere Melo, Letter May 9, 2010

Appendix K - Noise Data Sheets and RCNM Model Output

Acronyms and Abbreviations

| | |
|-------------------|--|
| AAI | all appropriate inquiries |
| AB | Assembly Bill |
| ADT | average daily traffic |
| ASC | Anthropological Studies Center |
| bgs | below ground surface |
| BLM | Bureau of Land Management |
| BMP | best management practices |
| CalEEMod | California Emissions Estimator Model |
| Cal/EPA | California Environmental Protection Agency |
| CalFire | California Department of Forestry and Fire Protection |
| Cal/OSHA | California Occupational Safety and Health Administration |
| Caltrans | California Department of Transportation |
| CAA | Clean Air Act |
| CAAQS | California Ambient Air Quality Standards |
| CalEEMod | California Emissions Estimator Model |
| CalEPA | California Environmental Protection Agency |
| CAP | climate action plan |
| CARB | California Air Resources Board |
| CBC | California Building Code |
| CCR | California Code of Regulations |
| CDFG | California Department of Fish and Game |
| CDFW | California Department of Fish and Wildlife |
| CDPH | California Department of Public Health |
| CDPR | California Department of Parks and Recreation |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFGF | California Fish and Game Code |
| CGS | California Geological Survey |
| CH ₄ | methane |
| CHP | California Highway Patrol |
| CHSC | California Health and Safety Code |
| CNEL | Community Noise Equivalent Level |
| CNPPA | California Native Plant Protection Act |
| CO | carbon monoxide |
| CO ₂ | carbon dioxide |
| CO ₂ e | carbon-dioxide-equivalent |
| CRHR | California Register of Historical Resources |
| CRPR | California Rare Plant Rank |
| CUPA | Certified Unified Program Agency |
| CWA | Clean Water Act |
| dB | decibel |
| dBA | A-weighted sound level |
| DHS | California Department of Health Services |
| DOC | California Department of Conservation |
| DOT | U.S. Department of Transportation |
| DPM | diesel particulate matter |
| DTSC | Department of Toxic Substances Control |
| DWR | California Department of Water Resources |
| EDR | Environmental Data Resources |
| EIR | Environmental Impact Report |
| EOC | County Emergency Operations Center |
| EOP | Mendocino County Emergency Operations Plan |

| | |
|-------------------|---|
| EPA | U.S. Environmental Protection Agency |
| ESA | Federal Endangered Species Act |
| Fed/OSHA | Federal Occupational Safety and Health Administration |
| FEMA | Federal Emergency Management Agency |
| FHWA | Federal Highway Administration |
| FMMP | Farmland Mapping and Monitoring Program |
| FTE | full-time equivalent |
| GHG | greenhouse gas |
| H ₂ O | water vapor |
| HAZWOPER | Hazardous Waste Operations and Emergency Response |
| HHW | household hazardous waste |
| HI | Hazard Index |
| JDSF | Jackson Demonstration State Forest |
| JPA | Joint Powers Agreement |
| L _{dn} | Day/Night Average Sound Level |
| Leq | equivalent noise level |
| LIM | Land Inventory and Monitoring |
| L _{max} | maximum A-weighted noise level |
| L _{min} | minimum A-weighted noise level |
| LOS | Level of Service |
| MBTA | Migratory Bird Treaty Act |
| MCAQMD | Mendocino County Air Quality Management District |
| MCLs | maximum contaminant levels |
| MEI | Maximally Exposed Individual |
| mg/m ³ | milligrams per cubic meter |
| MOEs | Measures of Effectiveness |
| MHMP | Mendocino County Multi-Hazard Mitigation Plan |
| MMT | million metric tons |
| msl | mean sea level |
| MSW | Municipal Solid Waste |
| MSWMA | Mendocino Solid Waste Management Authority |
| MTA | Mendocino Transit Authority |
| N ₂ O | nitrous oxide |
| NAAQS | National Ambient Air Quality Standards |
| NAHC | Native American Heritage Commission |
| NFIP | National Flood Insurance Program |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic Atmospheric Administration |
| NOP | Notice of Preparation |
| NO _x | nitrogen oxides |
| NO ₂ | nitrogen dioxide |
| NPDES | National Pollutant Discharge Elimination System |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| NWIC | Northwest Information Center |
| O ₃ | ozone |
| OES | Office of Emergency Services |
| pga | peak ground acceleration |
| PM | particulate matter |
| ppm | parts per million |
| PPV | Peak Particle Velocity |
| PRC | Public Resources Code |
| REL | reference exposure level |
| RMS | Root Mean Square |
| ROG | reactive organic gases |
| RWQCB | Regional Water Quality Control Board |
| SARA | Superfund Amendment and Reauthorization Act |
| SRA | State Responsibility Areas |

Acronyms and Abbreviations

| | |
|-------------------|---------------------------------------|
| SR | State Route |
| SWPPP | Storm Water Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board |
| TACs | Toxic Air Contaminants |
| TCP | Timberland Conversion Permit |
| THP | Timber Harvesting Plan |
| TPZ | Timberland Production Zone |
| UBC | Uniform Building Code |
| µg/m ³ | micrograms per cubic meter |
| USACE | U.S. Army Corps of Engineers |
| U.S. EPA | U.S. Environmental Protection Agency |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| UST | underground storage tank |
| VMT | vehicle miles travelled |
| WBWG | Western Bat Working Group |

1. Introduction and Summary

1.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that discretionary decisions by public agencies be subject to environmental review. The purpose of an environmental impact report (EIR) is to identify the potentially significant effects of the project on the environment, to identify and evaluate alternatives to the project, and to indicate the manner in which those potentially significant effects can be mitigated or avoided (Section 21002.1[a]). Each public agency is required to mitigate or avoid the significant effects on the environment of projects it approves or carries out whenever it is feasible.

This Draft EIR has been prepared by the Mendocino Solid Waste Management Authority (MSWMA), acting on behalf of the Caspar Joint Powers Agreement (Caspar JPA) of the County of Mendocino and City of Fort Bragg, for the proposed Central Coast Transfer Station (project) pursuant to the CEQA of 1970 (Public Resources Code Section 21000 et seq.) and the CEQA Guidelines (California Code of Regulations Section 15000 et seq.).

The Caspar Joint Powers Agreement was originally formulated by the City and County in 1967 to authorize the joint ownership and operation of the Caspar Landfill. The basic method of governance is mutual agreement between the County Board of Supervisors and the City Council. The JPA was amended several times, most recently in 2011, and includes the following provision:

“Replacement or expansion of the Caspar Transfer Station is necessary to accommodate commercial solid waste collection trucks and allow long-haul direct transfer to a destination landfill. County and City shall cooperate in a siting and development project to provide such an expanded facility, either at the Caspar property or another site, and shall amend this Agreement as necessary to implement the expansion.”

Environmental effects of the project that must be addressed include the significant effects of the project, growth-inducing effects of the project, and significant cumulative effects of past, present, and reasonably anticipated future projects. The purpose of an EIR is not to recommend either approval or denial of a project. CEQA requires decision-makers to balance the benefits of a project against its unavoidable environmental effects in deciding whether to carry out a project. The lead agency will consider the Draft EIR, comments received on the Draft EIR, and responses to those comments before making a final decision. If significant environmental effects are identified, the lead agency must adopt “Findings” indicating whether feasible mitigation measures or alternatives exist that can avoid or reduce those effects. If significant environmental impacts are identified as unavoidable after proposed mitigation, the lead agency may still approve the project if it determines that the social, economic, or other benefits outweigh the unavoidable impacts. The lead agency would then be required to prepare a “Statement of Overriding Considerations” that discusses the specific reasons for approving the project, based on information in the EIR and other information in the administrative record.

1.2 Type of Environmental Impact Report

The Central Coast Transfer Station EIR is a project EIR, pursuant to CEQA Guidelines Section 15161. A project EIR examines the environmental impacts of a specific development and focuses

on the changes in the environment that would result from the construction, development, and ultimate operation of the project.

1.3 Intended Uses of the EIR

The purpose of an EIR is to provide a clear understanding of the environmental impacts associated with the construction and operation of a project and the EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the Notice of Preparation (NOP) is published, from both a local and regional perspective. This environmental setting normally constitutes the baseline physical conditions by which the lead agency determines whether an impact is significant.

The lead agency is the decision-making body that will ultimately certify the adequacy of the EIR and decide whether to approve the implementation of a project. In accordance with CEQA Guidelines Section 15051 (d), “where the provisions of subdivisions (a), (b), and (c) leave two or more public agencies with a substantial claim to be the lead agency, the public agencies may by agreement designate an agency as the lead agency.” The lead agency for the proposed project is the Caspar JPA of the County of Mendocino and City of Fort Bragg, as equal partners.

In addition to the lead agency, other responsible and trustee agencies may need to use this EIR in approving permits or providing recommendations for the project. These agencies include:

- Board of Supervisors of the County of Mendocino (Major Use Permit)
- Mendocino County Health Department (Well Construction Permit, Septic System Construction Permit)
- California Department of Resource Recovery & Recycling (Solid Waste Facilities Permit)
- California Department of Transportation (Encroachment Permit)
- California Department of Forestry & Fire Protection (Timberland Conversion Plan, Timberland Conversion Permit, Timber Harvest Plan)
- Regional Water Quality Control Board (General Construction Permit)

1.3.1 Background

The Caspar JPA plans to develop a commercial transfer station facility to serve the central coast area. A commercial transfer station is a facility that allows all vehicles, including franchise collection trucks, to consolidate solid waste, which can then be loaded for direct haul to a destination landfill. The facility will serve self-haul and commercial customers in the wasteshed which consists of the City of Fort Bragg and the surrounding unincorporated area delineated as the coastal zone of Mendocino County Solid Waste Refuse Collection Area #2. The wasteshed includes the coast from the southern edge of the town of Westport south to the mouth of the Navarro River, extending inland approximately half the distance to the Highway 101 corridor.

Solid waste disposal in the central coast region of Mendocino County has been a joint responsibility of the County of Mendocino and City of Fort Bragg for more than 40 years. When the jointly-owned Caspar Landfill closed in 1992, the site was converted to a self-haul transfer station.

Empire Waste Management, the franchised collector for the City of Fort Bragg and the surrounding unincorporated area, introduced its “WMS” or “pod” system for medium-distance waste transfer, which uses specialized collection trucks with detachable pod bodies for compacted waste. The pods are removed from the collection trucks at Empire’s Fort Bragg yard and loaded three-at-time

on a flatbed semi-trailer to be hauled 37 miles to the Willits Transfer Station, where they are dumped and reloaded for transfer to the Potrero Hills Landfill in Suisun, California.

The inefficiency and expense of this disposal system led to a decision by the Caspar JPA in 2006 to identify a site for construction of a commercial transfer station that would receive the entire wastestream and ship it directly to a destination landfill. A 2007 study evaluated 25 sites. In 2011, six semi-final sites were evaluated by Caspar JPA staff, and these were then narrowed down to two finalist sites, the Jackson Demonstration State Forest (JDSF) property on State Route 20 (project site) and the existing Caspar Landfill property. In June, 2013, the Caspar JPA designated the JDSF property SR 20 as the preferred site.

Based on the current wastestream, the solid waste throughput would average 35 tons per day. To accommodate potential peak periods, future growth and technological changes, the facility would be designed to handle up to 50 tons per day by more intensive operation with the same infrastructure.

1.4 Public Scoping Process

On January 27, 2014, the NOP for the Central Coast Transfer Station EIR was distributed (included in Appendix A). The NOP was mailed to property owners within the project area and was distributed by the State Clearinghouse to the reviewing State agencies, as well as local and regional agencies, triggering the start of a 30-day scoping period. On February 19, 2014 a Public Scoping Meeting was held at Fort Bragg Town Hall at 363 North Main Street, to solicit input regarding the issues that should be addressed in the EIR. The scoping period ended on February 25, 2014. Approximately 18 letters/emails were received during the scoping period, as summarized below in Section 1.8, and included in Appendix A.

1.5 Effects Found Not to be Significant

To provide more meaningful public disclosure, reduce the time and cost required to prepare an EIR, and focus on potentially significant effects on the environment of a proposed project, lead agencies may limit discussion of other effects to a brief explanation as to why those effects are not potentially significant (Public Resources Code Section 21002.1 (e); State CEQA Guidelines Sections 15128 and 15143). Information used to determine which impacts would be potentially significant was derived from a review of the project, field work, feedback from agency consultation and input, and comments received on the NOP (Appendix A). As a result of this review, the following resource categories were found not to be significant, and therefore, are not included in the detailed analysis of potential impacts in the Central Coast Transfer Station EIR:

1.5.1 Population and Housing

The proposed project relocates existing solid waste services. It does not provide new housing nor does it remove any existing housing, or create a substantial population increase. Therefore, the proposed project would not affect the location, density, distribution, or growth rate of the human population in the project area and surrounding region.

1.5.2 Public Services and Utilities

The construction and operation of the proposed project would not induce growth that would result in a substantial increase in the demand for utility systems such as electricity, water, sewer, drainage, or wastewater treatment capacity, or protective services from fire departments or local law enforcement. Sewer and water would be provided onsite. Reference Section 3.9 (Hydrology) for an analysis of potential impacts to hydrology and water resources. The proposed project is consistent

with the land use and zoning designations for the project sites. Construction and operation of the facility would not increase the demand for police or fire protection or emergency medical services above the level anticipated for the project site within the Mendocino County General Plan. In addition, the proposed project would be required to comply with state regulatory requirements for the proposed facility, as specified in the CCR Titles 14, 22, and 27 as well as fire department requirements. The project would not have a significant adverse effect on public services or utilities.

1.5.3 Recreation

The project site does not include any recreational facilities and the proposed project would not generate additional demand for recreational facilities or services because it would not increase the number of residents or visitors within the project area and surrounding region.

1.6 Availability of the Draft EIR and Public Comment Period

The Draft EIR will be circulated for 45 days, from February 9, 2015 to March 26, 2015 to allow interested individuals and public agencies to review and comment on the document. Written comments on the Draft EIR will be accepted by MSWMA until 5:00 pm on March 26, 2015. Public agencies, interested organizations and individuals are encouraged to submit comments on the Draft EIR to:

Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482
Email: sweeney@pacific.net

To facilitate understanding of and orderly responses to the comments, please provide a separate sentence or paragraph for each comment, and note the page and chapter/section of the Draft EIR to which the comment is directed.

The Draft EIR is available for review at the address above, and at Fort Bragg City Hall, 416 N. Franklin St., Fort Bragg, and the Fort Bragg Library, 499 E. Laurel St., Fort Bragg. It is also available in downloadable Adobe Acrobat format on the MSWMA's website at <http://mendorecycle.org/>.

At the end of the public review period, written responses will be prepared for comments received on the Draft EIR. The comments and responses will be included in the Final EIR and will be considered by the Caspar JPA prior to consideration of the adequacy of the EIR. Prior to approval of the project, the Caspar JPA must certify that the EIR has been completed in compliance with CEQA.

1.7 Organization of this Environmental Impact Report

This Draft EIR is organized into chapters, as identified and briefly described below. Chapters are further divided into sections (e.g., Section 3.1, Aesthetics).

- **Chapter 1, Introduction and Summary.** Chapter 1 describes the purpose and organization of the Draft EIR, context, and terminology used in the Draft EIR. This chapter also summarizes the project description, alternatives to the project, significant environmental impacts, and mitigation measures to reduce or eliminate those impacts.
- **Chapter 2, Project Description.** Chapter 2 describes the project objectives, project location, background, project characteristics, and project operation.

- **Chapter 3, Environmental Setting, Impacts and Mitigation Measures.** For each environmental resource area, this chapter describes the existing environmental and regulatory setting, identifies applicable thresholds of significance, discusses the potential environmental impacts associated with the proposed project, identifies feasible mitigation measures to reduce or eliminate those impacts, and provides conclusions on the significance of each potentially significant adverse impact both before and after proposed mitigation.
- **Chapter 4, Alternatives.** This chapter describes and evaluates the alternatives to the proposed project that are being considered to avoid or mitigate the project's environmental impacts.
- **Chapter 5, Other CEQA Related Impacts.** This chapter describes any unavoidable significant impacts, growth-inducing, and irreversible impacts.
- **Chapter 6, Report Preparation.** This chapter identifies the Draft EIR authors and consultants who provided analysis in support of the Draft EIR's conclusions.
- **Chapter 7, References.** This chapter sets forth a comprehensive list of all sources of information used in the preparation of the Draft EIR, including agencies or individuals consulted during preparation of the Draft EIR.
- **Appendices.** The appendices contain various technical reports and publications that have been summarized or otherwise used for preparation of the Draft EIR.

1.8 Areas of Controversy and Key Issues to be Resolved

Section 15123 of the CEQA Guidelines requires an EIR to identify areas of controversy known to the lead agency, including issues raised by agencies and the public. The following provides a brief summary of the comments/issues raised in comment letters and emails received on the NOP and during the public scoping meeting. The comment letters received on the NOP are included in Appendix A of this document.

- Why can't waste be hauled out of the County on the Skunk Train.
- Why not burn trash so it doesn't have to be shipped out of the area.
- Why wasn't the Pudding Creek Road site selected instead of the SR 20 site.
- Will the SR 20 transfer station cause groundwater contamination that will threaten the City's Newman Gulch water source.
- SR 20 should not be subjected to additional large semi-truck traffic.
- No pygmy forest or bishop pine forest vegetation should be removed.
- Will the stench of garbage be eliminated by fully enclosed buildings and sweetened with perfume.
- How will groundwater be affected by the project.
- Bicyclists' safety may be at risk with increased truck trips on SR 20.
- Road-side trash and debris along SR 20 will increase.
- How will the Noyo River Watershed not be compromised by this project.
- Conversion from Timber Production is unwarranted when the Pudding Creek Recycling Center and Caspar Landfill sites are already converted and industrialized.

- The Draft EIR should include a detailed mitigation plan which outlines measures for avoidance, minimization, mitigation, and monitoring for habitats including Mendocino Pygmy Woodland Forest, Northern Bishop Pine, wetlands, and special-status species.
- The Draft EIR should include alternative locations that avoid sensitive species or habitats.
- The project's water consumption should be analyzed.
- The Draft EIR should include an erosion control plan and LID strategy that details site-specific measures for reducing erosion, maintaining water quality, and encouraging on-site retention of stormwater.

All of the substantive environmental issues raised in the NOP comment letters and emails have been addressed in this Draft EIR.

1.9 Summary of Significant Impacts and Proposed Mitigation Measures

Table 1-1 identifies, by resource category, the significant project impacts and proposed mitigation measures. Additional information about the impacts and mitigation measures can be found in Chapter 3 of this EIR, as referenced for each resource category.

Table 1-1 Summary of Impacts and Mitigation Measures

| Impact | Project Significance | Mitigation Measure | After-mitigation significance |
|--|-----------------------|--------------------|-------------------------------|
| Aesthetics | | | |
| Impact AES-1: Impacts on Scenic Vistas. | Less than Significant | n/a | |
| Impact AES-2: Changes in Visual Character. | Less than Significant | n/a | |
| Impact AES-3: Impacts from Nighttime Lighting and Glare. | Less than Significant | n/a | |
| Impact AES-C-1: Cumulative Impacts to Aesthetic Resources. | Less than Significant | n/a | |
| Agriculture and Forest Resources | | | |
| Impact AG-1: Conflict with Zoning for Timberland and Conversion to Non-Forest Use. | Less than Significant | n/a | |
| Impact AG-C-1: Cumulative Impacts to Forest Land. | Less than Significant | n/a | |

| Impact | Project Significance | Mitigation Measure | After-mitigation significance |
|--|-------------------------|--|-------------------------------|
| Air Quality and Odor | | | |
| Impact AQ-1: Violate Any Air Quality Standard or Result in Cumulatively Considerable Net Increase of Any Criteria Pollutant for which the Project Region is in Non-attainment. | Potentially Significant | Mitigation Measure AQ-1: Air Quality Control Measures during Construction. | Less than Significant |
| Impact AQ-2: Expose Sensitive Receptors to Substantial Pollutant Concentrations. | Potentially Significant | Mitigation Measure AQ-2: Select Equipment during Construction to Minimize Emissions. | Less than Significant |
| Impact AQ-3: Create Objectionable Odors Affecting a Substantial Number of People. | Potentially Significant | Mitigation Measure AQ-3: Implement Odor Reduction Measures. | Less than Significant |
| Impact AQ-C-1: Project plus Cumulative Projects Result in a Cumulatively Considerable Contribution to Cumulative Impacts Related to Air Quality. | Potentially Significant | Mitigation Measures: AQ-1 Air Quality Control Measures during Construction and AQ-2 Select Equipment during Construction to Minimize Emissions. | Less than Significant |
| Biological Resources | | | |
| Impact BIO-1: Substantial Adverse Effect on Special-Status Species. | Potentially Significant | <p>Mitigation Measure BIO-1a: Mitigate Impacts to Coast Lily.</p> <p>Mitigation Measure BIO-1b: Mitigate Impact to Mendocino Cypress and Bolander's Pine.</p> <p>Mitigation Measure BIO-1c: Minimize and Avoid Impacts to Sonoma Tree Vole.</p> <p>Mitigation Measures BIO-1d: Conduct Pre-construction Avian Surveys for Nesting Passerine Birds and Avian Species of Special Concern.</p> <p>Mitigation Measures BIO-1e: Avoid Impacts to Special-Status Bat Species</p> | Less than Significant |
| Impact BIO-2: Substantial Adverse Effect on Sensitive Natural Community. | Potentially Significant | Mitigation Measure BIO-2: Mitigate Impacts to Sensitive Listed Habitats with State Rank S2 Status (Cypress forest-tall and Cypress forest – intermediate). | Less than Significant |

| Impact | Project Significance | Mitigation Measure | After-mitigation significance |
|---|-------------------------|---|-------------------------------|
| Impact BIO-3: Substantial Adverse Effect on Federally Protected Wetlands. | No Impact | n/a | |
| Impact BIO-4: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or Impede Use of Native Wildlife Nursery. | Less than Significant | n/a | |
| Impact BIO-5: Conflict with Local Policies or Ordinances Protecting Biological Resources. | Less than Significant | n/a | |
| Impact BIO-C-1: Project Result in a Cumulatively Considerable Contribution to Cumulative Impacts Related to Biological Resources. | Less than Significant | n/a | |
| Cultural Resources | | | |
| Impact CR-1: Change in the Significance of an Archaeological or Historical Resource. | Potentially Significant | Mitigation Measure CR-1: Potential Disturbance of Undiscovered Cultural Resources. | Less than Significant |
| Impact CR-2: Potential Impacts to Unknown Paleontological Resources. | Potentially Significant | Mitigation Measure CR-2: Potential Disturbance of Undiscovered Paleontological Resources. | Less than Significant |
| Impact CR-3: Potential Disturbance of Human Remains. | Potentially Significant | Mitigation Measure CR-3: Potential to Uncover Human Remains. | Less than Significant |
| Impact CR-C-1: Cumulative Impacts to Cultural Resources. | Less than Significant | n/a | |
| Geology and Soils | | | |
| Impact GEO-1: Expose People or Structures to Potential Substantial Adverse Effects Involving Strong Seismic Ground Shaking or Seismic-related Ground Failure, including Liquefaction. | Potentially Significant | Mitigation Measure GEO-1: Conduct a Geotechnical Study and Implement Recommendations | Less than Significant |
| Impact GEO-2: Result in Substantial Soil Erosion or Loss of Topsoil. | Potentially Significant | Mitigation Measure HYD-1: NDPES and Storm Water Pollution Prevention Plan | Less than Significant |

| Impact | Project Significance | Mitigation Measure | After-mitigation significance |
|--|-------------------------|--|-------------------------------|
| Impact GEO-3: Be Located on Geologic Unit or Soil that is Unstable, or would become Unstable as a Result of the Project, and Potentially Result in Liquefaction, Lateral Spreading, Subsidence, or Collapse. | Potentially Significant | Mitigation Measure GEO-1: Conduct a Geotechnical Study and Implement Recommendations | Less than Significant |
| Impact GEO-4: Be Located on Expansive Soil, as Defined in Table 18-1-B of Uniform Building Code (1994), Creating Substantial Risks to Life or Property. | Potentially Significant | Mitigation Measure GEO-1: Conduct a Geotechnical Study and Implement Recommendations | Less than Significant |
| Impact GEO-5: Have Soils Incapable of Adequately Supporting Use of Septic Tanks or Alternative Waste Water Disposal Systems. | Less than significant | n/a | |
| Impact GEO-C-1: Project Plus Cumulative Projects Result in a Cumulatively Considerable Contribution to Cumulative Impacts Related to Geology and Soils. | No impact | n/a | |
| Greenhouse Gas Emissions | | | |
| Impact: GG-1: Generate Greenhouse Gas Emissions that may have Significant Impact on Environment. | Beneficial | n/a | |
| Impact: GG-2: Conflict with Applicable Plan, Policy, or Regulation Adopted for Purpose of Reducing Emissions of Greenhouse Gases. | No impact | n/a | |
| Impact GG-C-1: Would the Project plus cumulative projects cause a cumulatively considerable contribution to a significant cumulative impact relative to greenhouse gas emissions. | Beneficial | n/a | |
| Hazards and Hazardous Materials | | | |
| Impact HAZ-1: Exposure to Known and Unknown Hazardous Materials. | Less than Significant | n/a | |

| Impact | Project Significance | Mitigation Measure | After-mitigation significance |
|---|-------------------------|--|-------------------------------|
| Impact HAZ-2: Exposure to Hazardous Materials during Project Construction and Operation. | Less than Significant | n/a | |
| Impact HAZ-3: Emergency Response Plans and Wildland Fire Risk. | Less than Significant | n/a | |
| Impact HAZ-C-1: The Project, in Combination with Other Cumulative Projects, Would Not Increase the Exposure of Hazardous Substances to the Public or Environment. | Less than Significant | n/a | |
| Hydrology and Water Quality | | | |
| Impact HWQ-1: Violate any Water Quality Standards or Waste Discharge Requirements. | Potentially Significant | Mitigation Measure HWQ-1a: Manage Construction Storm Water. Mitigation Measure HWQ-1b: Industrial Storm Water General Permit Mitigation Measures HWQ-1c: Well Development According to Mendocino County and California State Standards. | Less than Significant |
| Impact HWQ-2: Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge | Less than Significant | n/a | |
| Impact HWQ-3: Substantial Additional Sources of Polluted Runoff or Otherwise Substantially Degrade Water Quality. | Potentially Significant | Mitigation Measure HWQ-1a: NDPES and Storm Water Pollution Prevention Plan. Mitigation Measures HWQ-1b: Well Construction according to California State well drilling standards. Mitigation Measures HWQ-1c: Well Development according to Mendocino County and California State well development standards. | Less than Significant |

| Impact | Project Significance | Mitigation Measure | After-mitigation significance |
|---|-------------------------|---|-------------------------------|
| Impact HWQ-4: Substantially Alter Existing Drainage Pattern, or Substantially Increase Rate or Amount of runoff in a Manner which would Result in Flooding On- or Off-site. | Potentially Significant | Mitigation Measures HWQ-4: Reduce Potential for Offsite Runoff. | Less than Significant |
| Impact HWQ-C-1: Project Result in a Cumulatively Considerable Contribution to Cumulative Impacts Related to Hydrology and Water Quality. | Less than Significant | n/a | |
| Land Use and Planning | | | |
| Impact LU-1: Conflict with Any Applicable Land Use Plan, Policy, or Regulation. | Less than Significant | n/a | |
| Impact LU-C-1: The Project Combined with Other Cumulative Projects, Conflict with Applicable Land Use Plans, Policies, or Regulations. | Less than Significant | n/a | |
| Noise | | | |
| Impact NO-1: Exposure of Persons to or Generation of Noise Levels in Excess of Standards. | Less than Significant | n/a | |
| Impact NO-2: Result in Exposure of Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels. | Less than Significant | n/a | |
| Impact NO-3: Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity. | Less than Significant | n/a | |
| Impact NO-4: Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity. | Less than Significant | n/a | |
| Impact NO-C-1: Cumulative Impacts from Noise. | Less than Significant | n/a | |

| Impact | Project Significance | Mitigation Measure | After-mitigation significance |
|---|-------------------------|--|-------------------------------|
| Transportation | | | |
| Impact TR-1: Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System. | Potentially Significant | Mitigation Measure TR-1: Traffic Control Plan. | Less than Significant |
| Impact TR-2: Substantially Increase Hazards Due to Design Feature or Incompatible Use. | Less than Significant | n/a | |
| Impact TR-3: Result in Inadequate Emergency Access. | Less than Significant | n/a | |
| Impact TR-4: Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities. | Less than Significant | n/a | |
| Impact TR-C-1: Cumulatively Considerable Contribution to Cumulative Impacts Related to Transportation. | Less than Significant | n/a | |

2.0 Project Description

2.1 Project Overview

The Central Coast Transfer Station project would replace the existing solid waste transfer and disposal system (owned by the County of Mendocino and City of Fort Bragg, and operated by Solid Waste of Willits and Empire Waste Management) for the Central Coast region of Mendocino County with a new transfer station facility on SR 20. The new transfer station would be publicly owned and operated by a private contractor, and would allow direct haul of all solid waste to a destination landfill. The Central Coast region extends from the mouth of the Navarro River north to the southern edge of the town of Westport, and inland from the Pacific Ocean to a point approximately half-way to the inland valleys. It corresponds to the Coastal Zone of Mendocino County Solid Waste Refuse Collection Area No. 2, together with the incorporated City of Fort Bragg. In 2013, this watershed generated 11,882 tons of solid waste which is transferred by Empire Waste Management in truck haul pods and debris boxes.

The City of Fort Bragg and County of Mendocino would hold title to the Central Coast Transfer Station site but would not design, build, or operate the facility. A private solid waste management company would be retained under a long-term contract to carry out these functions. The contract would embody the mitigation measures set forth in this EIR. Some details of design and operation would be left to the discretion of the private operator. Any changes to the design would be analyzed for consistency with the project as described and analyzed in this EIR before approval of the contract with a private solid waste management company.

2.2 Project Location

The proposed project site for the new transfer station is located in unincorporated Mendocino County approximately 3.5 miles southeast of downtown Fort Bragg. The 17-acre site will be removed from Jackson Demonstration State Forest (JDSF) at 30075 State Route 20 (Figure 2-1 - Vicinity Map), and includes a portion of Assessor's Parcel Number (APN) 019-150-05 (Figure 2-2 - Site Plan). The removal of the site from JDSF was mandated by AB 384 (2011), the text of which is included as Appendix I.

2.3 Project Objectives

The proposed project has the following objectives:

- To provide cost-effective and environmentally-sound waste management services to the citizens of Fort Bragg and Mendocino County.
- To construct and operate a commercial transfer station able to accommodate waste from the watershed, peak periods and technological changes.
- To allow the Central Coast region's solid waste to be loaded for direct haul to a destination landfill, rather than being dumped and reloaded at the Willits Transfer Station.
- To increase the efficiency of solid waste transfer from the Central Coast region in order to minimize energy use, greenhouse gas emissions, truck trips, and costs.
- To achieve public ownership of the transfer station facility to ensure long-term protection of the public interest, while accommodating private operation by a qualified solid waste entity

under a contract that ensures compliance with all federal, state and local regulations and requirements

- To isolate the transfer station, as much as possible, from potentially conflicting land uses
- To control the rising costs of managing solid waste and recyclables for the City of Fort Bragg and Mendocino County.

2.4 Existing Solid Waste Collection/Disposal System

Currently, the region's solid waste stream is handled in different pieces. The curbside solid waste is collected by Empire Waste Management, a franchisee under separate contracts with both the County of Mendocino and the City of Fort Bragg. The curbside collection vehicles have detachable bodies (commonly referred to as "pods") which are removed and stored at Empire Waste Management's truck depot at 219 Pudding Creek Road, Fort Bragg. The pods are then loaded three-at-a-time on a flatbed semi-trailer and hauled approximately 35 miles east on SR 20 to the Willits Transfer Station, where they are emptied out and the solid waste is reloaded for long-haul to Potrero Hills Landfill in Suisun City, California. Empire Waste Management also collects solid waste in roll-off boxes (also known as debris boxes) which are hauled two-at-a-time to Willits Transfer Station. Solid waste from private vehicles is received at the Caspar self-haul transfer station at 14000 Prairie Way, Caspar, the site of a closed landfill. The waste is received in debris boxes and pods, which are hauled by Empire Waste Management to the Willits Transfer Station.

The Central Coast region also has a second, smaller self-haul transfer station located at 30180 Albion Ridge Road, Albion. The waste is received in debris boxes which are hauled by Solid Wastes of Willits to the Willits Transfer Station.

2.5 Project Description

The project includes several related components:

2.5.1 Site Acquisition and Land Swap

Following a decision by the City and County to approve the project and a contract for design, construction and operation of the facility, the next step would be for the City and County to exercise their option to take ownership of the site pursuant to AB 384 (2011).

At the request of the County of Mendocino and City of Fort Bragg, AB 384 was enacted in 2011 and added new Section 4659 to the Public Resources Code, which included provisions authorizing a multi-party/multi-property land swap whereby the state would transfer ownership of the 17-acre JDSF site (project site) to the County/City in exchange for either ownership of 35 acres at the Caspar Landfill site or control over its future uses.

Under AB 384, the 60-acre Caspar site (Figure 3 - Project Land Exchange Parcels), including the footprint of the closed landfill, would be the subject of a conservation easement granted to the California Department of Parks & Recreation (DPR). DPR would have the option of taking ownership of the 35 westernmost acres of the site (Figure 3). The interest of DPR in the property results from the site's adjacent proximity to Russian Gulch State Park. DPR has stated in the past that operations of the Caspar self-haul transfer station (and prior to 1992, the Caspar Landfill) cause a conflict with the State Park. DPR has not indicated any plans for the 35-acre Caspar property except to keep it vacant.

Further, under the land swap authorized by AB 384, twelve acres of redwood forest at the northeastern corner of Russian Gulch State Park (Figure 3), comprising the entire Park northeast of County Road 409, would be transferred to Jackson Demonstration State Forest (JDSF). The purpose of this transfer would be to offset the loss of forest resources caused to JDSF at the Central Coast Transfer Station site. These 12 acres would become part of JDSF's Caspar Creek Experimental Watershed Study area. The Caspar Creek Experimental Watershed Study area serves as a research area for evaluating the effects of timber management on streamflow, sedimentation, and erosion. The study area was established in 1961 as a cooperative effort between the CalFire and the United States Forest Service Pacific Southwest Research Station (PSW). PSW and CalFire have a 100-year Memorandum of Understanding to continue research at the site at least through 2099. Caspar Creek is one of 11 USFS Experimental Forests and Ranges selected in 2007 to complement the national network of Long Term Ecological Research sites.

2.5.2 Facility Construction

After obtaining the required permits, the company that was awarded the design-construction-operations contract would build the facility within the parameters set forth in the adopted EIR. As described in this EIR, the construction would entail land clearing, road improvements to SR 20, building and paving, and on-site utilities.

Site preparation would take approximately two weeks, followed by grading/excavation which would take approximately one month. Trenching would take approximately three weeks. Construction of the buildings would take approximately four months, and paving approximately two weeks. Construction equipment for site preparation and grading/excavation would include: excavator, rubber tired dozer, backhoe, dump truck, water truck, and vibratory roller. Building construction and paving would include the following additional equipment: crane, forklift, generator sets, welders, flatbed truck, mini bobcat, and cement and mortar mixers.

Soil hauling volume is estimated at 5,000 cubic yards of export and 6,000 cubic yards of import, for a net import of 1,000 cubic yards. Asphalt has been estimated at approximately 1,200 cubic yards.

2.5.3 Facility operation

The transfer station would commence operations as described elsewhere in this section and receive the entire solid waste disposal stream from the Central Coast watershed, for transfer to a destination landfill.

1.1.1 2.5.4 Closure of existing facilities

With the opening of the new transfer station, the existing Caspar self-haul transfer station would cease operations and Empire Waste Management would cease its direct-haul transfer to Willits Transfer Station and instead use the new transfer station. The Albion self-haul transfer station would continue to operate but its solid waste would be redirected to the new Central Coast Transfer Station.

2.5.5 New Facility Description

The Central Coast Transfer Station facility would include a solid waste transfer building (with loading bay and unloading and waste areas), an outdoor recycling drop-off area, two scales and office (scalehouse), paved driveways, parking areas for the public and transfer trailers, two stormwater detention areas, a groundwater well, a septic tank and leachfield, and perimeter fencing immediately outside the developed project footprint. The site plan is shown in Figure 2-2. A single

gate on SR 20 would accommodate all vehicle entry and exit. Vehicles would pull up at the scalehouse for inspection, weighing or volume measurement, and to pay applicable charges. The Transfer Building would be approximately 30,000 square feet and enclosed. Enclosure would reduce or prevent off-site noise, odors, and dust. In addition, the design would be compatible with installation of control measures such as negative-pressure ventilation with biofiltered exhaust, automated roll-up doors, and/or doorway air curtains, should they be necessary to prevent off-site transmission of odor.

Some vehicles would operate outdoors in the recycling area, most likely a single loader and occasional roll-off trucks to change-out debris boxes as necessary. These vehicles would use “white-sound” OSHA-approved backup alarms such as the Brigade which replaces the typical loud “ping” with a directional buzzing sound with much less range.

All solid and green waste (leaves, brush, landscape trimmings, and unfinished wood) would be deposited inside the transfer building. These materials would be loaded into transfer trailers using a method to be determined by the operator, such as a grapple crane. When a transfer trailer is fully loaded, it would be driven directly to a destination landfill to be specified under the operator’s contract.



Typical possum-belly transfer trailer used for solid waste hauling

The facility may utilize high-volume possum belly trailers to transport solid waste (the image on previous page is an example of a possum belly trailer, length may vary). These high-volume trailers can legally haul up to 10 percent more waste than a standard waste hauling trailer. More tons per load equates to less trips. Solid waste would typically be removed within 24 hours; however, it is possible that in some situations, such as weekends/holidays, waste could remain for up to 48 hours. Among the fully-permitted regional landfills that might receive the solid waste are Potrero Hills in Suisun City, Redwood in Novato, Sonoma Central in Petaluma, Anderson in Anderson, Ostrum Road in Wheatland, Lake County in Clearlake, Recology Hay Road in Vacaville, and Keller Canyon in Pittsburg. Green waste would be hauled to Cold Creek Compost in Potter Valley or another fully-permitted compost facility. Transfer vehicles leaving the facility would proceed east on SR 20.

The recycling drop-off area would duplicate the drop-off services presently provided at the Caspar self-haul transfer station. Cans, bottles, cardboard, paper and mixed plastics would be collected together in debris boxes (see outdoor recycling area in Figure 2-2). Scrap metal, appliances and concrete rubble would be received in paved bunkers or debris boxes. Used motor oil and used antifreeze would be collected in secure tanks with secondary containment (see outdoor recycling area in Figure 2-2). Other recyclable household hazardous waste items, including electronics, fluorescent lights, and batteries, would be collected in secure containment areas. All other hazardous wastes would be prohibited at the facility and customers would be referred to the periodic HazMobile household and small business hazardous waste mobile collection system.

For the purposes of evaluation and analysis in this EIR, a total of 4.72 acres is assumed to be disturbed by the project-- approximately 3.76 acres within the project footprint, and 0.96 acre for a 10-foot buffer (construction/temporary).

The site is heavily forested and as much of the original vegetation as possible would be preserved. No new landscaping is planned.

2.5.6 Hours of Operation

The transfer station would operate five days per week for self-haul customers and the franchised hauler, and two additional days per week for the self-haul customers only. The exact hours of operation would be determined by the operations contracts; however, it is anticipated to be between 8:00 a.m. and 5:00 p.m. There would be approximately four employees on site.

2.5.7 Capacity

Based on the current wastestream, documented by transfer station records, the solid waste throughput would average 35 tons per day year-round, with a peak day of 50 tons per day. The facility could handle a larger wastestream by more intensive utilization of the same infrastructure. The future size of the wastestream is speculative. There has been no growth (an actual decrease has occurred) in the region's disposal wastestream over the last six years as shown by Table 2-1, and City and County annual population growth projections are less than one percent. According to the Fort Bragg General Plan Land Use Element, "it is expected that growth will continue to occur at a slow but regular pace (i.e., less than 0.5 percent per year) as experienced in the last decade (Fort Bragg 2012)." The Mendocino County General Plan "projects the County's total population will increase to 93,166 persons by the year 2010, and then increase an average of 9.5 percent every 10 years to a population of 134,358 in 2050" (California Department of Finance 2007).

The region has a highly-developed waste diversion system and strong public support for waste diversion. One possible source of substantial future growth might be development of the 315-acre former Georgia-Pacific Mill Site in the City of Fort Bragg. While it is unknown if or when this development might occur, the possible mix of residential, commercial and industrial zoning for the Mill Site has been set forth in a draft specific plan. The proposed transfer station could accommodate the waste generation of the Mill Site development without the need for expansion of the original infrastructure. Based on the draft specific plan, the land uses would be of types that would utilize the curbside collection of the franchised hauler, meaning that the solid waste would be transported to the transfer station in relatively few trips by the hauler's compactor trucks.

Table 2-1 Solid Waste Disposal in the Region

| Year | Solid Waste Disposal of Region (tons) |
|------|---------------------------------------|
| 2008 | 14,300 |
| 2009 | 12,334 |
| 2010 | 11,691 |
| 2011 | 11,078 |
| 2012 | 11,060 |
| 2013 | 11,882 |

Source: Disposal Reports, Willits Transfer Station

2.5.8 Facility Access and State Route Improvements

Access to the project site would be controlled by gate with security fencing surrounding the perimeter of the facility. The site will include two queuing lanes for ingress and one queuing lane for egress. Vehicles would enter and exit the facility directly from SR 20, which would be improved with deceleration and acceleration lanes as illustrated in Figure 2-2. SR 20 improvements would include acceleration and deceleration lanes per California Department of Transportation (Caltrans) standards. SR 20 would be widened from the roadway centerline north to accommodate the acceleration and deceleration lanes, and for the new eastbound left-turn pocket and westbound right-turn pockets at the proposed project access point.

All vehicles carrying solid waste and other materials that may have a fee charged for their disposal would enter and leave the site across the scales. Customers with mixed loads including items that can be dropped off for free or that are paid for on a per item basis may be routed through the outdoor recycling area.

2.5.9 Utilities and Public Services

Potable water for the facility would be provided by a new on-site well. Sewer for the single restroom would be handled via an on-site septic tank and leachfield, or a holding-tank system. Three-phase electrical power is available on the SR 20 frontage.

2.5.10 Energy Usage

Operation of the solid waste transfer station would require electricity for general operation of the facility, lighting for the scalehouse and restroom, interior lighting for the unloading area, and security lighting. Except in unusual or emergency circumstances, all operations would take place during daylight hours so there would be no need for exterior lighting except for minimal security lighting which would be shielded and downcast. The transfer building would incorporate translucent panels in the ceiling and/or walls to provide interior illumination, thereby minimizing the need for interior lights.

Trucks and self-haul vehicles would use gasoline/diesel to deliver solid waste and recycling materials to the facility. Trucks would use diesel for delivery of the transfer trailers to a destination landfill. The amount of diesel used annually for the delivery of transfer trailers to the Willits Transfer Station under existing conditions is approximately 54,630 gallons per year. The amount of diesel used annually for the delivery of transfer trailers to a destination landfill under project conditions is unknown at this time.

Currently, the franchised hauler collection trucks make an average of 63 trips per week or 3,276 trips annually for its curbside collection routes throughout Fort Bragg and the unincorporated area. The trucks are based at 219 Pudding Creek Road, Fort Bragg, and return there to unload their pods. These trucks would be diverted to unload at the proposed transfer station, causing an average of eight additional miles of travel for each truck. The additional miles per year would be approximately 26,208 miles per year and approximately 8,293 gallons of diesel annually.

Self-haul vehicles currently drop off at the Caspar Transfer Station. The population centroid of the service area has been determined by the Mendocino County GPS Coordinator to be a point approximately one mile northeast of the intersection of SR 20 and SR 1. Since the entire service area has non-mandatory trash collection at similar prices for identical terms of service, the centroid for self-haul trip generation is assumed to be the same as the population centroid. From the SR 20 and SR 1 intersection, the Caspar Transfer Station is 6.8 miles away and the project site is 3.0

miles away, which would equate to approximately 7.6 miles saved per visit, or 162,032 miles per year. Using an estimate of 17 miles per gallon for self-haul vehicles, the amount of fuel saved would be approximately 9,531 gallons.

2.5.11 Stormwater Detention Facilities

Two stormwater detention facilities have been planned for the proposed project (Figure 2-2). The detention basins would be designed to be an impoundment lined with vegetated soil. Stormwater runoff would be conveyed from the site to these basins through bioswales and from surface runoff. Stormwater collects in the basins and the outlet would allow water to drain slowly, while sediment and other particulate forms of pollutants settle out. At full capacity, the basins are designed to drain in at most 72 hours and at least 24 hours to prevent mosquito production and allow for capture of subsequent storms. These basins would be designed to remain dry except during a runoff event and the detention period afterward. When maintenance is required, accumulated sediment would be removed, characterized, and disposed of appropriately.

2.5.12 On-site Well

An on-site potable water well would be constructed to supply water for operations and for drinking water. The well would be located east of the facility (Figure 2-2) and would supply water to a holding tank, with sufficient capacity for the facility's needs including fire protection as required by CalFire. The well would be constructed according to the California Department of Public Health (CDPH) standards, which consider 100-foot offsets from the transfer station building and proper well construction including a sanitary seal, with adequate materials for the casing and screen. The pump used in the well would be a submersible pump logically tied with telemetry to the storage tank. An approximately 10-foot wide by 55-foot long road would be constructed leading to the pumphouse for the well. The road would be top dressed with gravel and the pumphouse would be approximately four feet by four feet. To protect groundwater quality, transfer trailers will be prohibited from parking on the eastern side of the facility through barriers and signage.

2.5.13 Holding Tank Sewer System

As an alternative to a septic tank and leachfield, a sewage holding tank could be provided subject to regulatory approval. The tank would be located in close proximity to the restrooms. The holding tank would be designed with sufficient capacity to accommodate five employees and several visitors per day. Construction of the holding tank would be in accordance with Mendocino County Division of Environmental Health's Minimum Standards for On-site Sewage Systems standards, including appropriate materials, access ports, and an over flow alarm. The tank would be emptied as necessary by a permitted septic tank service.

2.5.14 Caspar Transfer Station Closure

Closure of the Caspar self-haul transfer station would involve shutting the gate and ceasing acceptance of solid waste. This would occur within one week of the opening of the new transfer station. It is anticipated that removal of small and portable existing structures, including the gate house, lockers and stationary compactors, would occur at some point after the Caspar transfer station closes. At this time there is no requirement or intention to demolish any of the existing structures at the Caspar facility. Any future demolition would depend on funding and future use of the site by DPR.

2.5.15 Construction Schedule and Duration

The timeline for construction is dependent on a number of factors. It is estimated that construction would commence within 24 months from certification of the EIR, followed by up to six months of construction depending on weather. Hours of construction would be between the hours of 8:00 AM and 6:00 PM.

2.6 Required Permits and Approvals

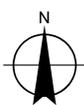
As anticipated by the existing provisions of the Caspar JPA agreement, the JPA will be amended to specify the roles of the City and County in transfer station contract administration, land title, and site supervision. The project would require the following permits/approvals:

- Acquisition of the project site by the County of Mendocino and the City of Fort Bragg
- Major use permit by the County of Mendocino as a Civic Type Use – Major Impact Services & Utilities
- Approval by California Department of Forestry & Fire Protection of a Timberland Conversion Plan, Timberland Conversion Permit, and Timber Harvest Plan
- Encroachment permit and related approvals by the California Department of Transportation for improvements to SR 20
- Solid waste facilities permit from the California Department of Resource Recovery & Recycling
- Stormwater discharge permit (National Pollutant Discharge Elimination System) from the Water Quality Control Board
- Well construction permit from the Mendocino County Health Department
- Permit for the construction of a septic system from the Mendocino County Health Department.



- Project Site
- Major Highways
- City Limits
- Highways
- Parks/Open Space
- Major Roads
- Rivers/Streams

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 Miles



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 Central Coast Transfer Station EIR

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 Revision A
 Date 03 Nov 2014

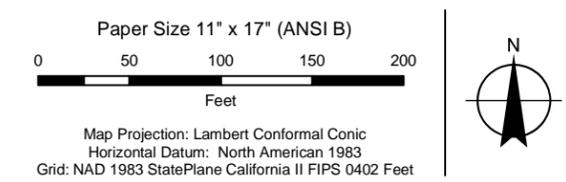
Vicinity Map and Project Location

Figure 2-1

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1. Office and restroom
2. Antifreeze drop-off tank
3. Used oil drop-off tank
4. Metal recycling bay
5. Appliance recycling bay
6. Electronics recycling bay
7. Mixed recyclables boxes
8. Transfer trailer parking
9. Gravel road to leachfield
10. Gravel road and transmission line from pumphouse



- 17 Acre Portion of APN 019-150-05
- Parcels
- Bio-swale
- Direction of Travel



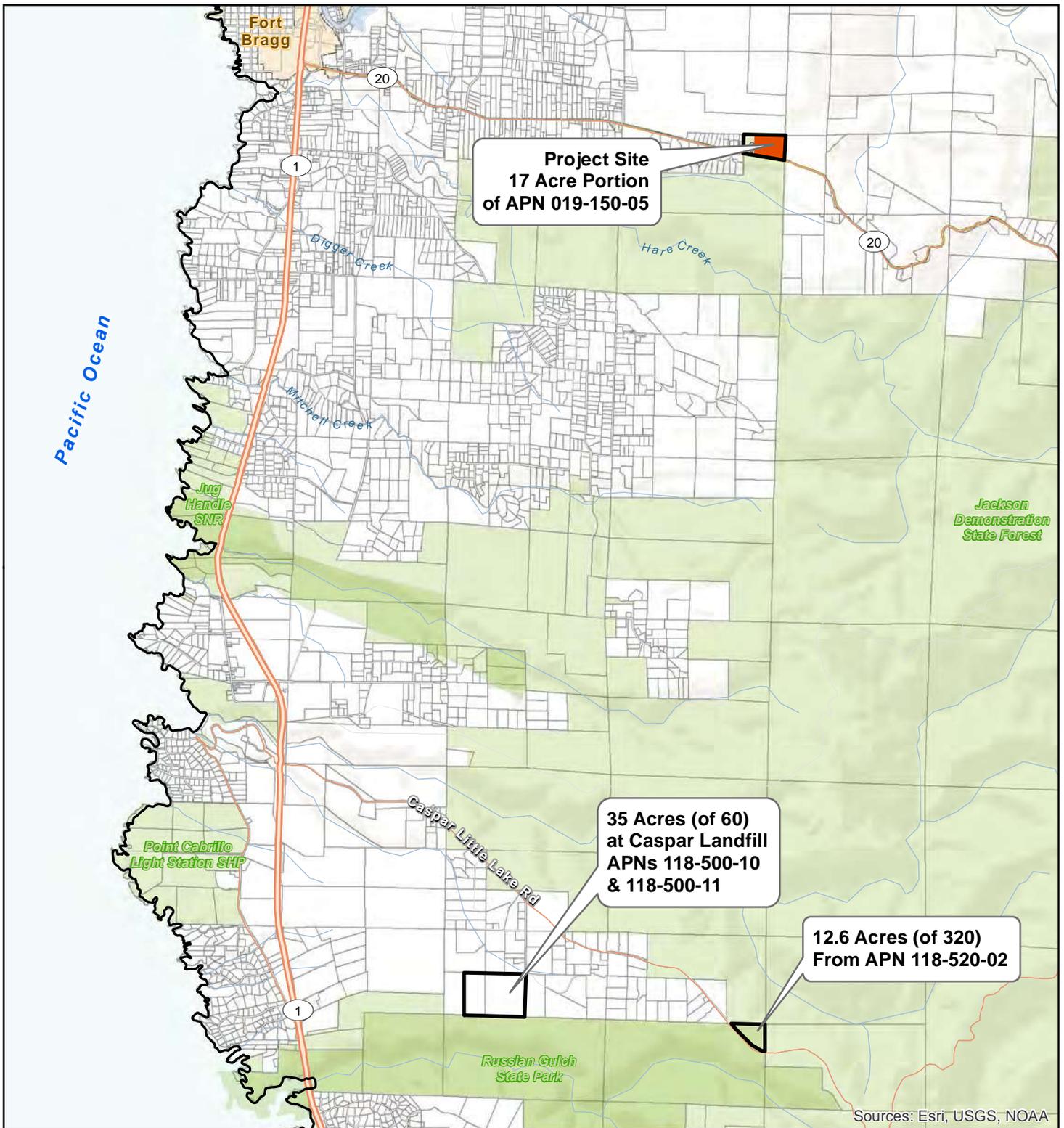
Mendocino Solid Waste Management Authority
Central Coast Transfer Station EIR

Job Number | 8411065
Revision | A
Date | 20 Jan 2015

Site Plan

Figure 2-2

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Sources: Esri, USGS, NOAA

- Project Site
- Land Exchange Parcels
- City Limits
- Parks/Open Space
- Major Highways
- Highways
- Major Roads
- Rivers/Streams

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 Horizontal Datum: North American 1983
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



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 Date 03 Nov 2014

Project Land Exchange Parcels

Figure 2-3

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3.0 Environmental Setting, Impacts and Mitigation Measures

Scope of Analysis

This Draft EIR analyzes the potential effects of the proposed project on the environment under the applicable environmental resource topics listed in the CEQA Initial Study Checklist.

Each environmental resource area potentially impacted by the project is addressed in the following sections numbered as follows:

- 3.1 Aesthetics
- 3.2 Agriculture and Forest Resources
- 3.3 Air Quality and Odor
- 3.4 Biological Resources
- 3.5 Cultural Resources
- 3.6 Geology, Soils and Seismicity
- 3.7 Greenhouse Gas Emissions and Energy
- 3.8 Hazards and Hazardous Materials
- 3.9 Hydrology and Water Quality
- 3.10 Land Use and Planning
- 3.11 Noise
- 3.12 Transportation

Section 1.5 identifies the resource categories found not to be significant and thus are not included for further discussion and analysis in this Draft EIR (Population and Housing, Public Services and Utilities, and Recreation).

Each section of Chapter 3 contains the following elements:

Existing Setting. This subsection presents a description of the existing physical environmental conditions in the project area with respect to each resource area at an appropriate level of detail to understand the impact analysis. It describes existing conditions and provides a baseline by which to compare the potential impacts of the proposed project.

Regulatory Framework. This subsection provides a brief discussion of federal, State, and local regulations and policies that are relevant to the resource.

Significance Thresholds. This subsection provides the significance thresholds for evaluation of environmental impacts. The significance thresholds are based on State CEQA Guidelines Appendix G.

Methodology. The methodology subsection discusses the approach to the analysis.

Impacts and Mitigation Measures. This subsection evaluates the potential for the project to significantly affect the physical environment described in the setting. Potential impacts are identified

and characterized, and where feasible, mitigation measures are identified to avoid or reduce significant impacts to a less-than-significant level.

Cumulative Impacts and Mitigation Measures. Cumulative impacts are discussed in each environmental resource section following the description of the project-level impacts and mitigation measures. The cumulative impact analysis is based on the same setting, regulatory framework, and significance thresholds presented in each resource topic section. Additional mitigation measures are identified if the analysis determines that the project's contribution to an adverse cumulative impact would be cumulatively considerable and, therefore, significant.

Significance Determinations

The significance thresholds for each environmental resource topic are presented in each section of Chapter 3. For the impact analyses, the following categories are used to identify impact significance:

No Impact. This determination is made if a resource is absent or if a resource exists within the project area, but there is no potential that the project could affect the resource.

Less-than-Significant Impact. This determination applies if there is a potential for some limited impact on a resource, but the impact is not significant under the significance threshold.

Less-than-Significant Impact after Mitigation Incorporated. This determination applies if there is the potential for a substantial adverse effect in accordance with the significance threshold, but mitigation is available to reduce the impact to a less-than-significant level.

Significant and Unavoidable Impact. This determination applies to impacts that are significant, and mitigation has been incorporated, but the mitigation does not reduce the impact to less-than-significant and there appears to be no additional feasible mitigation available to reduce the impact to a less-than-significant level.

Environmental impacts are numbered throughout this EIR, using the section number followed by sequentially numbered impacts. Mitigation measures are numbered to correspond to the impact numbers; for example, Mitigation Measure 3.1-1 would address Aesthetics Impact 3.1-1. Where more than one mitigation measure is included to mitigate one impact the sequence of "a", "b," etc. is added (for example: Mitigation Measure 3.1-1a and Mitigation Measure 3.1-1b both apply to Impact 3.1-1).

Cumulative Impacts

Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

The cumulative impact analysis for each environmental resource topic is described in the appropriate subsections of this Chapter, following the description of direct project impacts and identified mitigation measures.

Approach to Cumulative Impact Analysis

Two approaches to the definition of the cumulative project scenario are discussed in CEQA Guidelines Section 15130(b). The first approach is a list of past, present, and probable future projects producing related or cumulative impacts. The second approach is a summary of projections contained in an adopted local, regional or statewide plan, such as a general plan or related planning

document, or in an adopted or certified environmental document, which describes or evaluates conditions contributing to cumulative effects.

For this EIR, the cumulative project scenario has been evaluated using the list approach. Table 3.0-1 lists relevant projects used in the cumulative impacts analysis for each environmental resource topic.

List of Relevant Projects

Table 3.0-1 (Projects Considered for Cumulative Impacts) provides a list of the past, present, and reasonably foreseeable future projects within and near the project area, including a brief description of the projects and their anticipated construction schedules (if known). Single family homes and other similar scale uses were not included because of their negligible cumulative effects.

Table 3.0-1 Projects Considered for Cumulative Impacts

| Project Name | Project Description | Estimated Construction Schedule | Project Location |
|--------------------------|---|--|---|
| Mill Site | Rezone to allow 520 residential units, 450 hotel rooms, 700,000 square feet of commercial/industrial development, and open space (315 total acres). | Specific Plan is incomplete, EIR needs to be prepared. | West side of the City of Fort Bragg. 90 West Redwood Avenue. Approximately 3.6 miles (air) northwest of project site. |
| Fort Bragg Coastal Trail | The project includes a 4.5 mile multiuse trail and 82 acre park, two parking lots, and three restrooms. | Construction underway, to be completed in 2015. | Coast within City of Fort Bragg. Noyo Point Road to Elm Street. Approximately 3.2 miles (air) west of project site. |
| Hare Creek Shopping Mall | Development of a 29,500 square foot retail shopping center. | Planning application submitted and under review. | Corner of SR 1 and SR 20 in Fort Bragg. Approximately 2.9 miles west of project site. |
| Avalon Hotel | Development of 20-40 hotel rooms. | Planning application under review. | SR 1 and Airport Road in Fort Bragg. Approximately 4.3 miles (air) northwest of project site. |

Source: City of Fort Bragg and Mendocino County. 2014

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3.1 Aesthetics

This section evaluates the potential impacts related to aesthetics and visual resources during construction and operation of the project. To provide the basis for this evaluation, the Setting section describes the existing scenic resources and visual character for the project area and the Regulatory Framework section describes the regulatory background that applies to the project.

3.1.1 Setting

The descriptions of existing conditions are accompanied by photographs of representative views taken during a site visit on May 7, 2014. The locations and viewpoints of each image are shown in Figure 3.1-1.

Visual Character of the Project Site

The project site consists of approximately 17 acres of relatively flat, coniferous forest, with dense underbrush. (see Images 1 through 4). The site has no built structures or roadways. SR 20 is adjacent to and directly south of the project site and the CalFire helipad is adjacent to and directly west of the project site.

Visual Character of the Surrounding Area

The dominant visual character in the immediate project area consists of forest land to the north, east, and south, and low density single family residential to the west. Between the single family homes and the project site is the CalFire emergency helipad. SR 20 provides access to the project site and runs in a predominantly east-west direction connecting the communities of Fort Bragg to the west and Willits to the east. SR 20 has one lane in each direction in the project vicinity with a minimal shoulder. Utility lines run along the south side of SR 20 in the project area.

The views for both eastbound and westbound travellers on SR 20 as they approach the project site include coniferous forest on both sides of the highway with utility lines along the south side of the highway (similar to Images 2 and 4).

3.1.2 Regulatory Framework

Federal

There are no federal regulations that apply to the proposed project related to visual resources in Mendocino County.

State

California Scenic Highway Program

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program to preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways. According to the California Scenic Highway Program website, no State-designated scenic highways are located in the project vicinity (Caltrans 201). SR 20 is an Eligible State Scenic Highway though not officially designated.

Site Photographs



Image 1: Looking east at the project site from the west side of the helipad.



Image 2: Looking northeast at the project site from the south side of SR 20 across from the helipad entrance.



Image 3: Looking north at the approximate location of the project entry from the south side of SR 20.



Image 4: Looking northwest at the project site from the southeast corner of the project on the south side of SR 20.

Regional and Local**County of Mendocino General Plan Goals and Policies**

The following are the goals and policies from the *Mendocino County General Plan* that are applicable to the project.

Goal RM-14 (Visual Character): Protection of the visual quality of the County's natural and rural landscapes, scenic resources, and areas of significant natural beauty.

Goal RM-15 (Dark Sky): Protection of the qualities of the County's night-time sky and reduced energy use.

Policy RM-80: Vegetation removal should be reviewed when involving five (5) or more acres, assessing the following impacts:

- Grading and landform modifications including effects on site stability, soil erosion and hydrology.
- Effects on the natural vegetative cover and ecology in the project area.
- Degradation to sensitive resources, habitat and fisheries resources.
- Compatibility with surrounding uses.
- Visual impacts from public vantage points.

Policy RM-126: New development should incorporate open space and resource conservation measures, coordinated with the surrounding area.

Policy RM-128: Protect the scenic values of the County's natural and rural landscapes, scenic resources, and areas of significant natural beauty.

Policy RM-132: Maintain and enhance scenic values through development design principles and guidelines, including the following:

- Development scale and design should be subordinate to and compatible with the setting.
- Reduce the visual impacts of improvements and infrastructure.
- Minimize disturbance to natural features and vegetation, but allow selective clearing to maintain or reveal significant views.

Policy RM-134: The County shall seek to protect the qualities of the night-time sky and reduce energy use by requiring that outdoor night-time lighting is directed downward, kept within property boundaries, and reduced both in intensity and direction to the level necessary for safety and convenience.

3.1.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to aesthetic resources, as defined by the CEQA Guidelines (Appendix G), if it would:

- Have a substantial adverse effect on a scenic vista;
 - Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
 - Substantially degrade the existing visual character or quality of the site and its surroundings;
- or

- Create a new source of substantial light or glare which would adversely affect day or night-time views in the area.

Areas of No Project Impact

As explained below, construction and operation of the project would not result in impacts related to one of the significance criteria identified in Appendix G of the current CEQA Guidelines as mentioned above. The following significance criterion is not discussed further in the impact analysis, for the following reasons:

- **Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a State scenic highway.** There are no officially designated state scenic highways within Mendocino County (Caltrans 2011). SR 20 within Mendocino County is eligible, but not officially designated. Therefore, the significance criterion related to substantially damaging scenic resources within a State scenic highway is not applicable to the proposed project.

3.1.4 Methodology

The visual impact analysis below evaluates the physical changes that would occur at the project site using the CEQA Guidelines significance thresholds described above. The potential for changes to views from visually sensitive land uses also is evaluated. The visual impacts are compared against the thresholds of significance discussed above.

The projects impacts from light and glare is measured for consistency with the Mendocino County General Plan Goal RM-15 and Policy RM-134.

There would be no physical changes to the Caspar self-haul transfer station except removal of some small structures, which could be considered a beneficial aesthetic impact to the site. Therefore, the Caspar site is not considered further in this analysis. Likewise, the transfer of 12.6 acres from Russian Gulch State Park to JDSF involves no physical changes and therefore no aesthetic impacts.

3.1.5 Impacts and Mitigation Measures

Impact AES-1: Substantial Adverse Effect on Scenic Vistas.

A scenic vista is generally defined (dictionary) as a view that has remarkable scenery or a broad or outstanding view of the natural landscape. These conditions do not exist at the project site or in the surrounding area. The site does have scenic qualities; however, they are not remarkable or outstanding. The project site and surrounding area includes forest land consisting of a variety of species, including pygmy forest; however, the proposed project would be situated within the central portion of the site, behind a screen provided by existing tall trees and undergrowth, as shown in Images 2 and 3, which would remain, so that views of the buildings and ancillary facilities would be shielded from off-site view. Consistent with Policies RM-126, RM-128, and RM-132, site construction would leave much of the surrounding natural vegetation, approximately 12 acres, as undisturbed open space on all sides with the exception of the entry point on SR 20. The visual impact to residences to the west is expected to be minimal because of the intervening trees, vegetation, and helipad that would shield views of the project site. The helipad was created with fill which has increased its elevation to approximately 433 feet (above sea level), thus creating a visual barrier between the neighboring properties and the project site which are at an elevation of approximately 397 feet. The distance from the center of the helipad and closest property line to the

west is approximately 250 feet. Therefore, development of the project site would not have a substantial adverse effect on a scenic vista. The impact to scenic vistas would be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: **Less than significant.**

Impact AES-2: Substantially Degrade Existing Visual Character of Site and Surroundings.

The project site is surrounded by forest land to the north, east and south, and a helipad and single family residences to the west. The conversion of this site to a transfer station facility would alter the site's visual character by introducing buildings, paved areas, fencing, and automobile and truck traffic when in operation. However, as noted above under Impact AES-1, the proposed project facilities would be situated within the central portion of the site, behind a screen provided by existing vegetation, so that views of the buildings and ancillary facilities would be shielded by trees, vegetation, and topography, from off-site views.

The proposed transfer station building would have a peak height of approximately 50 feet, while other buildings on the site would generally be one story with typical heights of 20 feet or less. The main transfer station building would be approximately 275 feet from the edge of pavement on SR 20, and approximately 600 feet east of the nearest residential home to the west (Figure 2-2). Although travelers along SR 20 would have views of the facilities at the entryway, they would be fleeting and minimized by the existing trees which would be maintained as part of the project. Therefore, because of the distance of the main transfer station building from SR 20 and residences to the west, and the height of the existing trees and vegetation, as well as topography, views of the transfer station building and ancillary facilities would be minimal to non-existent in most instances. The impact to the visual character of the site and surroundings would not be substantial and therefore would be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: **Less than significant.**

Impact AES-3: Impacts from Nighttime Lighting and Glare.

Under current conditions, the proposed project site does not generate any light or glare. Although the proposed transfer station would normally operate only during daylight hours, there would be outdoor lighting available for buildings, parking areas and other facilities in case unusual or emergency circumstances caused nighttime operation. The facilities are not expected to produce any perceived glare because operations would normally occur only in daylight hours and any exterior lighting would be shielded and downcast. Light poles would not be taller than necessary to provide appropriate lighting for security and safety. As noted previously, because of the distance of the transfer station building from SR 20 and residences to the west, and the density of the existing trees and vegetation, the facility's lighting would not be expected to adversely affect adjacent land uses. Additionally, because facility lighting would be focused downward and not up into the sky, the project will be consistent with the County's "dark sky" goal and policy (Goal RM-15 and Policy RM-134) of seeking to protect the qualities of the nighttime sky by requiring that outdoor nighttime lighting is directed downward and kept within property boundaries. The impact from nighttime lighting and glare would be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

3.1.6 Cumulative Impacts

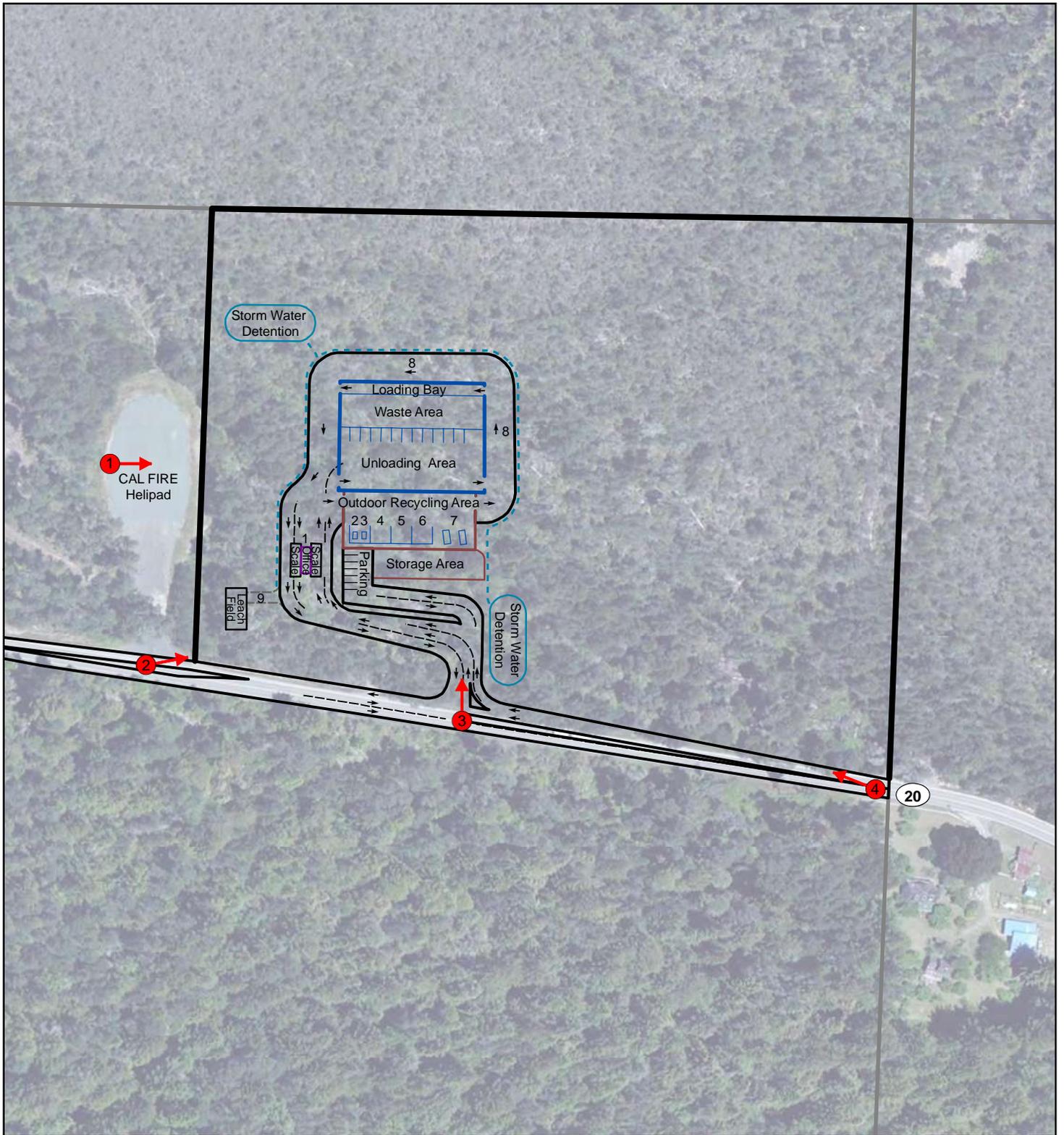
Impact AES-C-1: Result in Cumulatively Considerable Contribution to a Cumulative Impact Related to Aesthetic Resources.

The impacts to scenic vistas, visual character, and light/glare are not cumulatively considerable, because there are no cumulative projects located in the same viewshed as the project site. As shown in Table 3.0-1, the cumulative projects are all more than 2.9 miles from the project site. Additionally, impacts to a scenic vista or visual character would be dependent upon project- and site-specific variables, including proximity to visually sensitive receptors, the visual sensitivity of the respective development sites, and the operational characteristics of each development site. The potential impacts of other projects on a scenic vista or visual character of a development site and its surroundings would be evaluated on a project-by-project basis. It is assumed that cumulative development would progress in accordance with the Zoning/Development Code of the respective jurisdictions. Each project would be analyzed in order to ensure the construction-related Zoning/Development Code restrictions are consistently upheld. Cumulative impacts to a scenic vista or visual character would not be cumulatively considerable.

Mitigation Measures: No mitigation is necessary.

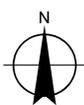
Level of Significance: Less than significant.

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|-----------------------------|-----------------------------------|----------------------------|
| 1. Office and restroom | 6. Electronics recycling bay | ➡ Image Viewpoint Location |
| 2. Antifreeze drop-off tank | 7. Mixed recyclables boxes | |
| 3. Used oil drop-off tank | 8. Transfer trailer parking | |
| 4. Metal recycling bay | 9. Unpaved driveway to leachfield | |
| 5. Appliance recycling bay | | |

Paper Size ANSI A
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 Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
 Grid: NAD 1983 StatePlane California II FIPS 0402 Feet



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Viewpoint Locations

Figure 3.1-1

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3.2 Agriculture and Forest Resources

This section evaluates the potential impacts related to agriculture and forest resources with implementation of the project. The Setting section describes the existing environmental setting as it relates to agricultural and forest resources. The Regulatory Framework section describes the applicable regulations at the federal, state and local level. The Impacts and Mitigation Measures section establishes the thresholds of significance, evaluates potential impacts to agriculture and forest resources, and identifies the significance of impacts. Where appropriate, mitigation is presented to reduce impacts to less-than-significant levels.

3.2.1 Setting

Agriculture Resources

The project site and the Caspar site are not in agricultural production nor are they under Williamson Act contract. According to the California Department of Conservation's (DOC's) Farmland Mapping and Monitoring Program (FMMP), the project site is located within an area designated as "Grazing Land" (DOC 2010). Grazing Land is defined as land on which the existing vegetation is suited to the grazing of livestock.

Forest Resources

Historically, Mendocino County was one of California's leading counties in timber production. However, harvest volumes in the County have been decreasing since the mid-1950s, reflecting the conversion of old-growth forests to younger stands of timber and reliance on smaller trees (PMC 2009).

Timber represents the second highest value commodity in the County, with a gross "at mill" value of \$71,587,951 in 2012. Mendocino County ranked 4th in the state in timber volumes and produced roughly nine percent of the state's total timber harvest in 2012. Timber values increased 21 percent from 2011 to 2012 (Mendocino County 2012).

The project site is currently part of the Jackson Demonstration State Forest (JDSF) and is managed by the California Department of Forestry and Fire Protection (CalFire). The site is in a relatively undisturbed extensive closed-cone coniferous forest and consists of Bishop pine (*Pinus muricata*), pygmy cypress (*Hesperocyparis pygmaea*), and lesser amounts of Bolander's pine (*Pinus contorta* ssp. *bolanderi*).

On March 8, 2010, Forester Jere Melo conducted a forest inventory (see Appendix J) on the 17-acre portion of APN 019-150-05 (Melo 2010) that consists of the project site. Melo concluded that the project site has approximately 419 trees and calculated the "thousands of board feet" (MBF) as 66 net MBF with 20 percent having defects. Net MBF estimates net board feet after allowance for defects such as fire scars, rot, broken pieces, etc. Gross MBF was calculated at 82 MBF. The number of trees includes trees 12 inches or larger in diameter, as measured at 4.5 feet above ground level.

Melo described the tree cover as being composed of primarily Bishop pine and cypress. Under the trees is a dense cover of brush from two to eight feet tall, and composed of huckleberry (*P. muricata-Vaccinium ovatum* Association), salal (*Gaultheria shallon*), rhododendron (*Rhododendron macrophyllum*), and manzanita (*Arctostaphylos columbiana*).

The Mendocino County General Plan land use designation for the project site is Public Land. The site is zoned Timber Production and is in a Timberland Production Zone (TPZ) which allows public

service facilities. According to the JDSF Management Plan the project site is designated Site Class IV, the lowest quality timberland. JDSF does not consider the project site as valuable for timber production. JDSF converted the land immediately to the west into a helipad, and considered the project site itself as a possible site to relocate the JDSF headquarters office (email correspondence, CalFire 2014). The land surrounding the project site to the north, east and south consists of timber production and recreational uses. Land to the west is residential.

3.2.2 Regulatory Framework

Federal

There are no federal regulations associated with agriculture and forest resources that are applicable to the proposed project or project site.

State

Forest Land

Forest land is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits (Public Resources Code Section 12220(g)).

California Timberland Productivity Act of 1982

Under the Timberland Productivity Act, "timberland" means privately owned land, or land acquired for state forest purposes, which is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, and which is capable of growing an average annual volume of wood fiber of at least 15 cubic feet per acre.

"Timberland production zone" or "TPZ" means an area that has been zoned pursuant to Government Code section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. With respect to the general plans of cities and counties, "timberland preserve zone" means "timberland production zone."

Z'berg-Nejedly Forest Practice Act of 1973

Under the Forest Practice Act, "timberland" means land, other than land owned by the federal government or land designated as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis after consultation with the district committees and others. Commercial species are determined by the Board of Forestry on a district basis after consultation with the district committees and others.

The timberland conversion process is initiated by "any person, firm, corporation, company, partnership or government agency owning timberland for which the timberland owner proposes conversion..." The timberland owner must apply to the Director of CalFire on a form prescribed for the issuance of a Timberland Conversion Permit (TCP). No timber operations or other conversion activities may commence until a conversion permit and a Timber Harvest Plan (THP) are approved and issued to the landowner.

Jackson Demonstration State Forest

Jackson Demonstration State Forest is the largest of CalFire's eight demonstration state forests at 48,652 acres. A Demonstration Forest is timberland that is managed for forestry education, research, and recreation. It demonstrates innovations in forest management, watershed protection and restoration, and environmentally sensitive timber harvesting techniques. Demonstration Forest timberlands are publicly owned by the State of California, managed by CalFire, and open to the public.

Regional and Local

Mendocino County General Plan Goals and Policies

Following are Mendocino County General Plan goals and policies most applicable to agricultural and forest resources.

Goal RM-11(Forestry): To protect and enhance the County's diverse forest resources for all uses including timber harvest.

Policy RM-24: Protect the County's natural landscapes by restricting conversion and fragmentation of timberlands, oak woodlands, stream corridors, farmlands, and other natural environments.

Policy RM-111: The County considers timber growing and harvesting to be the highest and best use of lands zoned Timberland Production.

Policy RM-113: Protect the County's timber resources by discouraging the conversion or fragmentation of lands zoned "TPZ" to housing or some other use that permanently precludes its use for timber production, or timber growing.

Policy RM-122: Prohibit rezoning and development of prime timberland (Site Classes I, II and III) classified for resource uses, including proposed resort uses, unless:

- The project is determined to be in the public interest, and
- State timber conversion permits are approved, and
- The project is consistent with land use, resource management, and other applicable General Plan goals and policies.
- Managing the property for timber production is no longer sustainable.

Policy RM-123: Discretionary projects and parcels created by new land divisions shall be designed and sized to be compatible with contiguous lands zoned Forestlands or Timberland Production.

Policy RM-125: The following guidelines shall apply to all projects (including land divisions) contiguous to lands designated as Forest Lands on the Land Use Map of this General Plan:

- The number of ownerships and land use intensities on adjacent parcels shall be minimized.
- Building envelopes, clustered development, and commercial, industrial, civic, and sensitive uses on non-resource lands shall be designed with buffers or setbacks. Buffers shall generally be defined as a physical separation of 200 feet with the potential for a reduced separation when a topographic feature,

substantial tree-stand, landscaped berm, watercourse or similar existing or constructed feature is provided and maintained.

- Projects shall be designed to reduce growth-inducing impacts and maintain a stable limit to urban development.
- Potential conflicts related to noise, dust, chemicals, spraying, burning, vandalism and trespass, and other issues associated with forest management or timber operations shall be mitigated by the new discretionary project.

3.2.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to agricultural and forest resources, as defined by the CEQA Guidelines (Appendix G), if it would:

- Convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

Areas of No Project Impact

Construction and operation of the project would not result in impacts related to some of the significance criteria identified in Appendix G of the current CEQA Guidelines. The following significance criteria are not discussed further in the impact analysis, for the following reasons:

- **Convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use.** The proposed project site and Caspar site are not located on prime farmland, unique farmland, or farmland of statewide importance (DOC 2010). The proposed project site and Caspar site are both located within forest land. Therefore, the significance criterion related to converting Important Farmland pursuant to the FMMP is not applicable to the proposed project and is not discussed further.
- **Conflict with existing zoning for agricultural use or a Williamson Act contract.** The proposed project site and Caspar site are not located on land zoned for agricultural use (Mendocino County 1991) or under Williamson Act contract (Mendocino County Assessor's Office 2011). Therefore, the significance criterion related to conflicting with existing zoning for agricultural use or a Williamson Act contract is not applicable to the proposed project and is not discussed further.

3.2.4 Methodology

Potential impacts related to agricultural and forest resources are based on an examination of the proposed project's consistency with the policies of Mendocino County's General Plan, land use and zoning, and the conversion of agricultural or forest land to non-agricultural or non-forest use. The loss of pygmy cypress (*Hesperocyparis pygmaea*) and Bishop pine (*Pinus muricata*) forest are discussed under Biological Resources (Section 3.4).

3.2.5 Impacts and Mitigation Measures

Impact AG-1: Conflict with Existing Zoning, or Cause Rezoning of, Forest Land, Timberland, or Timberland Zoned Timberland Production, or Result in Conversion of Forest Land to Non-Forest Use.

The project site is zoned Timberland Production and the Caspar site is zoned PF-PD (Public Facilities) [Mendocino County Zoning Code Section 20.068.010(B)]. Permitted uses in the Timberland Production Zone include civic uses that provide essential services. The project provides the essential civil service of waste management. In addition, project design would be consistent with the setbacks and building limits identified for this zoning district. Therefore, the project would not conflict with the existing zoning.

On April 7, 2010, the State of California Board of Forestry and Fire Protection approved a resolution, which states that "the Board of Forestry and Fire Protection supports the efforts of the Department of Forestry and Fire Protection to facilitate the transfer of not more than 17 acres of JDSF land (a portion of Assessor's Parcel Number 019-15-005) to the MSWMA for the transfer station and to receive approximately 12.7 acres of forest land from California Department of Parks and Recreation..." The resolution further stated that transfer of the JDSF land would not result in any significant adverse programmatic impacts to the mission and management of JDSF. The JDSF is 48,652 acres of which 17 acres would be transferred to the Caspar JPA for the transfer station. This would equate to 0.00035 percent of the total JDSF site.

AB 384 would transfer ownership of the 17-acre JDSF site (project site) to the County/City in exchange for either ownership of 35 acres at the Caspar Landfill site or control over its future uses. The 60-acre Caspar site (Figure 2-3), including the footprint of the closed landfill, would be the subject of a conservation easement granted to the DPR. DPR would have the option of taking ownership of the 35 westernmost acres of the site (Figure 2-3). This land swap would not result in the conversion of forest land to non-forest use.

The project would convert approximately 4.72 acres of forest land to non-forest use. The site has been designed to be as compact as feasible to reduce forest resource impacts to the maximum extent possible; however, there would still be a need to remove forest land and vegetation to accommodate the facilities. In the context of the 48,652-acre JDSF and the 33 million acres of forest land in California, the 4.72 acres of forest land that would be converted with implementation of the project is small and would be a less-than-significant impact on forest land.

Mendocino County General Plan Policy RM-122 prohibits development of prime timberland (Site Classes I, II and III) classified for resource uses, unless: (1) the project is determined to be in the public interest; (2) State timber conversion permits are approved; (3) the project is consistent with land use, resource management, and other applicable General Plan goals and policies; and managing the property for timber production is no longer sustainable. The proposed project is consistent with this policy in that the project site is designated Site Class IV timberland (not prime timberland, low timberland production), is in the public interest, the project would be issued a TCP

and prepare a Timber Harvest Plan, the proposed project is consistent with General Plan Policy RM-122.

Policy RM-111 considers timber growing and harvesting to be the highest and best use of lands zoned Timberland Production. Policy RM-113 protects the County's timber resources by discouraging the conversion or fragmentation of lands zoned "TPZ" to some other use. The project site, however, is designated Site Class IV which is not prime timberland, and is low timberland production.

Policy RM-123 calls for discretionary projects to be designed and sized to be compatible with contiguous lands zoned Forestlands or Timberland Production and Policy RM-125 includes design guidelines for projects contiguous to lands designated as forest lands. Consistent with these policies, the project has been designed to minimize visual effects by placement of the main transfer station building approximately 275 feet from the edge of pavement on SR 20, and approximately 600 feet east of the nearest residential home to the west. The main transfer station building would be approximately 30,000 square feet and enclosed, which would reduce or prevent off-site noise, odors, and dust. In addition, the design would be compatible with installation of control measures such as negative-pressure ventilation with biofiltered exhaust, automated roll-up doors, and/or doorway air curtains.

Mitigation Measures: No mitigation is necessary.

Level of Significance: **Less than significant.**

3.2.6 Cumulative Impacts

Impact AG-C-1: Result in Cumulatively Considerable Contribution to a Significant Cumulative Impact Related to Forest Resources.

The proposed project would result in the permanent loss of approximately 4.72 acres of forest land of the 17-acre project site. The loss and conversion of approximately 4.72 acres of forest land compared to the annual production of timber in Mendocino County, approximately 121,850,000 board feet (Mendocino County 2012), is not considered to be a considerable contribution to the cumulative impact on forest and timber resources.

Mitigation Measures: No mitigation is necessary.

Level of Significance: **Less than significant.**

3.3 Air Quality and Odor

This section includes a summary of applicable regulations, existing air quality and odor conditions and an analysis of potential impacts related to air quality and odor during construction and operation of the project. The impacts and mitigation measures section establishes the thresholds of significance, evaluates potential air quality and odor impacts, and identifies the significance of impacts. Where appropriate, mitigation is presented to reduce impacts to less-than-significant levels.

3.3.1 Setting

The proposed project would be located in Mendocino County in the North Coast Air Basin. The county covers 3,510 square miles and is bounded on the west by the Pacific Ocean and on the east by mountains that separate the North Coast and Sacramento River Air Basins. The county's east-west width varies from 35 to 60 miles, and its north-south length is approximately 80 miles. Within 20 miles of the ocean, the county landscape rises to 3,000 feet in a series of ridges parallel to the coast and separated by narrow valleys. The alluvial valleys that run parallel to the coast and mountain ranges are 1,000 to 1,500 feet above sea level in the central part of the county; and drop to 500 feet above sea level at the points where the Eel and Russian Rivers leave the County. The project site is located about 3 miles east of Fort Bragg.

The climate of Fort Bragg is maritime, with high humidity throughout the year. There are distinct wet and dry seasons. The rainy season lasts from October through April, accounting for about 90 percent of annual precipitation. The dry season, lasting from May through September, is characterized by regular intrusions of low clouds and fog that usually clear by late morning. Early afternoon generally is mostly sunny with low clouds moving in by evening. Temperatures are moderate, and the annual range is one of the smallest in the lower 48 states. During a typical year, the low temperatures are in the mid-30s (degrees Fahrenheit) and the high temperatures reach the mid-70s. The reason for the small temperature range is the proximity to the Pacific Ocean. The prevailing northwest wind blows across the cold, upwelling water that is almost always present along the Mendocino County coast.

Wind data for Fort Bragg are reported in the California Surface Wind Climatology (CARB 1984). The predominant wind flow is from the northwest. A secondary predominant flow is from the southeast, occurring primarily in fall and winter. The mean wind speed is 7.6 miles per hour (mph), with spring having the highest mean wind speed out of the northwest.

Existing Air Quality – Criteria Air Pollutants

California and the federal government (i.e., U.S. Environmental Protection Agency [EPA]) have established ambient air quality standards for several different pollutants. Most standards have been set to protect public health, but standards for some pollutants have other purposes, such as to protect crops, protect materials, or avoid nuisance conditions. Table 3.3-1 summarizes state and federal ambient air quality standards.

Among the pollutants that may be generated by the proposed project, those of greatest concern are emitted by motor vehicles. These pollutants include fine particulate matter less than 2.5 microns in diameter (PM_{2.5}) and particulate matter less than 10 microns in diameter (PM₁₀). Other pollutants that are less problematic to the region include ozone precursors NOX and reactive organic gases [ROG]) and carbon monoxide. The specifics of each of these pollutants are discussed below.

Particulate Matter

Particulate matter (PM) is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particles 10 microns or less in diameter are defined as "respirable particulate matter" or "PM10." Fine particles are 2.5 microns or less in diameter (PM_{2.5}) and, while also respirable, can contribute significantly to regional haze and reduction of visibility. Inhalable particulates come from smoke, dust, aerosols, and metallic oxides. Although particulates are found naturally in the air, most particulate matter found in the vicinity of the project site is emitted either directly or indirectly by motor vehicles, industry, construction, agricultural activities, and wind erosion of disturbed areas. Most PM_{2.5} is comprised of combustion products such as smoke. Extended exposure to PM can increase the risk of chronic respiratory disease (BAAQMD 2011a). PM exposure is also associated with increased risk of premature deaths, especially in the elderly and people with pre-existing cardiopulmonary disease. In June 2002, the California Air Resources Board (CARB) adopted new ambient air quality standards for PM₁₀ and PM_{2.5}, resulting from an extensive review of the health-based scientific literature. The U.S. EPA adopted a more stringent 24-hour PM_{2.5} standard of 35 micrograms per cubic meter (µg/m³) in September 2006, replacing the older standard of 65 µg/m³ (BAAQMD 2012).

Ozone

Ground-level ozone is the principal component of smog. Ozone is not directly emitted into the atmosphere, but instead forms through a photochemical reaction of ROG and nitrogen oxides, which are known as ozone precursors. Ozone levels are highest from late spring through autumn when precursor emissions are high and meteorological conditions are warm and stagnant. Motor vehicles create the majority of ROG and NOX emissions in California. Exposure to levels of ozone above current ambient air quality standards can lead to human health effects such as lung inflammation and tissue damage and impaired lung functioning. Ozone exposure is also associated with symptoms such as coughing, chest tightness, shortness of breath, and the worsening of asthma symptoms (BAAQMD 2011). The greatest risk for harmful health effects belongs to outdoor workers, athletes, children, and others who spend greater amounts of time outdoors during periods of high ozone levels.

Carbon Monoxide

Carbon monoxide, known as CO, is a public health concern because it combines readily with hemoglobin in the bloodstream, reducing the amount of oxygen transported by blood. State and federal CO standards have been set for both 1-hour and 8-hour averaging times. The state 1-hour standard is 20 parts per million (ppm) by volume, and the federal 1-hour standard is 35 ppm. Both the state and federal standards are 9 ppm for the 8-hour averaging period. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter, when light winds combine with ground-level temperature inversions (typically between evening and early morning). These conditions result in reduced dispersion of vehicle emissions. Also, motor vehicles emit CO at higher rates when air temperatures are low.

Nitrogen Dioxide

Nitrogen dioxide (NO₂) is an essential ingredient in the formation of ground-level ozone pollution. NO₂ is one of the NOX emitted from high-temperature combustion processes, such as those occurring in trucks, cars, and power plants. Home heaters and gas stoves also produce NO₂ in indoor settings. Besides causing adverse health effects, NO₂ is responsible for the visibility reducing

reddish-brown tinge seen in smoggy air in California. NO₂ is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract. Studies suggest that NO₂ exposure can increase the risk of acute and chronic respiratory disease (BAAQMD 2011). Due to potential health effects at or near the current air quality standard, the CARB recently revised the State ambient air quality standard for NO₂. The U.S. EPA recently adopted a new 1-hour NO₂ standard of 0.10 ppm.

Sulfur Dioxide

Sulfur dioxide is a colorless gas with a strong odor. It can damage materials through acid deposition. It is produced by the combustion of sulfur-containing fuels, such as oil and coal. Refineries, chemical plants, and pulp mills are the primary industrial sources of sulfur dioxide emissions. Sulfur dioxide concentrations in the Bay Area are well below the ambient standards. Adverse health effects associated with exposure to high levels of sulfur dioxide include irritation of lung tissue, as well as increased risk of acute and chronic respiratory illness (BAAQMD 2011).

Lead

Lead occurs in the atmosphere as particulate matter. It was primarily emitted by gasoline-powered motor vehicles, although the use of lead in fuel has been virtually eliminated. As a result, levels throughout the State have dropped dramatically.

Ambient Air Quality – Monitoring Station Data and Attainment Designations

Table 3.3-2 summarizes air quality data for monitoring stations in Mendocino County. Data from 2013 are the most recent available. The data reported in Table 3.3-2 show that ambient air quality standards were not exceeded over the 2010-2013 period at this monitoring station. Carbon monoxide, nitrogen dioxide, sulphur dioxide, and lead are not measured in the county due to the lack of emission sources. These pollutants have been measured at very low levels in the past.

Attainment Status

Areas that do not violate ambient air quality standards are considered to have attained the standard. Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant, using the most recent three years of monitoring data. The North Coast Air Basin as a whole does not meet State standards for PM₁₀, as designated by CARB. The air basin is considered attainment or unclassified for all other air pollutants. Unclassified typically means the region does not have concentrations of that pollutant that exceed ambient air quality standards.

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer or serious illness) and include, but are not limited to, the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level. The identification, regulation, and monitoring of TACs is relatively new compared to that for criteria air pollutants that have established ambient air quality standards. TACs are regulated or evaluated on the basis of risk to human health rather than comparison to an ambient air quality standard or emission-based threshold.

Table 3.3-1 Relevant California and National Ambient Air Quality Standards and Attainment Status

| Pollutant | Averaging Time | California Standards | California Attainment Status | National Standards | National Attainment Status |
|---|----------------|---------------------------------------|------------------------------|---------------------------------------|-----------------------------|
| Ozone | 8-hour | 0.070 ppm (137 µg/m ³) | Attainment | 0.075 ppm (147 µg/m ³) | Unclassified/ Attainment |
| | 1-hour | 0.09 ppm (180 µg/m ³) | Attainment | None | NA |
| Carbon Monoxide | 1-hour | 20 ppm (23 mg/m ³) | Attainment | 35 ppm (40 mg/m ³) | Unclassified/ Attainment |
| | 8-hour | 9.0 ppm (10 mg/m ³) | Attainment | 9 ppm (10 mg/m ³) | |
| Nitrogen Dioxide | 1-hour | 0.18 ppm (339 µg/m ³) | Attainment | 0.100 ppm (188 µg/m ³) | Unclassified/ Attainment |
| | Annual | 0.030 ppm (57 µg/m ³) | Status not reported | 0.053 ppm (100 µg/m ³) | |
| Sulfur Dioxide | 1-hour | 0.25 ppm (655 µg/m ³) | Attainment | 0.075 ppm (196 µg/m ³) | Unclassified |
| | 24-hour | 0.04 ppm (105 µg/m ³) | Attainment | 0.14 ppm (365 µg/m ³) | |
| | Annual | None | NA | 0.03 ppm (56 µg/m ³) | |
| Respirable Particulate Matter (PM ₁₀) | 24-hour | 50 µg/m ³ | Nonattainment | 150 µg/m ³ | Unclassified |
| | Annual | 20 µg/m ³ | Nonattainment | None | |
| Fine Particulate Matter (PM _{2.5}) | 24-hour | None | NA | 35 µg/m ³ | Unclassified/ Attainment |
| | Annual | 12 µg/m ³ | Attainment | 12 µg/m ³ | |

Source: CARB (2014a and 2014b)

Notes:

ppm = parts per million

mg/m³ = milligrams per cubic meterµg/m³ = micrograms per cubic meter

Table 3.3-2 Highest Measured Air Pollutant Concentrations in Mendocino County

| Pollutant | Average Time | Measured Concentration | | |
|---|--------------|------------------------|----------------------|----------------------|
| | | 2011 | 2012 | 2013 |
| Ozone Ukiah | 8-Hour | 0.047 ppm | 0.061 ppm | 0.049 ppm |
| | 1-Hour | 0.066 ppm | 0.066 ppm | 0.059 ppm |
| Respirable Particulate Matter (PM ₁₀) Fort Bragg | 24-Hour | 35 µg/m ³ | 40 µg/m ³ | 47 µg/m ³ |
| | Annual | 16 µg/m ³ | 13 µg/m ³ | 14 µg/m ³ |
| Fine Particulate Matter (PM _{2.5}) Willits | 24-Hour | 26 µg/m ³ | 24 µg/m ³ | 26 µg/m ³ |
| | Annual | 10 µg/m ³ | 7 µg/m ³ | NA |

Source: CARB 2014c

Diesel exhaust is the predominant TAC in urban air with the potential to cause cancer. It is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). According to the CARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the federal Hazardous Air Pollutants programs. California has adopted a comprehensive diesel risk reduction program. The U.S. EPA and the CARB adopted low-sulfur diesel fuel standards in 2006 that reduce diesel particulate matter substantially. The CARB recently adopted new regulations requiring the retrofit and/or replacement of construction equipment, on-highway diesel trucks, and diesel buses in order to lower PM_{2.5} emissions and reduce statewide cancer risk from diesel exhaust.

Sensitive Receptors

Sensitive receptors are people who are particularly susceptible to the adverse effects of air pollution. The CARB has identified the following people who are most likely to be affected by air pollution: children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases. Residential areas are also considered sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. The closest sensitive receptors include single-family residences 500 feet west or further and 1,000 feet east-southeast from the active parts of the facility.

3.3.2 Regulatory Framework

Federal

The federal Clean Air Act of 1977 (CAA) governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act. At the federal level, the U.S. EPA administers the Clean Air Act. The California Clean Air Act is administered by the CARB and by the Air Quality Management Districts at the regional and local levels.

The U.S. EPA is responsible for enforcing the federal CAA. The U.S. EPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS). The NAAQS are required under the CAA and subsequent amendments. The U.S. EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships and certain types of locomotives. The U.S. EPA has jurisdiction over emission sources outside State waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by the CARB.

State

In California, the CARB, which is part of the California Environmental Protection Agency, is responsible for meeting the State requirements of the federal Clean Air Act, administering the California Clean Air Act, and establishing the California Ambient Air Quality Standards (CAAQS). The California Clean Air Act, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the CAAQS. The CARB regulates mobile air pollution sources, such as motor vehicles. It is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. The CARB

established passenger vehicle fuel specifications, which became effective in March 1996. It oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level.

Regional and Local

Mendocino County Air Quality Management District

The Mendocino County Air Quality Management District (MCAQMD) is one of 35 local air districts in California. The mission of the MCAQMD is to protect and manage air quality. The MCAQMD has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. The MCAQMD regulates new or expanding stationary sources of toxic air contaminants. The District is managed by a five member Board of locally elected officials which currently consists of all five members of the Mendocino County Board of Supervisors.

In January 2005 the MCAQMD adopted the Particulate Matter Attainment Plan. The District is in attainment for all Federal criteria air pollutants and is also in attainment for all State standards except PM10. Districts designated non-attainment for all pollutants except PM10 are required to prepare an attainment plan. While the District is not required to prepare a PM10 attainment plan the District is required to prevent significant deterioration of local air quality and make reasonable efforts toward achieving attainment status for all pollutants. In general, 'reasonable progress' is defined as a 5% reduction in emissions per year, until the standard is attained. SB 656 requires the District to list particulate matter control measures it considers cost-effective and develop a schedule for their implementation. The Particulate Matter Attainment Plan is designed to serve as a summary of the District's current status, a long range planning tool, and a roadmap for future District policy.

Mendocino County General Plan Goals and Policies

The Mendocino County General Plan contains goals, policies, standards, and implementation programs pertinent to air quality. The following general plan policies regarding air quality are considered relevant to the proposed project:

- Policy RM-37: Public and private development shall not exceed Mendocino County Air Quality Management District emissions standards.
- Policy RM-38: The County shall work to reduce or mitigate particulate matter emissions resulting from development, including emissions from wood-burning devices.
- Policy RM-43: Reduce the effects of earth-moving, grading, clearing and construction activities on air quality.
- Policy RM-44: New development should be focused within and around community areas to reduce vehicle travel.
- Policy RM-45: Encourage the use of alternative fuels, energy sources and advanced technologies that result in fewer airborne pollutants.
- Policy RM-46: Reduce or eliminate exposure of persons, especially sensitive populations, to air toxics.
- Policy RM-47: Minimize the exposure of sensitive uses, such as residences, schools, day care, group homes or medical facilities to industrial uses, transportation facilities, or other sources of air toxics.

1.1.1 3.3.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to odor and air quality, as defined by the CEQA Guidelines (Appendix G), if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

MCAQMD recommends that agencies use the Bay Area Air Quality Management District's (BAAQMD) Air Quality CEQA Guideline thresholds adopted in 2010 for projects in Mendocino County (MCAQMD 2010). One difference is that MCAQMD recommends that the Indirect Source Rule [Regulation 1, Rule 1-130(i)(1)] definition of an "Indirect Source" be used to set emission thresholds for ROG and NOX. Significance thresholds used to evaluate air quality and odor impacts from this project are described in Table 3.3-3.

Areas of No Project Impact

Conflict with or obstruct implementation of the applicable air quality plan. As discussed previously, the MCAQMD has published the Particulate Matter Attainment Plan in 2005, representing the most current applicable air quality plan for the County. This plan is designed to meet the requirements of Senate Bill 656 (2003), which required the District to list particulate matter control measures it considers cost-effective and develop a schedule for their implementation. This document is designed to serve as a summary of the District's current status, a long range planning tool and a roadmap for future District policy. Consistency with this plan is the basis for determining whether the proposed project would conflict with or obstruct implementation of an applicable air quality plan. The plan includes measures dealing with such topics as wood burning stoves, campfires, dust from unpaved roads, construction grading activities, and open burning. The plan does not include measures or policies that would apply directly to operation of the project. As for the control measure regarding grading activities during construction, the measure never went through the rule-making process and consequently was not adopted. Construction and operation of the project would not result in impacts related to conflicts with an applicable air quality plan.

Table 3.3-3 Air Quality Significance Thresholds

| Pollutant | Construction Thresholds | Operational Thresholds | |
|---|--|---|--------------------------------------|
| | Average Daily Emissions (lbs./day) | Average Daily Emissions (lbs./day) | Annual Average Emissions (tons/year) |
| Criteria Air Pollutants | | | |
| ROG | 180 | 180 | None |
| NO _x | 42 | 42 | None |
| PM ₁₀ | 80 | 80 | None |
| PM _{2.5} | 54 | 54 | 10 |
| CO | Not Applicable | 9.0 ppm (8-hour average) or 20.0 ppm (1-hour average) | |
| Fugitive Dust | Construction Dust Ordinance or other Best Management Practices | None | |
| Health Risks and Hazards for New Sources | | | |
| Excess Cancer Risk | 10 per one million | 10 per one million | |
| Chronic or Acute Hazard Index | 1.0 | 1.0 | |
| Incremental annual average PM _{2.5} | 0.3 µg/m ³ | 0.3 µg/m ³ | |
| Health Risks and Hazards for Sensitive Receptors (Cumulative from all sources within 1,000 foot zone of influence) and Cumulative Thresholds for New Sources | | | |
| Excess Cancer Risk | 100 per one million | | |
| Chronic Hazard Index | 10.0 | | |
| Annual Average PM _{2.5} | 0.8 µg/m ³ | | |
| Odors | 5 confirmed complaints per year averaged over 3 years | | |

Sources: BAAQMD 2011; BAAQMD 2009; and MCAQMD 2003
(see http://www.co.mendocino.ca.us/aqmd/pdf_files/ISR_Policy.pdf)

1.1.2 3.3.4 Methodology

Project Emissions

The air quality impact analysis considers construction and operational impacts associated with the proposed project. Construction and operation period air pollutants were modeled using the latest version of the California Emissions Estimator Model, CalEEMod (Version 2013.2.2).

The on-site construction modeling was based on the construction equipment inventories and schedule provided for the project (included in Appendix C). Modeled construction phases include Site Preparation, Grading, Trenching, Exterior Building, Interior Building, and Paving. The mobile emissions during construction, which include haul truck trips, vendor or delivery truck trips, and worker trips, were included in the CalEEMod model. The modelling assumed that construction

would occur in 2016. The project was entered as a 30,000 square foot light-industrial use on five acres. The provided equipment list and schedule were used to model construction equipment emissions. Localized construction period impacts associated with fugitive dust are evaluated through the appropriate application of best management practices recommended by BAAQMD to reduce PM₁₀ emissions.

Project operation was assumed to produce emissions from traffic and use of off-road equipment to process material. CalEEMod was used to compute emissions from the off-road equipment that was assumed to include a large front-end loader, forklift and grapple crane. Although not quantified for this analysis, there is a small amount of diesel used at the existing Caspar facility from the intermittent use of a loader. Under the project, this loader would no longer be used as operations at the Caspar facility would cease. Implementation of the project also would reduce, by approximately half, the amount of waste handled at the Willits Transfer Station. Thus the equipment used to move and load materials there would not be used as frequently, resulting in reduced diesel usage at the Willits facility. Therefore, the modelling results presented in this analysis are conservative, looking only at the new on-site emissions from operations and not deducting emissions that would cease with the implementation of the new transfer facility.

Net traffic emissions associated with operation of the new facility, decommissioning of the Caspar facility, and discontinued use of the Willits Transfer Station by central coast, were computed using the EMFAC2011 model developed by the CARB. This included modelling of self-haul vehicles, franchise hauling trucks, and use of large trucks to transfer material to Willits. Self-haul vehicles were assumed to be a mix of light-duty trucks, medium-duty trucks, and light heavy duty trucks, consistent with the vehicle miles travelled distribution computed by EMFAC2011. Current haul trucks were assumed to consist of diesel-powered T6 heavy heavy duty trucks. New project haul trips were assumed to be made by larger T7 heavy heavy duty trucks. The franchise haul trucks were assumed to be Solid Waste Collection Trucks. Refer to Appendix C for additional detail on the assumptions and outputs.

The traffic emissions are based on the projected change in vehicle miles travelled (VMT) combined with the emissions rates computed using EMFAC2011. Changes to VMT are based on different vehicle travel characteristics for the existing scenario and the project scenario where all self-haul materials and collected solid waste are brought to the project site, then transferred to Willits in larger trucks (only mileage to Willits was calculated as miles between Willits and the destination landfill would remain the same with implementation of the project). Table 3.7-1, in Section 3.7 Greenhouse Gas Emissions and Energy, describes the distribution of VMT for existing conditions and the project conditions. The emission rates from EMFAC2011 are based on Mendocino County default annual conditions, aggregate year of 2016 and an average travel speed of 30 miles per hour.

Appendix C includes the CalEEMod model output and emissions computations that were made using EMFAC2011.

Impacts to Sensitive Receptors

A risk assessment of construction emissions was performed to assess cancer risk and PM_{2.5} exposure. Construction emissions were computed using CalEEMod, as described above. The truck and worker trip lengths were calculated as 0.3 miles to reflect on- or near-site travel.

Air quality modeling of annual average diesel particulate matter (DPM) and fugitive PM_{2.5} concentrations was conducted using the EPA's ISCST3 dispersion model in a screening mode. The ISCST3 model is a steady-state, multiple-source, dispersion model designed to calculate pollutant

concentrations from single or multiple sources. The model is recommended by BAAQMD for predicting air pollutant/contaminant concentrations associated with various emissions sources. The ISCST3 model predicts pollutant concentrations at receptors located in areas of flat or complex terrain from a variety of emission source types including point, area, volume and line sources.

The U.S. EPA ISCST3 dispersion model was used in screening mode to calculate concentrations of DPM and PM_{2.5} concentrations at existing sensitive receptors (residences) in the vicinity of the project construction area. The ISCST3 dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects. The ISCST3 modeling utilized a single area source to represent the on-site construction emissions from the project site, one for DPM exhaust emissions and the other for fugitive PM_{2.5} dust emissions. To represent the construction equipment exhaust emissions, an emission release height of six meters was used for the area source. The elevated source height reflects the height of the equipment exhaust stacks and the rise of the exhaust plume. For modeling fugitive PM_{2.5} emissions, a near ground level release height of two meters was used for modeling the area source. Emissions from vehicle travel on-site and off-site within about 1,000 feet of the construction site were distributed throughout the modeled area sources. Construction emissions were modeled as occurring daily between 8 a.m. - 5 p.m. when a majority of the construction activity involving equipment usage would occur.

The model used a synthetic screening level meteorological data set to determine the annual concentrations in the air quality assessment. Screening modeling encompasses a number of conservative analytical modeling techniques for estimating extreme upper bound concentrations. These "worst-case" estimates are based on simplified, but conservative assumptions of dispersion meteorology. The primary purpose of screening modeling is to assess new potential sources whose impacts may be low enough that they will not pose a threat to ambient air quality standards or health risks, thus avoiding the need for further analysis. The screening meteorological data set was obtained from the BAAQMD and used a matrix of daytime dispersion parameters for each five (5) degrees of wind direction. From this, the ISCST3 model calculates a 1-hour average. Using the BAAQMD and CARB persistence factors, the 1-hour average was converted to an annual average by applying the recommended factor of 0.1 (BAAQMD 2012). DPM and fugitive PM_{2.5} concentrations were calculated at nearby sensitive receptors at heights of 1.5 meters (4.9 feet) representative of the ground level exposures for the nearby residential structures.

Increased cancer risks were calculated using the modeled concentrations and BAAQMD recommended risk assessment methods for infant exposure (3rd trimester through two years of age), child exposure, and for an adult exposure (BAAQMD 2010). The cancer risk calculations were based on applying the BAAQMD recommended age sensitivity factors to the DPM exposure parameters. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Infant, child, and adult exposures were assumed to occur at all residences during the entire construction period. Appendix B also includes the cancer risk calculations.

Odors

The handling and storage of solid waste can produce odors. Odors are generally considered an annoyance rather than a health hazard. The ability to detect and respond to odors varies considerably among the population and is quite subjective. The receptors nearest the site are residences to the west and southeast. Odors are analysed qualitatively, based on the potential for the site to generate odors and wind patterns in the area.

3.3.5 Impacts and Mitigation Measures

Impact AQ-1: Violate Any Air Quality Standard or Result in Cumulatively Considerable Net Increase of Any Criteria Pollutant for which the Project Region is in Non-attainment.

By its very nature, air pollution is largely a cumulative impact, in that individual projects are rarely sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions (BAAQMD 2011). Mendocino County is considered non-attainment for PM₁₀.

Most of the construction would occur over a 6-month period, or about 132 days. Table 3.3-4 presents the project's construction period emissions, based on the CalEEMod model results. Construction period emissions would not exceed significance thresholds. During grading and construction activities, dust would be generated. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed at any given time, amount of activity, soil conditions, and meteorological conditions. Unless controlled, fugitive dust emissions during construction of the proposed project would be a significant impact. In addition to measuring the construction-related emissions against specified thresholds, the BAAQMD recommends that all proposed projects implement "basic construction mitigation measures" whether or not construction-related emissions exceed applicable thresholds. Incorporation of these measures also meets the construction-related threshold for fugitive dust identified in Table 3.3-3, which is to use best management practices during construction of a project. Therefore, without inclusion of the basic construction mitigation measures as defined by the BAAQMD, the impact during construction would be significant.

Table 3.3-4 Construction Criteria Air Pollutant Emissions

| Facility Site | ROG | NO _x | PM ₁₀ | PM _{2.5} |
|---|------|-----------------|------------------|-------------------|
| Emissions in tons per year | 0.43 | 1.29 | 0.05 | 0.04 |
| Average Daily Emissions (pounds per day) ¹ | 6.5 | 19.5 | 0.8 | 0.6 |
| Threshold (pounds per day) | 180 | 42 | 80 | 54 |
| Exceed Threshold? | No | No | No | No |

Notes: ¹Assuming 132 days of construction

Project operational emissions are presented in Table 3.3-5. These include on-site emissions based on CalEEMod modelling and mobile emissions based on the traffic analysis and EMFAC2011 emission factors. The combination of the increase in emissions from the facility and the decrease of mobile emissions would result in emission well below the significance thresholds (Note, even if the reduction in mobile emissions was not included, the project emissions would still be below the thresholds). Operation of the project would have less-than-significant impacts on air quality.

Table 3.3-5 Operational Criteria Air Pollutant Emissions

| Facility Site | ROG | NO _x | PM ₁₀ | PM _{2.5} |
|---|--------|-----------------|------------------|-------------------|
| On-Site Emissions in tons per year | 0.27 | 1.42 | 1.36 | 0.18 |
| Mobile Emissions in tons per year | (0.14) | (1.30) | (0.10) | (0.07) |
| Average Daily Emissions (pounds per day) ¹ | 0.7 | 0.9 | 7.2 | 0.6 |
| Threshold (pounds per day) | 180 | 42 | 80 | 54 |
| Exceed Threshold? | No | No | No | No |

Notes:

¹Assuming 350 days of operation per year**Mitigation Measure AQ-1: Air Quality Control Measures during Construction.**

The contractor shall implement the following Best Management Practices:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible and feasible. Building pads shall be laid as soon as possible and feasible, as well, after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure AQ-1 complies with the best management practices recommended by the BAAQMD to reduce construction related air emissions, including dust, to a less-than-significant level. Therefore, Impact AQ-1 would be reduced to less than significant with implementation of the Mitigation Measure AQ-1.

Impact AQ-2: Expose Sensitive Receptors to Substantial Pollutant Concentrations.

Construction of the project would result in emissions of diesel particulate matter, a TAC that causes cancer. The MCAQMD does not have community risk assessment guidelines for evaluating these impacts. Therefore, the BAAQMD guidance for evaluating community risk impacts was used. Emissions of diesel particulate matter and fugitive PM_{2.5} were predicted. These emissions were input to a dispersion model to predict the exposure at sensitive receptors near the project. Cancer risk computations were performed (refer to Appendix B for the outputs).

The location of the maximum modeled DPM and PM_{2.5} concentration is shown on Figure 3.3-1. Increased cancer risks were calculated using the modeled concentrations and BAAQMD recommended risk assessment methods for both a child exposure (3rd trimester through two years of age) and adult exposure (BAAQMD 2010). Since the modeling was conducted under the conservative assumption that emissions occurred daily for a full year during the construction year, the default BAAQMD exposure period of 350 days per year was used.

Results of this assessment indicate that for project construction the incremental child cancer risk at the maximally exposed individual (MEI) receptor would be 11.6 in one million and the adult incremental cancer risk would be 0.6 in one million. This would be over the threshold of 10 in one million and would be a significant impact.

The maximum annual PM_{2.5} concentration was 0.285 µg/m³ occurring at the same location where maximum cancer risk would occur. This PM_{2.5} concentration is below the BAAQMD threshold of 0.3 µg/m³ used to judge the significance of health impacts from PM_{2.5}.

Potential non-cancer health effects due to chronic exposure to DPM were also evaluated. The chronic inhalation reference exposure level (REL) for DPM is 5 µg/m³ (BAAQMD 2011). The maximum predicted annual DPM concentration for project construction was 0.133 µg/m³ (see Appendix B), which is much lower than the REL. The Hazard Index (HI), which is the ratio of the annual DPM concentration to the REL, is 0.027. This HI is much lower than the BAAQMD significance criterion of a HI greater than 1.0.

Operation of the project would generate some truck traffic and localized on-site emissions. The project would introduce about 10 to 15 daily truck trips. These would be considered minor and would not increase the overall cancer risk significantly. Impacts from pollutants emitted during operation would be less than significant.

Mitigation Measure AQ-2: Select Equipment during Construction to Minimize Emissions.

The Contractor shall follow the following standard: All diesel-powered off-road equipment larger than 50 horsepower and operating at the site for more than two days continuously shall meet U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent.

Level of Significance: Less than significant with mitigation.

Based on the significant result for child exposure to construction emissions, mitigation was applied to the sources of DPM in order to reduce the impacts to a less significant. Incorporating Mitigation Measure AQ-2, the modeling results with this mitigation in place would have a child cancer risk of 5.87 in a million with the adult incremental cancer risk of 0.3 in million, which is below the significance threshold of 10 in one million. Therefore, implementation of Mitigation Measure AQ-2 would reduce the impact to less than significant.

Impact AQ-3: Create Objectionable Odors Affecting a Substantial Number of People.

The handling of waste material has the potential to cause odors. Potential odor issues would be a function of the strength of the odors emanating from the project, combined with the distance to the receptors (i.e., residences) and meteorological conditions. The handling and transfer of solid waste would occur inside of a fully enclosed building. The nearest residence is about 600 feet west of the project facility building where material transfer would occur. Wind data for Fort Bragg indicate a predominant wind from the northwest, with a secondary predominant wind from the east-southeast.

Odor problems from solid waste transfer stations are well understood because of the experience of thousands of such facilities throughout the United States. Municipal solid waste creates significant amounts of objectionable odor only when it degrades over time. Therefore, the primary means of odor avoidance is to transfer waste out of the facility quickly, with regular cleaning to ensure that residual waste doesn't build up. If transfer cannot be carried out rapidly enough to control odor, a variety of measures are available. The most important measure is to fully enclose the transfer building, with minimal door openings, so that spread of odor by dispersion or wind is reduced. Additional measures, in approximate order of cost and impact, include:

- Roll-up doors which can be automated to open only when a vehicle approaches.
 - Air curtains on doorways. These help confine odors to the inside of the transfer station building.
 - Deodorizing misting spray. Overhead sprays can neutralize odorous material.

Several types of misting sprays are commercially available, including Odor X, NONOX, and Biomagic.

- Negative pressure ventilation with biofiltered exhaust.

Biofilters are typically a large container filled with wood chips or compost that will scrub noxious odors out of exhaust air. An example is CR&R's Perris Transfer Station in Perris, California, which receives up to 3,000 tons per day and has reportedly eliminated odor problems after installation of a biofilter.

For the Central Coast Transfer Station, all handling of solid waste would occur inside of the building. The enclosed building would reduce the potential for odors. Typically, solid waste would be removed from the facility within 24 hours and would not remain at the site for more than 48 hours. The project is anticipated to include features to reduce odors; however, project design details are not available at this time. Since these control features have not been specified at this time, there is a potential for odors to be emitted from the facility that could result in odor complaints, potentially exceeding the threshold of five confirmed complaints per year averaged over three years. This would be a significant impact.

The outdoor recycling area would have a low potential to cause off-site odors. Bottles cans and other recyclable materials typically do not have strong odors. The localized odors produced by recyclable materials can be minimized through application of good management practices.

Mitigation Measure AQ-3: Implement Odor Reduction Measures.

The County and City shall require as an enforceable provision of the operations contract for the facility that no odors are detectable beyond the site boundaries. When approving the final building design, the County and City will ensure that it is compatible with installation of any necessary odor control systems. The operations contract will require:

Design & Construction

1. Design of facility to ensure all transfer, handling and storage of solid waste material occurs within the fully enclosed building.
 - A. The County Environmental Health Division, Local Enforcement Agent (LEA) for CalRecycle, has jurisdiction over odor impacts of a solid waste facility and conducts periodic inspections and responses to complaints. If the LEA confirms off-site odor at any time, the operator will be required to implement any or all of the following controls:
 - Air curtains at doorways
 - B. Overhead misting system
 - C. Negative pressure ventilation with exhaust air directed through biofilters

Operation

1. Close all doors when facility is not operating.
2. Ensure material is not stored on site for more than 48 hours.
3. Develop and implement best management practices to clean the facility on a daily basis, including removing all odor producing food waste from facility floors and equipment.
4. Provide neighbors with a contact name and phone number to report odor or dust complaints. Such complaints shall be documented. The source or cause of any odor will be identified and actions taken to mitigate the odors shall also be documented.

The County and City shall designate a staff member to receive, document, and follow-up on odor complaints. A record shall be kept of each complaint for a minimum of five years from the date the complaint is received.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure AQ-3 provides basic odor minimization measures to be integrated into the project design and operation, with further measures that require “pre-plumbing” for additional odor-control systems, so that if complaints approach the established threshold, these additional measures would be implemented. Implementation of Mitigation Measure AQ-3 would reduce the impact to less than significant.

3.3.6 Cumulative Impacts

Impact AQ C-1: Result in a Cumulatively Considerable Contribution to Cumulative Impacts Related to Air Quality.

Project emissions of criteria air pollutants or their precursors would not make a considerable contribution to cumulative air quality impacts. As noted in the project analysis, air pollution, by nature, is mostly a cumulative impact. The significance thresholds applicable to construction and operational aspects of a project represent the levels at which a project’s individual emissions of criteria pollutants and precursors would result in a cumulatively considerable contribution to the region’s air quality conditions as described by BAAQMD (BAAQMD 2011).

The proposed project’s construction-period emissions exhaust would not exceed the quantitative significance thresholds, and fugitive dust emissions would be adequately controlled through implementation of BAAQMD best management practices. Therefore, project construction would not make a considerable contribution to cumulative air quality impacts.

Significant community risk impacts to sensitive receptors from project construction were identified as 11.6 in one million. A review of cumulative construction projects that are planned and approved in the area (see Section 3.0, Table 3-1 of this Draft EIR) did not reveal any nearby projects within 1,000 feet of the Maximally Exposed Individual (MEI) to result in a cumulative construction health risk impact. Therefore, the cumulative analysis is the same as for the project. The project's contribution to the cumulative impact is 11.6 in one million, which is over the individual threshold and therefore a considerable contribution to the cumulative impact. The cumulative impact to TACs is significant.

Mitigation Measures: AQ-1 Air Quality Control Measures during Construction and AQ-2 Select Equipment during Construction to Minimize Emissions.

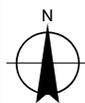
Level of Significance: Less than significant with mitigation.

Incorporating Mitigation Measure AQ-2, the modeling results with this mitigation in place would have a child cancer risk of 5.87 in a million with the adult incremental cancer risk of 0.3 in million, which is below the significance threshold of 10 in one million. Therefore, implementation of Mitigation Measure AQ-2 would reduce the projects contribution to the cumulative impact to less than significant.



-  PermanentFootprint_141104
-  ConstructionFootprint_141104
-  Parcels
-  Residences within 1,000 feet of Project Area

Paper Size ANSI A
 0 70 140 210 280 350
 Feet
 Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
 Grid: NAD 1983 StatePlane California II FIPS 0402 Feet



ILLINGWORTH & RODKIN, INC.
 Acoustics • Air Quality

Mendocino Solid Waste Management Authority
 Central Coast Transfer Station EIR

Job Number | 8411065
 Revision | A
 Date | 04 Nov 2014

Sensitive Receptors

Figure 3.3-1

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3.4 Biological Resources

This section evaluates the potential impacts related to biological resources during construction and operation of the project. The setting section describes the existing environmental conditions for biological resources. The regulatory framework section describes the applicable regulations at the federal, state and local level. The impacts and mitigation measures section establishes the thresholds of significance, evaluates potential impacts to biological resources, and identifies the significance of impacts. Where appropriate, mitigation is presented to reduce impacts to less-than-significant levels. Information in this section is based in part on the Biological Resources Assessment prepared for this project by WRA in June 2013 (Appendix D).

3.4.1 Setting

Vegetation Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats may be protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, and the California Department of Fish and Wildlife (CDFW) Streambed Alteration Program; or local ordinances or policies such as City or County tree ordinances. Other sensitive biological communities include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB) [CDFW 2014a]. Sensitive plant communities are also provided in list format by CDFW (2009a). CNDDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2012) methodology (see Table 3.4-1), with those alliances ranked globally (G) or statewide (S) with status of 1 through 3 considered to be of special concern as well as imperiled (CDFG 2007; CDFW 2014b).

Table 3.4-1 Score Value Ranges for Nature Serve Conservation Status Ranks

| Calculated Score Value Range | Calculated Status Rank | Status Description | Definition | Threat Rank |
|------------------------------|------------------------|----------------------|--|--|
| score \leq 1.5 | G1, S1 | Critically Imperiled | Less than 6 elemental occurrences (EO) or less than 1,000 individuals or less than 2,000 acres | S1.1 = very threatened S1.2 = threatened S1.3 = no current threats known |
| 1.5 < score \leq 2.5 | G2, S2 | Imperiled | 6-20 EOs or 1,000-3,000 individuals or 2,000-10,000 acres | S2.1 = very threatened S2.2 = threatened S2.3 = no current threats known |
| 2.5 < score \leq 3.5 | G3, S3 | Vulnerable | 21-100 EOs or 3,000-10,000 individuals or 10,000-50,000 acres | S3.1 = very threatened S3.2 = threatened S3.3 = no current threats known |

| Calculated Score Value Range | Calculated Status Rank | Status Description | Definition | Threat Rank |
|------------------------------|------------------------|--------------------|--|----------------|
| 3.5 < score ≤ 4.5 | G4, S4 | Apparently Secure | This rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat. | No threat rank |
| score > 4.5 | G5, S5 | Secure | Demonstrably secure to ineradicable | No threat rank |

Compiled from: CDFG 2007; NatureServe 2012

The application of global ranking (G#) for determination of sensitive communities is summarized in Table 3.4-1 (NatureServe 2009). Additionally, CDFW high priority natural community elements are reserved for those areas exhibiting high quality occurrences based on a criterion such as:

1. Lack of invasive species;
2. No evidence of human caused disturbance such as roads or excessive livestock grazing, or high grade logging; or,
3. Evidence of reproduction present (sprouts, seedlings, adult individuals of reproductive age), and no significant insect or disease damage, etc.

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations, and ordinances. These non-sensitive communities may, however, provide suitable habitat for some special-status plant or wildlife species and are part of the general existing site conditions. Sensitive and non-sensitive habitat/vegetation types were mapped on the site and presented in the supporting biological resources evaluation to establish existing conditions at the project site (WRA 2013).

Numerous sites visits were conducted to identify suitable habitats for special-status species, and to map sensitive and non-sensitive habitats (WRA 2013). The site visit included study of 20.95 acres of APN 019-150-05 (i.e., the portion of the parcel which is north of Highway 20, and hereinafter referred to as the “property”, and “property study area”) in order to provide context for the actual 17-acre “project site” that is encompassed by the 20.95 acre property. The nomenclature and classification for habitat areas mapped on the property are presented in Table 3.4-2, and information is presented as a basis to evaluate whether mapped areas qualify as sensitive habitats by CDFW definition. Many of the habitats identified on the property study area are considered sensitive, including wetlands and at least portions of the cypress forest (particularly the stunted/pygmy portions, as well as areas where cypress are growing in conjunction with Bolander’s pine which is typical plant composition for pygmy forest). Resources mapped on the property are quantified in Table 3.4-3 and presented on Figure 3.4-1.

Table 3.4-2 Nomenclature for Vegetation Communities on Property

| Habitat | Vegetation Alliance | CNDBB Global (G) and State (S) Rank | Vegetation Association | Dominant Species and CRPR Status |
|--|---|-------------------------------------|---|---|
| Bishop pine forest | Bishop pine (<i>Pinus muricata</i>) Forest Alliance | G3 S3 | Bishop pine-evergreen huckleberry (<i>P. muricata-Vaccinium ovatum</i>) | <i>P. muricata</i> [CRPR none] |
| Cypress forest (tall) | Pygmy cypress (<i>Hesperocyparis pygmaea</i>) Forest Alliance | G2 S2 | Mendocino cypress – tall (<i>H. pygmaea</i>) | <i>H. pygmaea</i> [CRPR 1B] |
| Cypress forest (intermediate) | | | Pygmy cypress / Bolander's pine (<i>H. pygmaea/Pinus contorta</i> ssp. <i>bolanderi</i>) | <i>H. pygmaea</i> [CRPR 1B] <i>P. contorta</i> ssp. <i>bolanderi</i> [CRPR 1B] |
| Cypress forest (pygmy); USACE Forested wetland | | | Pygmy cypress / Bolander's pine – pygmy (<i>H. pygmaea/P. contorta</i> ssp. <i>bolanderi</i>) | <i>H. pygmaea</i> [CRPR 1B] <i>P. contorta</i> ssp. <i>bolanderi</i> [CRPR 1B] |
| USACE Palustrine emergent wetland | Slough sedge sward (<i>Carex obnupta</i>) Herbaceous Alliance | G4 S3 | Slough sedge/California sedge sward (<i>C. obnupta/C. californica</i>) Association | <i>Carex obnupta</i> [None] <i>C. californica</i> [CRPR 2] |

Source: Sawyer et al. (2009)

Table 3.4-3 Existing Habitats Quantified for the Property

| Habitat | Dominant Species | Property (acres) | Tree Count Estimate (#) | Regional Conditions (acres) ¹ |
|---|--|------------------|-------------------------|--|
| Disturbed / ruderal | Various | 1.11 | NA | NA |
| Bishop pine forest | Bishop pine (<i>P. muricata</i>) | 8.39 | NA | 14,900 |
| Cypress forest (tall) | cypress (<i>H. pygmaea</i>) | 4.78 | 776 | NA |
| | Bolander's pine (<i>P. contorta</i> ssp. <i>bolanderi</i>) | | 100 | |
| Cypress forest (intermediate) | cypress (<i>H. pygmaea</i>) | 4.44 | 336 | NA |
| | Bolander's pine | | 147 | |
| Cypress forest (pygmy) / Forested wetland | cypress (<i>H. pygmaea</i>) | 3.11 | 598 | 2,000 |
| | Bolander's pine | | 496 | |
| Palustrine emergent wetland | Various | 0.22 | NA | NA |
| Total | | 20.95 | | |

¹Regional conditions are estimated and presented for context utilizing a variety of sources that provide general mapping quantities for the area, yet are believed to be the most current data readily available based on conversation with CDFW and others (Miller, Linda 2014, Pers. Com). While approximately 4,420 acres of Pygmy Cypress forest type was mapped in 1998 by CALVEG in the area between Ten Mile and Navarro River (CDF 2005), some sources have indicated this may be reduced to as little as 2,000 acres, and mapping is highly variable on what definition, species composition, and tree height is used for this map unit. CDFW is working on mapping project currently to establish baseline existing conditions (Miller, Linda 2014, Pers. Com). 2,000 acres is used herein as a conservative estimate of what remains regionally of pygmy forest and as a basis for comparative analysis to project impacts (although project impacts are to intermediate and tall cypress/Bolander's pine). In 1998 CALVEG mapped 14,900 acres of Bishop pine in Mendocino County (CDF 2005).

Bishop Pine Forest Alliance: This community is known along the coast from Fort Bragg, Mendocino County to northwestern Sonoma County, and there are also stands on Point Reyes, Mount Tamalpais, and Monterey Peninsula (Sawyer et al. 2009). Vegetation associations include Bishop pine-evergreen huckleberry (*Pinus muricata-Vaccinium ovatum* Forest Association) and Bishop pine/Bolander's pine/ cypress (*Pinus muricata / P. contorta ssp. bolanderi / Hesperocyparis pygmaea* Forest Association). At the project site, this community is dominated by Bishop pine (*Pinus muricata*), with several subdominant tree species including pygmy cypress (*Hesperocyparis pygmaea*) [approximately 327 individuals scattered across the property within this map unit], Bolander's pine (*Pinus contorta ssp. bolanderi*) [approximately 47 individuals scattered across the property within this map unit], as well as western hemlock (*Tsuga heterophylla*), and coast redwood (*Sequoia sempervirens*). The overstory varies from somewhat open to completely closed containing mature to over-mature trees. The understory contributes to the vertical structure with a high density of shrubs and herbaceous layer. Shrub species include evergreen huckleberry (*Vaccinium ovatum*), Pacific rhododendron (*Rhododendron macrophyllum*), giant chinquapin (*Chrysolepis chrysophylla*), tanoak (*Notholithocarpus densiflorus*), and salal (*Gaultheria shallon*). Herbaceous species are sparse and include bracken fern (*Pteridium aquilinum*), bear grass (*Xerophyllum tenax*), and modesty (*Whipplea modesta*). Bishop pine forest occupies approximately 8.39 acres in the southwestern and south-central portion of the property.

Pygmy Cypress Forest Alliance: Cypress forest is known near the coast from Fort Bragg to Albion in Mendocino County, with true pygmy forest comprised of unique vegetation associations with pygmy/stunted trees growing on old uplifted marine terraces with restrictive acidic podzol-like soils (Blacklock Series), and in scattered stands south into Sonoma County (WRA 2013). Vegetation Associations (as described by Sawyer et al. 2009) within this Forest Alliance include Pygmy Cypress Forest Association (*Hesperocyparis pygmaea* Association) and Pygmy Cypress/Bolander's Pine Forest Association (*Hesperocyparis pygmaea/Pinus contorta ssp. bolanderi* Association). A total of 12.33 acres of Pygmy Cypress Forest Alliance were mapped on the property, made up of the following three morpho-types (classified based on dominant species composition and tree class/size): "cypress forest – tall," "cypress forest – intermediate," and "cypress forest – pygmy," the first of which corresponds with the pygmy cypress Association, and the latter two correspond with the pygmy cypress/Bolander's pine Association. These mapping units/associations were based on species composition and height of individual trees, and may be correlated to soil conditions, with stunted trees (cypress forest - pygmy) located on areas mapped to have a shallow cemented hardpan within the soil. Individual trees were counted in several 50-foot radius vegetation plots, and numbers estimated across the stands (WRA 2013). The three morph-types are further described below.

Cypress Forest - Tall is dominated by Mendocino/pygmy cypress, with scattered individuals of Bishop pine. Although cypress dominates these areas, the soils do not appear to be limiting the growth of individual trees, and average heights range from 35 to 100 feet. These areas were mapped and classified at plant association level as Mendocino cypress (*H. pygmaea* Association). For the most part, this area lacks presence of Bolander's pine which when in conjunction with pygmy cypress trees, is considered to be the typical species composition of true Mendocino pygmy forest. The dense understory is dominated by tall shrubs including Pacific rhododendron, evergreen huckleberry, and salal. This morpho-type occupies approximately 4.78 acres in the southeastern and northwestern portions of the property. Tree counts within plots in this map unit estimate approximately 776 cypress (subdominant Bishop pine was not counted), and approximately 100 Bolander's pine scattered throughout (calculated to be less than 10% of trees present in this map unit).

Cypress Forest - Intermediate is dominated by Mendocino/pygmy cypress, with subdominants of Bishop pine and Bolander's pine. The average height of trees range from 15 to 35 feet, which could have partially limited growth pattern due to soils and/or soil moisture. The area was mapped and classified by vegetation association to be consistent with Pygmy cypress / Bolander's pine (*H. pygmaea*/*Pinus contorta* ssp. *bolanderi* Association). The understory is dominated by dense shrubs including hairy manzanita (*Arctostaphylos columbiana*), Pacific rhododendron, evergreen huckleberry, and salal (*Gaultheria shallon*). This morpho-type occupies approximately 4.44 acres in the northern and north-eastern portion of the property. Tree counts within plots in this map unit estimate approximately 336 cypress mostly of intermediate height (Bishop pine was not counted), and approximately 147 Bolander's pine scattered throughout.

Cypress Forest - Pygmy. A habitat unique to several areas along California's north coast, pygmy forest occurs in the western part of Mendocino County. Climatic and soil conditions have created a highly specific plant community with limited growth. In the pygmy forests, soil has been leached of its nutrients, is highly acidic, and is underlain by an iron hardpan. Due to the poor soil conditions, these communities are dominated by dwarf species of plants such as pygmy manzanita, pygmy cypress, Bolander pine, and lichens (WRA 2013). The area is dominated by pygmy cypress and Bolander's pine. The soils are thought to be limiting the growth of trees whose average height ranges from 5 to 15 feet and shrubs are stunted and sparse to absent in density. The understory is composed of short statured shrubs with noticeably greater interstitial space between thickets than in intermediate cypress forest and tall cypress forest areas at the site. Scattered shrub species include Labrador tea (*Rhododendron columbianum*), wax myrtle (*Morella californica*), salal, and evergreen huckleberry. The herbaceous layer is sparse with bracken fern, bear grass, California sedge (*Carex californica*), and sporadic coast lilies (*Lilium maritimum*). Additionally, cryptogamic crusts formed from reindeer lichens (*Cladonia portentosa*, *Cladina impexa*) are present sporadically in open compacted areas. This morpho-type occupies approximately 3.11 acres in the eastern portion of the property and is analogous with the forested wetland map unit described below. Tree counts within plots in this map unit estimate approximately 598 cypress (stunted/pygmy) trees and approximately 496 Bolander's pine trees scattered throughout the property.

Federal and State Jurisdictional Wetlands and Waters

Palustrine Emergent Wetlands: Seasonal wetlands are known throughout California and are typically located in relatively flat locations underlain by soils with moderate to high clay content and/or substrates with a shallow impermeable layer within the upper profile. An approximately 0.22-acre seasonal palustrine emergent wetland (USACE jurisdictional) is located in the southeast corner of the property (Figure 3.4-1). This wetland is a slight concave depression which contains approximately 25 percent absolute cover of herbaceous species composed of predominantly slough sedge (*Carex obnupta*, OBL) and California sedge (FACW) [CRPR 2]. Trees and shrubs are rooted along the edge of this feature, include Bolander's pine (FAC), pygmy cypress (NL), evergreen huckleberry (FACU), and Labrador tea (OBL). The upper soil profile (0 to 9 inches) is composed of brown (7.5YR 5/8) matrix to dark grayish brown (10YR 4/2) sandy silts and silty clays with brown (7.5YR 5/8) on root channels. The subsurface layer (9 to 14 inches) is composed of very dark brown (10YR 2/2) clay loam with redoximorphic concentrations noted as present. Hydrology indicators include surface soil cracks (B6), a sparsely vegetated concave surface (B8), oxidized

rhizospheres (C4), shallow aquitard (D3), and pass on the FAC-neutral test (D5). The boundary of this wetland was delineated based on topography and change in vegetation density.

Forested Wetlands: At the site, the boundary of USACE jurisdictional forested wetlands (USACE 2013) is analogous with the “cypress forest - pygmy” map unit (WRA 2013), and is approximately 3.11 acres. The vegetation is dominated by Bolander’s pine (FAC), pygmy cypress (, NL), evergreen huckleberry (FACU), and Labrador tea (OBL), wax myrtle (FACW), salal (FACU), and California sedge (FACW). The upper soil profile (0 to 6 inches) is composed of light brownish gray (10YR 6/2) and brown (7.5YR 4/3) sandy clay loam. The subsoil (6 to 8 inches) is composed of yellowish brown (10YR 5/6) sandy clay loam with brown (10YR 5/8) redoximorphic features in the soil matrix. Hydrology indicators include oxidized rhizospheres (C3), water-stained leaves (B9), and a shallow aquitard (D3). The boundary of the forested wetland was delineated based on changes in soils and vegetation type, and the USACE provided a jurisdictional determination concurring with conditions as mapped by WRA (USACE 2013).

Waters of the U.S. and State: Other waters, besides wetlands, subject to USACE jurisdiction under Section 404 of the Clean Water Act include lakes, rivers and streams (including intermittent streams) for non-tidal areas. Non-tidal waters of the U.S. are defined at the ordinary high water mark (OHWM) following the USACE Regulatory Guidance Letter No. 05-05, *Ordinary High Water Mark Identification* (USACE 2005). Because the Regional Water Quality Control Board (RWQCB) does not currently ascribe a specific methodology for delineating Waters of the State, wetlands and non-wetland waters were assessed for this project following USACE guidelines and it is assumed that USACE jurisdictional wetlands are also jurisdictional by the RWQCB (although not exclusive to). The site does not contain non-wetland water features or other Waters of the U.S./State. A 200-foot linear ephemeral swale is located outside of the western edge of the property, and flows westward and terminates in a Labrador tea thicket. This area is noted herein per inquiry by CDFW, but is outside the property and thus was not mapped.

Riparian and Other Wet Areas: The property was evaluated to locate potential intermittent streams not already designated wetlands or waters of the U.S./State as well as associated riparian habitat following the standard guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code*. The guidance for CDFG Section 1602 jurisdiction is typically understood to include streams and to extend laterally to the top-of-bank (WRA 2013). If riparian vegetation is present within the top-of-bank, then CDFG jurisdiction extends to the outer dripline of such vegetation. Riparian vegetation does not exist on the property.

Special-Status Plant Species

Table 3.4-4 summarizes the potential for occurrence for the special-status plant species that are recorded as occurring in the vicinity of the site. Seven plant species were determined to have a moderate or high potential to occur at the site, and four plant species were identified and mapped at the site. Species descriptions for the special-status plant species identified at the site are presented below. The remaining plant species are unlikely or have no potential to occur due to one or more of the following reasons:

- Hydrologic conditions (e.g. marsh habitat, perennial streams) necessary to support some specific special-status plant(s) are not present at the site;
- Edaphic (soil) conditions (e.g. serpentine, volcanics) necessary to support some special-status plant(s) are not present at the site;
- Topographic positions and landforms (e.g. north-facing, slopes) necessary to support some special-status plant(s) are not present at the site;

- Associated vegetation communities (e.g. chaparral, coastal prairie, dune, bluff) necessary to support some special-status plant(s) are not present at the site;
- The degree of disturbance and/or presence of extensive highly competitive, non-native plant species (e.g. dense non-native annual grassland);
- The site is outside of the known elevation and/or localized distribution of some special-status plant(s) (e.g. coastal, montane).
- Special-status seasonally-appropriate plant surveys were conducted within appropriate time of year to identify species with moderate or high potential to occur at the site, and determined absence or presence of these species.

Table 3.4-4 Potential for Special-Status Plant Species to Occur on the Property

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|--|---------------------|--|---|---|
| PLANTS | | | | |
| pink sand verbena <i>Abronia umbellata</i> var. <i>breviflora</i> | 1B | Coastal dune, coastal strand; located on foredunes and interdunes with low vegetation cover. Elevation range: 0 – 35 feet. Blooms: June – October. | No Potential. The property does not contain coastal dune or coastal strand habitat necessary to support this species. | Not Present. |
| Blasdale’s bent grass <i>Agrostis blasdalei</i> | 1B | Coastal dune, coastal bluff scrub, coastal prairie; located on sandy to gravelly substrate close to rocks of bluff faces; typically located in nutrient poor areas with sparse vegetation cover. Elevation range: 15 – 490 feet. Blooms: May – July. | No Potential. The property does not contain coastal dune, coastal bluff scrub, or coastal prairie habitat necessary to support this species. | Not Present. |
| pygmy manzanita <i>Arctostaphylos nummularia</i> ssp. <i>mendocinensis</i> | 1B | Closed-cone coniferous forest; located acidic, sandy clay substrate in pygmy forest stands. Elevation range: 290 – 600 feet. Blooms: January. | High Potential. The property contains suitable substrate and pygmy forest habitat that may support this species. The nearest documented occurrence is approximately seven miles from the property. | Not Observed. This species was not observed during plant surveys in May and July (species vegetative state would have been visible and identifiable to species level outside of bloom period). |
| Humboldt County milk- vetch <i>Astragalus agnicidus</i> | SE; 1B | Broadleaf upland forest, redwood forest; located in disturbed openings in timber lands, on south-facing aspects, and along ridgelines. Elevation range: 585 – 2600 feet. Blooms: April – September. | No Potential. The property does not contain broadleaf upland forest or redwood forest necessary to support this species. | Not Present. |
| Point Reyes Blennosperma <i>Blennosperma nanum</i> var. <i>robustum</i> | SR; 1B | Coastal prairie, coastal scrub; located on open coastal hills underlain by sandy substrate. Elevation range: 30 – 475 feet. Blooms: February – April. | No Potential. The property does not contain coastal prairie or coastal scrub habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|---|---------------------|--|--|--|
| Thurber's reed grass <i>Calamagrostis crassiglumis</i> | 2 | Coastal scrub, freshwater marsh; typically located in marshy swales surrounded by grasslands or coastal scrub. Elevation range: 30 – 150 feet. Blooms: May – July. | No Potential. The property does not contain coastal scrub or freshwater marsh habitat necessary to support this species. | Not Present. |
| coastal bluff morning glory <i>Calystegia purpurata</i> ssp. <i>saxicola</i> | 1B | Coastal dunes, coastal scrub; located on coastal bluffs. Elevation range: 30 – 330 feet. Blooms: May – September. | No Potential. The property does not contain coastal dune or scrub habitat necessary to support this species. | Not Present. |
| swamp harebell <i>Campanula californica</i> | 1B | Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, freshwater marsh, North Coast coniferous forest; typically located in wetlands within a variety of surrounding habitats. Elevation range: 3 – 1320 feet. Blooms: June – October. | High Potential. The property contains wet areas within closed-cone coniferous forest (Bishop pine forest, pygmy forest) that may support this species. The nearest documented occurrence is less than one mile from the property. | Not Observed. This species was not observed during seasonally-appropriate plant surveys conducted in May and July during species-specific bloom time. |
| California sedge <i>Carex californica</i> | 2B | Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, marshes and swamps; located in drier areas of swamps, bogs, and marsh margins. Elevation range: 290 – 1090 feet. Blooms: May – August. | High Potential. The property contains wetlands within closed-cone coniferous forest (pygmy forest) habitat that may support this species. | Present. Scattered individuals of this species were observed throughout the pygmy forest habitat and a seasonal wetland depression within and adjacent to the property. |
| lagoon sedge <i>Carex lenticularis</i> var. <i>limnophila</i> | 2 | Bogs and fens, marshes and swamps, North Coast coniferous forest; located on lakeshores and beaches. Elevation range: 0 – 20 feet. Blooms: June – August. | Unlikely. Although the property contains North Coast coniferous forest and wetlands, this species is known from coastal dune wetlands and beach pine. | Not Present. |
| livid sedge <i>Carex livida</i> | 1A | Bogs and fens; historically known from sphagnum bogs. Elevation range: unknown. Blooms: June. | No Potential. The property does not contain sphagnum bog habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|---|---------------------|---|--|--|
| Lyngbye's sedge <i>Carex lyngbyei</i> | 2 | Marshes and swamps; brackish to freshwater. Elevation range: 0 – 35 feet. Blooms: April – August. | Unlikely. Although the property contains wetland habitat, marsh habitat is not present necessary to support this species. | Not Present. |
| deceiving sedge <i>Carex saliniformis</i> | 1B | Coastal prairie, coastal scrub, meadows and seeps, coastal salt marshes and swamps; located in mesic sites. Elevation range: 10 – 750 feet. Blooms: June – July. | No Potential. The property does not contain coastal prairie, coastal scrub, meadow, or coastal salt marsh habitat necessary to support this species. | Not Present. |
| green yellow sedge <i>Carex viridula</i> var. <i>viridula</i> | 2 | Bogs and fens, freshwater marshes and swamps, North Coast coniferous forest; located in mesic sites. Elevation range: 0 – 5200 feet. Blooms: June – November. | Moderate Potential. The property contains coniferous forest (Bishop pine forest) with wetland sites that may support this species; however, this species is closely associated with Douglas fir-coast redwood forest habitat not present. | Not Observed. This species was not observed during seasonally-appropriate plant surveys conducted in May and July during species-specific bloom time. |
| Humboldt Bay owl's-clover <i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i> | 1B | Coastal salt marsh; located in marshes associated with salt grass, cordgrass, pickleweed, and jaumea. Elevation range: 0 – 10 feet. Blooms: April – August. | No Potential. The property does not contain coastal salt marsh habitat necessary to support this species. | Not Present. |
| Oregon coast paintbrush <i>Castilleja litoralis</i> | 2 | Coastal bluff scrub, coastal dune, coastal scrub; located on sandy substrate. Elevation range: 45 – 325 feet. Blooms: June. | Unlikely. The property does not contain coastal bluff scrub, coastal dune, or coastal scrub habitat necessary to support this species. The plant surveys did not note presence of this species on property. | Not Observed. |
| Mendocino Coast paintbrush <i>Castilleja mendocinensis</i> | 1B | Coastal bluff scrub, coastal scrub, coastal prairie, closed-cone coniferous forest, coastal dune; typically located on open sea bluffs and cliffs. Elevation range: 0 – 520 feet. Blooms: April – August. | No Potential. The property does not contain coastal scrub, coastal prairie, or coastal closed-cone coniferous forest (beach pine forest) habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|--|---------------------|---|--|----------------------|
| Howell's spineflower <i>Chorizanthe howellii</i> | FE; ST; 1B | Coastal dunes, coastal prairie, coastal scrub; located on sand dunes, sandy slopes, and sandy areas in coastal prairie. Elevation range: 0 – 115 feet. Blooms: May – July. | No Potential. The property does not contain coastal dune, coastal prairie, or coastal scrub habitat necessary to support this species. | Not Present. |
| Whitney's farewell-to-spring <i>Clarkia amoena</i> ssp. <i>whitneyi</i> | 1B | Coastal bluff scrub, coastal scrub. Elevation range: 30 – 325 feet. Blooms: June – August. | No Potential. The property does not contain coastal scrub habitat necessary to support this species. | Not Present. |
| round-headed Chinese houses <i>Collinsia corymbosa</i> | 1B | Coastal dunes, coastal prairie. Elevation range: 0 – 65 feet. Blooms: April – June. | No Potential. The property does not contain coastal dune habitat necessary to support this species. | Not Present. |
| Oregon goldthread <i>Coptis laciniata</i> | 2 | North Coast coniferous forest, meadows and seeps; located in mesic sites, roadsides, and streamsides. Elevation range: 0 – 3250 feet. Blooms: March – April. | Unlikely. The property contains North Coast coniferous forest, yet this species is closely associated with mesic sites (e.g. streambanks) in coast redwood-Douglas fir habitat. | Not Present. |
| bunchberry <i>Cornus canadensis</i> | 2B.2 | North coast coniferous forest, bogs and fens, meadows and seeps in a broad range of stand types and soil/site conditions. Elevation range: 200 – 6,000 feet. Blooms: May - July | Unlikely. The property contains coniferous forest that may support this species yet plant surveys conducted in May and July did not document presence of this species. | Not Observed. |
| Mendocino dodder <i>Cuscuta pacifica</i> var. <i>papillata</i> | 1B | Coastal dunes; located in interdune depressions; likely hosts on lupines, catchflies, and cudweeds. Elevation range: 0 – 165 feet. Blooms: July – October | No Potential. The property does not contain coastal dune habitat necessary to support this species. | Not Present. |
| supple daisy <i>Erigeron supplex</i> | 1B | Coastal bluff scrub, coastal prairie; typically located in grassy sites along the coastline. Elevation range: 30 – 165 feet. Blooms: May – July | No Potential. The property does not contain coastal scrub or coastal prairie habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|--|---------------------|---|--|----------------------|
| bluff wallflower <i>Erysimum concinnum</i> | 1B.2 | Coastal dunes, coastal bluff scrub, coastal prairie. Elevation range: 0 – 600 feet. Blooms: March - May | Unlikely. Preferred coastal habitat is not present at the site. The plant surveys did not note presence of this species on property. | Not Observed. |
| Menzies' wallflower <i>Erysimum menziesii</i> ssp. <i>menziesii</i> | FE; SE; 1B | Coastal dune; located on stabilized and shifting dunes and coastal strand. Elevation range: 0 – 115 feet. Blooms: March – June. | No Potential. The property does not contain coastal dune habitat necessary to support this species. | Not Present. |
| Roderick's fritillary <i>Fritillaria roderickii</i> | SE; 1B | Coastal bluff scrub, coastal prairie, valley and foothill grassland; located on grassy slopes, mesas, and terraces. Elevation range: 45 – 1300 feet. Blooms: March – May. | No Potential. The property does not contain coastal bluff scrub, coastal prairie, or coastal grassland habitat necessary to support this species. | Not Present. |
| Pacific gilia <i>Gilia capitata</i> ssp. <i>pacifica</i> | 1B | Coastal bluff scrub, coastal prairie, valley and foothill grassland. Elevation range: 15 – 3090 feet. Blooms: April – August. | No Potential. The property does not contain coastal bluff scrub, coastal prairie, or grassland habitat necessary to support this species. | Not Present. |
| dark-eyed gilia <i>Gilia millefoliata</i> | 1B | Coastal dune. Elevation range: 5 – 100 feet. Blooms: April – July. | No Potential. The property does not contain coastal dune habitat necessary to support this species. | Not Present. |
| white seaside tarplant <i>Hemizonia congesta</i> ssp. <i>congesta</i> | 1B | Coastal scrub, valley and foothill grassland; located in grassy valleys and hills, often fallow fields. Elevation range: 65 – 1820 feet. Blooms: April – November. | No Potential. The property does not contain coastal scrub or grassland habitat necessary to support this species. | Not Present. |
| short-leaved evax <i>Hesper-evax sparsiflora</i> var. <i>brevifolia</i> | 1B | Coastal bluff scrub, coastal dune; located on sandy bluffs and flats near the immediate coastline. Elevation range: 0 – 700 feet. Blooms: March – June. | No Potential. The property does not contain coastal bluff scrub or coastal dune habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|--|---------------------|---|--|--|
| pygmy cypress <i>Hesperocyparis pygmaea</i> | 1B | Closed-cone coniferous forest; located on podzol-like soils (Blacklock series). Elevation range: 100 – 1950 feet. | High Potential. The property contains Blacklock series soils and closed-cone coniferous forest. | Present. Extensive stands of this species are located throughout the property, particularly as a stand-forming in the pygmy forest habitat. |
| Point Reyes horkelia <i>Horkelia marinensis</i> | 1B | Coastal dunes, coastal prairie, coastal scrub; located on sandy flats and dunes near the coast; in open grassy sites within scrub. Elevation range: 15 – 1140 feet. Blooms: May – September. | No Potential. The property does not contain coastal dune, coastal prairie, or coastal scrub habitat necessary to support this species. | Not Present. |
| hair-leaved rush <i>Juncus supiniformis</i> | 2 | Marshes and swamps, bogs and fens; located in sites near the coast. Elevation range: 65 – 325 feet. Blooms: April – June. | Unlikely. Although the property contains wetland habitat, this species is known primarily from sphagnum bog habitat not present in the property. | Not Present. |
| Baker's goldfields <i>Lasthenia californica</i> ssp. <i>bakeri</i> | 1B | Closed-cone coniferous forest, coastal scrub; located in openings in scrub and coastal forest habitat. Elevation range: 195 – 1690 feet. Blooms: April – October. | No Potential. The property does not contain coastal scrub or beach pine forest necessary to support this species. | Not Present. |
| perennial goldfields <i>Lasthenia californica</i> ssp. <i>macrantha</i> | 1B | Coastal bluff scrub, coastal dune, coastal scrub. Elevation range: 15 – 1690 feet. Blooms: January – November. | No Potential. The property does not contain coastal bluff scrub, coastal dune, or coastal scrub habitat necessary to support this species. | Not Present. |
| coast lily <i>Lilium maritimum</i> | 1B | Closed-cone coniferous forest, coastal prairie, coastal scrub, broadleaf upland forest, North Coast coniferous forest; typically located on sandy soils, often in raised hummocks or bogs, and roadside ditches. Elevation range: 15 – 1545 feet. Blooms: May – August. | High Potential. The property contains closed-cone coniferous forest and closed-cone coniferous forest (Bishop pine forest, pygmy forest) that may support this species. | Present. One concentrated and a second dispersed population of this species is located within or adjacent to the property, as mapped during seasonally-appropriate plant surveys conducted in May and July. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|---|---------------------|--|---|--|
| northern microseris <i>Microseris borealis</i> | 2 | Bogs and fens, meadows and seeps, lower montane coniferous forest. Elevation range: 3250 – 6500 feet. Blooms: June – September. | No Potential. The property does not contain bog, fen, meadow, seep, or lower montane coniferous forest habitat necessary to support this species. | Not Present. |
| Wolf's evening-primrose <i>Oenothera wolfii</i> | 1B | Coastal bluff scrub, coastal dune, coastal prairie, lower montane coniferous forest; located on sandy substrates in mesic sites. Elevation range: 10 – 2600 feet. Blooms: May – October. | Unlikely. Although the property contains coniferous forest, this species is most closely associated with open grassy sites (prairie, scrub) on the coast. | Not Present. |
| seacoast ragwort <i>Packera bolanderi</i> var. <i>bolanderi</i> | 2 | Coastal scrub, North Coast coniferous forest. Elevation range: 100 – 2115 feet. Blooms: January – July. | Unlikely. The property contains North Coast coniferous forest, yet this species is associated with coast redwood-Douglas fir forest not present on the study property. | Not Present. |
| North Coast phacelia <i>Phacelia insularis</i> var. <i>continentis</i> | 1B | Coastal bluff scrub, coastal dune; located on open maritime bluffs underlain by sandy substrate. Elevation range: 30 – 555 feet. Blooms: March – May. | No Potential. The property does not contain coastal bluff scrub or coastal dune habitat necessary to support this species. | Not Present. |
| Bolander's pine <i>Pinus contorta</i> ssp. <i>bolanderi</i> | 1B | Closed-cone coniferous forest; located on podzol-like soils (Blacklock series), closely associated with Bishop pine and pygmy cypress. Elevation range: 240 – 815 feet. | High Potential. The property contains Blacklock series soils and closed-cone coniferous forest. | Present. Extensive stands of this species are located throughout the property, particularly as stand-forming in the pygmy forest habitat. |
| dwarf alkali grass <i>Puccinellia pumila</i> | 2 | Meadows and seeps, marshes and swamps; located in mineral spring meadows and coastal salt marshes. Elevation range: 1 – 35 feet. Blooms: July. | No Potential. The property does not contain mineral springs, meadow, seep, or marsh habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|--|---------------------|---|---|---|
| angel's hair lichen <i>Ramalina thrausta</i> | 2B.1 | Grows on trees in forested moist areas. | Unlikely. The property contains coniferous forest (Bishop pine forest), yet the species is not known from near the site. | Not Observed. This species was not observed by GHD project biologists per site visit May 7, 2014.. |
| white beaked-rush <i>Rhynchospora alba</i> | 2 | Bogs and fens, meadows and seeps, marshes and swamps; located in freshwater perennial wetlands and sphagnum bogs. Elevation range: 195 – 6630 feet. Blooms: July – August. | No Potential. The property does not contain sphagnum bog or perennial marsh wetland habitat necessary to support this species. | Not Present. |
| great burnet <i>Sanguisorba officinalis</i> | 2 | Bogs and fens, meadows and seeps, broadleaf upland forest, marshes and swamps, North Coast coniferous forest, riparian forest; located on rocky serpentine seeps and streams. Elevation range: 195 – 4550 feet. Blooms: July – October. | No Potential. The property does not contain serpentine substrate necessary to support this species. | Not Present. |
| purple-stemmed checkerbloom <i>Sidalcea malviflora</i> ssp. <i>purpurea</i> | 1B | Broadleaf upland forest, coastal scrub. Elevation range: 45 – 280 feet. Blooms: May – June. | No Potential. The property does not contain coastal prairie or broadleaf upland forest habitat necessary to support this species. | Not Present. |
| Monterey clover <i>Trifolium trichocalyx</i> | FE; SE; 1B | Closed-cone coniferous forest; located on poorly drained, nutrient-deficient soils with a hardpan; often in openings and burned areas. Elevation range: 95 – 780 feet. Blooms: April – June. | Unlikely. This species is most closely associated with Monterey pine forests of the Central Coast, with one occurrence from coast redwood-Douglas fir forest of the North Coast. | Not Present. |
| coastal triquetrella <i>Triquetrella californica</i> | 1B | Coastal bluff scrub, coastal scrub, valley and foothill grassland; grows within 100 feet of the coastline in scrub and grasslands on open gravel substrates of roads, hillsides, bluffs, and slopes. Elevation range: 30 – 325 feet. | No Potential. The property does not contain coastal bluff scrub, coastal scrub, or grassland habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|---|---------------------|--|--|---------------------|
| alpine marsh violet <i>Viola palustris</i> | 2 | Coastal scrub, bogs and fens; located in swampy and shrubby places in coastal scrub or bog habitat. Elevation range: 0 – 490 feet. Blooms: March – August. | No Potential. The property does not contain coastal scrub or coastal bog habitat necessary to support this species. | Not Present. |

1) Key to status codes:

- FE Federal Endangered
- FT Federal Threatened
- FC Federal Candidate
- FD Federal De-listed
- BCC USFWS Birds of Conservation Concern
- SE State Endangered
- SD State Delisted
- ST State Threatened
- SR State Rare
- SSC CDFG Species of Special Concern
- CFP CDFG Fully Protected Animal
- 1A CRPR List 1A: Plants presumed extinct in California
- 1B CRPR List 1B: Plants rare, threatened or endangered in California and elsewhere
- 2 CRPR List 2: Plants rare, threatened, or endangered in California, but more common elsewhere
- 3 CRPR List 3: Plants about which more information is needed (a review list)
- 4 CRPR List 4: Plants of limited distribution (a watch list)

Potential to Occur:

- No Potential Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Results: (WRA 2013; see Appendix D)

Present. Species was observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

Not Present. Species is assumed to not be present due to a lack of key habitat components.

Not Observed. Species was not observed during surveys.

Source: Table compiled from the California Department of Fish and Wildlife (CDFW) Natural Diversity Database, U.S. Fish and Wildlife Service (USFWS) Species Lists, and California Native Plant Society (CNPS) Electronic Inventory searches of the Fort Bragg, Inglenook, Dutchmans Knoll, Noyo Hill, Mathison Peak, and Mendocino USGS 7.5 Minute Quadrangles (CDFW 2014a; CNPS 2014; USFWS 2014).

The seven plant species with a moderate to high potential to occur at the site are described below. Species accounts and distribution at the site, if present, are described below. Four species were observed at the site during the protocol-level survey in March, May, and/or July, 2012, and the results of the survey are presented in Table 3.4-5).

Table 3.4-5 Special-Status Plant Species Mapped on the Property

| Species | CRPR Status | Property (acres) | Plant Estimate (#) |
|-------------------|-------------|------------------|--------------------|
| Mendocino cypress | List 1B | 12.33* | 2,038 |
| Bolander's pine | List 1B | | 790 |
| Coast lily | List 1B | 0.06 | 114 |
| California sedge | List 2B | 0.09 | 894 |

Source: WRA 2013

*12.33 acres consists of the three morpho-types of cypress forest mapped at the site—a) cypress forest (tall) that is dominated by cypress, b) cypress forest (intermediate) and cypress forest (pygmy) the later two of which are dominated by combination of both cypress and Bolander's pine.

Mendocino manzanita (*Arctostaphylos nummularia* var. *mendocinensis*). CRPR 1B. High Potential (Not Present). Mendocino manzanita is an evergreen shrub in the heath family (Ericaceae) that blooms in January, but is identifiable by vegetation and ecological characteristics throughout the year. This species is located on highly acidic sandy clay podzol-like substrates (Blacklock soil series) in closed-cone coniferous forest (pygmy forest) at elevations ranging from 290 to 650 feet (CNPS 2014, CDFG 2014a). Associated species include pygmy cypress, Bolander pine, Bishop pine, evergreen huckleberry, Pacific rhododendron, Labrador tea (*R. columbianum*), California wax myrtle, and giant chinquapin.

There is one CNDDDB record for Mendocino manzanita in the greater vicinity of the property. The nearest documented occurrence is from March 1956 east of Fort Bragg, within one mile of the property. The most recent documented occurrence is from December 2003 in Jughandle State Park, approximately four miles southwest of the property (WRA 2013). Mendocino manzanita was determined to have a high potential to occur at the site due to the presence of suitable habitat, associated species, and Blacklock soils; however, this species was not observed during the protocol-level surveys performed in March, May, or July 2012.

Swamp harebell (*Campanula californica*). CRPR 1B. High Potential (Not Present). Swamp harebell is a perennial forb in the harebell family (Campanulaceae) that blooms June to October. It typically occurs in wetlands on acidic soils in bog and fen, closed-cone coniferous forest, coastal prairie, meadow, freshwater marsh, and North Coast coniferous forest habitat at elevations ranging from 3 to 1,320 feet (CNPS 2014, WRA 2013). Associated species include pygmy cypress, Bolander pine, Bishop pine, red alder (*Alnus rubra*), coast redwood, Douglas fir (*Pseudotsuga menziesii*), Pacific reedgrass (*Calamagrostis nutkaensis*), lady fern (*Athyrium filix-femina*), California blackberry (*Rubus ursinus*), salmonberry (*R. spectabilis*), Labrador tea, Nootka rose (*Rosa nutkana*), evergreen huckleberry, tinker's penny (*Hypericum anagalloides*), sedges (*Carex* spp.), rushes (*Juncus* spp.), and horsetail (*Equisetum* spp.) (WRA 2013).

Swamp harebell is known from 26 USGS 7.5-minute quadrangles in Marin, Mendocino, Santa Cruz, and Sonoma counties (CNPS 2014). There are 27 CNDDDB records (WRA 2013) in the greater vicinity of the property. The nearest documented occurrence is from August 1983 along Summers Lane, approximately one mile northwest of the property (WRA 2013). The most recent documented occurrence from Mendocino County is from July 2007 in Little Valley Creek Basin, approximately six

miles north of the property (WRA 2013). Swamp harebell was determined to have a high potential to occur at the site due to the presence of associated species, suitable habitat, suitable hydrologic and edaphic conditions, and the relative location of the documented occurrences. However, this species was not observed during the protocol-level rare plant survey conducted in July 2012 (blooms June through October).

California sedge (*Carex californica*). CRPR 2B. High Potential (Present). California sedge is a perennial graminoid in the sedge family (Cyperaceae) that blooms May to August. It typically occurs in drier portions of wetlands in bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, and marshes and swamps at elevations ranging from 290 to 1090 feet (CNPS 2014, WRA 2013). Associated species pygmy cypress, Bolander's pine, evergreen huckleberry, Pacific rhododendron, Labrador tea, salal, glossy-leaf manzanita (*Arctostaphylos nummularia*), coast lily, bracken fern, and coast sedge (WRA 2013).

There are 21 CNDDDB records for California sedge within the greater vicinity of the property. The nearest and most recent documented occurrence is from June 2010 along Summers Lane, approximately one mile northwest of the property (WRA 2013). California sedge was determined to have a high potential to occur on the property due to suitable substrate and hydrologic conditions, associated habitats and species, and the relative location of nearest documented occurrences. California sedge individuals were observed on the property with the densest populations located in transitional cypress forest and pygmy forest. Individuals within the transitional and pygmy forest community were estimated based on vegetation plot data, with a total estimate of 644 individuals. Populations within the tall cypress forest and seasonal wetland communities were discrete, and 250 individuals were counted and mapped (see Figure 3.4-1). Therefore, an estimated total of 894 individuals are estimated to be present on the property.

Green yellow sedge (*Carex viridula* var. *viridula*). CRPR 2. Moderate Potential (Not Present). Green yellow sedge is a perennial graminoid in the sedge family (Cyperaceae) that blooms from June to November. It typically occurs in mesic sites within bog and fen, freshwater marsh and swamp, and North Coast coniferous forest habitat at elevations ranging from 0 to 5,200 feet (CNPS 2014). Observed associated species include Buxbaum's sedge (*Carex buxbaumii*), flaccid sedge (*C. leptalea*), northern bugleweed (*Lycopus uniflorus*), and marsh pea (*Lathyrus palustris*) (WRA 2013).

Green yellow sedge is known from eight USGS 7.5-minute quadrangles in Del Norte, Humboldt, Mendocino, and Tuolumne counties (CNPS 2014). There is one CNDDDB record within the greater vicinity of the property. The nearest and most recent documented occurrence from Mendocino County is undated located in Inglenook Fen, MacKerricher State Park, approximately seven miles north of the property (WRA 2013). Green yellow sedge was determined to have a moderate potential to occur on the property due to the presence of associated habitats; yet few areas at the property contain hydrology sufficient to support this species. Green yellow sedge was not observed during protocol-level rare plant surveys conducted in July 2012 (blooms June through November).

Pygmy cypress (*Hesperocyparis pygmaea*). CRPR 1B. High Potential (Present). Pygmy cypress is an evergreen tree in the cypress family (Cupressaceae) which is identifiable throughout the year. It typically is stand forming on podzol-like soils (e.g. Blacklock soil series) within closed-cone coniferous forest at elevations ranging from 100 to 1,950 feet (CNPS 2014, CDFG 2014a). Observed associated species include Bishop pine, Bolander's pine (*P. contorta* ssp. *bolanderi*), coast redwood, evergreen huckleberry, Labrador tea, Pacific rhododendron, redwood manzanita (*Arctostaphylos columbianum*), Eastwood manzanita (*A. glandulosa*), glossy-leaf manzanita (*A. nummularia*), salal, coast lily, bracken fern (*Pteridium aquilinum*), and bear grass (CDFG 2014a).

Pygmy cypress is known from 12 USGS 7.5-minute quadrangles in Mendocino and Sonoma counties (WRA 2013). There are 22 CNDDDB records within the greater vicinity of the property, and 81 other records from Mendocino County (WRA 2013). The nearest documented occurrence is along Summers Lane, approximately one mile northwest of the property. The most recent documented occurrence is from Mendocino County near Noyo Hill in Jackson Demonstration State Forest, approximately 1.5 miles south of the property. Pygmy cypress was determined to have a high potential to occur at the property due to the presence of suitable soil, associated species, and the relative location of the nearest documented occurrences. Several hundred individuals of pygmy cypress were observed within three morpho-types mapped and classified at the property: cypress forest-tall, cypress forest-intermediate, and cypress forest-pygmy, based on tree height, sub dominant/associated tree species, and understory density and species (see Figure 4.3-1). Within the three morpho type polygons, approximately 2,038 individuals were estimated within the property based on vegetation plot data (WRA 2013).

Coast lily (*Lilium maritimum*). CRPR 1B. High Potential (Present). Coast lily is a rhizomatous perennial forb in the lily family (Fabaceae) that blooms from May to August. It typically occurs in wetlands on sandy substrates in hummocks, roadsides, ditches, and undisturbed areas in closed-cone coniferous forest, North Coast coniferous forest, broadleaf upland forest, coastal prairie, coastal scrub, and freshwater marsh and swamp habitat at elevations ranging from 15 to 1,545 feet (CNPS 2014, CDFG 2014a). Observed associated species include Douglas fir, coast redwood, Bishop pine, Bolander's pine (*P. contorta* ssp. *bolanderi*), tanoak, giant chinquapin, wax myrtle, evergreen huckleberry, evergreen violet (*Viola sempervirens*), bracken fern, and deer fern (*Blechnum spicant*).

Coast lily is known from 19 USGS 7.5-minute quadrangles in Marin, Mendocino, San Francisco, San Mateo, and Sonoma counties. There are 23 CNDDDB records within the greater vicinity of the property, and 59 other records from Mendocino County. The nearest documented occurrence is from July 1974 along California Highway 20 immediately adjacent to the property. The most recent documented occurrence from Mendocino County is from June 2007 at the Glass Beach Headlands, approximately four miles northwest of the property (WRA 2013). Coast lily has a high potential to occur in the property due to the presence of the associated habitat, suitable substrate and hydrology, associated species, and the relative locations of documented occurrences. Two sub-populations of coast lily were observed and mapped within the property (see Figure 4.3-1). The first population is located near Highway 20 in the southwest corner of the property within Bishop pine forest; approximately 104 individuals were documented. The second population is composed of five individuals and is located within pygmy cypress forest in the eastern portion of the property. Most individuals were in bud or flower when observed during protocol-level surveys in May and/or July 2012 (blooms: May through August).

Bolander's pine (*Pinus contorta* ssp. *bolanderi*). CRPR 1B. High Potential (Present). Bolander's pine is an evergreen tree in the pine family (Pinaceae) that is identifiable throughout the year based on vegetative structures and cones. It typically occurs on podzol-like soils in closed-cone coniferous forest habitat at elevations ranging from 240 to 815 feet (CNPS 2014, CDFW 2014a). Observed associated species include pygmy cypress, Bishop pine, Labrador tea (*Rhododendron columbianum*), Pacific rhododendron, wax myrtle, evergreen huckleberry, giant chinquapin, California sedge, bracken fern, coast lily, and bear grass (WRA 2013).

Bolander's pine is known from six USGS 7.5-minute quadrangles in Mendocino County (CNPS 2014). There are 23 CNDDDB records in the greater vicinity of the property, and 45 other records from Mendocino County. The nearest documented occurrence is along Summers Lane,

approximately one mile northwest of the property. The most recent documented occurrence from Mendocino County is from October 2002 in Van Damme State Park, approximately ten miles south of the property (WRA 2013). Bolander's pine was determined to have a high potential to occur at the property due to the presence of associated species, suitable substrate, and the relative location of the nearest documented occurrences. Several hundred individuals of Bolander's pine were observed on the property, with the densest stands located in conjunction with cypress trees. Approximately 790 individuals were estimated on the property based on vegetation plot data (WRA 2013).

Special-Status Wildlife Species

Table 3.4-6 summarizes the special-status wildlife species recorded with presence in the greater vicinity of the property, and evaluates the potential for each of the species to occur on the property. No special-status wildlife species were observed on the property during the site assessment. Nine special-status wildlife species have a moderate to high potential to occur at the property. For the remaining species, the property either lacks potentially suitable habitat or the site may contain potential habitat, but the habitat is disturbed to the extent that the occurrence of special-status species is unlikely. Special-status wildlife species with a moderate to high potential to occur on the property are discussed below.

Table 3.4-6 Potential for Special-Status Wildlife Species to Occur in the Property

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|---|-------------------------|--|--|
| Mammals | | | |
| <i>Antrozous pallidus</i> pallid bat | SSC | Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites. | Unlikely. Suitable roosting sites are not present on the study property, although this species may occasionally forage over the area. |
| <i>Aplodontia rufa nigra</i> Point Arena mountain beaver | FE, SSC | Live in underground burrow systems with openings under vegetation, often on steep north-facing slopes or in gullies. The burrows are found in moist areas with well-drained soil. | No potential. The property is outside of known range of this species. |
| <i>Arborimus pomo</i> Sonoma tree vole | SSC | Occurs in old-growth and other forests, mainly Douglas-fir, redwood, and montane hardwood-conifer habitats. Feeds only on conifer leaves, almost exclusively on Douglas-fir. | High Potential. Suitable habitat is present on the property, and it is within the known range of this species. |
| <i>Corynorhinus townsendii townsendii</i> Townsend's big-eared bat | SSC, WBWG High | Primarily found in rural settings in a wide variety of habitats including oak woodlands and mixed coniferous-deciduous forest. Day roosts highly associated with caves and mines. | Unlikely. Suitable roosting sites are not present, although this species may occasionally forage over the property. |
| <i>Eumetopias jubatus</i> steller [northern] sea lion | FT | Breeds on Año Nuevo, San Miguel and Farallon islands, Point Saint George, and Sugarloaf. Hauls-out on islands and rocks. Needs haul-out and breeding sites with unrestricted access to water, near aquatic food supply. | No potential. The study property does not contain coastal or marine habitat. |
| <i>Lasionycteris noctivagans</i> silver-haired bat | WBWG Med Priority | This forest inhabitant is known to occur from southeastern Alaska in summer, to northeastern Mexico in winter and in xeric habitats at low elevations during seasonal migrations. They can roost in tree cavities or in bark crevices on tree trunks, especially during migration. | Moderate potential. Mature trees and snags that support cavities or exfoliating bark may provide roosting habitat onsite. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|--|--------------------------|--|---|
| <i>Lasiurus cinereus</i> hoary bat | WBWG Med Priority | Widespread occurring in all states except Alaska and south Florida. Most migrate to South America for the winter, although some stay and hibernate. Roost in the foliage of trees, and occasionally in caves, or manmade structures such as bridges and abandoned mines. It prefers woodland, mainly coniferous forests, and hunts over open areas or lakes. Mating occurs during the fall when migrating south. Young are born between May and July. Their diet consists mainly of moths. | Moderate potential. Mature trees with canopy or trees that support cavities or exfoliating bark may provide roosting habitat. |
| <i>Martes pennanti pacifica</i> Pacific fisher | FC, SSC | Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Use cavities, snags, logs and rocky areas for cover and denning. Need large areas of mature, dense forest. | Unlikely. Although the study property contains suitable habitat elements, it is not within the known current range of the species. |
| <i>Myotis lucifugus</i> little brown bat | WBWG Med Priority | Found across the US. Roosts in buildings, trees, and under rocks. Prefer forested land near water. | Moderate potential. Mature trees and snags that support cavities or exfoliating bark may provide roosting habitat if present onsite. |
| <i>Myotis thysanodes</i> fringed myotis | WBWG High Priority | Associated with a wide variety of habitats including mixed coniferous-deciduous forest and redwood/sequoia groves. Buildings, mines and large snags are important day and night roosts. | Moderate potential. Mature trees and snags that support cavities or exfoliating bark may provide roosting habitat. This species may occasionally forage over the property. |
| <i>Myotis Volans</i> long-legged myotis | WBWG High Priority | Generally associated with woodlands and forested habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings. | Unlikely. Suitable roosting sites are not present, although this species may occasionally forage over the property (WRA 2013). |
| <i>Phoca vitulina richardsi</i> Pacific harbor seal | MMPA | Occurs in marine and estuarine environments the length of California. Breeds on islands; hauls out on mainland sites. | No potential. The study property does not contain coastal or marine habitat. |
| <i>Zalophus californianus</i> California sea lion | MMPA | Occurs in marine and estuarine environments from Vancouver Island, British Columbia to the southern tip of Baja California. Breeds on offshore islands from the Channel Islands southward. Hauls out on mainland sites. | No potential. The property does not contain coastal or marine habitat. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|--|------------|---|--|
| Birds | | | |
| <i>Accipiter gentilis</i> northern goshawk | SC, SSC | Year-round resident within and on the edges of mixed and coniferous forests. Usually occurs in mature, old-growth forests. Hunts medium-sized birds. | Unlikely. The property is located to the west of this species' Mendocino County distribution as per a recent monograph (as referenced by WRA 2013). |
| <i>Agelaius tricolor</i> tricolored blackbird | SSC | Resident, though wanders during the non-breeding season. Highly colonial when breeding. Usually nests over or near freshwater in dense cattails, tule, or thickets of willow, blackberry, wild rose or other tall herbs. | No Potential. The property does not contain any typical nesting habitat, and is located outside of this species' limited breeding distribution in Mendocino County per a recent monograph (per WRA 2013). |
| <i>Aquila chrysaetos</i> golden eagle | CFP | Found in rolling foothill and mountain areas, sage-juniper flats, and dessert. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large, often isolated trees. | Unlikely. The property contains dense, coniferous forest canopy not suitable for foraging. May rarely occur in the vicinity during dispersal or other movements. |
| <i>Asio flammeus</i> short-eared owl | SSC | Resident and winter visitor. Found in open, treeless areas (e.g. marshes, grasslands) with elevated sites for foraging perches and dense vegetation for roosting and nesting. | No Potential. The property does not contain suitable open habitat, and species is not known to breed in Mendocino County per a recent monograph (WRA 2013). |
| <i>Asio otus</i> long-eared owl | SSC | Largely resident. Nests in a variety of woodland habitats, including coniferous, oak and riparian. Requires adjacent open land (e.g. grasslands, meadows) for foraging, and the presence of old nests of other birds for nesting. | Unlikely. The property is forested, and there is very limited open habitat in the vicinity. |
| <i>Athene cunicularia</i> burrowing owl | SSC | Occurs in open grasslands and shrublands with sparse vegetation. Roosts and nests in mammal burrows, typically those of ground squirrels. Preys upon insects and small vertebrates. | No Potential. The property contains no habitat suitable for this species, and is outside of its range per a recent monograph in Shuford and Gardali (2008). |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|--|---------|---|---|
| <i>Brachyramphus marmoratus</i> marbled murrelet | FT, SE | Occurs in coastal marine habitats for much of the year. Breeds in old-growth conifer stands (e.g. redwood, Douglas fir) containing platform-like branches, along the coast. | Unlikely. The property lacks stands of old-growth redwood and Douglas fir that provide breeding habitat. There are not CNDDDB breeding occurrences reported within ten miles of the property (WRA 2013). Species may fly over the area if inland breeding sites exist. |
| <i>Buteo regalis</i> ferruginous hawk | BCC | Winter visitor. Found in open habitats including grasslands, sagebrush flats, desert scrub and low foothills surrounding valleys. | No Potential. The property does not contain habitat typical of this species. |
| <i>Chaetura vauxi</i> Vaux's swift | SSC | Summer resident, primarily in forested areas. Nests in tree cavities, favoring those with a large vertical extent. Also uses chimneys and similar manmade substrates. | Moderate Potential. This species breeds throughout Mendocino County according to a recent monograph (WRA 2013). |
| <i>Charadrius alexandrinus nivosus</i> western snowy plover | FT, SSC | Resident and winter visitor. Found on sandy beaches, salt pond levees and shores of large alkali lakes. Need sandy gravelly or friable soils for nesting. | No Potential. The property does not contain beach, levee, or lake shore habitat necessary to support this species. |
| <i>Circus cyaneus</i> northern harrier | SSC | Resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests in dense vegetation on the ground, typically near water. | Unlikely. Although this species breeds in coastal Mendocino County (WRA 2013), the property is forested and does not contain suitable open habitat. |
| <i>Contopus cooperi</i> olive-sided flycatcher | SSC | Summer resident. Breeds in montane coniferous forests, as well as mixed forests along the coast. Often associated with edge habitats. | Moderate Potential. The property contains coniferous forest, with some edge areas. |
| <i>Dendroica petechial</i> yellow warbler | SSC | Summer resident. Nests in riparian stands of willows, cottonwoods, aspens, sycamores, and alders. Also nests in montane shrubbery in open coniferous forests. Occurs widely during migration. | Unlikely. The property does not contain any riparian habitat and provides no breeding habitat for this species. May occur occasionally during migration. |
| <i>Diomedea albatrus</i> short-tailed albatross | FE, SSC | Pelagic; comes to land only when nesting. Nests on remote Pacific islands. Rare in the eastern Pacific. | No potential. This species is entirely marine within the coastal California region. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|---|------------------------|---|---|
| <i>Elanus leucurus</i> white-tailed kite | CFP | Resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Preys on small diurnal mammals and other vertebrates. | No Potential. The property does not contain open grassland, prairie, or marsh habitat necessary to support this species. |
| <i>Falco peregrinus anatum</i> American peregrine falcon | FD, SE, CFP | Resident and winter visitor. Typically found near water, including rivers, lakes, wetlands and the ocean. Requires protected cliffs, ledges or anthropogenic structures for nesting. Forages widely, feeding on a variety of avian prey, mostly waterbirds. | Unlikely. The property does not contain cliffs or anthropogenic structures typically used for nesting. May occasionally forage over the site. |
| <i>Fratercula cirrhata</i> tufted puffin | SSC | Pelagic and coastal marine. Nests along islands, islets, or (rarely) isolated mainland cliffs. Requires sod or earth to burrow. Forages at sea, primarily for fish. | No potential. The property does not contain coastal marine habitat. |
| <i>Gavia immer</i> common loon | SSC | Winter visitor, in coastal estuarine and subtidal marine habitats. Also occurs on large inland water bodies. | No potential. The property does not contain suitable aquatic habitat for this species. |
| <i>Haliaeetus leucocephalus</i> bald eagle | FD, SE, CFP, BCC | Primary a winter visitor, with limited breeding in the region. Requires large bodies of water, or free-flowing rivers with abundant fish adjacent snags or other perches. Nests in large, old-growth, or dominant live tree with open branchwork. | Unlikely. The property does not contain large bodies of water and thus provides no typical habitat or foraging resources for this species. May occasionally fly over the area. |
| <i>Histrionicus histrionicus</i> harlequin duck | SSC | Winter visitor to marine waters along the coast; breeds inland along streams in the northern Sierra Nevada. | No Potential. The property does not contain coastal marine habitat. |
| <i>Lanius ludovicianus</i> loggerhead shrike | SSC | Resident in open habitats with scattered shrubs, trees, posts, etc. from which to forage for large insects and small vertebrates. Nests are well-concealed above ground in densely-foliaged shrub or tree. | No Potential. The property does not contain open areas, and is outside of its limited Mendocino County breeding range per a recent monograph in Shuford and Gardali (2008). |
| <i>Melanerpes lewis</i> Lewis's woodpecker | BCC | Winter visitor, occurring in oak savannahs and various open woodland habitats. Often associated with recently-burned areas. | Unlikely. The property does not contain open woodland or oak woodland habitat necessary to support this species. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|--|--------|---|--|
| <i>Numenius americanus</i> long-billed curlew | BCC | Winter visitor. Winters in large coastal estuaries, upland herbaceous areas, and croplands. Breeds in northeastern California in wet meadow habitat. | No Potential. The property does not contain suitable wetland, mudflat or grassland habitat for this species. |
| <i>Oceanodroma homochroa</i> ashy storm petrel | SSC | Pelagic and coastal marine. Breeds on the Farallon Islands off of the San Francisco/Marin Coast. | No Potential. The property does not contain pelagic or coastal marine habitat. |
| <i>Pelecanus occidentalis californicus</i> California brown pelican | CFP | Winter/non-breeding visitor to estuarine, marine subtidal, and marine pelagic waters along the coast. Nests on offshore islands of southern California. | No Potential. The property does not contain coastal marine habitat. |
| <i>Phoebastria albatrus</i> Short-tailed albatross | FE | Pelagic and coastal marine. | No Potential. The property does not contain pelagic or coastal marine habitat. |
| <i>Progne subis</i> purple martin | SSC | Summer resident. In NW California, typically breeds in coniferous forest and woodlands. Nests in tree cavities, usually high off the ground, and in the cavities of human-made structures (e.g. bridges, utility poles). | Moderate Potential. The property contains coniferous forest with potential tree cavities for nesting, and there is a documented breeding occurrence within four miles (WRA 2013). |
| <i>Riparia riparia</i> bank swallow | ST | Summer resident in lowland habitats in western California. Nests in areas with vertical cliffs and banks with fine-textured or sandy soils in which to burrow, typically riparian areas or coastal cliffs. | No Potential. The property does not contain suitable nesting habitat and is outside of this species' known breeding range in the state. |
| <i>Selasphorus rufus</i> rufous hummingbird | BCC | Summer resident in northwestern California. Breeds in a wide variety of habitats that provide nectar-producing flowers. Occurs throughout the state during migration. | Unlikely. The property is south of this species' limited California breeding range. May occur occasionally during migration. |
| <i>Selasphorus sasin</i> Allen's hummingbird | BCC | Summer resident along the California coast. Breeds in a wide variety of forest and woodland habitats that provide nectar-producing flowers, including parks and gardens. Migration generally limited to the coastal zone. | Moderate Potential. The property includes nectar plants and provides suitable breeding habitat for this species. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|---|---------|---|---|
| <i>Strix occidentalis caurina</i> northern spotted owl | FT, SSC | Resident. Typically occurs in large patches of old-growth coniferous forest. Prefers dense, structurally complex canopies with large trees for foraging and roosting. Nests on horizontal substrates in dense canopy, e.g. large cavities and broken tree tops. | Unlikely. Coniferous forest within the property lacks structurally-complex, old-growth characters typically favored by this species. Per CDFG's Spotted Owl Viewer, the nearest documented breeding occurrences are located approximately 1.2 miles east of the property. May occasionally forage in the area, but breeding is unlikely. |
| <i>Synthliboramphus hypoleucus</i> Xantus's murrelet | ST | Pelagic and coastal marine. Breeds on offshore islands of southern California. Strays to northern California at sea during the non-breeding season. | No Potential. The property does not contain coastal marine habitat. |
| Reptiles and Amphibians | | | |
| <i>Ascaphus truei</i> Pacific tailed frog | SSC | Occurs from Mendocino County and north, in cold permanent streams, usually in forested areas of high precipitation. Primarily aquatic. | No potential. Although there are several documented occurrences within five miles (WRA 2013), the property does not contain stream habitat for this species. |
| <i>Emys (Actinemys) marmorata</i> Western pond turtle | SSC | Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter. | No potential. The property does not contain aquatic habitat necessary to support this species. |
| <i>Rana aurora</i> northern red-legged frog | SSC | Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive emergent and/or riparian vegetation. Documented to disperse through upland habitats after rains. <i>R. aurora</i> found north of Big River (includes project site). South of Big River to Elk Creek is integrate zone (Shaffer 2004). | Unlikely. The property does not contain suitable aquatic breeding habitat for this species. |
| <i>Rana boylei</i> foothill yellow-legged frog | SSC | Found in or near rocky streams in a variety of habitats. Feed on both aquatic and terrestrial invertebrates. | No potential. The property does not contain stream habitat necessary to support this species. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|--|---------------|--|--|
| <i>Rhyacotriton variegatus</i> southern torrent salamander | SSC | Cold, permanent seeps and small streams with rocky substrate. | No potential. Although there is a documented occurrence in Hare Creek to the southwest (WRA 2013), the property does not contain stream or suitable seep habitat. |
| Fishes | | | |
| <i>Eucyclogobius newberryi</i> tidewater goby | FE, SSC | Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels. | No Potential. The property does not contain any aquatic habitat necessary to support this species. |
| <i>Oncorhynchus kisutch</i> Northern California steelhead | FE | Anadromous, spending time in the ocean, and spawning in coastal rivers and creeks. | No Potential. The property does not contain any aquatic habitat necessary to support this species. |
| <i>Oncorhynchus tshawytscha</i> chinook salmon - CA Coast ESU | FT, RP, NMFS | Anadromous, spending most of its life cycle in the ocean, but spawning in coastal rivers and creeks. The CA Coast ESU includes naturally spawned populations from rivers and streams south of the Klamath River (exclusive) to the Russian River (inclusive). | No Potential. The property does not contain any aquatic habitat necessary to support this species. |
| <i>Oncorhynchus mykiss</i> steelhead - Northern CA ESU | FT, NMFS, SSC | Anadromous, spending most of its life cycle in the ocean, but spawning in coastal rivers and creeks. The federal designation refers populations occurring below impassable barriers in coastal basins from Redwood Creek to, and including, the Gualala River. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean. | No Potential. The property does not contain any aquatic habitat necessary to support this species. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|---|--------|---|---|
| Invertebrates | | | |
| <i>Danaus plexippus</i> monarch butterfly | None | Winter roost sites in wind-protected tree groves (eucalyptus, Monterey pine or Monterey cypress), with nectar and water sources nearby. Individuals occur widely. No formal listing, winter roosts monitored by CDFW) | Unlikely. The property is forested, containing no typical tree grove habitat. Individual monarchs may occasionally pass through the property. |
| <i>Lycaiedes argyrognomon lotis</i> lotis blue butterfly | FE | Known from sphagnum-willow bogs in association with Bishop pine, pygmy forests and similar habitats. Harlequin lotus (<i>Hosackia gracilis</i>) is the suspected host plant. | Unlikely. The site contains pygmy cypress and Bishop pine forest, yet sphagnum-willow bog habitat or harlequin lotus are not present. Individual species may occasionally pass through the property. |
| <i>Speyeria zerene behrensii</i> Behren’s silverspot butterfly | FE | Inhabits coastal terrace prairie habitat. Host plant is dog violet (<i>Viola adunca</i>). | No Potential. The site does not contain coastal terrace prairie habitat for dog violets. |

1) Key to status codes:

- FE Federal Endangered
- FT Federal Threatened
- FC Federal Candidate
- FD Federal De-listed
- BCC USFWS Birds of Conservation Concern
- SE State Endangered
- SD State Delisted
- ST State Threatened
- SR State Rare
- SSC CDFG Species of Special Concern
- CFP CDFG Fully Protected Animal
- WBWG Western Bat Working Group High or Medium Priority species

Potential to Occur:

- No Potential Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Source: Table compiled from the California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CNDDDB), U.S. Fish and Wildlife Service (USFWS) Species Lists, electronic database searches of the Fort Bragg, Inglenook, Dutchmans Knoll, Noyo Hill, Mathison Peak, and Mendocino USGS 7.5 Minute Quadrangles (CDFW 2014a; USFWS 2014).

Sonoma tree vole (*Arborimus pomo*), CDFW Species of Special Concern. High Potential. The Sonoma tree vole is distributed along the northern California coast from Sonoma County to the Oregon border. It occurs in old-growth and other forest types of Douglas fir and other conifers, including stands of Bishop pine. This species breeds year-round, but most often from February through September. Nests are constructed preferentially in tall trees, and may be situated on a whorl of limbs against the trunk, or at the outer limits of branches. Males nest most frequently in a tree nest constructed of needles, or less frequently in shallow burrows at the base of the tree, beneath litter. Females tend to spend most of their lives in trees, constructing large, domed nursery nests of needles at six to 150 feet above the ground. In young second-growth Douglas fir, nests can be placed on broken tops of trees, although old-growth Douglas fir stands likely provide the optimal structural components for nest building. The Sonoma tree vole is a coniferous needle specialist; needles and twigs are gathered primarily during the night, and may be consumed where found or brought to the nest. Needle resin ducts are removed. The remaining part is eaten, and the resin ducts may be used to line the nest cup. This unique nest lining is an identifying characteristic of this species.

This species was not observed during the reconnaissance-level site visit, nor were sign of its presence observed. However, there are several documented occurrences within five miles of the property (WRA 2013), and the property contains mature Bishop pine and other conifers. For these reasons, Sonoma tree vole has a moderate to high potential to be present.

Silver-haired bat (*Lasionycteris noctivagans*) Western Bat Working Group “Medium Priority” Species. Moderate Potential. This north temperate zone conifer and mixed conifer/hardwood forests inhabitant is known to occur from southeastern Alaska in summer, to northeastern Mexico in winter and in xeric habitats at low elevations during seasonal migrations. Maternity roosts appear to be almost exclusively in trees which include inside natural hollows and bird excavated cavities or under loose bark of large diameter snags. Both males and females change roosts frequently, and use multiple roosts within a limited area throughout the summer, indicating that clusters of large trees are necessary.

While the property does not contain optimal roosting habitat for this species, and foraging areas over water are not present, cavities and exfoliating bark within mature conifers may provide suitable roosting locations during certain portions of the year, therefore this species has moderate potential to be present on the property.

Hoary bat (*Lasiurus cinereus*) Western Bat Working Group “Medium Priority” Species. Moderate Potential. This species is widespread from near the limit of trees in Canada, southward at least to Guatemala, and from Brazil to Argentina and Chile in South America. Hoary bats are uncommon in the eastern U.S. and in the northern Rocky Mountains, but are more common in the prairie states and Pacific Northwest. They are associated with forested habitats in the west. Most migrate to South America for the winter, although some stay and hibernate. These bats roost in the foliage of trees, and occasionally in caves, or manmade structures such as bridges and abandoned mines. It prefers woodland, mainly coniferous forests, but hunts over open areas or lakes. Mating occurs during the fall when migrating south. Young are born between May and July. Their diet consists mainly of moths.

While the property does not contain optimal roosting habitat for this species, and foraging areas over water are not present, canopy within mature conifers may provide suitable roosting locations during certain portions of the year, therefore this species has moderate potential to be present on the property.

Fringed myotis (*Myotis thysanodes*), Western Bat Working Group “High Priority” Species. Moderate Potential. This bat ranges through much of western North America and is found in various habitats, including desert scrubland, grassland, sage-grass steppe, old-growth forest, and subalpine coniferous and mixed deciduous forest. Oak and pinyon-juniper woodlands are most commonly used. Fringed Myotis roosts in colonies from ten to 2,000 individuals, although large colonies are rare. Caves, buildings, underground mines, rock crevices in cliff faces, and bridges are used for maternity and night roosts, while hibernation has only been documented in buildings and underground mines. Tree-roosting has also been documented in Oregon, New Mexico, and California (WBWG 2012).

While the property does not contain optimal roosting habitat for this species, cavities and exfoliating bark within mature conifers may provide suitable roosting locations during certain portions of the year, therefore this species has moderate potential to be present on the property.

Little brown bat (*Myotis lucifugus*) Western Bat Working Group “Medium Priority” Species. Moderate Potential. Found in mesic, typically forested, areas of temperate across North America. This species is an ecological generalist exploiting a wide variety of natural and man-made roost sites and a wide spectrum of flying insect prey, including emerging adults of aquatic species. Summer maternity colony sites (consisting largely of reproductive females and dependent young) include tree cavities, caves and human-occupied structures.

While the property does not contain optimal roosting habitat for this species, and foraging areas over water are not present, cavities and exfoliating bark within mature conifers may provide suitable roosting locations during certain portions of the year, therefore this species has moderate potential to be present on the property.

Vaux’s swift (*Chaetura vauxi*), CDFW Species of Special Concern. Moderate Potential. Vaux's swift is a summer resident in California, breeding on the coast from central California northward and in the Cascades and Sierra Nevada. Nesting occurs in large, accessible, chimney-like tree cavities that allow birds to fly within the cavity directly to secluded nest sites. Such cavities usually occur in conifers, particularly redwoods (as reported by WRA 2013). Chimneys and similar manmade substrates are also used for nesting. This species is highly aerial and forages widely for insects in areas of open airspace. During migration, nocturnal roosting occurs communally; favored roosts may host thousands of individuals. The property contains conifers with some large, vertical-oriented cavities, and thus provides suitable breeding habitat and this species has moderate potential to be present on the property.

Olive-sided flycatcher (*Contopus cooperi*), CDFW Species of Special Concern. Moderate Potential. The olive-sided flycatcher is a summer resident in California, wintering in Central and South America. It breeds in a variety of forested habitats, typically coniferous forests at higher elevations, but also in mixed forest and woodlands at lower elevations. Breeding habitat is often associated with forest openings and edges, both natural (e.g., meadows, canyons) and man-made (e.g., logged areas) (as reported by WRA 2013). Nests are usually in conifers, and placed at variable height on the outer portions of branches. This species forages for insects, usually from prominent tree snags. The coniferous forest of the property provides suitable breeding habitat, particularly in its western portion along edge areas and this species has moderate potential to be present on the property.

Purple martin (*Progne subis*), CDFW Species of Special Concern. Moderate Potential. This large swallow is an uncommon summer resident in California, breeding in forest and woodlands at low- to mid- elevations throughout much of the state. Nesting occurs primarily in tree cavities; trees

selected are usually taller or isolated, with low canopy cover at the nest height, and situated on the upper portions of slopes and/or near bodies of water where large insects (favored prey) are abundant (as reported by WRA 2013). Conifers are the most frequently used tree type in northern California. Manmade structures with suitable cavities such as bridges or utility poles are also used. Coniferous forest within the property includes taller trees with potential cavities, and recent nesting has been documented within four miles of the property (WRA 2013). This species has moderate potential to be present on the property.

Allen's hummingbird (*Selasphorus sasin*), USFWS Bird of Conservation Concern. Moderate Potential. Allen's hummingbird, common in many portions of its range, is a summer resident along the majority of California's coast and a year-round resident in portions of coastal southern California. Breeding occurs in association with the coastal fog belt, and typical habitats used include coastal scrub, riparian, woodland and forest edges, and eucalyptus and cypress groves (WRA 2013). Feeds on flower nectar, and forages for insects and spiders. The property provides some forest edge habitat as well as nectar plants; this species has a moderate potential to be present, including breeding.

3.4.2 Regulatory Framework

Many sensitive biological resources in California are protected and/or regulated by federal, state, and local laws and policies. Those most applicable to the proposed project are summarized below.

Federal

Federal Endangered Species Act

The federal Endangered Species Act of 1973 (ESA) recognizes that many species of fish, wildlife, and plants are in danger of or threatened with extinction and established a national policy that all federal agencies should work toward conservation of these species. The Secretary of the Interior and the Secretary of Commerce are designated in the act as responsible for identifying endangered and threatened species and their critical habitats, carrying out programs for the conservation of these species, and rendering opinions regarding the impact of proposed federal actions on endangered species. The act also outlines what constitutes unlawful taking, importation, sale, and possession of endangered species and specifies civil and criminal penalties for unlawful activities.

Biological assessments are required under Section 7(c) of the act if listed species or critical habitat may be present in the area affected by any major construction activity conducted by, or subject to issuance of a permit from, a federal agency as defined in Part 404.02. Under Section 7(a)(3) of the act every federal agency is required to consult with the USFWS or NOAA Fisheries on a proposed action if the agency determines that its proposed action may affect an endangered or threatened species.

Section 9 of the ESA prohibits the "take" of any fish or wildlife species listed under the ESA as endangered or threatened. Take, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such action." However, Section 10 allows for the "incidental take" of endangered and threatened species of wildlife by non-federal entities. Incidental take is defined by the ESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Section 10(a)(2)(A) requires an applicant for an incidental take permit to submit a "conservation plan" that specifies, among other things, the impacts that are likely to result from the taking and the measures the permit applicant will undertake to minimize and mitigate such impacts. Section 10(a)(2)(B) provides statutory criteria that must be satisfied before an incidental take permit can be issued.

Clean Water Act, Section 404

Proposed discharges of dredged or fill material into waters of the U.S. require USACE authorization under Section 404 of the Clean Water Act (CWA) [33 U.S.C. 1344]. Waters of the U.S. generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands (with the exception of isolated wetlands). Wetlands subject to the CWA Section 404 are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3 [b]; 40 CFR 230.3 [t]). The USACE identifies wetlands using a “multi-parameter approach,” which requires positive wetland indicators in three distinct environmental categories: hydrology, soils, and vegetation. According to the USACE Wetlands Delineation Manual, except in certain situations, all three parameters must be satisfied for an area to be considered a jurisdictional wetland. The Regional Supplement to the Corps of Engineers Wetland Delineation Manual (USACE 2010) is also utilized when conducting jurisdictional wetland determinations in areas identified within the boundaries of the arid west.

The CWA also defines the ordinary high water mark as the Section 404 jurisdictional limit in non-tidal waters. When adjacent wetlands are present, the limit of jurisdiction extends to the limit of the wetland. Field indicators of ordinary high water include clear and natural lines on opposite sides of the banks, scouring, sedimentary deposits, drift lines, exposed roots, shelving, destruction of terrestrial vegetation, and the presence of litter or debris. Typically, the width of waters corresponds to the two-year flood event.

Clean Water Act, Section 401

Section 401 of the CWA requires applicants acquiring a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States, to also obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. The appropriate RWQCB regulates Section 401 requirements (see under State below).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (50 CFR 10.13) established federal responsibilities for the protection of nearly all species of birds, their eggs and nests. A migratory bird is defined as any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle. “Take” is defined in the MBTA “to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof.” Only non-native species such as feral pigeon (*Columba livia*), house sparrow (*Passer domesticus*), and European starling (*Sturnus vulgaris*) are exempt from protection.

State

California Environmental Quality Act

Rare or endangered plant or wildlife species are defined in the CEQA Guidelines Section 15380; endangered means that survival and reproduction in the wild are in immediate jeopardy. Rare means that a species is either presently threatened with extinction or that it is likely to become endangered within the foreseeable future. A species of animal or plant shall be presumed to be rare or endangered if it is listed in Sections 670.2 or 670.5, Title 14, California Administrative Code; or Title 50, Code of Federal Regulations Sections 17.11 or 17.12 pursuant to the federal Endangered Species Act as threatened or endangered.

California Endangered Species Act

The California Endangered Species Act (CESA) includes provisions for the protection and management of species listed by the State of California as endangered or threatened or designated as candidates for such listing (Fish and Wildlife Code Sections 2050 through 2085). The act requires consultation “to ensure that any action authorized by a State lead agency is not likely to jeopardize the continued existence of any endangered or threatened species or results in the destruction or adverse modification of habitat essential to the continued existence of the species” (Section 2053). California plants and animals declared to be endangered or threatened are listed at 14 CCR 670.2 and 14 CCR 670.5, respectively. The State prohibits the take of protected amphibians (14 CCR 41), protected reptiles (14 CCR 42), and protected furbearers (14 CCR 460). The CDFW may also authorize public agencies through permits or a memorandum of understanding to import, export, take, or possess any endangered species, threatened species, or candidate species for scientific, educational, or management purposes (Section 2081[a]). The CDFW may also authorize, by permit, the take of endangered species, threatened species, and candidate species provided specific conditions are met (Section 2081[b]).

California Fish and Game Code

The recently renamed California Department of Fish and Wildlife (CDFW) enforces the California Fish and Game Code (CFGC), which provides protection for “fully protected birds” (Section 3511), “fully protected mammals” (Section 4700), “fully protected reptiles and amphibians” (Section 5050), and “fully protected fish” (Section 5515). With the exception of permitted scientific research, no take of any fully protected species is allowed.

Section 3503 of the CFGC prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 specifically prohibits the take, possession, or destruction of any birds in the orders Falconiformes (hawks and eagles) or Strigiformes (owls) and their nests. These provisions, along with the federal MBTA, essentially serve to protect nesting native birds. Non-native species, including European starling and house sparrow, are not afforded protection under the MBTA or CFGC.

Streams, lakes, and riparian vegetation as habitat for fish and other wildlife species, are subject to jurisdiction by the CDFW under Sections 1600-1616 of the CFGC. Activity that will do one or more of the following, generally require a Section 1602 Lake and Streambed Alteration Agreement: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. The term “stream,” which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as follows: “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian is defined as, “on, or pertaining to, the banks of a stream;” therefore, riparian vegetation is defined as, “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself.” Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from the CDFW.

Clean Water Act and the State of California's Porter-Cologne Water Quality Control Act

The State Water Resources Control Board (SWRCB) regulates construction storm water discharges through SWRCB Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges that Have Received State Water Quality Certification." The State's authority to regulate activities in wetlands and waters resides primarily with the SWRCB, which in turn has authorized the State's nine RWQCBs, discussed below, to regulate such activities. Under Section 401 of the federal CWA, every applicant for a federal permit for any activity that may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with state water quality standards.

In the project area, the North Coast RWQCB (NCRWQCB) regulates construction in waters of the U.S. and waters of the State, including activities in wetlands, under both the CWA and the State of California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7). Under the CWA, the RWQCB has regulatory authority over actions in waters of the U.S., through the issuance of water quality certifications, as required by Section 401 of the CWA, which are issued in conjunction with permits issued by the USACE under Section 404 of the CWA. The RWQCB must certify that a USACE permit action meets State water quality objectives (§401 CWA, and Title 23 CCR 3830, et seq.) before a USACE permit is issued. Activities in areas that are outside of the jurisdiction of the USACE (e.g., isolated wetlands, vernal pool, or stream banks above the ordinary high water mark) are regulated by the nine RWQCBs, under the authority of the Porter-Cologne Act, and may require the issuance of either individual or general waste discharge requirements.

The California Wetlands Conservation Policy (Executive Order W-59-93) establishes a primary objective to "ensure no overall net loss ... of wetlands acreage and values in California." The RWQCBs implement this policy and the Basin Plan Wetland Fill Policy, both of which require mitigation for wetland impacts.

State Species of Special Concern

The CDFW maintains list of species and habitats of special concern. These are broadly defined as species that are of concern to the CDFW because of population declines and restricted distributions, and/or they are associated with habitats that are declining in California; the criteria used to define special-status species are described by the CDFW. Impacts to special-status plants, animals, and habitats may be considered significant under CEQA.

State Species of Special Concern include those plants and wildlife species that have not been formally listed, yet are proposed or may qualify as endangered or threatened, or are candidates for such listing under the California Endangered Species Act (CESA). This affords protection to both listed species and species proposed for listing. In addition, CDFW Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, United States Fish and Wildlife Service (USFWS) Birds of Conservation Concern, and CDFW special-status invertebrates are considered special-status species by CDFW. Plant species included within the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (Inventory) with California Rare Plant Rank (CRPR) of 1 and 2 are also considered special-status plant species. Few Rank 3 or Rank 4 plants meet the definitions of Section 1901 Chapter 10 of the Native Plant Protection Act (see below) or Sections 2062 and 2067 of the CDFG Code that outlines the California Endangered Species Act. There are occasions where CRPR List 3 or 4 species might be considered of special-concern particularly for the type locality of a plant, for populations at the periphery of a species range, or in areas where the taxon is especially uncommon or has sustained heavy losses, or from populations exhibiting unusual morphology.

Also under the jurisdiction of CDFW and considered sensitive are vegetation alliances with a State (“S”) ranking of S1 through S3 in the *List of Vegetation Alliances* (CDFG 2009a). CDFG ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB).

Native Plant Protection Act

The CDFW administers the California Native Plant Protection Act (CNPPA) (Sections 1900–1913 of the CFGC). These sections allow the California Fish and Game Commission to designate rare and endangered plant species and to notify landowners of the presence of such species. Section 1907 of the CFGC allows the Commission to regulate the “taking, possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants.” Section 1908 further directs that “[n]o person shall import into this state, or take, possess, or sell within this state, except as incident to the possession or sale of the real property on which the plant is growing, any native plant, or any part or product thereof, that the Commission determines to be an endangered native plant or rare native plant.”

California Species Preservation Act

The California Species Preservation Act (CFGF Sections 900–903) includes provisions for the protection and enhancement of the birds, mammals, fish, amphibians, and reptiles of California. The administering agency is the CDFW.

Regional and Local

Mendocino County General Plan Goals and Policies

Following are the Mendocino County General Plan goals and policies most applicable to biological resources for the proposed project.

- Goal RM-7 (Biological Resources): Protection, enhancement and management of the biological resources of Mendocino County and the resources upon which they depend in a sustainable manner.
- Policy RM-24: Protect the County’s natural landscapes by restricting conversion and fragmentation of timberlands, oak woodlands, stream corridors, farmlands, and other natural environments.
- Policy RM-25: Prevent fragmentation and loss of our oak woodlands, forests, and wildlands and preserve the economic and ecological values and benefits.
- Policy RM-28: All discretionary public and private projects that identify special-status species in a biological resources evaluation (where natural conditions of the site suggest the potential presence of special-status species) shall avoid impacts to special-status species and their habitat to the maximum extent feasible. Where impacts cannot be avoided, projects shall include the implementation of site-specific or project-specific effective mitigation strategies developed by a qualified professional in consultation with state or federal resource agencies with jurisdiction (if applicable) including, but not limited to, the following strategies:
- Preservation of habitat and connectivity of adequate size, quality, and configuration to support the special-status species. Connectivity shall be determined based on the specifics of the species’ needs.
 - Provision of supplemental planting and maintenance of grasses, shrubs, and trees of similar quality and quantity to provide adequate vegetation cover to

enhance water quality, minimize sedimentation and soil transport, and provide adequate shelter and food for wildlife.

- Provide protection for habitat and the known locations of special-status species through adequate buffering or other means.
- Provide replacement habitat of like quantity and quality on- or off-site for special-status species.
- Enhance existing special-status species habitat values through restoration and replanting of native plant species.
- Provision of temporary or permanent buffers of adequate size (based on the specifics of the special-status species) to avoid nest abandonment by nesting migratory birds and raptors associated with construction and site development activities.
- Incorporation of the provisions or demonstration of compliance with applicable recovery plans for federally listed species.

Policy RM-29: All public and private discretionary projects shall avoid impacts to wetlands if feasible. If avoidance is not feasible, projects shall achieve no net loss of wetlands, consistent with state and federal regulations.

Policy RM-31: For the purposes of implementing this General Plan, the County defines “special status species” and “sensitive biotic communities” to include all species and habitat identified as such by the California Department of Fish and Game, U.S. Fish and Wildlife Service, or NOAA Fisheries.

Policy RM-72: New development shall protect sensitive environments and resource corridors while maintaining compatibility with adjacent uses.

Policy RM-73: The design of new development should emphasize the avoidance of sensitive resources and environments rather than their removal and replacement.

Policy RM-74: Discretionary development shall be designed or conditioned to achieve no net loss of sensitive resources.

Policy RM-75: Protection of existing sensitive resources is the highest priority. Onsite replacement or offsite replacement, protection or enhancement is less desirable.

Policy RM-76: Limit land use density and intensity within and adjacent to critical wildlife habitats, such as wetlands, deer wintering range, old growth forests and riparian corridors.

Policy RM-79: Encourage farmers, land owners and property managers to protect sensitive environments, and minimize the effects of recreation, tourism, agriculture and development on these resources. Promote techniques and features such as:

- Habitat contiguity,
- Wildlife corridors,
- Maintaining compatibility with adjacent uses,
- Maintaining habitat for sensitive plant and animal species.

Policy RM-80: Vegetation removal should be reviewed when involving five (5) or more acres, assessing the following impacts:

- Grading and landform modifications including effects on site stability, soil erosion and hydrology.
- Effects on the natural vegetative cover and ecology in the project area.
- Degradation to sensitive resources, habitat and fisheries resources.
- Compatibility with surrounding uses.
- Visual impacts from public vantage points.
- Cumulative and growth-inducing impacts.

For the purposes of implementing this policy, “vegetation removal” does not include state-regulated timber harvest

Policy RM-81: Vegetation management and landscaping for public and private development should emphasize protection and continuity of natural habitats and hydrology.

Policy RM-84: Protect “pygmy” ecosystems (“pygmy” and “transitional pygmy” vegetation and soils) through the use of measures that include minimizing:

- Vegetation removal,
- Disruption of vegetation continuity, and
- The introduction of water and nutrients due to human activity, sewage disposal systems, animals or agricultural uses.

Also:

- Limit subdivision of land on agricultural lands adjacent to “pygmy” ecosystems, and
- Promote best management practices to minimize impacts.

3.4.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to biological resources, as defined by the CEQA Guidelines (Appendix G), if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

Significance Threshold

Loss or harm of individuals or loss of habitat for listed or candidate species or species of special concern

Loss of individuals or eggs protected under the MBTA

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

Significance Threshold

Imperiled Sensitive Habitats (State Rank S1 and S2 per CDFW criteria)

- Removal of more than zero (0) acres of sensitive habitat at project site

Bishop Pine Habitat--High Quality (State Rank S3 per CDFW criteria)

- Loss of more than 1 acre at project site, and
- Loss of more than 1% of regional habitat

Bishop Pine Habitat--Low Quality (Uncertain State Rank per CDFW criteria)

- Loss of more than 5 acre at project site, and
- Loss of more than 10% of regional habitat

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

Significance Threshold

More than zero (0) acres of fill in wetlands, waters of the U.S., or waters of the State

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

Significance Threshold

Creation of a barrier to movement resulting in loss or harm to native resident or migratory fish or wildlife species

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;

Significance Threshold

Removal or damage that leads to mortality of any tree species protected by a Preservation Policy or Tree Ordinance

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Significance Threshold

Conflict with an approved habitat conservation plan

Areas of No Project Impact

As explained below, the project would not result in impacts related to one of the significance criteria identified in Appendix G of the current California Environmental Quality Act (CEQA) Guidelines. The following significance criteria are not discussed further in the impact analysis, for the following reasons:

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. The project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan as there are no such special plans that would govern the project.

3.4.4 Methodology

The assessment of potential impacts to biological resources is based on the relationship between species and habitat distribution and the locations and activities proposed for construction and operation of the project. Potential impacts on special-status plants and wildlife has been based on

known occurrences or on the likelihood that suitable habitat for special-status species would be affected.

A biological resources assessment was prepared for the project (WRA 2013). Information on special-status plant and animal species was compiled through a review of the literature and database search. Database searches for known occurrences of special-status species focused on the Fort Bragg, Inglenook, Dutchmans Knoll, Noyo Hill, Mathison Peak, and Mendocino U.S. Geologic Service 7.5-minute topographic quadrangle. The following sources were reviewed to determine which special-status plant and wildlife species have been documented in the vicinity of the property:

- U.S. Fish and Wildlife Service (USFWS) quadrangle species lists (USFWS 2014)
- California Natural Diversity Database records (CNDDDB) (CDFW 2014a)
- California Native Plant Society (CNPS) Electronic Inventory records (CNPS 2014)

The potential for special-status species or habitats to occur on the property was evaluated by first determining which special-status species occur in the vicinity of the property through literature and database searches. The initial evaluation of the property, as to presence of non-sensitive biological communities, was conducted by determining what potential sensitive communities would be present, evaluating the property for presence of sensitive communities and mapping/designating such areas, and making a determination as to what would constitute a “non-sensitive” community. It should be noted that the CEQA Checklist and CEQA Guidelines Section 15065, do not restrict impact analysis to “high priority” or “sensitive” natural communities, as further discussed below and addressed by project-specific significance thresholds.

Significance thresholds have been provided for quantitative evaluation of impacts in relation to thresholds, particularly providing quantitative levels for item two (bullet two above), regarding potential impacts to areas potentially considered sensitive habitats. The significance thresholds allow for evaluation of impacts to habitats, for this project, in relation to regional context, and for evaluation of whether an impact constitutes a “substantial” adverse effect according to thresholds. The *CEQA Guidelines Section 15382* sets forth the following definition for significant effect: “Significant effect on the environment” means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including ... flora, fauna..”, etc. The *CEQA Guidelines Section 15064(b)* indicates that a strict definition of significant effect is not always possible because the significance of an activity may vary with the setting. According to *CEQA Statutes Section 21083* and *CEQA Guidelines Section 15065* a project is considered to have a significant effect on the environment if: “The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of fish or wildlife population, cause a fish or wildlife species to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or significantly reduce the number or restrict the range of an endangered, rare, or threatened species.” With this regional context in mind, the impacts to Bishop pine forest are evaluated under project-specific significance thresholds provided in Section 3.4.3 above, as developed by project biologist and the lead agency to further define what constitutes a substantial impact. The lead agency concludes that less than 1% impact regionally to habitats with S3 (vulnerable) ranking does not constitute a substantial degradation to quality of the environment, or substantial reduction in habitat of fish or wildlife causing such species to drop below self-sustaining levels, threaten to eliminate a plant or animal community, etc, as further elaborated on above.

The Caspar site is already developed and consists of unvegetated areas as well as some previously logged and remnant forest areas adjacent to the existing facility that is proposed for closure. As part of the closure of the facility, there would be no new ground disturbance. Therefore, there would be no impact to biological resources at the Caspar site. Impact to biological resources from closure of the Caspar facility is not discussed further.

3.4.5 Impacts and Mitigation Measures

Impact BIO-1: Substantial Adverse Effect on Special-Status Species

The County and City minimized the amount of impacts to sensitive-listed tree species through adjustment of the project footprint, and eliminated impact to the most sensitive area that is stunted and mapped as cypress forest-pygmy. This minimization and avoidance effort was conducted during the project planning phase and project layout/design per guidance of RM-74 that suggests prioritizing minimization and avoidance prior to a replacement or enhancement approach. The project layout also minimized fragmentation to sensitive species by placing the project site centered on Bishop pine area and maintaining connectivity of remaining sensitive listed plants with adjacent areas of similar character.

The proposed project would directly or indirectly impact populations of CRPR List 1B plant species. Potential impacts are shown in Table 3.4-7 and described further below.

Table 3.4-7 Project Impacts to Special Status Plant Species

| On Property Existing | | | | Impact | | | |
|----------------------|-----------|--------------|-------------------------------|--------------|-------------------------|-------------------------------|---------------------|
| Species | CRPR List | Area (acres) | Individual Plant Estimate (#) | Area (acres) | Percent of Project Site | Individual Plant Estimate (#) | Percent # of Plants |
| Mendocino cypress | List 1B | 12.33 | 2,037 | 0.580 | 5% | 230 | 11% |
| Bolander's pine | List 1B | | 790 | | | 38 | 5% |
| Coast lily | List 1B | 0.06 | 109 | 0.003 | 5% | 10 | 9% |
| California sedge | List 2 | 0.09 | 894 | 0.000 | 0% | 0 | 0% |

The project footprint would avoid the population of California sedge [CRPR List 2]. There would be no direct or indirect impact to California sedge.

The project would permanently impact five individual Coast lily (CRPR List 1B) plants within the project footprint. In addition, a 0.003 acre area where this plant is mapped would be temporarily impacted, either directly or indirectly, during construction. A portion of the 0.003 acres is within the construction buffer, with the remaining habitat close to the construction area and therefore threatened indirectly. The 0.003 acre potential impact area is estimated to include an additional five individual plants based on percent of the subpopulation polygon being impacted, with individual plant counts for the entire property provided by field biologist during seasonally-appropriate plant surveys. Temporary and permanent impacts to Coast lily would be significant. Reference Figure 3.4-2 for permanent and construction impacts by habitats and rare plants.

The project would permanently impact approximately 0.58 acre of Mendocino cypress and Bolander's pine (both CRPR List 1B) (within areas categorized as cypress forest-tall and cypress forest-intermediate). Additionally, there are scattered cypress and Bolander's pine within the Bishop pine map unit. Impact to these individual trees is based on tree counts conducted within plots, and not based on acreage due to the scattered nature and low percent cover of these two species within the Bishop pine map unit. In total, approximately 229 Mendocino cypress and approximately 38 Bolander's pine are estimated to be impacted within the Bishop pine forest, cypress forest-tall, and cypress forest-intermediate based on estimates from tree counts conducted within plots at the property (WRA 2013). Impacts to Bolander's pine and Mendocino cypress would be significant.

The biological evaluation for the project site (WRA 2013) stated that the Sonoma tree vole, a State species of special concern, could be present at the site since conifer habitat is present and the site is within the known species range, and if present could be impacted during construction due to tree removal. Impacts to the Sonoma tree vole would be significant.

The biological evaluation for the project site (WRA 2013) determined the following special-status bird species could be present at the site, and could be impacted during construction due to tree removal: Vaux's swift, Olive-sided fly catcher, purple martin, Allen's hummingbird, all of which are State Species of Special Concern. These are summer resident avian species. There is also the potential for passerine migratory bird species to fly over or stop at the site. Nesting habitat for such species is not high quality, yet seasonal or occasional presence and/or nesting cannot be ruled out at this point in time. Impacts to special-status bird species and birds protected under the Migratory Bird Act would be significant. Project construction occurring during the March 15 through August 15 breeding season may have an adverse impact on breeding success for special-status bird species. Impacts to special-status birds would be significant.

The biological evaluation for the project site (WRA 2013) determined that the site has moderate potential to support roosting locations for some bat species listed as having "moderate to high priority for survey" per Western Bat Working Group (WBWG), and could be impacted through tree removal if present at the site. Several special-status bat species, including the Townsend's big-eared bat, silver-haired bat, hoary bat, little brown bat, and fringed myotis, have the potential to occur on the project site. No bats were observed during site evaluations, and none of the bat species are expected to occur in substantial numbers at the project site. Breeding and foraging habitat for these species on the project site and in adjacent areas is generally marginal because rock outcrops, decadent trees, and caves with suitable bat habitat are sparse to non-existent for these bat species. However, they still could forage over the project site and roost under bark or in cavities of trees. Project construction occurring during the March 1 through August 31 bat breeding season may have an adverse impact on breeding success for special-status bat species. Impacts to special-status bats could be significant.

Mitigation Measure BIO-1a: Mitigate Impacts to Coast Lily

The County and City shall implement the following measures to mitigate the temporary and permanent impacts to Coast lily plants during construction and operation of the project:

During Construction (0.003 acre subpopulation polygon)

The building contractor shall install construction avoidance fencing at the interface of project footprint and the edge of the 0.003 acre coast lily subpopulation present on the south edge of the project site (refer to Figure 3.4-1 of the Draft EIR). The fencing will be at a minimum 100 linear feet in length to provide a barrier between the construction footprint and adjacent coast lily subpopulation. The construction fencing will be placed so that there is no "construction buffer" in this

area, so as to avoid direct impacts to coast lily individuals. The construction avoidance fencing shall be installed by a qualified biologist and inspected weekly for the duration of construction to ensure that the fencing remains installed properly.

During Operation (0.003 acre subpopulation polygon)

Permanent fencing shall be installed prior to operation of the project. The fencing shall be approximately 100 feet in length and placed between the driveway leading to the scalehouse and the subpopulation polygon so as to create a permanent barrier from project operation. Perimeter fencing installed around the perimeter of the transfer station facility may suffice as protection of the subpopulation polygon from operational activities.

Five Individual Coast Lily Plants

The five individual coast lily plants, as identified within the project footprint on Figure 3.4-1 of the Draft EIR, shall be relocated, if possible, to the south subpopulation area. If relocation is not possible a nursery will be contracted to provide locally sourced plant stock and the five plants will be replaced at a 2:1 ratio. The plant stock or plantings shall be placed in an area adjacent to the south subpopulation. The plant replacement (whether through relocation and/or replanting) shall require annual monitoring for two years, with 100% success. To ensure meeting the 100% success criteria it is recommended that supplemental planting occur at a minimum of 20% (i.e.: 1 additional plant for relocation or two additional plants for nursery-provided plant stock).

Mitigation Measure BIO-1b: Mitigate Impact to Mendocino Cypress and Bolander's Pine

The impacts to CRPR listed tree species Mendocino cypress and Bolander's pine (a 0.58 acre area) shall be mitigated through preservation at an offsite location. The County and City proposes to use a portion of a 28-acre site identified as Assessor's Parcel Number (APN) 118-50-045 which is adjacent to and north of the Caspar transfer station facility and is forested including cypress, Bishop Pine, and other related species. A photograph of the proposed mitigation site is provided as Figure 3.4-3 and the location is shown on Figure 2-3. This parcel was declared surplus by the County in 2011 and listed for sale. It is zoned Rural Residential with potential for development of a single-family house. On September 22, 2014, the County Board of Supervisors rescinded the designation as surplus and reserved the parcel for conservation mitigation if required for this project and/or other projects that could have forestry impacts. The County, owner of this property, shall place a conservation easement over a portion of it to permanently preserve an area at a 3:1 ratio for areas of sensitive listed tree species (cypress and Bolander's pine) that are impacted at the new Central Coast Transfer Station site. At a 3:1 ratio, the conservation easement shall result in preservation of 1.75 acres of mixed cypress and Bolander's pine forest. Impacts to Cypress forest - tall and Cypress forest – intermediate, based on CNDDDB rank of S2 for the overall forest classification (versus status/listing of individual tree species), are mitigated as detailed in Mitigation Measure BIO-2, which requires a conservation easement of 1.8 acres (3:1 ratio for impacts to total of 0.6 acres of CNDDDB S2 ranked forest). The 1.75 acres required in Mitigation Measure BIO-1b is in addition to the 1.8 acres required in Mitigation Measure BIO-2, but are coincident to the 1.8 acres (total preservation of 3.55 acres).

Mitigation Measure BIO-1c: Minimize and Avoid Impacts to Sonoma Tree Vole.

The County and City shall consult with CDFW to minimize and avoid potential impacts to Sonoma tree vole during tree removal and project construction activities. Trees shall be removed during the non-breeding season (October to January). If seasonal avoidance of breeding time (February through September) cannot be implemented for tree removal activities, pre-construction surveys

shall be conducted by a qualified biologist, in a manner such as follows (to be refined if necessary in consultation with CDFW):

- No more than two weeks before tree removal activities begin, a biologist will assess what portions, if any, of the tree removal area and areas within 50 feet of tree removal, is potential tree vole habitat, based on species composition and discussion with CDFW.
- If tree vole habitat is located on portions of the property within 50 feet of tree removal areas, a qualified biologist shall conduct a survey for presence of the species on the property in areas within 50 feet of tree removal and construction footprint.
- A standard survey methodology shall include at least two trained observers conducting visual searches for tree vole nests while walking along transects spaced 25 meters apart. When either fecal pellets, resin ducts, or potential nests are observed, vole nests must be confirmed by climbing trees and examining all potential nests to see if they contain evidence of occupancy by tree voles (fecal pellets, resin ducts, and conifer branch cuttings).
- If occupied habitat is identified during pre-construction surveys, the biologist shall consult with CDFW to determine how to avoid disruption to breeding activity or if individual relocation is possible.

Mitigation Measure BIO-1d: Conduct pre-construction Avian Surveys for Nesting Passerine Birds and Avian Species of Special Concern.

The building contractor shall conduct vegetation clearing activities if possible during the fall and/or winter months from August 16 to March 14, outside of the active nesting season for migratory bird species (i.e., March 15 to August 15). If vegetation cannot be removed during the non-breeding season, the applicant shall have a qualified biologist conduct preconstruction surveys within impact area from ground disturbance and tree removal, to check for nesting activity of migratory and special-status bird species. The biologist shall conduct the preconstruction surveys within the 14-day period prior to vegetation removal and ground-disturbing activities (on a minimum of three separate days within that 14-day period). If ground disturbance and tree removal work lapses for 15 days or longer during the breeding season, a qualified biologist shall conduct supplemental avian preconstruction survey before project work may be reinitiated.

If nesting activity is detected within the project footprint or within 300 feet of construction activities, the applicant shall have trees flagged that are supporting breeding, and will not remove those trees until the nests have fledged. Construction activities shall avoid nest sites until the biologist determines that the young have fledged or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within 300 feet of the construction area, buffers will be implemented if deemed appropriate in coordination with CDFW.

Mitigation Measure BIO-1e: Avoid Impacts to Special-Status Bat Species.

The County and City shall conduct tree removal activities outside of the bat breeding period of March 1 through August 31 if possible, so ideally tree removal would occur from September 1 to February 28. If trees cannot be removed during this time, the following measures shall be implemented:

- A qualified biologist shall be retained to conduct a habitat assessment at least 30 days and no more than 90 days prior to construction activities (i.e., ground-clearing and grading, including removal or trimming of trees) of all trees on the site that are proposed for removal. The assessment shall be designed to identify trees containing suitable roosting habitat for bats and to identify mitigation measures needed to protect roosting bats.

- If the habitat assessment identifies suitable special-status bat habitat and/or habitat trees, the biologist shall identify and evaluate the type of habitat present at the project site and specify methods for habitat and/or habitat tree removal in coordination with CDFW based on site-specific conditions. If bat habitat is present, removal of trees or areas that have been identified as habitat shall occur in two phases over two days under the supervision of a qualified biologist. In the afternoon on day one, limbs and branches of habitat trees without cavities, crevices and deep bark fissures would be removed by chainsaw. On day two, the entire tree can be removed. If trees with cavities, crevices and deep bark fissures are proposed for removal, CDFW shall be consulted for removal methods.

Level of Significance: Less than significant impact with mitigation.

Mitigation Measure BIO-1a would mitigate the impact through a combination of avoidance, minimization, and replacement or relocation of individual plants and is consistent with RM-28.

Mitigation Measure BIO-1b would preserve at a 3:1 ratio, areas with cypress and Bolander's pine species composition, similar to the area of impact. Unless permanently preserved, portions of the proposed preservation site could be threatened by future development and/or encroachment from adjacent uses. Mitigation Measure BIO-1b is consistent with the intent of Mendocino County General Plan Policy RM-28 which calls for implementation of site-specific or project-specific effective mitigation strategies including preservation. Preservation will provide an immediate and permanent protection of an existing habitat similar to that being impacted, at an appropriate mitigation ratio to compensate for the use of offsite location and the proposed activity of preservation. The impact to Mendocino cypress and Bolander's pine is less than significant with mitigation.

Mitigation Measure BIO-1c identifies avoidance measures, and if avoidance is not possible outlines the process for identifying occupied habitat, and then requiring, in accordance with General Plan Policy RM-28, consultation with CDFW to determine appropriate avoidance measures if occupied habitat is found. The proposed mitigation outlines the procedure for avoidance and is consistent with the Mendocino County General Plan, therefore the impact is less than significant after mitigation.

Implementation of Mitigation Measure BIO-1d provides protection measures during construction for special-status birds and would mitigate potential impacts on special-status and migratory birds to less-than-significant levels by requiring pre-construction surveys by a qualified biologist to determine whether special-status or migratory bird nests are present at or near the project site and ensuring protection of nests and young until they have fledged.

Implementation of Mitigation BIO-1e provides protection measures for special-status bats during tree removal and would reduce the impacts to special-status bats because the disturbance caused by chainsaw noise and vibration during tree removal, coupled with the physical alteration of the branches and limbs may cause the bats to abandon the roost tree after nightly emergence for foraging. Removing the tree the next day prevents re-habituation and reoccupation of the altered tree, thereby reducing impacts to roosting bats to less-than-significant levels.

Impact BIO-2: Substantial Adverse Effect on Sensitive Natural Community.

The proposed project has the potential to permanently impact habitats considered sensitive natural communities by CDFW with State Rank 1 (critically imperiled) or 2 (imperiled) communities. While

not considered imperiled, there are also impacts anticipated to Bishop pine forest, a State Rank 3 (vulnerable) habitat. Potential impacts are shown in Table 3.4-8 below.

Table 3.4-8 Project Impacts to Special Status Habitats

| Existing | | | | Impacts | | |
|---|-----------------------------|---------------------------|-----------------------------|----------------------|----------------|------------------|
| Habitat | Global (G) / State (S) Rank | Total On-Property (acres) | Regional Conditions (acres) | Total Impact (acres) | % Onsite acres | % Regional acres |
| Bishop pine forest | G3 S3 | 8.4 | 14,900* | 4.0 | 48.2% | 0.03% |
| Cypress forest (tall) | G2 S2 | 4.8 | 2,000** | 0.3 | 6.8% | 0.03% |
| Cypress forest (intermediate) | | 4.4 | | 0.3 | 5.8% | |
| Cypress forest (pygmy) / forested wetland | | 3.1 | | 0.0 | 0.0% | |

NA = Not Available

*CALVEG 1998 mapped 14,900 acres of Bishop pine forest in Mendocino County (

**While 4,000 acres of cypress forest is often quoted as extent of this habitat type, some authors have indicated this may be reduced to as little as 2,000 acres currently. CDFW is working currently on mapping to establish baseline existing conditions (Miller 2014 Pers. com.). 2,000 acres is used herein as a conservative estimate of what remains regionally of pygmy forest and as a basis for comparative analysis, although it does not take into consideration ecotones, gradations, and various definitions of pygmy forest, nor is it known what species composition and tree heights this acreage estimate includes.

The County and City have minimized the project footprint, and eliminated impact to the cypress forest—pygmy morpho-type, where Bolander’s pine and Mendocino/pygmy cypress are growing in a unique ecosystem connection with restrictive soil conditions. This effort to minimize impact to cypress forest—pygmy was conducted during the project planning and layout phase. The project layout has also minimized fragmentation to the more sensitive habitats at the property (State Rank S1 and S2) by placing the project site centered within Bishop pine forest area (State Rank S3). Impacts to State Rank S1 and S2 habitats are located along the fringe of these habitats and do not dissect or fragment these areas.

The project footprint and construction buffer will permanently impact a total of up to 0.6 acres of cypress forest (State Rank S2) consisting of two morpho-types (cypress forest—tall, and cypress forest—intermediate). The impact to cypress forest—intermediate is 0.3 acre. The cypress forest—intermediate has similar species composition as true cypress forest—pygmy with the similar species assemblage with presence of Bolander’s pine, yet a more established and denser understory. Additionally, the intermediate tree height indicates the area is not limited in tree growth pattern from restrictive soil conditions, and it is therefore assumed that some of the restrictive soil conditions typical of true pygmy forest ecosystem may not be present within this map unit at the property. Still, due to species composition as well as with the State Rank (S2) of imperiled for the habitat type, and for the purposes of this analysis in regards to requirements of County General Plan and priority for minimization of impacts to pygmy forest, as well as project significance thresholds for S1 or S2 ranked habitats set at impact above zero (0), impacts to this area are considered significant. The impact to cypress forest (tall) is 0.3 acre. The cypress forest (tall) map unit, with dense shrub and herbaceous understory, and with the low coverage of Bolander’s pine (a component of the pygmy forest ecosystem), does not show signs of restrictive soil conditions that are a part of the unique ecosystem relationship between vegetation and soils within the true pygmy forest. This area is

considered to lack some of the soil and vegetation components typical of the pygmy forest ecosystem. Still, for the purposes of this analysis and given the State Rank (S2) of imperiled for this habitat type based on dominant species of tree, as well as project significance thresholds for S1 or S2 ranked habitats set at impact above zero (0), impacts to this area are considered significant.

While not considered imperiled, there also will be impacts to approximately 4.0 acres of Bishop pine forest, a State Rank S3 (vulnerable) habitat. This Bishop pine forest is evaluated as to whether the area is considered high priority natural community based on the following three CDFW criteria (CDFW 2014):

- 1) Lack of invasive species: Although the site has not specifically been evaluated from an invasive species perspective, multiple site visits did not document extensive coverage of invasive species listed as high-priority by CallPC (Invasive Plant Council) within the Bishop pine forest, although there are likely non-native species present in varying coverages depending on proximity to roads and modified areas. The Bishop pine forest is likely to be of moderate to high priority based on this criterion.
- 2) No evidence of human caused disturbance such as roads or excessive livestock grazing, or high-grade logging: There are roads on the perimeter of the property, evidence of historic logging and site access, and an almost barren helicopter pad to the west of the Bishop pine forest. The Bishop pine forest is determined to be of moderate priority based on this criterion.
- 3) Evidence of reproduction present (sprouts, seedlings, adult individuals of reproductive age), and no significant insect or disease damage, etc: Evidence of reproduction within the Bishop pine forest was not specifically evaluated, yet the area is a relatively even-age stand and sprouts and seedlings were not noted. The area does not appear to have insect or disease damage. The Bishop pine forest is determined to be of moderate priority based on this criterion.

The Bishop pine forest (State Rank S3) on the property is therefore potentially moderate to high priority per the above CDFW criteria. The CEQA Checklist and CEQA Guidelines Section 15065, however, do not restrict impact analysis to “high priority” or “vulnerable” natural communities. The *CEQA Guidelines Section 15382* sets forth the following definition for significant effect, and as further addressed in the project significance thresholds developed by the lead agency and described above in the Significance Criteria section: “Significant effect on the environment” means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including ... flora, fauna..”, etc. The *CEQA Guidelines Section 15064(b)* indicates that a strict definition of significant effect is not always possible because the significance of an activity may vary with the setting. According to *CEQA Statutes Section 21083* and *CEQA Guidelines Section 15065* a project is considered to have a significant effect on the environment if: “The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of fish or wildlife population, cause a fish or wildlife species to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or significantly reduce the number or restrict the range of an endangered, rare, or threatened species.” With this regional context in mind, the impacts to Bishop pine forest are evaluated under project-specific significance thresholds provided in Section 3.4.3 above. As provided in Table 3.4-8 above at the beginning of the Impact BIO-2 discussion, it is estimated that in relation to regional extent and quantity of Bishop pine mapped as occurring in Mendocino County (CDF 2005), the project impacts of 4.0 acres constitute approximately 0.03% of areas regionally mapped as Bishop pine forest. Per the thresholds (loss of more than 1 acre of high quality habitat and loss of more than 1% of regional high quality habitat), the loss of less than 1% of regional potentially sensitive Bishop pine habitat is determined to be less than significant.

Mitigation Measure BIO-2: Mitigate Impacts to Sensitive Listed Habitats with State Rank S2 Status (Cypress forest-tall and Cypress forest – intermediate).

The impacts to 0.6 acres of State Rank S2 status habitats shall be mitigated through preservation at an offsite location. The County and City propose to use a portion of a site identified as Assessor's Parcel Number (APN) 118-50-045 which is adjacent to and north of the Caspar transfer station parcel. A conservation easement will be placed over a portion of the preservation site to permanently preserve an area at a 3:1 ratio to areas of impact at the proposed project site (Cypress forest-tall and Cypress forest – intermediate). At a 3:1 ratio, the conservation easement shall include a minimum of 1.8 acres and may consist of a mixture of the three cypress morphotypes; pygmy, intermediate, and/or tall cypress and Bolander's pine forest. The 1.8 acres is in addition to the area already being preserved for impacts to sensitive-listed individual tree species within the habitats mitigated for under BIO-2 (cypress forest--tall and intermediate--map units), and shall be coincident to the area placed under conservation easement per Mitigation Measure BIO-1b. Therefore, in addition to the 1.75 acres proposed for permanent preservation as part of Mitigation Measure BIO-1b, an additional 0.05 acres shall be included in the preservation area for a minimum of 1.8 acres.

Level of Significance: Less than significant with mitigation.

The preservation site is identified as APN 118-50-045, and is adjacent and to the north of the current Caspar facility. The preservation site has similar, if not more pygmy-forest oriented species composition, compared to the area of impact, with a mixture of true pygmy forest (stunted with both cypress and Bolander's pine present) as well as intermediate cypress and Bolander's pine areas, and some Bishop pine (per GHD May 2014 site visit). . Unless preserved, portions of this site could be threatened by future development and/or encroachment from adjacent uses. For potential impacts to habitats with State Rank S1 or S2, preservation is deemed an appropriate mitigative activity for these areas since attempts for direct replacement of the habitats would be linked to a unique ecosystem relationship, which in this case includes slow growing species within a setting of restrictive soil conditions. Preservation will provide an immediate and permanent protection of an existing habitat similar to that being impacted, at an appropriate mitigation ratio (3:1) to compensate for the use of offsite location and the proposed activity of preservation. The 3:1 ratio is appropriate rate as it provides compensation for the use of an offsite location (versus onsite) as well as the use of preservation as opposed to other mitigation strategies such as replacement. A temporal loss is not anticipated. The mitigation approach is consistent with RM-28 which allows for preservation as a mitigative approach for impacts to special-status species habitat, and RM-74 that prioritizes minimization and avoidance prior to employing replacement, protection, or enhancement measures. In conjunction with the avoidance and minimization activities conducted during project planning, and after proposed preservation/protection activities, the impact is determined to be less than significant.

Impact BIO-3: Substantial Adverse Effect on Federally Protected Wetlands.

Approximately 0.22 acres of USACE palustrine emergent wetlands, and 3.11 acres of USACE forested wetlands (that coincide with cypress forest—pygmy polygon) were mapped within the property (WRA 2012). There are forested wetlands approximately 50 feet north and over 100 feet east of the project footprint. The palustrine emergent wetland area is approximately 200 feet east of the project footprint and approximately 25 feet north of the SR 20 improvements. The USACE provided a jurisdictional determination concurring with the wetland delineation as mapped (USACE 2013). State jurisdictional areas beyond the USACE jurisdictional wetlands, such as isolated wetlands or other waters, seasonal/ephemeral drainages, etc., were not observed and are believed to be coincident with USACE jurisdictional wetlands. The project footprint avoids impacts to state

and federal jurisdictional wetlands and waters. There would be no impact to federally protected wetlands.

Mitigation Measures: No mitigation is necessary.

Level of Significance: No impact.

Impact BIO-4: Interfere Substantially with Movement of Native Resident or Wildlife Species or With Established Native Resident or Migratory Wildlife Corridors, or Impede Use of Native Wildlife Nursery.

The project site is not a migratory wildlife corridor nor does it support a native wildlife nursery. With regard to protection under the Migratory Bird Act, refer to the analysis under Impact BIO-1.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

Impact BIO-5: Conflict with Local Policies or Ordinances Protecting Biological Resources.

The project does not conflict with approved local, regional, or state habitat conservation plans, as there are no such special plans that would govern the project other than compliance with Mendocino County General Plan goals and policies in relation to minimization of impacts to biological resources, as discussed under Impact BIO-1 and BIO-2 above. Impact BIO-2 and Mitigation Measure BIO-2 address minimization of impacts to pygmy forest where feasible per the guidance of County General Plan goals and policies. The project does not conflict with local policies for the protection of biological resources.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

3.4.6 Cumulative Impacts

Impact BIO-C-1: Result in Cumulatively Considerable Contribution to Cumulative Impacts Related to Biological Resources.

Project impacts to Coast lily would be mitigated to a no-net loss level. Therefore, the project would not contribute to a cumulative impact to Coast lily.

Project impacts to cypress forest-intermediate, and cypress forest-tall, which are State Rank S2 habitats, have been assessed both from a habitat perspective (calculated on an acreage basis), and on an individual tree basis for CRPR sensitive listed tree species dominant within some tree stands at the site. On a regional basis, the project impact (prior to mitigation) would be approximately up to 0.03%, although this calculation utilizes the estimate of 2,000 acres for regional extent of pygmy forest, while the project impacts are actually to cypress forest—intermediate and tall (not to cypress forest-pygmy). The cumulative projects listed in Table 3.0-1, do not currently have identified impacts to cypress forest—intermediate and/or cypress forest—tall habitat. Therefore, the project plus cumulative project would not result in cumulative impact to cypress forest—intermediate and —tall. There is no impact from the project to cypress forest—pygmy as this sensitive area on the property has been avoided through project layout.

Project impacts to Bishop pine forest, which is State Rank S3 habitat, have been assessed from a habitat perspective on an acreage basis within the regional context of habitat extent and quantity. On a regional basis, the project impact would be approximately up to 0.03% of the habitat mapped

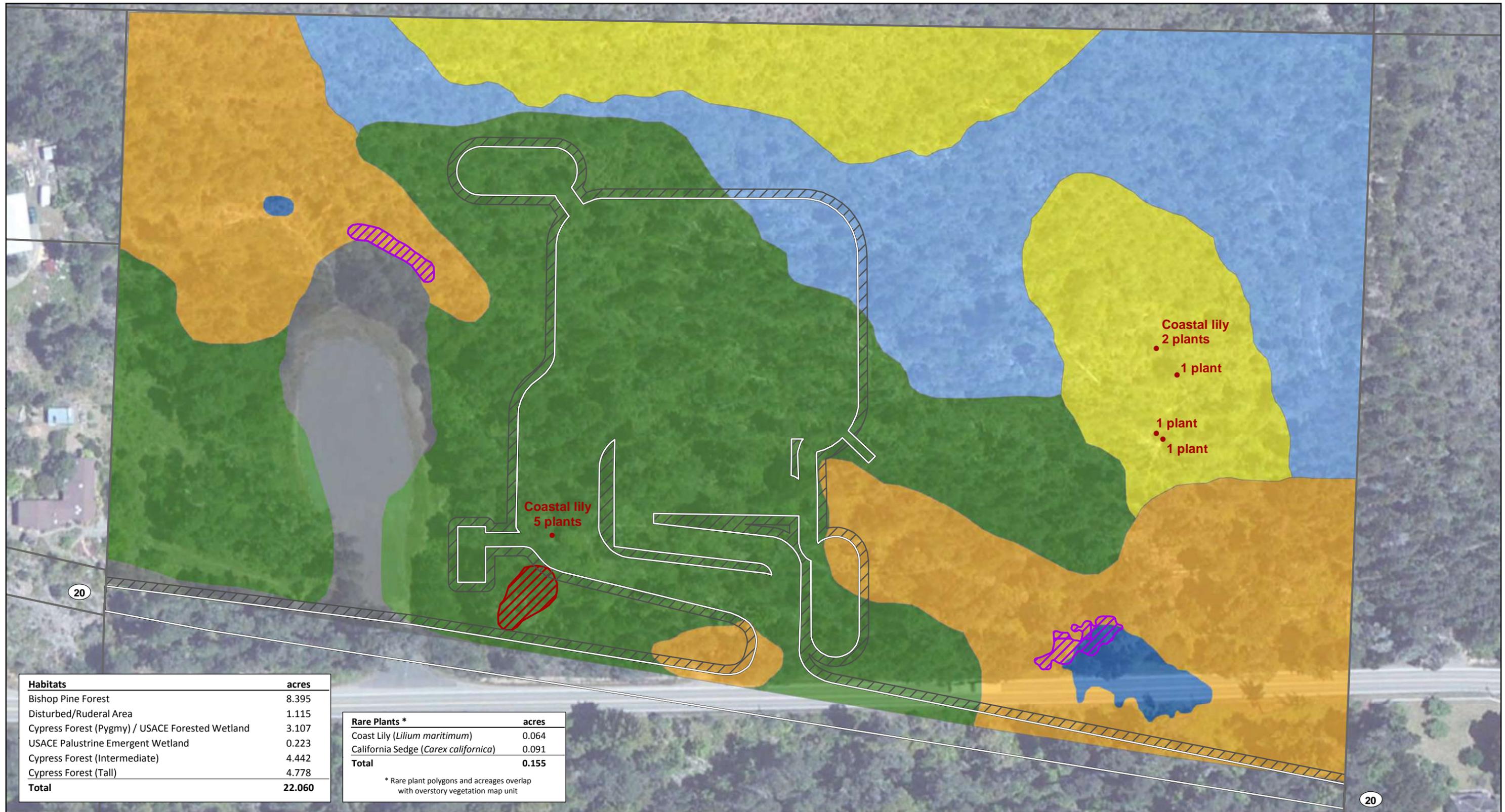
in the County. Per the individual project thresholds (loss of more than 1 acre of high quality habitat and loss of more than 1% of regional high quality habitat), the loss of less than 1% of regional potentially sensitive Bishop pine habitat is less than significant. Of the cumulative projects listed in Table 3.0-1, none have known impacts to Bishop pine. Therefore, the project plus cumulative project would not result in additional cumulative impact.

With regard to impacts to special-status birds, bats, and voles, it is assumed the cumulative projects could have similar impacts as described for the project and would follow similar mitigation included in this EIR. The mitigation measures identified in this EIR comply with all appropriate policies for preserving and protecting biological resources in the Mendocino County General Plan and follow standard procedures recommended by resource agencies. Specific cumulative projects, as well as other projects in the greater Mendocino Coast area would be required to follow similar mitigation to avoid or protect special-status birds and bats. Therefore, impacts remaining after implementation of mitigation would not occur or would be minor and would not make a considerable contribution to cumulative impact on special-status birds, bats, or voles.

Mitigation Measures: No mitigation is necessary.

Level of Significance: **Less than significant.**

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| Habitats | acres |
|---|---------------|
| Bishop Pine Forest | 8.395 |
| Disturbed/Ruderal Area | 1.115 |
| Cypress Forest (Pygmy) / USACE Forested Wetland | 3.107 |
| USACE Palustrine Emergent Wetland | 0.223 |
| Cypress Forest (Intermediate) | 4.442 |
| Cypress Forest (Tall) | 4.778 |
| Total | 22.060 |

| Rare Plants * | acres |
|---|--------------|
| Coast Lily (<i>Lilium maritimum</i>) | 0.064 |
| California Sedge (<i>Carex californica</i>) | 0.091 |
| Total | 0.155 |

* Rare plant polygons and acreages overlap with overstory vegetation map unit

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Bishop Pine Forest
 Disturbed/Ruderal Area
 Cypress Forest (Pygmy) / USACE Forested Wetland

USACE Palustrine Emergent Wetland
 Cypress Forest (Intermediate)
 Cypress Forest (Tall)

Rare Plant Individuals - Coast Lily
 Rare Plants - California Sedge
 Rare Plants - Coast Lily

Construction Footprint
 Permanent Footprint
 Parcels



Mendocino Solid Waste Management Authority
 Central Coast Transfer Station EIR

**Permanent & Construction Footprints
 Existing Conditions - Biology**

Job Number | 8411065.04
 Revision | A
 Date | 04 Nov 2014

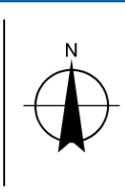
Figure 3.4-1

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 © 2012. While every care has been taken to prepare this map, GHD (and DATA CUSTODIAN) make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.
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- Bishop Pine Forest
- USACE Palustrine Emergent Wetland
- Rare Plant Individuals - Coast Lily
- Construction Footprint
- Disturbed/Ruderal Area
- Cypress Forest (Intermediate)
- Rare Plants - California Sedge
- Permanent Footprint
- Cypress Forest (Pygmy) / USACE Forested Wetland
- Cypress Forest (Tall)
- Rare Plants - Coast Lily
- Parcels



Mendocino Solid Waste Management Authority
 Central Coast Transfer Station EIR

Job Number | 8411065.04
 Revision | A
 Date | 04 Nov 2014

**Permanent & Construction Footprints
 Impacts - Biology**

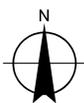
Figure 3.4-2

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-  Mitigation Site
-  Parcels
-  Rivers/Streams

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Mendocino Solid Waste Management Authority
 Central Coast Transfer Station EIR

Job Number 8411065
 Revision A
 Date 07 Nov 2014

Mitigation Site

Figure 3.4-3

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3.5 Cultural Resources

This section evaluates the potential impacts related to cultural resources during construction and operation of the project. To provide the basis for this evaluation, the Setting section describes the archaeological and historical setting for the project area, and the Regulatory Framework section describes the applicable federal, state and local regulations affecting the project area. Descriptions in this section are based on reviews of published information, reports, and plans regarding cultural resources. The evaluation criteria and impacts and mitigation measures sections establish the thresholds of significance, evaluate potential cultural resource impacts, and identify the significance of impacts and feasible mitigation measures if necessary.

A cultural resources study was prepared for this project by the Anthropological Studies Center (ASC) at Sonoma State University. The results of the study are described below.

3.5.1 Setting

Neither closure of the Caspar transfer station site nor the Russian Gulch State Park land swap site would result in any ground disturbance nor involve historic structures. Therefore, these two sites are not included in the setting.

Prehistoric Context

An analytic framework for the interpretation of the San Francisco Bay and North Coast Ranges prehistory is provided by Fredrickson (1974), who divided human history in California into three broad periods: the Paleoindian period, the Archaic period, and the Emergent period. The scheme used sociopolitical complexity, trade networks, population, and the introduction and variations of artifact types to differentiate between cultural units. The significance of prehistoric sites rests partly on their ability to help archaeologists explain the reasons for these changes in different places and at different times in prehistory. The scheme, with minor revisions (Fredrickson 1994), remains the dominant framework for prehistoric archaeological research in the region.

The earliest documented human occupation in California, the Paleoindian period (ca. 10,000-6000 B.C.), was a time of variable climate, rising sea levels, and other broad-scale environmental change. People lived in small, highly mobile groups, moving through broad geographic areas and leaving relatively meager archaeological remains.

With the more stable climate of the long Archaic period (6000 B.C. to A.D. 1000), people gradually became more sedentary, new groups entered the area, and regional distinctions developed. The Archaic has been divided into three subperiods (Lower, Middle, and Upper), based on changes in sociopolitical complexity, trade networks, populations, and the introduction of new artifact types (Fredrickson 1974, 1994). Many of the archaeological sites in the North Coast Ranges were first used in the Middle and Upper Archaic, when populations were increasing and groups moved into new areas to exploit a more diverse range of resources. By the Upper Archaic period beginning around 500 B.C., mobility was being replaced by a more sedentary adaptation that included a reliance on intensive acorn processing and storage. Numerous small villages and the beginnings of a more complex society and economy characterize the end of this period.

During the Emergent, or Late, period (ca. A.D. 1000 to the historic period), social complexity developed toward the contact-period settlement pattern of large, central villages where political leaders resided, with associated hamlets and specialized activity sites. Innovations associated with the period include the bow and arrow, small corner-notched points, and a diversity of beads and ornaments. Archaeological sites dating to this period are common throughout the North Coast

Ranges; they include sites of ritual significance, such as rock art; small resource-processing areas marked by stone-tool-manufacturing debris (debitage) and flaked-stone tools or milling equipment (such as mortars and pestles); or moderate- to large-sized occupation sites marked by midden soils, dietary bone and shell, and a diversity of artifacts.

Ethnographic Context

Ethnographic literature indicates that at the time of historic contact, the project area was within the territory of speakers of the Northern Pomo language, one of the seven Pomoan languages (McLendon and Oswalt 1978:283-285; Kroeber 1925:222). According to Kroeber (1925:237), the greater Pomo (i.e., the combined populations of the seven language groups) formed the second most populous group in California, with an estimated pre-contact population of as many as 8,000 people.

The area occupied by Northern Pomo speakers was roughly defined by the Navarro River in the southwest; Horse Mountain and the western banks of Clear Lake along the eastern border; and Potter Valley, the areas around the current communities of Willits, Sherwood, and Fort Bragg along the northern border. The western border was defined by a stretch of the Pacific Ocean a few miles north of Fort Bragg, and Albion (McLendon and Oswalt 1978:283). The Northern Pomo were in contact with Cahto and Yuki speakers to the north and the Central Pomo to the south. The Northern Pomo did not live year round along the coast until European encroachment, preferring to seasonally occupy campsites for collecting seafood in the summers. The Northern Pomo comprised a number of village communities, consisting of semisubterranean ceremonial houses, temporary structures, and dwelling houses made from redwood bark. Politically, the Northern Pomo were organized into groups referred to by anthropologists as “tribelets,” and kin groups with secular chieftains as well as ceremonial shamans (Bean and Theodoratus 1978:289–298).

The Northern Pomo utilized a variety of resources in their environment; their diet depended in part on the time of the year. Fish, acorns, grains roots, bulbs, and buckeye nuts were eaten year round. Fish were dried and supplemented with fresh meat, waterfowl, fresh greens, berries, and fruit. Northern Pomo lands were divided into village-owned tracts with gathering and hunting rights belonging exclusively to members of the owning community (Kroeber 1925:228-229).

Barrett makes note of two old village sites within the Fort Bragg area. The closest of these to the project site is thought to be Toldam, situated at the edge of the redwood forest one mile east from the ocean on the ridge between the Noyo and Hare Rivers (Barrett 1908:135).

Historic Context

The northern coast of California was left relatively unexplored by Euro-Americans until 1855 when an expedition from the Bureau of Indian Affairs visited the Fort Bragg area looking for a site to establish a reservation. A year later the Mendocino Indian Reservation was established at Noyo. Lieutenant Horatio Gates Gibson was ordered in 1857 to establish a military post on the reservation to maintain order. The settlement was named after General Braxton Bragg, Gibson’s former commanding officer in the Mexican War (Hoover et al. 1990:196). The fort was later abandoned in 1864 and the reservation was discontinued in 1866, opening the land for settlement.

After military occupation, the focus of the new town switched to lumber and the available harbor for shipping. The Fort Bragg Redwood Company was incorporated in 1885 and eventually became the Union Lumber Company. This enterprise led to the development of railroad service to Fort Bragg. The California Western Railroad ran a line to the town from Willits that still transports tourists

aboard the “Skunk Train” (Hoover et al. 1990:196). Fort Bragg has also supported thriving commercial fishing, farm, and dairying industries over the years.

State Route 20 runs east from Fort Bragg through the central portion of the state, eventually ending at Interstate 80 near Emigrant Gap in the Sierra Nevada. The portion of the highway from Fort Bragg to Willits was extended over an existing County road in 1953. This route appears close to its current alignment on the 1867 and 1868 General Land Office maps. Little development appears to have occurred along this route prior to the 1950's.

Records and Literature Search

On March 28, 2014 the ASC conducted a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of archaeological and historical records and reports for an 18-County area that includes Mendocino County. The records search included a review of all site records and study reports on file within a 1/4-mile radius of the project site.

The records search and literature review for this study were done to (1) determine whether known cultural resources had been recorded within or adjacent to the study area; (2) assess the likelihood of unrecorded cultural resources based on archaeological, ethnographic, and historical documents and literature, and on the environmental setting of nearby sites; and (3) develop a context for preliminary recommendation of identified resources.

Included in the review were the California Inventory of Historical Resources (California Department of Parks and Recreation 1976), California Office of Historic Preservation's Five Views: An Ethnic Historic Site Survey for California (CA-OHP 1988), California Historical Landmarks (CA-OHP 1990), California Points of Historical Interest (CA-OHP 1992), and the Historic Properties Directory Listing (CA-OHP 2012). The Historic Properties Directory includes the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR), and the most recent listings (through April 5th, 2012) of the California Historical Landmarks and California Points of Historical Interest.

Previous Research

The record search indicated that nine cultural resource studies (see Table 3.5-1) have been conducted in the record search radius. No cultural resources have been recorded within the record search radius. The closest known resource is approximately 1.8 miles west and consists of the remains of an 1884 trestle constructed by the Caspar, South Fork & Eastern Railroad operated by the Caspar Lumber Company (P-23-002503) (Hamilton 1994).

The project area was included within an overview of Historical Resources within JDSF in 1993, but does not appear to have been surveyed as part of this or any other cultural survey (Gary and Hines 1993). The land adjacent and to the north of the project area was included within a 2000 survey, but was not surveyed due to extremely dense vegetation (Jones and Stokes 2000).

Table 3.5-1 Previous Studies within 1/4 -Mile Record Search Radius of Project

| Study No. | Date | Author | Findings | Distance from Project Area |
|-----------|------|-----------------------------------|-----------------------|--|
| S-6043 | 1983 | Flaherty | None | 0.13 mile southwest |
| S-15118 | 1993 | Gary and Hines | None in search radius | General project area included, though not surveyed |
| S-28263 | 1994 | Susan | None | 485 feet southeast |
| S-21667 | 1999 | Roach | None in search radius | 560 feet south |
| S-22724 | 2000 | Jones & Stokes | None | Adjacent to northern boundary |
| S-32136 | 2006 | Sternberg | None | Adjacent to northern boundary |
| S-38863 | 2011 | Tiley | None, overview | Along SR 20 adjacent to southern boundary |
| S-38864 | 2011 | Meyer, Kaijankoski, and Rosenthal | None, overview | Along SR 20 adjacent to southern boundary |
| S-38865 | 2011 | Leach-Palm et al. | None | Along SR 20 adjacent to southern boundary |

Source: Anthropological Studies Center, 2014.

Organization Contact

On August 7, 2014, the State of California Native American Heritage Commission (NAHC) was asked to review the Sacred Lands File for information on Native American cultural resources in the study area. On August 12, 2014, the NAHC responded with a letter stating that the search failed to indicate the presence of Native American cultural resources within the immediate project area. Additionally, a contact list of people responsible for Native American concerns in the area was provided by the NAHC. ASC sent letters to each listed individual regarding the project on August 13, 2014. A letter was received from the Sherwood Valley Band of Pomo Indians on September 3, 2014, in response to the ASC letter. The Sherwood Valley Band of Pomo Indians stated “at this time the Tribe is not aware of existing resources in the project area. However, we are requesting a tribal monitor be present during the survey. Additionally, upon reviewing the scope of work, we may request the presence of a tribal monitor during any ground disturbance activities.”

Field Survey

ASC conducted a cultural resources field survey of the project area on August 11, 2014. Field methods consisted of an on-foot mixed strategy survey of the project area. The survey was primarily focused where development of the transfer station will take place.

Nearly all of the project site is covered by impenetrable forest and thick vegetation in the form of tangled understory and brush. The survey was conducted from the southern and western boundaries where the project site is bounded by SR 20 and the CalFire helipad. Accessible game trails and logging roads were followed until vegetation prohibited further access. Non-linear transects were followed across portions of the project area where vegetation allowed. Ground

visibility was extremely poor throughout most of the project area due to dense brush, heavy duff, and pine needle cover. Where possible, sections of vegetation were cleared at varying intervals to expose the ground surface for indicators of archaeological deposits. Additionally, several locations within the project site were occupied by active or past transient camps. These areas and modern garbage dumps on the property were not surveyed due to health and safety concerns. No cultural resources were identified during the course of the study.

3.5.2 Regulatory Framework

Federal

There are no federal regulations that apply to the project related to cultural resources. The regulations related to the National Register of Historic Places would not apply as there are no historic resources on or within an area of potential affect by the project site.

State

California Environmental Quality Act

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historic, architectural, archaeological, cultural, or scientific importance. Under CEQA statutes, an impact on a cultural resource is considered significant if a project would result in an impact that may change the significance of the resource (Public Resources Code [PRC] Section 21084.1).

Demolition, replacement, substantial alteration, and relocation of historic properties are actions that would change the significance of a historic resource (California Code of Regulations, Title 14, 15064.5). The following steps are normally taken in a cultural resources investigation to comply with CEQA:

- Identification of cultural resources.
- Evaluate the significance of the cultural resources based on established thresholds of significance.
- Evaluate the impacts of a project on cultural resources.
- Develop and implement measures to mitigate the impacts of the project on significant cultural resources.

Because the project is located on non-federal land in California, it is also necessary to comply with state laws pertaining to the inadvertent discovery of human remains of Native American origin. The procedures that must be followed if burials of Native American origin are discovered on non-federal land in California are described in the Impacts and Mitigation Measures section, below.

California Public Resources Code

As part of the determination made pursuant to PRC Section 21080.1, the lead agency must determine whether a project would have a significant effect on archaeological and paleontological resources.

Several sections of the PRC protect cultural resources and PRC Section 5097.5 protects vertebrate paleontological sites located on public land. Under Section 5097.5, no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site (including fossilized footprints), inscriptions made by humans, rock art, or any other archaeological, paleontological, or historical

feature situated on public lands, except with the express permission of the public agency that has jurisdiction over the lands. Violation of this section is a misdemeanor.

PRC Section 5097.98 states that if Native American human remains are identified within a project area, the landowner must work with the Native American Most Likely Descendant as identified by the NAHC to develop a plan for the treatment or disposition of the human remains and any items associated with Native American burials with appropriate dignity. These procedures are also addressed in Section 15046.5 of the CEQA Guidelines. Section 30244 of the PRC requires reasonable mitigation for impacts on paleontological and archaeological resources that occur as a result of development on public lands.

California Health and Safety Code

California Health and Safety Code Section 7050.5 prohibits disinterring, disturbing, or removing human remains from a location other than a dedicated cemetery. Section 7050.5 also requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the California NAHC.

California Native American Historical, Cultural and Sacred Sites Act

This Act applies to both State and private lands. The Act requires that upon discovery of human remains, that construction or excavation activity cease and that the County Coroner be notified. If the remains are of a Native American, the coroner must notify the NAHC. The NAHC then notifies those persons mostly likely to be descended from the Native American remains. The Act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Regional and Local

Mendocino County General Plan Goals and Policies

The following are the goals and policies from the *Mendocino County General Plan* that are most applicable to the project with regard to cultural resources.

Goal DE-6 (Cultural Resources): Protection and preservation of the County's significant historical, archaeological and cultural resources.

Policy DE-113: The County and other public agencies are encouraged to protect, maintain and restore historical, archaeological and cultural resources under their ownership or management.

Policy DE-115: Cultural resources evaluations (i.e., archaeological and historical investigations) shall be conducted at the County's determination for project applications, where it is determined that cultural resources may occur. The evaluations should identify cultural resources (i.e., prehistoric sites and isolated artifacts and features) in a project area, determine their eligibility for inclusion in the California Register of Historical Resources, and provide mitigation measures for any resources in a project area that cannot be avoided. Cultural resources evaluations shall be completed by a professional archaeologist that meets the Secretary of the Interior's Standards and Guidelines for Professional Qualifications in archaeology and/or history.

If, during the course of implementing County-approved projects, cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) are

discovered, all work shall be halted immediately within 50 feet of the discovery, the County Planning and Building Services Department shall be notified, and a professional archaeologist that meets the Secretary of the Interior's Standards and Guidelines for Professional Qualifications in archaeology shall be retained to determine the significance of the discovery.

The County and project applicant shall consider mitigation recommendations presented by a professional archaeologist that meets the Secretary of the Interior's Standards and Guidelines for Professional Qualifications in archaeology for any unanticipated discoveries. The County and project applicant shall consult and agree upon implementation of a measure or measures that they deem feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures. The project applicant will implement the agreed upon mitigation measures necessary for the protection of cultural resources.

3.5.3 Evaluation Criteria and Significance Thresholds

Under criteria based on Appendix G of the CEQA Guidelines, the project would be considered to have a significant impact on cultural resources if it would result in any of the following:

- Cause a substantial change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

3.5.4 Methodology

The impact analysis included in this section is based on the cultural resources study conducted for the project by ASC as described above. The NAHC was also contacted for a review of the Sacred Lands File and for contact information for the appropriate tribal communities to be contacted regarding the project.

3.5.5 Impacts and Mitigation Measures

Impact CR-1: Cause Substantial Change in the Significance of a Historic or Archaeological Resource.

Based on previous research and the results of ASC's cultural resources study, no cultural resources, including archaeological, tribal or historical resources, were identified within or immediately adjacent to the project site. However, ground visibility was poor throughout most of the project area due to dense brush, heavy duff, and pine needle cover, therefore, it is possible that significant (as defined by CEQA) historical or unique archaeological resources that could not be observed during the course of the field survey may be buried on the project site. The disturbance of these resources during site excavation activities would be a significant impact.

Mitigation Measure CR-1: Disturbance of Undiscovered Archaeological Resources.

During the course of ground-disturbing activities associated with project construction activities, if any cultural resources are discovered, work shall be halted immediately within 50 feet of the discovery, and the Mendocino County Planning Department shall be immediately notified. At that time, the County will coordinate any necessary investigation and evaluation of the discovery with a qualified archaeologist. If the archaeological resources are Native American, representatives of the appropriate culturally affiliated tribe shall also be enlisted to help evaluate the find and suggest appropriate treatment.

The County shall consult with the archaeologist and agree upon implementation of treatment of the resources that is deemed appropriate and feasible. Such treatment may include avoidance, curation, documentation, excavation, preservation in place, or other appropriate measures.

Level of Significance: Less than significant with mitigation.

Mitigation measures CR-1 would reduce potentially significant impacts on undiscovered archaeological resources to a less-than-significant level by providing a process for evaluation of any unknown resources encountered during construction, and avoidance or data recovery of resources that meet the CEQA definition of historical or unique archaeological resources. This mitigation measure is in accordance with Mendocino County General Plan Policy DE-115.

Impact CR-2: Potential Impacts to Unknown Paleontological Resources.

There are no known unique paleontological resources or geologic features in the project area, however, there is the possibility of unanticipated discovery of paleontological resources during ground-disturbing activities associated with construction of the project. Therefore, implementation of the project could impact significant paleontological resources. Impacts to unknown paleontological resources would be a significant impact.

Mitigation Measure CR-2: Potential Disturbance of Undiscovered Paleontological Resources.

During the course of ground-disturbing activities associated with project construction activities, if any paleontological resources are discovered, work shall be halted immediately within 50 feet of the discovery, and the Mendocino County Planning Department shall be immediately notified. At that time, the County will coordinate any necessary investigation of the discovery with a qualified paleontologist.

The County shall consider the mitigation recommendations of the qualified paleontologist for any unanticipated discoveries of paleontological resources. The County shall consult with the paleontologist and agree upon implementation of a measure(s) that are deemed appropriate and feasible. Such mitigation measures may include avoidance, curation, documentation, excavation, preservation in place, or other appropriate measures.

Level of Significance: Less than significant with mitigation.

Mitigation measures CR-2 would reduce potentially significant impacts on undiscovered paleontological resources to a less-than-significant level by providing a process for evaluation of any unknown resources encountered during construction, and avoidance or data recovery of resources that meet the CEQA definition of unique paleontological resources.

Impact CR-3: Potential Disturbance of Human Remains.

While no evidence exists for the presence of historic or prehistoric burials at the project site, this does not preclude the existence of buried subsurface human remains. If any human remains were

unearthed during project construction, particularly those that were determined to be Native American, a potentially significant disturbance of human remains would occur.

Mitigation Measure CR-3: Potential to Uncover Human Remains.

If construction activities result in the discovery of human remains during ground disturbing construction activities, in accordance with California Health and Safety Code Section 7050.5, no further disturbance shall occur until the Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The Coroner shall be notified of the find immediately and there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the Coroner makes the required determinations regarding the remains. If the human remains are determined to be prehistoric, the Coroner shall notify the NAHC, which shall determine and notify a Most Likely Descendant. The Most Likely Descendant shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and non-destructive analysis of human remains and items associated with Native American burials.

Level of Significance: Less than significant with mitigation.

Mitigation measures CR-3 would reduce potentially significant impacts on uncovering human remains to a less-than-significant level by providing direction on who to notify in the event human remains are found.

3.5.6 Cumulative Impacts

Impact CR-C-1: Result in Cumulatively Considerable Contribution to Cumulative Impacts Related to Cultural Resources

There are no known cultural resources that would be impacted by the project. As described in this EIR, appropriate studies were undertaken to ensure that cultural resources that could be impacted by the project were identified, and that mitigation measures are put forth that would reduce the impacts to unknown cultural resources to a less-than-significant level. These measures are consistent with Mendocino County General Plan Policy DE-115 and Public Resources Code 7050.5. Therefore, the project's incremental effect to cultural resources is not cumulatively considerable and would not contribute to any significant impacts to cultural resources that may be caused by other cumulative projects.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

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3.6 Geology and Soils

This section evaluates the potential impacts related to geology and soils. The impacts and mitigation measures section establishes the thresholds of significance, evaluates potential geological impacts, and identifies the significance of impacts. Where appropriate, mitigation is presented to reduce impacts to less-than-significant levels. The potential impacts from construction and operation of a septic tank and leachfield to water quality are discussed in Section 3.9 (Hydrology and Water Quality), and potential impacts to sensitive habitats are discussed in Section 3.4 (Biological Resources).

Since there is no disturbance of the Caspar transfer station site or the Russian Gulch State Park land swap site, they are not included in this analysis.

3.6.1 Setting

Geologic Setting

The site is characterized by relatively flat (two percent to five percent slopes) to gently sloping (five percent to nine percent slopes) terrain. Elevations at the project site range from a low of approximately 400 feet above mean sea level (msl) on the western portion to a high of approximately 430 feet msl at the northeast corner. Surface drainage on the site generally ranges from northwest to southwest. The basement rock in the project area is coastal belt Franciscan complex, composed primarily of greywacke sandstone with shale lenses. Unconformably overlying the Franciscan complex are quaternary marine terrace deposits, including the older Lower Caspar Orchard deposits, which underlie the project site. These marine deposits typically consist of yellowish to light gray, moderately sorted, poorly consolidated, silty to clayey sand with occasional lenses of coarser sand and/or gravel. (LACO 2012)

Soils

Soils at the project site are mapped as Shinglemill-Gibney complex (NRCS 2014). A preliminary geotechnical evaluation (LACO 2012, Appendix E) was conducted for the project site, and test borings (SE-1 through SE-4) encountered primarily medium dense to dense sands (some of which are cemented) generally located below a surficial, highly organic topsoil and “duff” layer of up to about 12 inches-thick. However, a thin (approximately six inches-thick) zone of sandy clay/sandy silt was encountered in one boring at a depth of approximately 21 inches below ground surface (bgs). Organic laden topsoil is unsuitable for support of structures, including pavements; the organic topsoil thicknesses are anticipated to be generally less than approximately 12 inches across the site, although they will likely increase in thickness within low-lying areas.

Soils Suitable for On-site Sewage Disposal

Construction and operation of an on-site sewage disposal system, such as a septic tank and leachfield, require suitable soil and site conditions to ensure sufficient movement and treatment of effluent before wells, surface water, or groundwater are encountered. Ground slope, soil depth, depth to groundwater, and soil percolation are all factors in determining appropriate site conditions. Soil percolation suitability is determined using a Soil Percolation Suitability Chart, which accounts for soil texture, bulk-density, gravel and cobble content. The chart has four soil texture zones to indicate suitability for use in a standard sewage disposal system. Zone 1 soils are coarse (and readily accept effluent), Zone 2 soils are acceptable, Zone 3 soils are marginal, and Zone 4 soils are unacceptable for standard sewage disposal systems. (North Coast RWQCB 1979)

Soils in the area of boring SE-4 fall into the Soil Percolation Suitability Zone 1 (Coarse) and 2B (Acceptable) based on hydrometer testing. In the area of boring SE-4, groundwater was encountered at approximately 10 feet bgs. Soils in the areas of borings SE-1 through SE-3 contained shallow, perched groundwater (i.e., approximately two to five feet bgs) and/or the presence of cemented soils.

Seismicity

The 2007 Working Group on California Earthquake Probabilities has evaluated the probability of one or more earthquakes of magnitude 6.7 or higher occurring in California over the next thirty years (USGS 2008). Five known faults traverse Mendocino County and are considered potentially active or active; the San Andreas Fault, Whale Gulch Fault, Maacama Fault, Round Valley Fault, and Etsel Ridge Fault. Thirty miles northwest and offshore of the County is the Cascadia Subduction Zone, which is capable of generating large earthquakes. The San Andreas Fault is offshore generally to the west of the project site and is capable of generating very strong earthquakes. The last major earthquake on this portion of the San Andreas Fault was the 1906 San Francisco earthquake, which was estimated at a magnitude of 7.9. Associated with the San Andreas Fault is the Whale Gulch Fault, which is located a few miles west of the offshore San Andreas Fault and west of the project area. It is considered to be potentially active. The Maacama Fault, east of the project area, has historically generated only a few moderate earthquakes. However, an abundance of micro-earthquakes (less than magnitude 3) are clearly associated with the fault. The Round Valley Fault traverses the northeastern corner of Mendocino County, east of the project area. The Round Valley Fault has not been found to exhibit activity more recently than 1.6 million years ago, although is considered potentially active. The Etsel Ridge Fault is the easternmost potentially active fault in Mendocino County, which occurs east of the project area and has been classified as potentially active. In addition to the San Andreas and Maacama faults, the Cascadia Subduction Zone is the most significant seismic source and located thirty miles northwest of Mendocino County and offshore. (Mendocino County 2009)

No active faults are known to extend through the project site.

Seismic Hazards

Seismic hazards include those hazards that could reasonably be expected to occur at the project site during a major earthquake on any of the regional faults. Some hazards can be more severe than others, depending on the location, underlying materials, and level of ground shaking.

Surface Fault Rupture

Seismically induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude and nature of fault rupture can vary for different faults or even along different strands of the same fault. Surface rupture can damage or collapse buildings, cause severe damage to roads and pavement structures, and cause failure of overhead as well as underground utilities. As a result of the damage, buildings could become uninhabitable, roads could close, and utility service could be disrupted for an undetermined length of time. Ground rupture is typically confined to relatively narrow zones (a few feet to tens of feet wide) and considered more likely along active faults. The project area does not fall within an Alquist-Priolo Fault Rupture Hazard Zone Map, as designated through the Alquist-Priolo Earthquake Fault Zoning Act (CGS 2007). Since surface fault rupture generally follows the trace of pre-existing active faults, the risk of future surface rupture at this site is considered to be low to non-existent (LACO 2012).

Ground Shaking

Earthquakes on the active faults have the capacity to produce a range of ground shaking intensities at the project site. Ground shaking may affect areas hundreds of miles distant from an earthquake's epicenter. Ground motion during an earthquake is described by the parameters of acceleration and velocity as well as the duration of the shaking. A common measure of ground motion is the peak ground acceleration (PGA). The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g)¹. Moderate earthquake hazard areas are defined as areas with ground accelerations of less than .092g and Violent earthquake hazard areas have ground accelerations of .65g to 1.24g.

The nearest known active fault is the San Andreas fault (Shelter Cove section) located approximately eight miles southwest of the project site; past seismic history suggests that moderate to strong shaking is possible from earthquakes on this and other active faults in the region (LACO 2012). Another fault, the Pacific Star fault, is located approximately 10 miles north of Fort Bragg.

Liquefaction, Lateral Spreading and Subsidence

Liquefaction is a phenomenon whereby unconsolidated and/or near-saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in temporary, fluid-like behavior of the soil. Soil liquefaction causes ground failure that can damage roads, pipelines, underground cables and buildings with shallow foundations. The CGS has not investigated the project site for potential designation as a Seismic Hazard Zone for liquefaction.

The preliminary geotechnical and engineering evaluation prepared for the project site included geotechnical test borings. The soils encountered at depth in the test borings are generally not considered to be liquefiable during strong ground shaking due to their density, however it is possible that some isolated, thin lenses of loose, saturated sands near the ground may liquefy during severe ground shaking. (LACO 2012)

Lateral spreading refers to landslides that commonly forms on gentle slopes and that have rapid fluid-like flow movement, like water. The project site is characterized by relatively flat to gently sloping terrain. Because the project site has gentle slopes that may be susceptible to liquefaction, project facilities could be susceptible to lateral spreading.

Subsidence (e.g., settlement) is the depression of the bearing soil when a load, such as that of a building or new fill material, is placed upon it. Subsidence could occur if loose, saturated sands near the ground liquefy during severe ground shaking. (LACO 2012)

Geologic Hazards

Slope Failure and Landslides

Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, either triggered by static (i.e., gravity) or dynamic (i.e., earthquake) forces. Earthquake motions can induce significant horizontal and vertical dynamic stresses in slopes that can trigger failure. Earthquake-induced landslides can occur in areas with steep slopes that are susceptible to strong ground motion during an earthquake.

¹ Acceleration of gravity (g) = 980 centimeters per second squared. 1.0g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

The project site is characterized by relatively flat (two percent to five percent slopes) to gently sloping (five percent to nine percent slopes) terrain; therefore, landslide hazards to the planned structures are considered to be low. The nearest slope having a gradient of 25 percent or greater is approximately 200 feet to the southwest of the project site. (LACO 2012)

Expansive Soils

Expansive soils possess a “shrink-swell” characteristic. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may occur over a long period of time due to expansive soils, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils.

The surface and near-surface soils encountered in the test borings at the site are primarily composed of medium dense to dense sands generally located below a surficial, highly organic topsoil and “duff” layer up to approximately 12 inches thick. An approximately six-inch thick zone of sandy clay/sandy silt was encountered in one boring at a depth of approximately 21 inches bgs. Based on laboratory testing this clay/silt soil has a high to very high expansion potential. (LACO 2012)

Soil Erosion

Soil erosion is a process whereby soil materials are worn away and transported to another area, either by wind or water. Areas susceptible to erosion occur where surface soils possess low-density and/or low-strength properties. Slopes are another factor in soil erosion – the greater the slope, the greater the erosion hazard, especially if the soil is bare of vegetation. Most soils present in the County have only a slight erosion hazard at slopes less than 9 percent, except for Redvine soils which have a moderate hazard. Soils on nine percent slopes and greater have a moderate erosion hazard, and soils on slopes greater than 15 percent have a high erosion hazard. (Mendocino County 2009)

The project site is characterized by relatively flat (two percent to five percent slopes) to gently sloping (five percent to nine percent slopes) terrain with Shinglemill-Gibney complex soils (LACO 2012). For this soil type, surface runoff is slow or medium, and the hazard of water erosion is slight to moderate if the surface is left bare (USDA 2006). According to the criteria set by the Mendocino County General Plan, the project site would also have slight to moderate erosion potential. Grading or stockpiling activities during construction could also result in soil erosion.

3.6.2 Regulatory Framework

Federal

There are no federal policies or regulations relevant to the project for geology and soils.

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the State Geologist established regulatory zones, called “earthquake fault zones,” around the surface traces of active faults and published maps showing these zones. Within these zones, buildings for human occupancy cannot be constructed across the surface trace of active faults. Because many active

faults are complex and consist of more than one branch, each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace.

Title 14 of the California Code of Regulations (CCR), Section 3601(e), defines buildings intended for human occupancy as those that would be inhabited for more than 2,000 hours per year. The proposed project site does not cross an Alquist-Priolo Earthquake Fault Zone (CGS 2007; CDC 2007), and does not include buildings that meet this criterion for human occupancy. Therefore, the provisions of the act do not apply to the project.

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (Public Resources Code [PRC] Sections 2690 to 2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong groundshaking, liquefaction and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the state is charged with identifying and mapping areas at risk of strong groundshaking, liquefaction, landslides, and other corollary hazards, with cities and counties required to regulate development within mapped Seismic Hazard Zones.

Under the California Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within Seismic Hazard Zones until appropriate site-specific geologic and/or geotechnical investigations have been conducted and measures to reduce potential damage have been incorporated into the development plans. The California Geological Survey has not yet evaluated the project site or surrounding area under the Seismic Hazards Mapping Act. Action Item DE-233.2 of the Mendocino County General Plan states, “implement the Seismic Hazards Mapping Act when maps become available for Mendocino County (Public Resources Code, Division 2, Chapter 7.8).”

California Building Code

The State of California provides minimum standards for building design through the California Building Code (CBC). Where no other building codes apply, CBC Chapter 29 regulates excavation, foundations, and retaining walls. The CBC applies to building design and construction in the state and is based on the federal Uniform Building Code (UBC) used widely throughout the country. The CBC has been modified for California conditions with numerous more detailed and/or more stringent regulations. Specific minimum seismic safety and structural design requirements are set forth in CBC Chapter 16. The Code identifies seismic factors that must be considered in structural design. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, and Appendix Chapter A33 regulates grading activities, including drainage and erosion control, and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

State Earthquake Protection Law (Health and Safety Code, Division 13, Part 3)

This law establishes the requirement that all buildings be designed to resist lateral forces from seismic motion, and allows local governments to enact local requirements to mitigate the risk from existing buildings, such as unreinforced masonry buildings and others not designed in consideration of seismic motion.

Regional and Local

Mendocino County Multi-Hazard Mitigation Plan

The 2008 Mendocino County Multi-Hazard Mitigation Plan (MHMP) is the County's plan to identify and reduce hazards before any type of hazard event occurs. It aims to reduce losses from future disasters. Hazard mitigation is a process in which hazards are identified and profiled, people and facilities at risk are analyzed, and mitigation actions are developed. The purpose of the plan is to implement the mitigation actions, which includes long-term strategies for planning, policy changes, programs, projects, and other activities. The 2013 MHMP is still in draft form and has not yet been adopted.

Mendocino County Code and Division of Environmental Health Regulations

Mendocino County Code Title 9, Chapter 16.8 regulates on-site sewage systems. Title 18 addresses general building and construction practices and provides minimum standards to safeguard lives and property and protect the public health, safety and general welfare. Title 18 requires construction in conformance with the UBC, Uniform Mechanical Code, and Uniform Plumbing Code, among others.

The Mendocino Division of Environmental Health regulates and monitors the proper management of wastes and environmental hazards, and issues permits for on-site sewage systems. The project would be required to obtain a permit from the County for the construction of a septic tank and leachfield or sewage holding tank. Conformance with the Minimum Standards for On-Site Sewage Systems, which sets construction and design requirements, would also be required.

Mendocino County General Plan Goals and Policies

The following are the goals and policies from the *Mendocino County General Plan* that are applicable to the project.

- Goal DE-24: (Safety): To reduce, to the extent possible, the risk and exposure of life, property and the environment to hazardous conditions and events such as earthquakes, landslides, wildfires, floods, inundation, energy emergencies, and toxic releases.
- Goal DE-27: (Geologic Conditions): To locate and design development in a manner that avoids or is compatible with risk posed by geologic and seismic hazards.
- Policy DE-232: All new buildings and structures shall comply with the uniform construction codes and other regulations adopted by the County and State to minimize geologic hazards.

3.6.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to geology and soils, as defined by the CEQA Guidelines (Appendix G), if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides;
- Result in substantial soil erosion or the loss of topsoil;

- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Area of No Project Impact

As explained below, the project would not result in impacts related to portions of two significance criteria identified in Appendix G of the current CEQA Guidelines. The following significance criteria are not discussed further in the impact analysis, for the following reasons:

- **Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?** The project is not located within an active or potentially active fault zone, and is not located within a special studies zone or an Alquist-Priolo Fault Rupture Hazard Zone Map. Therefore, this significance criterion is not applicable to the project and is not discussed further.
- **Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides, or be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslides?** The project site is characterized by relatively flat to gently sloping terrain of approximately 2 percent to 9 percent. Landslide hazards to the planned structures are considered to be low (LACO 2012). The nearest slope having a gradient of 25 percent or greater is approximately 200 feet to the southwest of the project site (LACO 2012). Because of the relatively flat terrain, the project is not anticipated to result in on- or off-site landslides, and no impact would occur. Therefore, this significance criterion is not applicable to the project and is not discussed further.

3.6.4 Methodology

The descriptions of geology and soils in this section rely on information gathered from the USGS, the Natural Resources Conservation Service (NRCS), the CGS, and the preliminary geotechnical and engineering evaluation prepared for the project. This section also incorporates previous research and analyses provided in the Mendocino County General Plan and the preliminary geotechnical and engineering evaluation prepared for the project. This information was reviewed to determine relevant information for the EIR analysis. Project improvements are evaluated for their potential to be affected by, or to increase, risks associated with identified geologic and seismic hazards. Appropriate mitigation measures are identified for impacts determined to be significant.

3.6.5 Impacts and Mitigation Measures

Impact GEO-1: Expose People or Structures to Potential Substantial Adverse Effects Involving Strong Seismic Ground Shaking or Seismic-related Ground Failure, including Liquefaction.

Past seismic history suggests that the project area is susceptible to moderate to strong seismic ground shaking (LACO 2012). The project includes reinforced structures that would be at risk of collapse from ground shaking and a groundwater well, sewage treatment system, and road improvements that would be susceptible to damage during strong seismic ground shaking. The soils encountered during test borings at the project site are not considered to be liquefiable (LACO 2012). However, it is possible that some isolated, thin lenses of loose, saturated sands near the ground may liquefy during severe ground shaking, based on the relatively thin lenses of loose sand encountered, which could damage structures, foundations, concrete slabs, asphalt pavement, and utilities (LACO 2012). The impact from liquefaction is considered significant.

Project design would be required to conform to the Mendocino County Building Code, California Building Code, and the State Earthquake Protection Law, which set design criteria for seismic resistant structures and construction in areas with liquefiable soils. Because a design-level geotechnical study has not yet been prepared for the project, the impact related to strong seismic ground shaking or seismic-related ground failure including liquefaction is potentially significant.

Mitigation Measure GEO-1: Conduct a Geotechnical Study and Implement Recommendations.

The County and City shall require a California registered Geotechnical Engineer to conduct a design-level geotechnical study for the project. The geotechnical study shall address all areas of ground disturbance, evaluate seismic hazards, and provide recommendations to mitigate the effects of: strong ground shaking, liquefiable soils, lateral spreading, and subsidence in adherence with applicable design standards, including applicable CBC and Mendocino County Building Code standards for earthquake resistant construction. The seismic criteria shall take into account the active faults that will affect the project site, and ground motions and shaking related to the faults.

The geotechnical study shall also include evaluation of unstable soils in the project area, including areas susceptible to liquefaction or subsidence, and areas containing expansive soils. The study shall provide measures to repair, stabilize, or avoid such soils, and include grading, drainage, paving, and foundation design recommendations such that adherence with current applicable standards for earthquake resistant construction would be achieved. This may include, but would not be limited to, one or more of the following measures (or equivalent measures) to meet the performance standards:

- Maintain wet optimum moisture content of clay soils where the soils will support foundations, concrete slabs, and asphalt concrete pavements, until covered with permanent construction and install moisture barriers.
- Remove organic topsoil from planned structure areas prior to construction.

The project shall be designed and constructed in conformance with the specific recommendations contained in the design-level geotechnical study, including recommendations for grading, ground improvement, foundations, concrete slabs and asphalt concrete pavements. The recommendations made in the geotechnical study shall be incorporated into the final plans and specifications and implemented during construction. Professional inspection of foundation and excavation, earthwork

and other geotechnical aspects of site development shall be performed during construction in accordance with the current version of the CBC.

Level of Significance: Less than significant with mitigation.

Mitigation Measure GEO-1 would reduce impacts to a less than significant level by requiring a site specific geotechnical study and design and construction in conformance with applicable design standards that would reduce the risk to life or property during a seismic event.

Impact GEO-2: Result in Substantial Soil Erosion or Loss of Topsoil.

The project site is within a mostly undeveloped, forested parcel in the Jackson Demonstration State Forest (JDSF), and is covered with an approximately 12-inch layer of organic laden topsoil. The project site is relatively flat to gently sloping. The natural erosion rate of the soils present at the project site is slight to moderate (USDA 2006). Grading, earthwork, and stockpiling during construction could result in increased potential for erosion or loss of topsoil on and off-site, which would be a potentially significant impact.

Following construction, stormwater runoff would be managed onsite. As described in Section 3.09, Hydrology and Water Quality, project stormwater conveyance capabilities and capacities would not substantially exceed pre-development conditions. The site is relatively flat and trucks and other vehicles and equipment would utilize designated paved access roads and loading/unloading areas at the proposed Transfer Station site. The potential for erosion or loss of topsoil to occur during operation would be minimal. Therefore, the operational impact from soil erosion would be less than significant.

Mitigation Measure HYD-1: NPDES and Storm Water Pollution Prevention Plan.

(see Section 3.9, Hydrology and Water Quality)

Level of Significance: Less than significant with mitigation.

Mitigation Measure HYD-1 would reduce construction-related impacts to a less than significant level by requiring a Storm Water Pollution Prevention Plan (SWPPP) to be prepared for the project. The SWPPP would include erosion and sediment control measures, such as the use of temporary sediment basins, filter screens, and gravel bags, which would prevent substantial soil erosion during construction.

Impact GEO-3: Be Located on Geologic Unit or Soil that is Unstable, or would become Unstable as a Result of the Project, and Potentially Result in Liquefaction, Lateral Spreading, Subsidence, or Collapse.

The soils encountered during test borings at the project site are generally not considered to be liquefiable, but it is possible that some isolated, thin lenses of loose, saturated sands near the ground may liquefy during severe ground shaking, based on the relatively thin lenses of loose sand encountered (LACO 2012). Because of the potential for liquefaction and the 2 percent to 9 percent slopes present on site, the project site is potentially susceptible to lateral spreading from liquefaction. Subsidence from liquefaction also could occur. Structures could be susceptible to damage or collapse, and other project improvements such as the roadway widening, utilities, or sewage treatment systems could be damaged. Because a design-level geotechnical study has not yet been prepared for the project, the impact would be potentially significant.

Mitigation Measure GEO-1: Conduct a Geotechnical Study and Implement Recommendations

Level of Significance: Less than significant with mitigation.

Mitigation Measure GEO-1 would reduce impacts to a less than significant level by requiring a site-specific geotechnical study for project design and construction to be in conformance with applicable design standards that would reduce the risk to life or property due to unstable soils.

Impact GEO-4: Be Located on Expansive Soil, as Defined in Table 18-1-B of Uniform Building Code (1994), Creating Substantial Risks to Life or Property.

Sandy clay/sandy silt soils encountered in boring SE-3 have a high to very high expansion potential (LACO 2012). Expansive soils can damage structures, foundations and buried utilities. Because only a preliminary geotechnical study was prepared for the project site, the extent of expansive soils present onsite is not known, therefore, the impact from expansive soils would be potentially significant.

There would be no impact related to expansive soils due to closure of the Caspar Transfer Station, including the 25-acre portion associated with the land transfer. At the Caspar Transfer Station, the project would remove all solid waste from the site and operations would cease; no alterations would be made to existing structures. The land transfer would not include any additional development or ground disturbance beyond that included in the proposed project. No impact would occur.

Mitigation Measure GEO-1: Conduct a Geotechnical Study and Implement Recommendations

Level of Significance: Less than significant with mitigation.

Mitigation measure GEO-1 would reduce impacts to a less than significant level by requiring a site-specific geotechnical study and for project design and construction to be in conformance with applicable design standards that would reduce the risk to life or property due to expansive soils.

Impact GEO-5: Have Soils Incapable of Adequately Supporting Use of Septic Tanks or Alternative Waste Water Disposal Systems.

The project includes the option to construct and operate an on-site septic tank and leachfield to treat and manage the wastewater produced at the project site. As an alternative to a septic tank and leachfield, a sewage holding tank could be installed. Construction of the septic tank and leachfield or holding tank would be in accordance with the Mendocino County Division of Environmental Health's Minimum Standards for On-site Sewage Systems standards, including appropriate materials, access ports, and an over flow alarm.

Septic treatment is provided by the soil column beneath the leachfield. The preliminary geotechnical evaluation determined that the site soils in the area of boring SE-4 would accommodate the design and construction of a conventional onsite sewage disposal system (e.g., leachfield area) because these soils fall into Soil Percolation Suitability Zone 1 (Coarse) and 2B (Acceptable) (LACO 2012). The location of boring SE-4 generally coincides with the proposed location for the leachfield, as shown on Figure 2-2, Site Plan.

Construction and operation of on-site sewage systems are regulated through a permit process with the Mendocino County Environmental Health Division. Because the project would be designed in accordance with the Mendocino County standards for on-site sewage systems, and because the project would be required to obtain coverage under the Mendocino County Environmental Health Division permit process, construction and operation of a septic tank and leachfield or sewage holding tank would not occur in an area with soils incapable of adequately supporting the use of septic tanks or alternate waste water disposal systems. Therefore, because of required compliance with existing regulations and because suitable soils for septic systems are present onsite, the impact from the on-site waste water disposal system would be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

3.6.6 Cumulative Impacts

Impact GEO-C-1: Result in Cumulatively Considerable Contribution to Cumulative Impacts Related to Geology and Soils.

The nature of geologic impacts is largely site-specific. Therefore, geologic hazards do not accumulate as impacts on resources do, as indicated in other sections of this EIR. The project would comply with state and local regulations and policies, and mitigation measures GEO-1 and HYD-1 would be implemented to reduce the risk to life and property from these geologic hazards and potential soil erosion. There would be no contribution to a cumulative impact related to geologic impacts.

Mitigation Measures: No mitigation is necessary.

Level of Significance: No impact.

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3.7 Greenhouse Gas Emissions and Energy

This section evaluates the potential impacts related to greenhouse gas (GHG) emissions and energy resources during construction and operation of the project. The impacts and mitigation measures section establishes the thresholds of significance, evaluates GHG and energy impacts, and identifies the significance of impacts. Where appropriate, mitigation measures are presented to reduce impacts to less than significant.

3.7.1 Setting

Gases that trap heat in the atmosphere are referred to as greenhouse gases because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse. The accumulation of GHGs has been implicated as the driving force for global climate change. The primary GHGs are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), ozone (O₃), and water vapor (H₂O).

While GHGs in the atmosphere are naturally occurring, the emission rate of CO₂, CH₄ and N₂O has been accelerated by human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing associated with such as activities as agricultural practices and landfills. Other GHGs include hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride, which are generated during certain industrial processes. GHGs are typically reported in “carbon-dioxide-equivalent” measures (CO₂e).

There is international scientific consensus that human-caused increases in GHGs have contributed, and will continue to contribute, to climate change. Potential climate change impacts in California may include, but are not limited to, a decrease in snowpack; sea level rise; and a greater number of extreme heat days per year, high ozone days, large forest fires, and drought years. Secondary effects are likely to include impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity.

The Environmental Protection Agency (EPA) reports U.S. GHG emissions for 2011 as 6,702 million metric tons of CO₂e (MMT CO₂e). Electricity production accounts for 33 percent, followed by the transportation sector at 28 percent and the industrial sector at 20 percent. Commercial and residential fuel use and the agricultural sector accounted for the remaining 19 percent (U.S. EPA 2013).

The California Air Resources Board (CARB) estimated that in 2011 California produced about 448 MMT CO₂e. The transportation sector was the highest source at 38 percent of the State’s total GHGs, followed by the industrial sector at 22 percent, and electricity generation (both in-state and out-of-state) at 19 percent. Commercial and residential fuel use, recycling and waste, high global warming potential, and agricultural sectors accounted for the remaining 21 percent of the State’s total GHGs (CARB 2013).

3.7.2 Regulatory Framework

Federal

There are no federal regulations that apply to this type of project as related to GHG emissions.

State

In 2006, the Governor signed AB32, the “Global Warming Solutions Act of 2006,” committing the State of California to reducing GHG emissions to 1990 levels by 2020. The statute requires CARB

to track emissions through mandatory reporting, determine the 1990 emission levels, set annual emissions limits that will result in meeting the 2020 target, and design and implement regulations and other feasible and cost effective measures to ensure that statewide GHG emissions will be reduced to 1990 levels by 2020.

In December 2007, CARB approved the 2020 emissions limit at 427 MMT CO₂e. Projected business-as-usual emissions for 2020 are 507 MMT CO₂e. Therefore, a reduction of 80 MMT CO₂e is needed to meet the goal (CARB 2012).

In December 2008, pursuant to AB 32, CARB adopted the *Climate Change Scoping Plan*, which outlined measures to attain the 2020 greenhouse gas emissions limit. The Climate Change Scoping Plan estimated that implementation of identified measures would result in a reduction of 105.3 MMT CO₂e from various sectors including transportation, energy, forestry, and high global warming potential gas sectors (originally reported as 174 MMT CO₂e, but updated to 105.3 MMT CO₂e in the Status of Scoping Plan Recommended Measures found at the CARB website). This is 24 percent more than is needed to meet the 2020 mandate.

In May 2014, CARB released the *First Update to the Climate Change Scoping Plan* which describes the progress made to meet the near-term (2020) objectives of AB 32 and defines California's climate change priorities and activities for the next several years (CARB 2014). The Plan also updated the 2020 emissions limit and business-as-usual emissions for 2020. The 2020 limit is now 431 MMT CO₂e and the business-as-usual forecast is 509 MMT CO₂e. Finally, the plan provides recommendations for establishing a mid-term emissions limit that aligns with the long-term reduction goals of Executive Order S-3-05 (signed by then Governor Schwarzenegger, EO S-3-05 establishes GHG reduction targets for 2050). The recommendations cover the Energy, Transportation, Agriculture, Water, Waste Management, Natural and Working Lands, Short-lived Climate Pollutants, Green Building, and Cap-and-Trade sectors.

With regard to forest lands in California, the initial Scoping Plan included a target to maintain net carbon sequestration. This was to be achieved using the mechanisms provided by the Forest Practice Rules, timberland conversion regulations, fire safety requirements, forest improvement assistance programs, and CEQA. The *First Update Climate Change Scoping Plan* acknowledges the complexities of measuring forest land as a carbon sink as well as a biogenic source of GHG emissions. Consequently the Board of Forestry and Fire Protection has been evaluating the adequacy of existing forest regulations and programs for achieving GHG emission reductions and ensuring carbon sequestration on forest lands. As part of the next steps for Natural and Working Lands (referred to as Forest Lands in the initial Scoping Plan) sector, the California Natural Resources Agency and CalEPA are to convene an inter-agency forest climate workgroup to prepare and publish a "Forest Carbon Plan" to set quantitative targets for net forest carbon storage, identify actions to meet the targets, evaluate GHG emissions and carbon sequestration trends, and develop recommendations regarding funding actions.

Regional and Local

Mendocino County Air Quality Management District (MCAQMD)

The MCAQMD has not adopted regulations regarding the evaluation of GHG emissions in a CEQA document. However, MCAQMD recommends using 1,100 metric tons per year for land use based projects in accordance with the BAAQMD thresholds (MCAQMD 2014).

Fort Bragg Climate Action Plan (CAP)

The City of Fort Bragg has voluntary GHG emission reduction goals for the City and community of 30 percent and 15 percent, respectively, by 2020. In 2012, the City adopted a CAP that includes projects and strategies that, once implemented, will meet the City's reduction goals. The strategies include a variety of changes in operations, purchasing, technology, policy, and behavior at the municipal level, and the implementation of education programs, regulation, and incentives at the community level. Under the category "Proposed Measures - Waste Reduction" is a strategy to establish a coastal solid waste transfer station. The purpose of the coastal solid waste transfer station, as identified in the CAP, would be to reduce the transportation costs and GHG emissions associated with transportation of solid waste and to improve opportunities for local recycling and reuse (Fort Bragg 2012).

Mendocino County General Plan Goals and Policies

The following is the policy from the *Mendocino County General Plan* that is applicable to the project.

Policy RM-50: Mendocino County acknowledges the real challenge of climate change and will implement existing strategies to reduce greenhouse gas emissions and incorporate future measures that the State adopts in the coming years.

3.7.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to GHG emissions, as defined by the CEQA Guidelines (Appendix G), if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

There is currently no applicable federal, State, or local significance thresholds pertaining to construction activities. Therefore, the analysis of construction-related GHG emissions uses a qualitative approach in accordance with Section 15064.4(a)(2) of the CEQA Guidelines.

For operation, generation of GHG emissions would be considered significant if operation of the project would create more than 1,100 metric tons of CO₂ per year. For determining a conflict with an applicable plan, the Project is evaluated for its compliance with the State's *First Update Climate Change Scoping Plan* (the implementing tool of AB 32) and the *City of Fort Bragg Draft Climate Action Plan* as the two plans adopted for the purpose of reducing GHG emissions which also are applicable to the project area. There are no County-level plans that have been adopted for the purpose of reducing GHG emissions.

Areas of No Project Impact

The project would not result in impacts related to Appendix F Energy Conservation of the current CEQA Guidelines. The following significance criteria are not discussed further in the impact analysis, for the following reasons:

- **Use of energy in an inefficient manner.** Although operation of the proposed project would consume energy, the increased efficiencies achieved by reducing the number of vehicle miles traveled by transfer trailers, collection trucks, and self-haul vehicles would substantially offset the energy consumption associated with on-site operations. Overall VMT would be reduced by 272,271 miles (refer to Table 3.7-1). The proposed project would

improve energy efficiency of off-site mobile sources, thus creating a beneficial impact to energy consumption.

3.7.4 Methodology

The GHG emissions impact analysis considers construction and operational impacts associated with the proposed project. Operation period GHG emissions were modelled using the latest version of the California Emissions Estimator Model, CalEEMod (Version 2013.2.2). Construction impacts are analysed qualitatively.

Project operation was assumed to produce emissions from worker commute vehicles and use of energy for the on-site facilities (building, lighting, etc.). Emissions from off-road equipment (one crane, one forklift, and one rubber-tired loader) used to process material on site, was assumed to be neutral for the purposes of calculating GHG emissions. This is because the same amount of material would be processed under the project as existing conditions, just relocated to a different site. Therefore, emissions from off-road equipment are not included in the calculations in this analysis. CalEEMod was used to compute operational emissions from worker commute vehicles and on-site facilities.

Traffic emissions associated with operation of the facility were computed using the EMFAC2011 model developed by the CARB. This included modelling of self-haul vehicles, franchise hauling trucks, and use of large trucks to transfer material to Willits. Self-haul vehicles were assumed to be a mix of light-duty trucks, medium-duty trucks, and light heavy duty trucks, consistent with the vehicle miles traveled distribution computed by EMFAC2011. Current haul trucks were assumed to consist of diesel-powered T6 heavy duty trucks. New project haul trips were assumed to be made by larger T7 heavy duty trucks. The franchise haul trucks were assumed to be solid waste collection trucks.

The mobile emissions from the self-haul vehicles, franchise trucks, and solid waste transfer trucks are based on the net projected change in vehicle miles traveled (VMT) combined with the emissions rates computed using EMFAC2011 (results shown in Appendix C). Changes to VMT are based on different vehicle travel characteristics for the existing conditions (self-haul to Caspar, and transfer of materials from the Pudding Creek, Albion, and Caspar sites to the Willits Transfer Station) and the project scenario where all self-haul materials and collected solid waste are brought to the proposed Central Coast Transfer Station, then transported to a landfill in larger trucks. The VMT calculations are shown in Table 3.7-1. The emission rates from EMFAC2011 are based on Mendocino County default annual conditions, aggregate year of 2016 and an average travel speed of 30 miles per hour.

Table 3.7-1 Annual Vehicle Miles Traveled – Existing and Project Conditions

| Existing Conditions | Existing Annual Mileage | Project Conditions | Project Annual Mileage | Net Difference |
|--|-------------------------|--|------------------------|------------------|
| Self-haul to Caspar | 289,952 | Self-haul to CCTS | 127,920 | (162,032) |
| Collection Trucks to Pudding Creek ¹ | -- | Collection Trucks to CCTS | 19,656 | 19,656 |
| Solid Waste Transfer from Pudding Creek to Willits Transfer Station ² | 254,030 | Solid Waste Transfer from CCTS Site up to Willits Transfer Station | 124,384 | (129,646) |
| Recyclables & Green Waste from Caspar | -- | Recyclables & Green Waste from CCTS | -- | (5,096) |
| Albion to Willits Transfer Station ⁴ | 3,110 | Albion up to Willits Transfer Station via CCTS ³ | 957 | (2,153) |
| TOTAL | | | | (279,271) |

Source: MSWMA, Central Coast Transfer Station Project – Vehicle Miles Traveled, 2014

- Existing mileage does not change as collection trucks would continue to start and end their routes at the Pudding Creek facility, under the project. The Project would require additional miles to deliver waste to the CCTS site.
- In addition to the travel route being reconfigured under the project, trips would be reduced because larger haul trucks would be used. Trips would be reduced from 3,588 to 2,080 per year.
- The mileage reduction comes from shifting the starting point of the delivery route from Caspar to the proposed Central Coast Transfer Station.
- Savings in miles due to consolidation of Albion waste at Central Coast Transfer Station instead of separate haul to Willits Transfer Station.

3.7.5 Impacts and Mitigation Measures

Impact GG-1: Generate Greenhouse Gas Emissions that may have Significant Impact on Environment.

Construction activities would result in a temporary (approximately 6 months) increase in GHG emissions, including exhaust emissions from on-road haul trucks, worker commute vehicles, and off-road heavy duty equipment. Project emissions during construction would not be a considerable contribution to the cumulative GHG impact, given that construction would be temporary and would require standard clearing, earthmoving, hauling, and delivery equipment, as used for similar projects, and which have been accounted for in the State's emission inventory and reduction strategy outlined in the Scoping Plan. The impact from construction GHG emissions would be less than significant. Although no mitigation is required to reduce construction related GHG impacts, it is noted that in Section 3.3, Air Quality and Odor, Mitigation Measure AQ-1 Air Quality Control Measures during Construction also would assist in reducing GHG emissions with implementation of the reduced idling times and proper maintenance of construction vehicles.

Operation of the project would generate a net reduction of 139.97 metric tons per year of GHG emissions (refer to Table 3.7-2). Although on-site emissions would be 89.55 metric tons per year, this would be more than off-set by the reduction in emissions that would result from the reduction in VMT. Therefore, there would be no impact to GHG emissions. In fact, implementation of the project is considered to have a beneficial impact to GHG emissions.

Table 3.7-2 Annual Operational Greenhouse Gas Emissions

| | Metric Tons per Year |
|--|----------------------|
| On-site (buildings, worker trips) | 89.55 |
| Mobile (self-haul, franchise trucks, etc.) | (229.52) |
| Total | (139.97) |

Source: EMFAC2011 (see Appendix C)

Mitigation Measures: No mitigation is necessary.

Level of Significance: Beneficial Impact.

Impact GG-2: Conflict with Applicable Plan, Policy, or Regulation Adopted for Purpose of Reducing Emissions of Greenhouse Gases.

This section evaluates the Project's potential to conflict with the *First Update Climate Change Scoping Plan* and the *Fort Bragg Climate Action Plan*.

First Update Climate Change Scoping Plan

The recommended next steps in the *First Update Climate Change Scoping Plan* are broad policy and regulatory initiatives that will be implemented at the State level and, in general, do not relate to the construction and operation of an individual project such as the Central Coast Transfer Station. Although project construction may benefit from implementation of some of the state-level regulations and policies, such as the Phase 2 heavy-duty truck GHG standards proposed to be implemented within the transportation sector, the project would not impede the state in implementing the policies. Project operation would not impede the state in implementing state policies related to forest lands and the preparation of the "Forest Carbon Plan" as called for in the *First Update Climate Change Scoping Plan*.

At this time it is not possible to determine if the project would conflict with the proposed Forest Carbon Plan, as it has not yet been adopted and it is not known what targets or recommendations might be included. The initial Scoping Plan indicated that maintaining net carbon sequestration was to be achieved using the mechanisms provided by the Forest Practice Rules, timberland conversion regulations, and CEQA. As noted in Chapter 2, Project Description, approvals for the project include a Timberland Conversion Permit, including preparing of a Timberland Conversion Plan, and preparation and approval of a Timber Harvest Plan. In issuing these approvals for the project, the California Department of Forestry & Fire Protection will verify the project complies with the timberland conversion regulations.

The project would not conflict or impede the state from implementing the broad policy and regulatory initiatives, and would comply with timberland conversion regulations, therefore, no impact would occur.

Fort Bragg Climate Action Plan

As noted in the setting section, the *Fort Bragg Climate Action Plan* includes a strategy to establish a coastal solid waste transfer station to reduce the transportation GHG emissions associated with transportation of solid waste and to improve opportunities for local recycling and reuse. Implementation of the project would fulfil this strategy. Therefore, the project would not conflict with the *Fort Bragg Climate Action Plan* and, in fact, would help to implement the CAP.

Mitigation Measures: No mitigation is necessary.

Level of Significance: No Impact.

3.7.6 Cumulative Impacts

Impact GG-C-1: Result in Cumulatively Considerable Contribution to a Significant Cumulative Impact Relative to Greenhouse Gas Emissions.

GHG emissions, by their nature, represent a cumulative impact. No single project could generate enough GHG emissions to noticeably change the global average temperature. Instead, GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. Therefore, the project analysis presented above also represents the cumulative analysis for impacts from GHG emissions.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Beneficial Impact.

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3.8 Hazards and Hazardous Materials

This section evaluates the potential impacts related to hazards and hazardous materials during construction and operation of the project. This section is based in part on information from the Environmental Data Resources (EDR) report for the project site (reference Appendix F). This section describes the hazards and hazardous materials setting for the project and Caspar sites and the impacts and mitigation measures section establishes the thresholds of significance, evaluates potential hazard and hazardous material impacts, and identifies the significance of impacts. Where appropriate, mitigation is presented to reduce impacts to less than significant levels.

3.8.1 Setting

The Caspar self-haul transfer station prohibits any hazardous waste except for a limited number of recyclable household hazardous waste items that are typically generated by residences.

Definition of Hazardous Materials

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. Factors that influence the health effects of exposure to hazardous materials include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility.

The California Code of Regulations (CCR) defines a hazardous material as a substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may either: (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed (CCR, Title 22, Division 4.5, Chapter 10, Article 2, Section 66260.10). Hazardous materials are classified according to four properties: toxicity, ignitability, corrosivity, and reactivity (CCR, Title 22, Chapter 11, Article 3), which are defined in the CCR, Title 22, Sections 66261.20-66261.24.

Potential Receptors/Exposure

The sensitivity of potential receptors in the areas of known or potential hazardous materials contamination is dependent on several factors, the primary factor being an individual's potential pathway for exposure. Exposure pathways include external exposure, inhalation, and ingestion of tainted air, water, or food. The magnitude, frequency, and duration of human exposure can cause a variety of health effects ranging from short-term acute symptoms or long term chronic effects. Potential health effects from exposure can be evaluated in a health risk assessment. The principle elements of exposure assessments typically include:

- Evaluation of the fate and transport processes for hazardous materials at a given site;
- Identification of potential exposure pathways;
- Identification of potential exposure scenarios;
- Calculation of representative chemical concentrations;
- Estimation of potential chemical uptake.

Schools and residences are examples of sensitive receptors that could be susceptible to significant effects from exposure to hazardous materials. There are no schools within 0.25 mile of the project

site. The closest school to the project site is Fort Bragg High School which is 2.3 miles northwest of the project site. The closest residences to the project site are approximately 375 feet to the west of the project site's western boundary, and approximately 600 feet west of the operational facilities of the project. There are also a few residences southeast of the project site, south of SR 20, which are less than 800 feet from the operational facilities of the project and 150 feet from the property line. The potential exposure of workers, contamination of soils and groundwater, and transportation-related hazards are discussed below.

Fire Hazards

Fire protection in Mendocino County is provided by local districts, cities, and CalFire. The project site is within the Fort Bragg Rural Fire Protection District. CalFire identifies fire hazard severity zones in State Responsibility Areas (SRA) throughout California. The project site is located in a very high fire hazard severity zone (CalFire 2007). The County of Mendocino Office of Emergency Services coordinates emergency response in Mendocino County through the Fire and Rescue Mutual Aid Coordinator. The Fire and Rescue Mutual Aid Coordinator functions within the California Fire Service and Rescue Emergency Mutual Aid System (PMC 2009).

Airports

The closest public airport in the project vicinity is the Little River Airport in Little River, approximately 10.5 aerial miles due south of the project site. The nearest private airport to the project is the Fort Bragg Airport, located approximately 4.7 aerial miles northwest of the project site. Permission is required prior to landing.

3.8.2 Regulatory Framework

Hazardous materials and hazardous wastes are subject to numerous federal, State, and local laws and regulations intended to protect public health and safety and the environment. The U.S. Environmental Protection Agency (U.S. EPA), U.S. Department of Transportation (DOT), California Environmental Protection Agency (Cal/EPA), and Department of Toxic Substances Control (DTSC) are the primary agencies that enforce these regulations. The main focus of the federal Occupational Safety and Health Administration (Fed/OSHA) and California Occupational Safety and Health Administration (Cal/OSHA) are to prevent work-related injuries and illnesses, including those from exposures to hazardous materials. CalFire implements fire safety regulations. In accordance with Chapter 6.11 of the California Health and Safety Code (CHSC, Section 25404, et seq.), local regulatory agencies enforce many federal and state regulatory programs through the Certified Unified Program Agency (CUPA) program, including:

- State Uniform Fire Code requirements (Section 80.103 of the Uniform Fire Code as adopted by the State Fire Marshal pursuant to Health and Safety Code Section 13143.9);
- Underground storage tanks (Chapter 6.7 of the Health and Safety Code, Sections 25280 et seq.).

The CUPA for Mendocino County is the Mendocino County Environmental Health Department.

Federal

The primary federal agencies with responsibility for hazardous materials management include the US EPA, US Department of Labor Occupational Safety and Health Administration (Fed/OSHA), and the DOT. Federal laws, regulations, and responsible agencies relevant to the project are summarized in Table 3.8-1.

State and local agencies often have either parallel or more stringent regulations than federal agencies. In most cases, State law mirrors or overlaps federal law and enforcement of these laws is the responsibility of the State or of a local agency to which enforcement powers are delegated. For these reasons, the requirements of the law and its enforcement are discussed under either the State or local regulatory section.

Table 3.8-1 Federal Laws and Regulations Related to Hazardous Materials Management

| Classification | Law or Responsible Federal Agency | Description |
|---|---|--|
| Hazardous Materials Management and Soil and Groundwater Contamination | Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA)) | Imposes requirements to ensure that hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to human health or the environment in the event that such materials are accidentally released. |
| | Comprehensive Environmental Response, Compensation and Liability Act of 1980 (amended by SARA 1986 and Brownfields Amendments 2002) | Regulates the cleanup of sites contaminated by releases of hazardous substances. |
| Hazardous Materials Transportation and Handling | U.S. Department of Transportation | Has the regulatory responsibility for the safe transportation of hazardous materials. The DOT regulations govern all means of transportation except packages shipped by mail (49 CFR). |
| Occupational Safety | Occupational Safety and Health Act of 1970 | Fed/OSHA sets standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries (29 CFR). |

State

Soil and Groundwater Contamination

The cleanup of sites contaminated by releases of hazardous substances is regulated primarily by the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), which was amended by the Superfund Amendment and Reauthorization Act of 1986 (SARA), the Brownfields Amendments (2002) and by similar State laws. Under CERCLA, the EPA has authority to seek the parties responsible for releasing hazardous substances and to ensure their cooperation in site remediation. CERCLA provides a defense to CERCLA liability, for those persons who could demonstrate, among other requirements, that they “did not know and had no reason to know” prior

to purchasing a property that any hazardous substance that is the subject of a release or threatened release was disposed of on, in, or at the property. Such persons, to demonstrate that they had “no reason to know” must have undertaken, prior to, or on the date of acquisition of the property, “all appropriate inquiries” (AAI) into the previous ownership and uses of the property consistent with good commercial or customary standards and practices (EPA 2005). Among the required inquiries is the provision to comply with land use restrictions established or relied on in connection with a response action (EPA 2005). CERCLA also provides federal funding (the “Superfund”) for remediation. SARA Title III, the Emergency Planning and Community Right-to-Know Act, requires companies to declare potential toxic hazards to ensure that local communities can plan for chemical emergencies.

The State’s Hazardous Waste and Substances Sites List (Cortese List, Government Code Section 65962.5) identifies sites with leaking underground fuel tanks, hazardous waste facilities subject to corrective actions, solid waste disposal facilities from which there is a known migration of hazardous waste, and other sites where environmental releases have occurred. Before a local agency accepts an application as complete for any development project, the applicant must certify whether or not the project site is in the Cortese List. Databases that provide information regarding the facilities or sites identified as meeting Cortese List requirements are managed by the DTSC and SWRCB. At sites where contamination is suspected or known to have occurred, the site owner is required to perform a site investigation and conduct site remediation, if necessary. There are two clean-up standards; one for residential and the other for commercial/industrial land uses. Standards are set for soil, groundwater, soil gas, and vapor intrusion of contaminants into buildings.

Hazardous Materials Transportation

The State of California has adopted DOT regulations for the intrastate movement of hazardous materials. State regulations are contained in Title 26 of the CCR. In addition, the State of California regulates the transportation of hazardous waste originating in the state and passing through the state. Both regulatory programs apply in California. The two State agencies that have primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and the Caltrans.

Occupational Safety

Worker health and safety is regulated at the federal level by the U.S. Department of Labor, Fed/OSHA. Under this jurisdiction, workers at hazardous waste sites (or workers coming into contact with hazardous wastes that might be encountered during excavation of contaminated soils) must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations. Worker health and safety in California is regulated by Cal/OSHA. California standards for workers dealing with hazardous materials (including hazardous wastes) are contained in CCR Title 8. DTSC and the State Department of Occupational Health and Safety are the agencies that are responsible for overseeing that appropriate measures are taken to protect workers from exposure to potential soiled groundwater contaminants. At sites known or suspected to have soil or groundwater contamination, a site health and safety plan must be prepared and generally require approval by the CUPA. The health and safety plan establishes policies and procedures to protect workers and the public from exposure to potential hazards at the contaminated site.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The California Hazardous Materials Release Response Plans and Inventory Act of 1985 (Business Plan Act) requires preparation of Hazardous Materials Business Plans and disclosure of hazardous materials inventories. A business plan includes information such as an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, Cal/EPA and DTSC have primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state.

Emergency Response

California has developed an emergency response plan to coordinate emergency services provided by federal, State, and local government, and private agencies. Responding to hazardous materials incidents is a part of this plan. The plan is administered by the State Office of Emergency Services (OES), which coordinates the responses of other agencies such as local fire and police agencies, emergency medical providers, CHP, the CDFW, and Caltrans.

Mendocino County has adopted a Multi-Hazard Mitigation Plan (MHMP) and Emergency Operations Plan (EOP) as identified below.

Risk of Fires

The California PRC sets forth fire safety regulations that include the following:

- Earthmoving and portable equipment with internal combustion engines must be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC Section 4442).
- Appropriate fire suppression equipment must be maintained during the highest fire danger period – from April 1 to December 1 (PRC Section 4428).
- On days when a burning permit is required, flammable materials must be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor would maintain the appropriate fire suppression equipment (PRC Section 4427).
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines must not be used within 25 feet of any flammable materials (PRC Section 4431).

Regional and Local

Mendocino County Multi-Hazard Mitigation Plan

The 2008 MHMP is the County's plan to identify and reduce hazards before any type of hazard event occurs. It aims to reduce losses from future disasters such as dam failure, earthquakes, floods, hazardous materials events, landslides, tsunamis, urban conflagration, and wildland fire. The MHMP also includes a vulnerability analysis and identifying mitigation actions. The 2013 MHMP is still in draft form as of December, 2014.

Mendocino County Emergency Operations Plan

The Mendocino County EOP identifies emergency planning, organization, policies, procedures, and response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies. The plan also addresses integration and coordination with other governmental levels when required. The EOP accomplishes the following:

- Establishes the emergency management organization required to mitigate any significant emergency or disaster affecting the emergency operational area.
- Identifies the responsibilities, policies and procedures required to protect the health and safety of the population, public and private property, and the environmental effects of natural and technological emergencies and disasters.
- Establishes the operational concepts and procedures associated with field response to emergencies, County Emergency Operations Center (EOC) activities, and the recovery process.

Mendocino County General Plan Goals and Policies

The following goals and policies from the Mendocino County General Plan most relevant to the proposed project are as follows:

- Goal DE-20 (Solid Waste): To reduce risks to human and environmental health posed by solid, hazardous and toxic materials and wastes.
- Goal DE-24 (Safety): To reduce, to the extent possible, the risk and exposure of life, property and the environment to hazardous conditions and events such as earthquakes, landslides, wildfires, floods, inundation, energy emergencies, and toxic releases.
- Policy DE-203: All development projects shall include plans and facilities to store and manage solid waste and hazardous materials and wastes in a safe and environmentally sound manner.
- Policy DE-208: Land uses, densities and intensities shall be designed to reduce human risk and exposure to hazardous conditions and events.
- Policy DE-209: Locate and design critical infrastructure to withstand and operate during hazard events and subsequent recovery phases. Standards and policies include:
- Generally prohibit the construction of public or private structures designed for emergency services or public safety in areas of unacceptable risk, which shall be defined as any location at which an incident capable of either causing the facility to become inoperable has a likelihood of more than 1/1,000,000 per year.
 - Facilities and structures owned or used by public entities should be designed or retrofitted, used, and occupied consistent with Uniform Building Code requirements to protect life and property from hazards.
- Policy DE-210: Development shall not hinder the maintenance and use of routes and sites critical to evacuation, emergency operations and recovery.
- Policy DE-213: Development, densities, intensities and type shall be consistent with the state wildfire hazard rating system and Fire Safe Guidelines (addressing weather, fuel and slope, access, water and other factors).

3.8.3 Evaluation Criteria and Significance Thresholds

Based on Appendix G of the CEQA Guidelines, a hazards or hazardous materials impact is considered significant if implementation of the proposed project would do any of the following:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Areas of No Project Impact

As explained below, construction and operation of the project would not result in impacts related to four of the significance criteria identified in Appendix G of the current CEQA Guidelines. The following significance criteria are not discussed further in the impact analysis, for the following reasons:

- **Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.** No schools are located within one-quarter mile of the project site or Caspar site. The closest school to the project site is the Fort Bragg High School which is located approximately 2.3 miles northwest of the proposed Central Coast Transfer Station site. Fort Bragg High School is approximately 6.9 miles north of the Caspar site. There are no schools within one-quarter mile of the project site. Therefore, the project's effects on schools will not be evaluated further in this Draft EIR.
- **Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.** The State's Hazardous Waste and Substances Sites List (Cortese List, Government Code Section 65962.5) identifies sites with leaking underground fuel tanks, hazardous waste facilities subject to corrective actions, solid waste disposal facilities from which there is a known migration of hazardous waste, and other

sites where environmental releases have occurred. According to the list, and the EDR Report prepared for the project, the nearest listed site is the Georgia-Pacific Corporation site at 90 West Redwood Avenue in Fort Bragg (CalEPA 2012). This site is approximately 3.5 air miles northwest of the proposed Central Coast Transfer Station site and approximately nine air miles north of the Caspar site. The Caspar Landfill is closed and is not on the Cortese list. Therefore this significance criterion is not applicable to the proposed project and is not discussed further in this Draft EIR.

- **Within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.** The proposed project site and the Caspar site are not located within an airport land use plan or within two miles of a public airport. Therefore this significance criterion is not applicable to the proposed project and is not discussed further in this Draft EIR.
- **Within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.** The proposed project site and Caspar site are not located within the vicinity of a private airstrip. Therefore this significance criterion is not applicable to the proposed project and is not discussed further in this Draft EIR.

3.8.4 Methodology

This analysis considers the range and nature of foreseeable hazardous materials use, storage, and disposal resulting from the proposed project and identifies the primary ways that these hazardous materials could expose the environment or individuals to health and safety risks. Local and State agencies would be expected to continue to enforce applicable regulations to the extent that they currently do.

The following reports were used in the analysis of hazardous conditions at the project site:

- Site plan for the proposed project;
- Available literature, including documents published by County, State and federal agencies;
- Applicable elements from the Mendocino County General Plan;
- The Mendocino Coast Recreation and Park District Golf Course Project Draft EIR;
- *Preliminary Geotechnical and Engineering Evaluation Proposed Solid Waste Transfer Station* (LACO 2012).

The information obtained from these sources was reviewed and summarized to establish existing conditions and to identify potential environmental effects, based on the significance thresholds in this section. In determining the level of significance, the analysis assumes that construction and operation of the project would comply with federal, State, and local ordinances and regulations.

3.8.5 Impacts and Mitigation Measures

Impact HAZ-1: Create Significant Hazard through Routine Transport, Use, or Disposal of Hazardous Materials.

Used motor oil and used antifreeze would be collected in secure tanks with secondary containment (reference Figure 2-2 #2, #3). Secondary containment regulations are designed and issued to prevent hazardous liquids from discharging into the surrounding land if a leak or spill occurs. Other recyclable household hazardous waste items, including electronics, fluorescent lights, and batteries,

would be collected in secure containment areas (reference Figure 2-2 #6). All other hazardous wastes would be prohibited at the facility and customers would be referred to the periodic HazMobile household and small business hazardous waste mobile collection system. The gate attendant would routinely inspect incoming loads for any prohibited hazardous waste items and prohibit the customer from depositing them with trash, and instead refer the customer to the periodic HazMobile household hazardous waste collection events. If any prohibited hazardous waste items are discovered on the tipping floor of the facility, they would be removed by facility employees to a secure hazardous waste locker for later removal by HazMobile technicians (see further details under “operation” below). Numerous laws and regulations ensure the safe transportation, use, storage, and disposal of hazardous materials (see Section 3.8.2, Regulatory Framework). Caltrans and the CHP regulate the transportation of hazardous materials and wastes, including container types and packaging requirements, and licensing and training for truck operators, chemical handlers, and hazardous waste haulers. Worker safety regulations cover hazards related to the prevention of exposure to hazardous materials and a release to the environment from hazardous materials use. Cal-OSHA also enforces hazard communication program regulations, which contain worker safety training and hazard information requirements, such as procedures for identifying and labelling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees. Because hazardous materials brought to, and stored at, and then removed from the site would follow existing regulations for the safe transportation, storage, and disposal of hazardous materials the impact from exposure to people or the environment during operation of the proposed Central Coast Transfer Station would be less than significant with the preparation of a Hazardous Materials Business Plan per the Business Plan Act per Mitigation Measure HAZ-1 below.

Construction of the project would involve site grading, excavation, trenching, backfilling, and the construction of facilities that could result in the exposure of construction workers and residents in the project area to routine hazardous materials used in construction including chemicals, contaminated debris, petroleum hydrocarbons, and other hazardous substances that could be inadvertently spilled or otherwise spread. The site is undeveloped forest land and is not known to contain any contaminated soils. The EDR report (Appendix F) prepared for the project did not identify any hazardous materials mapped sites at the project site.

Because the project site is undeveloped forest land, no hazardous sites are in the project vicinity. The operator and its contractors would be required to comply with existing and future hazardous materials laws and regulations covering the transport, use, and disposal of hazardous materials. The impacts associated with the potential to create a significant hazard to the public or the environment during construction of the proposed project would be less than significant.

There are potential hazardous materials at the Caspar site due to unloaded materials from self-haul vehicles; however, prior to ceasing operation at the Caspar Site, hazardous materials would be removed in accordance with existing laws and regulations regarding the removal, transport, and disposal of hazardous materials. The impact from exposure to people or the environment from the removal of hazardous materials at the Caspar Site would be less than significant.

Mitigation Measure HAZ-1: Prepare Hazardous Materials Business Plan.

The MSWMA shall ensure that the owner/operator of the facility prepare a Hazardous Materials Business Plan prior to operations pursuant to the Business Plan Act. The Hazardous Materials Business would include, but not be limited to, an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures. In addition, the

Hazardous Materials Business Plan would also include a Spill Prevention Plan. The Spill Prevention Plan would include, but not be limited to, restrictions and procedures for fuel storage location, fueling activities, regular equipment maintenance, and training and lines of communication to facilitate the prevention, response, containment, and cleanup of spills during construction activities would also outlined.

Level of Significance: Less than significant with mitigation.

Mitigation Measure HAZ-1 would reduce potentially significant impacts associated with hazardous materials handling, storage, and emergency response to a less-than-significant level.

Impact HAZ-2: Create Significant Hazard Through Reasonably Foreseeable Upset and Accident Conditions Involving Release of Hazardous Materials.

Construction

There are two types of accidental releases that could occur during construction: 1) accidental spills; and 2) discovery of existing contaminated soil or groundwater at the construction sites. The project site is undeveloped and does not appear on a list of hazardous materials sites. Encountering existing contaminated soil or groundwater is unlikely. Accidental spills could occur during construction as hazardous materials would be used in varying amounts during construction of the proposed project. Construction activities would use hazardous materials including but not limited to cleaning products; fuels (diesel and gasoline); lubricants and oils; paints and paint thinners; and glues. Construction workers and residents in the project vicinity could be exposed to hazards and hazardous materials as a result of improper handling and storage.

CCR Titles 8 and 22 codify hazardous materials regulations, and their enabling legislation is set forth in Chapter 6.5 (Section 25100 et seq.) of the California Health and Safety Code. This legislation was established at the State level to ensure compliance with federal regulations to reduce the risk to the environment and human health from the routine use of hazardous substances. Construction specifications would include the following requirements in compliance with applicable regulations and codes, including, but not limited to CCR Titles 8 and 22, Uniform Fire Code, and Division 20 of the California Health and Safety Code: all reserve fuel supplies and hazardous materials must be stored within the confines of a designated construction area; equipment refuelling and maintenance must take place only within the staging area; and construction vehicles shall be inspected daily for leaks. Off-site activities (e.g., utility construction) would also be required to comply with these regulations. These regulations and codes must be implemented, as appropriate, and are monitored by the State and/or local jurisdictions, including the Fort Bragg Rural Fire Protection District and CalFire.

Contractors would be required to comply with Cal/EPA's Unified Program; regulated activities would be managed by Mendocino County Environmental Health department, the designated CUPA for Mendocino County, in accordance with the regulations included in the unified Program. Such compliance would reduce the potential for accidental release of hazardous materials during construction of the proposed project. As a result, it would lessen the risk of exposure of construction workers and the public to accidental release of hazardous materials, as well as the demand for incident emergency response. The impact from potential release of hazardous materials would be less than significant.

Operation

The project would prohibit acceptance of hazardous waste delivered or mixed in with the municipal solid waste loads; however, there is a potential that hazardous materials may be transported

unknowingly in the Municipal Solid Waste (MSW) loads brought to the site. Other recyclable household hazardous waste items, including electronics, fluorescent lights, and batteries, would be collected in secure containment areas. If such materials are found prior to unloading, the driver would not be allowed to unload the hazardous materials. If hazardous wastes are found, specific notification, future load inspection, and appropriate handling, storage, and disposal procedures would be implemented per state and federal regulations noted above.

Occasionally hazardous materials are discovered on the tipping floor of a transfer station. The spotters working in the transfer station would be trained to recognize hazardous materials and to deal with them appropriately. Such materials would be segregated in a hazardous waste locker kept on or near the tipping floor for that purpose. They would be kept in locked storage until they can be removed from the site by a licensed hauler. Depending on the quantities and types of materials found, materials found on the tipping floor may be stored in the household hazardous waste (HHW) locker until removed.

Most of the hazardous material brought to the HHW facility would be common household items that require special recycling or disposal approaches, such as batteries, paint, used oil and oil filters, and aerosol cans, as well as smaller quantities of herbicides, pesticides, solvents, antifreeze and similar materials. The facility would not accept explosives, medical waste, or radioactive materials. The materials would be stored temporarily inside the designated HHW locker in segregated containers that separate incompatible substances. All HHW would be removed at regular intervals by licensed haulers and transported to off-site facilities for recycling or disposal (California Health and Safety Code, Division 20, Chapter 6.95). The process of isolating and only temporarily storing hazardous materials at the site combined with transporting the materials to proper off-site facilities in accordance with applicable local, State and federal requirements would minimize the project's potential to create a hazard to the environment or the public.

A Spill Prevention Plan would be prepared to control any accidental spills or fuel leaks. Provisions of the plan are likely to include: storage of petroleum products, solvents, paints, and other potentially hazardous liquids in a secured location with secondary containment; maintenance of emergency response contact information on-site; maintenance of spill response materials and equipment in a readily accessible location; training of all workers in spill control and emergency response procedures; designation of a specific individual as primary on-site contact for emergency response to spills; regular maintenance of heavy equipment and vehicles to prevent leakage of fuel or lubricants; immediate cleanup of spills, however small, in accordance with established procedures; and adherence with established reporting procedures for all spills, regardless of size.

As with construction, operation of the proposed project is required to be consistent with federal, State, and local laws and regulations addressing hazardous materials management and environmental protection, including, but not limited to 49 CFR 173 and 177, and CCR Title 26, Division 6 for transportation of hazardous materials, and CCR Titles 8 and 22, Uniform Fire Code, and Division 20 of the California Health and Safety Code for routine use of hazardous materials. These regulations and codes must be implemented, as appropriate, and are monitored by the State and/or local jurisdictions, including Caltrans, the Mendocino County Environmental Health Department, and CalFire.

The Mendocino County Environmental Health Department, as the local CUPA, oversees hazardous materials registrations, aboveground petroleum storage tank spill prevention control and countermeasure plans, UST programs, monitoring wells, and the California Accidental Release Program. Additionally, businesses are regulated as employers by Cal/OSHA and are therefore required to ensure employee safety. Specific requirements include identifying hazardous materials

in the workplace, providing safety information to workers that handle hazardous materials, and providing adequate training to workers.

The proposed project would be required to comply with all applicable federal, State, and local regulations pertaining to spill prevention, safe-transit practices, workplace safety, explosions, fires, and other hazardous materials-related concerns. The Mendocino County Environmental Health Department, CalFire, and other agencies would be required to enforce compliance, including issuing permits and tracking and inspections of hazardous materials storage and transportation. Additionally, existing regulatory requirements would ensure that the proposed project does not pose a significant hazard to off-site receptors including nearby residents. As a result, construction and operation of the proposed project would not create a significant hazard to the environment and general public involving the release of hazardous materials into the environment. Therefore, this impact, for both construction and operation, is considered less than significant.

Mitigation Measures: Mitigation Measure HAZ-1.

Level of Significance: Less than significant with mitigation.

Mitigation Measure HAZ-1 would reduce potentially significant impacts associated with accident conditions to a less-than-significant level.

Impact HAZ-3: Emergency Response Plans and Wildland Fire Risk.

The project is not anticipated to affect emergency response plans because the County's Sheriff Department and Fire Department would review the site design and circulation layout as part of the project review process to ensure that adequate emergency access is provided. Even though the project area is within a Very High Fire Hazard Severity Zone as mapped by CalFire (CalFire 2007), the project is not anticipated to result in significant wildland fire risks because the project would not expose a substantial number of people or structures to wildland fire risks, and fire suppression infrastructure, such as sprinklers, would be incorporated into the site design in order to minimize fire hazards (reference Figure 2-2 for the location of the water storage tank). According to the MHMP, there have been no historic wildland fires in the project area. Therefore, the project would not interfere with or impair emergency response plans or emergency evacuation plans and would not expose people or structures to a significant risk of loss, injury, or death involving wildland fire. This impact would be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

3.8.6 Cumulative Impacts

Impact HAZ-C-1: Result in Cumulatively Considerable Contribution to a Significant Cumulative Impact Related to Hazards or Hazardous Materials.

Cumulative development would include some commercial/industrial uses, which could involve the use of various hazardous products during construction and operation. Residential development would also increase the use of household-type hazardous materials. The storage, use, disposal, and transport of hazardous materials could result in potential spills and accidents. All construction activities, as well as all new development, would be subject to compliance with existing hazardous materials regulations. Future development would be required to evaluate their respective hazards and hazardous materials impacts on a project-by-project basis. Compliance with all Federal, State, and local regulations during the construction and operation of new developments would ensure that

there are no cumulatively considerable significant hazards to the public or the environment associated with the routine transportation, use, disposal or release of hazardous materials, thereby ensuring that a less than significant, cumulatively considerable, impact would occur.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

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3.9 Hydrology and Water Quality

This section evaluates the potential impacts related to hydrology and water quality during construction and operation of the project. To provide the basis for this evaluation, the Setting section describes the hydrological setting for the project area, including regional and local surface water and groundwater characteristics. Descriptions in this section are based on reviews of published information, reports, and plans regarding regional and local hydrology, climate, topography, and geology. The evaluation section establishes the thresholds of significance, evaluates potential hydrology and water quality impacts, and identifies the significance of impacts. Where appropriate, mitigation measures are presented to reduce impacts to a less than significant level.

3.9.1 Setting

The following discusses the hydrology and water quality-related context in which the proposed project would be constructed and would operate, including descriptions of the project area and stormwater management system of the project site; regional climate and hydrology; beneficial uses of surface waters; surface water quality; drainage and flooding; and local groundwater basin and beneficial uses. The setting focuses on the site for the proposed Central Coast Transfer Station. Closure of the Caspar Facility and the land transfer described in the Project Description would not result in new land uses or ground disturbance that would affect the hydrology or water quality of the area. Therefore, the hydrology and water quality-related context for the Caspar Facility area are not described in this section.

Regional Climate

The project area is characterized by cool, foggy summers and cool, rainy winters. Due to the proximity to the Pacific Ocean, the project site has very mild weather throughout the year. Most of the rainfall occurs from November to April with some light showers during the summer. Fog and low overcast clouds are common within the area, especially during the evening and early morning hours. The intense maritime effect of the Pacific Ocean causes uniquely cool summers for the area. In places a few miles inland, consistently hotter summer temperatures are found, a phenomenon typical of the Californian coastline.

January is the coldest month, with an average maximum temperature of 55.1 °F (12.8 °C) and an average minimum temperature of 39.9 °F (4.4 °C). The warmest month of the year is September, which has an average maximum temperature of 65.8 °F (18.8 °C) and an average minimum temperature of 49.2 °F (9.6 °C). Freezing temperatures occur during the winter months with an average of 11.1 days annually (NOAA 2014).

More than 96 percent of the total precipitation occurs in an 8-month period beginning in October and ending in May. Average annual precipitation is 40.24 inches at the project site. The wettest year on record was 1995 with 61.90 inches and the driest year on record was 2013 with 12.31 inches. The maximum precipitation recorded in one month was 21.60 inches in December 2002. The maximum 24-hour rainfall was 4.36 inches on December 28, 2002. Snow is extremely rare at the project site with the only recorded snowfall in January 1907 (NOAA 2014).

Regional Hydrology

The proposed project site was evaluated by LACO and Associates (LACO) in June 2012 to determine soil characteristics and drainage features (LACO 2012). The site was determined to be characterized by relatively flat (2 to 5% slopes) to gently sloping (5 to 9% slopes) terrain.

Elevations at the site range from a low of approximately 400 feet above mean sea level (msl) on the western portion to a high of approximately 430 feet msl at the northeast corner. Surface drainage on the site is generally split into two different drainage areas. The northwestern portion of the site generally drains to the northwest, while the southeastern portion of the site drains to the east. The undeveloped site is predominately covered by a very dense mixed forest with the only clearings consisting of a turnout off Highway 20, and jeep trails along a portion of the north and east perimeters. There are no creeks located on the project site.

Beneficial Uses of Surface Waters

The current 2011 Basin Plan prepared by the North Coast Regional Water Quality Control Board (NCRWQCB) identifies the beneficial uses of surface waters and groundwater within its region (NCRWQCB 2011). The Basin Plan assigns beneficial uses by Hydrologic Areas and Sub Areas. The project is located within the Noyo River Hydrologic Area (113.20), which includes the following existing beneficial uses: Municipal and Domestic Supply; Agricultural Supply; Industrial Service Supply; Groundwater Recharge; Hydropower Generation; Freshwater Replenishment; Navigation; Water Contact Recreation; Non-Contact Water Recreation; Commercial and Sport Fishing; Warm Freshwater Habitat; Cold Freshwater Habitat; Wildlife Habitat; Rare, Threatened, or Endangered Species; Migration of Aquatic Organisms; Spawning, Reproduction, and/or Early Development; and Aquaculture. The beneficial uses provide the basis for determining appropriate water quality objectives for the region (NCRWQCB, p. 2-11 2011).

Surface Water Quality

In accordance with Section 303(d) of the Federal Clean Water Act, state governments must present the U.S. Environmental Protection Agency (U.S. EPA) with a list of "impaired water bodies," defined as those water bodies that do not meet water quality standards, even after point sources of pollution have been equipped with the minimum required levels of pollution control technology.

The current 2010 Clean Water Act Section 303(d) list assigns impaired water bodies by Hydrologic Areas and Sub Areas. The project is located within the Noyo River Hydrologic area, which is listed as impaired for sediment/siltation and water temperature (SWRCB 2010).

Placement of a water body on the Section 303(d) list acts as the trigger for developing a Total Maximum Daily Load (TMDL), which is a pollution control plan for each water body and associated pollutant/stressor on the list. The TMDL identifies the quantity of a pollutant that can be safely assimilated by a water body without violating water quality standards.

A TMDL for sediment in the Noyo River was adopted by the United States Environmental Protection Agency (USEPA) on December 16, 1999. The TMDL includes numeric targets, source analysis, and sediment loading rates within the watershed (USEPA 1999). To date, no TMDL has been developed for the Noyo River temperature impairment.

Drainage and Flooding

The Federal Emergency Management Agency (FEMA) delineates regional flooding hazards as part of the National Flood Insurance Program. According to local Flood Insurance Rate Maps, the project site is not located within a 100-year floodplain, or other flood area (FEMA 2011).

Areas along streams may be inundated during major or prolonged storms. FEMA has mapped the areas susceptible to flooding during the 100-year storm event. While the 100-year floodplain may be relatively limited in extent along smaller streams or streams incised valleys, the floodplain can be wide and extensive for major rivers, particularly where they pass through relatively flat valleys.

Floodways are the portion of the stream that carries peak runoff. Floodways cannot be filled or developed without causing increased flooding in other parts of the watershed.

In addition to natural flood hazards, flooding can occur as a result of inundation caused by failure of a dam, a result of seiches (i.e., earthquake-induced oscillating waves in an enclosed water body), tsunamis (i.e., earthquake-induced waves formed in the open ocean that reach a shoreline), or mudflows. The project area is not located near isolated bodies of water that would be subject to inundation by seiche. Similarly, the project area is not located within a coastal area subject to inundation from tsunami (Cal EMA 2009). The topography of the project area is generally flat and no areas that are likely to produce mudflows have been mapped or are present (USGS 1997).

Local Groundwater Basin and Beneficial Uses

The project area is located within the Fort Bragg Terrace Area Groundwater Basin (Basin 1-21). The groundwater system within the basin provides numerous benefits to the region, including rural residential and municipal water supplies, irrigation water for agriculture, and base flow to streams and surface water bodies.

The basement rock in the project area is coastal belt Franciscan complex, composed primarily of greywacke sandstone with shale lenses. Unconformably overlying the Franciscan complex are quaternary marine terrace deposits, including the older Lower Caspar Orchard deposits, which underlie the project site. The marine deposits consist mainly of fine-grained sand, with interbedded clayey layers.

The current 2011 Basin Plan prepared by the NCRWQCB identifies the beneficial uses of groundwater within its region. The Basin Plan assigns the following existing beneficial uses for groundwater: Municipal and Domestic Supply; Agricultural Supply; Industrial Water Supply; Industrial Process Water Supply; and Freshwater Replenishment to Surface Waters; among others (NCRWQCB 2011).

3.9.2 Regulatory Framework

Federal

Clean Water Act

The federal Clean Water Act (CWA), enacted by Congress in 1972 and amended several times since, is the primary federal law regulating water quality in the United States and forms the basis for several State and local laws throughout the country. The CWA established the basic structure for regulating discharges of pollutants into the waters of the United States. The CWA gave the U.S. EPA the authority to implement federal pollution control programs, such as setting water quality standards for contaminants in surface water, establishing wastewater and effluent discharge limits for various industry categories, and imposing requirements for controlling nonpoint source pollution. At the federal level, the CWA is administered by the U.S. EPA and U.S. Army Corps of Engineers (USACE). At the state and regional levels in California, the act is administered and enforced by the SWRCB and the nine RWQCBs.

Section 303(d) of CWA requires state governments to present the U.S. EPA with a list of "impaired water bodies," defined as those water bodies that do not meet water quality standards, even after point sources of pollution have been equipped with the minimum required levels of pollution control technology.

Sections 404 and 401 of the CWA require permitting and state certification for construction and/or other work conducted in "waters of the United States." Such work includes levee work, dredging,

filling, grading, or any other temporary or permanent modification of wetlands, streams, or other water bodies.

National Flood Insurance Program

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA also issues Flood Insurance Rate Maps identifying which land areas are subject to flooding. The maps provide flood information and identify flood hazard zones in each community. The design standard for flood protection is established by FEMA, with the minimum level of flood protection for new development determined to be the 1-in-100 annual exceedance probability (i.e. the 100-year flood event).

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate industrial and municipal discharges to surface waters of the United States. NPDES permit regulations have been established for broad categories of discharges including point source municipal waste discharges and nonpoint source stormwater runoff.

NPDES permits identify limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits.

State

Porter Cologne Water Quality Control Act

The Porter Cologne Water Quality Control Act is the primary statute covering the quality of waters in California. Under the Act, the SWRCB has the ultimate authority over State water rights and water quality policy. The nine RWQCBs regulate water quality under this Act through the regulatory standards and objectives set forth in Water Quality Control Plans (also referred to as Basin Plans) prepared for each region.

The five-member SWRCB allocates water rights, adjudicates water right disputes, develops state-wide water protection plans, establishes water quality standards, and guides the nine RWQCBs located in the major watersheds of the state. The joint authority of water allocation and water quality protection enables the SWRCB to provide comprehensive protection for California's waters. The SWRCB is responsible for implementing the Clean Water Act, issues NPDES permits to cities and counties through RWQCBs, and implements and enforces the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) (Order No. 2009-0009, as amended by Order No. 2010-0014). Order No. 2009-0009 took effect on July 1, 2010 and was amended on February 14, 2011. The Order applies to construction sites that include one or more acre of soil disturbance. Construction activities include clearing, grading, grubbing, excavation, stockpiling, and reconstruction of existing facilities involving removal or replacement.

Safe Drinking Water Act

The 1974 Federal Safe Drinking Water Act, as amended in 1986 and 1996, requires the protection of drinking water and its sources (i.e., rivers, lakes, reservoirs, springs, and groundwater wells). The act authorizes the EPA to set national standards for drinking water to protect against pollutants. The EPA, states, and local agencies work together to enforce these standards.

In California, the EPA has delegated the responsibility of administration of the California drinking water system to the California Department of Health Services (DHS). The DHS is accountable to the EPA for program implementation and for adopting standards and regulations that are at least as stringent as those developed by the EPA. The applicable state primary and secondary maximum contaminant levels (MCLs) are set forth in Title 22 CCR Division 4, Chapter 15, Article 16.

Water Rights in California

California has a dual system of water rights for surface water that recognizes both riparian and appropriative rights. A riparian right is the right to use water based on the ownership of property which abuts a natural watercourse. Water claimed by virtue of a riparian right must be used on the riparian parcel, and cannot be sold for use elsewhere. An appropriative right is an entitlement to water based on the actual use of the water. Appropriate rights may be sold or transferred.

California recently has passed three bills (AB 1739, SB 1168, and SB 1319), which together create a framework for implementing sustainable, local groundwater management for the first time in California history. However, these recently approved bills do not apply to this project as the groundwater sustainability plans will not come into effect until 2020 or 2022 depending on the priority level assigned to the various groundwater basins. Generally, landowners overlying a groundwater resource have a right to make reasonable use of that groundwater. The project will use groundwater under this principle.

Regional and Local

Regional Water Quality Control Board

Regional Water Boards adopt and implement Water Quality Control Plans (Basin Plans) which recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The current 2011 Basin Plan prepared by the NCRWQCB provides a definitive program of actions designed to preserve and enhance water quality and to protect beneficial uses of water in the North Coast Region.

The NCRWQCBs' planning process also includes water quality planning programs (adoption, review, and amendment of state-wide and basin water quality control plans and policies), including development and adoption of TMDLs and implementation plans; regulatory programs (permitting and control of discharges to water through "NPDES" and WDR permits, discharge to land – "Chapter 15," and storm water and storage tanks programs); monitoring and quality assurance programs; nonpoint source management programs, including the "Watershed Management Initiative;" and funding assistance programs, including grants and loans.

North Coast RWQCB Basin Plan

As set forth in the Basin Plan, specific beneficial uses of surface water and groundwater have been established for the Hydrologic Area in which the project is located (see Section 3.9.1, Setting). To protect these beneficial uses, the Basin Plan sets forth the following water-resource protection objectives for inland surface waters:

Color: Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

Tastes and Odors: Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance or adversely affect beneficial uses.

Floating Material: Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

Suspended Material: Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

Settleable Material: Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.

Oil and Grease: Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

Biostimulatory Substances: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

Sediment: The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Turbidity: Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

pH: The pH shall conform to those limits listed in the basin plan. The pH shall not be depressed below 6.5 nor raised above 8.5.

Changes in normal ambient pH levels shall not exceed 0.2 units in waters with designated marine (MAR) or saline (SAL) beneficial uses nor 0.5 units within the range specified above in fresh waters with designated COLD or WARM beneficial uses.

Dissolved Oxygen: The dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time:

- Waters designated WARM, MAR, or SAL 5.0 mg/l
- Waters designated COLD 6.0 mg/l
- Waters designated SPWN 7.0 mg/l
- Waters designated SPWN during critical spawning and egg incubation period 9.0 mg/l

Bacteria: The bacteriological quality of waters of the North Coast Region shall not be degraded beyond natural background levels. In no case shall coliform concentrations in waters of the North Coast Region exceed the following:

- In waters designated for contact recreation (REC-1), the median fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 50/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml (State Department of Health Services).
- At all areas where shellfish may be harvested for human consumption (SHELL), the fecal coliform concentration throughout the water column shall not exceed 43/100 ml for a 5-tube decimal dilution test or 49/100 ml when a three-tube decimal dilution test is used (National Shellfish Sanitation Program, Manual of Operation).

Temperature: Temperature objectives for COLD interstate waters, WARM interstate waters, and Enclosed Bays and Estuaries are as specified in the "Water Quality Control Plan for Control of

Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions thereto. In addition, the following temperature objectives apply to surface waters:

- The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.
- At no time or place shall the temperature of any COLD water be increased by more than 5°F above natural receiving water temperature.
- At no time or place shall the temperature of WARM intrastate waters be increased more than 5°F above natural receiving water temperature.

Toxicity: All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Water Board.

The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary for other control water that is consistent with the requirements for "experimental water" as described in Standard Methods for the Examination of Water and Wastewater, 18th Edition (1992). As a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a 96-hour bioassay.

In addition, effluent limits based upon acute bioassays of effluents will be prescribed. Where appropriate, additional numerical receiving water objectives for specific toxicants will be established as sufficient data become available, and source control of toxic substances will be encouraged.

Pesticides: No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no bioaccumulation of pesticide concentrations found in individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no bioaccumulation of pesticide concentrations found in bottom sediments or aquatic life.

Waters designated for use as domestic or municipal supply shall not contain concentrations of pesticides in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 4, Section 64444.5.

Chemical Constituents: Waters designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Division 4, Article 4, Section 64435.

Waters designated for use as agricultural supply shall not contain concentrations of chemical constituents in amounts which adversely affect such beneficial use.

North Coast RWQCB NPDES Permit

Projects that discharge stormwater runoff to waters of the U.S. from land disturbances greater than one acre require a General Construction Stormwater Discharge Permit from the RWQCB, as required under NPDES Order No. 2009-0009, as amended by Order No. 2010-0014. To obtain a permit, a discharger files a Notice of Intent to be included under the State's NPDES permit. General conditions of the permit require that dischargers must eliminate non-stormwater discharges

to stormwater systems, develop and implement a Storm Water Pollution Prevention Plan (SWPPP), and perform inspections of stormwater pollution prevention measures.

Mendocino County Groundwater Ordinance

The Mendocino County Groundwater Ordinance (Ordinance) is the guidance document that the County Environmental Health Division uses to evaluate proof of water, as required in Policy 6b. The standards from the Ordinance are used as the significance thresholds for groundwater quantity impacts discussed in this Section.

Mendocino County General Plan Goals and Policies

The Mendocino County General Plan contains the following goals and policies that are relevant to hydrology and water quality for the project:

Goal RM-2 (Water Supply): Protection, enhancement, and management of the water resources of Mendocino County.

Goal RM-3 (Water Quality): Land use development and management practices that protect or enhance water quality.

Policy RM-18: No division of land or Use Permit shall be approved without proof of an adequate (as defined by the County Environmental Health Division) potable water supply for each parcel being created or proposed for special use.

Policy RM-19: Promote the incorporation of project design features that will improve water quality by minimizing impervious surface areas, maximizing on-site retention of storm water runoff, and preserving existing vegetation to the extent possible.

Examples include:

- Using Low Impact Development (LID) techniques.
- Updating the County's Building Codes to address "green" building and LID techniques that can reduce pollution of runoff water, and promoting these techniques.

Policy RM-20: Require integration of storm water best management practices, potentially including those that mimic natural hydrology, into all aspects of development and community design, including streets and parking lots, homes and buildings, parks, and public landscaping.

3.9.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to hydrology and water quality, as defined by the CEQA Guidelines (Appendix G), if it would:

- Violate any water quality standards or waste discharge requirements;

Significance Threshold (Sources)

Non-compliance with Waste Discharge Requirements for Low Threat Discharges to Surface Waters in the North Coast Region (NCRWQCB Order No. R1-2009-0045)

Non-compliance with the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. (State Water Resources Control Board Order No 2009-0009 as amended by Order No 2012-0006)

- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local

groundwater table (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);

Significance Threshold (Sources)

Mendocino County Coastal Groundwater Development Guidelines

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Inundation by seiche, tsunami, or mudflow.

Areas of No Project Impact

As explained below, construction of the project would not result in impacts related to several of the significance criteria identified in Appendix G of the current CEQA Guidelines. The following significance criteria are not discussed further in the impact analysis, for the following reasons:

- ***Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.*** The proposed project does not include the construction of new housing or structures for human occupancy. Therefore, the significance criterion related to the placement of housing within a 100-year flood hazard zone is not applicable to the proposed project and is not discussed further.
- ***Place within a 100-year flood hazard area structures which would impede or redirect flood flows.*** The proposed project does not include the construction of structures within a FEMA designated 100-year flood hazard area. Therefore, the significance criterion related to impeding or redirecting flood flows within a 100-year flood hazard area is not applicable to the proposed project and is not discussed further.
- ***Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.*** The proposed project does not include the construction of structures within an area subject to inundation from failure of a levee or dam (Mendocino County 2008). Therefore, the significance criterion

related to flooding as a result of the failure of a levee or dam is not applicable to the proposed project and is not discussed further.

- ***Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.*** The project area is not located near an isolated body of water that would be subject to inundation by seiche. The proposed project does not include the construction of structures within an area subject to inundation from a tsunami (Cal EMA 2009). The project area is generally flat and not capable of a mudflow event and according to the MHMP has a landslide hazard rating of low (Mendocino County 2008). Therefore, the significance criterion related to inundation by seiche, tsunami, or mudflow is not applicable to the proposed project and is not discussed further.

3.9.4 Methodology

Potential impacts to hydrology and surface water quality are evaluated for both construction and operational activities. The project is evaluated to determine compliance with applicable federal, State, and local permitting and design requirements related to storm water quality, flooding, and drainage. Potential impacts related to groundwater depletion are evaluated, including the potential for pumping of groundwater for excavation dewatering. Flooding impacts are evaluated by determining if the project is located within a FEMA flood hazard area or other area of flooding, as well as assessing the project's compliance with local storm water requirements. The evaluation also considers additional runoff from new impervious areas, and whether such increases would exacerbate flooding at or downstream of the project area. Regional documents and maps were reviewed to identify hydrology and water quality resources that could be directly or indirectly affected by construction or operational activities.

The Caspar site is already developed and there would be no new ground disturbance or changes in the existing drainage as part of site closure. Therefore, there would be no impact to hydrology and water quality at the Caspar site. Therefore, impacts to hydrology and water quality-related impacts at the Caspar Facility are not described further.

3.9.5 Impacts and Mitigation Measures

Impact HWQ-1: Violate any Water Quality Standards or Waste Discharge Requirements.

The project is required to obtain and comply with necessary permits and comply with other Mendocino County and the NCRWQCB requirements, acting to prevent, or essentially reduce the potential for the project to violate any water quality standards or waste discharge requirements.

Construction

SWRCB Order No. 2009-0009 applies to public and private construction projects that include one or more acres of soil disturbance. Because the proposed Central Coast Transfer Station site is anticipated to disturb up to 4.72 acres of land, compliance with Order No. 2009-0009 would be required. Therefore, if construction activities associated with the project are not properly managed, applicable water quality standards and waste discharge requirements could be violated. The impact is considered significant.

Well Development

The proposed project would require a groundwater well to be drilled and operated for on-site water use. The short term impacts associated with construction and well development activities, are

related to site grading, exploratory drilling, well installation, well head and well house construction, well development, connection piping trenching and storage tank construction.

Well drilling activities would include a reverse mud rotary drilling technique utilizing a mud slurry to remove drill cuttings from the bore hole shaft. These cuttings and mud slurry are circulated through settlement tanks and not allowed to flow over the surface of the site or commingle with surface waters. The contractor would utilize large on-site tanks for well drilling and testing operations. The drilling mud would be contained in these tanks and removed from the site. Because the slurry would not be discharged but would be contained and removed, the impact to water quality associated with well drilling activities is considered less than significant.

After drilling is complete, the well would be developed by purging and testing. Well development purging consists of flushing the developed well and removal of any residual drilling mud. A pump test consists of continuous pumping and well performance monitoring over an approximately 72-hour period, and takes place after the well development purging. In addition, during this phase of construction, the well is disinfected with chlorine (sodium hypochlorite).

Well testing water that is discharged to the environment is required to conform to pertinent water quality standards. Well development and well pump test discharge water could be high in suspended solids and could contain chlorine residual. Impacts to water quality from discharge of well testing water are considered significant.

Operation

Some liquids could be generated on the tipping floor from cleaning, odor reduction misting, or solid waste trucks when unloading solid waste after rainstorms. The design of the main indoor drainage control system would direct liquids from the waste and unloading areas to flow through a clarifier to remove solids, then to an on-site 500-gallon above ground storage tank. Liquids would not be allowed to leave the site and stormwater would not be allowed to enter the building. Facility and equipment inspections, combined with monitoring of the storage tank containment area, allow for the detection of potential sources of leachate leaks to the environment and early corrective actions to be implemented if necessary. The amount of wastewater generated is expected to be of such minimal quantity that most of the water is anticipated to evaporate. Facility operations would include removal of the wastewater by a licensed waste hauler with disposal at a permitted wastewater treatment facility when the tank becomes full. Therefore, impacts related to wastewater generated from operations would be less than significant.

Stormwater discharges from operation of the project are required to comply with applicable provisions and performance standards stated in the National Pollutant Discharge Elimination System (NPDES) permit. As required by the NPDES permit, County and NCRWQCB requirements, waste materials will not be discharged to drainage areas. Because the Central Coast Transfer Station has the potential to discharge pollutants from a point source (e.g., leaking oil from hauling trucks), the facility would be required to obtain an Industrial SWPPP under California Water Code Section 13260. The impact to water quality during operation of the project is considered significant.

Construction and operations of the proposed project would result in potentially significant water quality impact.

Mitigation Measure HWQ-1a: Manage Construction Storm Water.

The County and City shall obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, Waste Discharge Requirements for

Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by Order No. 2012-0006. In compliance with the NPDES requirements, a Notice of Intent (NOI) shall be prepared and submitted to the NCRWQCB, providing notification and intent to comply with the State of California General Permit. In addition, a Construction Storm Water Pollution Prevention Plan (SWPPP) will be prepared for pollution prevention and control prior to initiating site construction activities. The Construction SWPPP shall identify and specify the use of erosion sediment control best management practices (BMPs) for control of pollutants in stormwater runoff during construction related activities, and will be designed to address water erosion control, sediment control, off-site tracking control, wind erosion control, non-stormwater management control, and waste management and materials pollution control. A sampling and monitoring program shall be included in the Construction SWPPP that meets the requirements of the NCRWQCB to ensure the BMPs are effective. A Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee implementation of the Plan, including visual inspections, sampling and analysis, and ensuring overall compliance.

Mitigation Measure HWQ-1b: Industrial Storm Water General Permit.

The County and City shall obtain coverage under State Water Resources Control Board Order No. 97-03-DWQ, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities. This shall include submittal of a notice of intent to obtain permit coverage, and preparation, retention on site, and implementation of a SWPPP. The SWPPP shall identify the sources of pollution that affect the quality of industrial storm water discharges and authorized non-storm water discharges, and describe and ensure the implementation of best management practices to reduce or prevent pollutants in industrial storm water discharges. The SWPPP shall also include a monitoring program and other requirements contained in Order No. 97-03. Implementation of the SWPPP shall include the necessary inspections, monitoring, and overall compliance.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measures HWQ-1a and HWQ-1b would mitigate potential impacts on water quality standards and waste discharge requirements to a less than significant level by complying with, and receiving coverage under, the NPDES General Permit for Discharge of Stormwater associated with construction and operational activities. The implementation of BMPs, consistent with the requirements of the site's NPDES General Permit for Discharge of Stormwater associated with Construction Activity and the SWPPP, would ensure that the project does not violate any water quality standards or waste discharge requirements. With implementation of Mitigation Measures HWQ-1a and HWQ-1b, the projects construction and operational water quality impacts would be reduced to a less than significant level.

Mitigation Measure HWQ-1c: Well Development According to Mendocino County and California State Standards.

The contractor shall ensure that any well development and well pump test water is disposed of in accordance to the discharge limitations of the NCRWQCB general permit for Dewatering and Other Low Threat Discharges to Surface Waters if disposed of in the drainage system. If sediment concentrations are in excess of surface discharge standards then compliance shall be achieved through the on-site detention of water in a storage tank to allow for the settlement of suspended solids. In addition, the contractor shall discharge all well development disinfection discharges containing chlorine residuals after treating the discharge to meet discharge requirements. With

implementation of the above mitigation measures, the water quality impacts due to well development would be reduced to a less-than-significant level.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure HWQ-1c would mitigate potential impacts on water quality standards and waste discharge requirements to a less than significant level by complying with NCRWQCB general permit for Dewatering and Other Low Threat Discharges to Surface Waters. With implementation of Mitigation Measures HWQ-1c, the project's construction water quality impacts would be reduced to a less than significant level.

Impact HWQ-2: Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge.

Pumping of groundwater that causes the groundwater gradient (slope of the water table surface) to change either its direction or its magnitude by more than 10% of the pre-Project direction and magnitude is considered significant (groundwater flow is directionally proportional to the gradient). Based on the Mendocino County Coastal Groundwater Development Guidelines, a project using groundwater cannot cause interference of more than 10% of the existing drawdown at neighboring wells or reduction of well yield to less than 90% of the maximum-day demand. Excessive groundwater pumping has the potential to significantly impact the underlying aquifer and lower the local groundwater table.

A groundwater study was performed for the proposed Mendocino Coast Regional Park and Golf Course project adjacent to, and north of the project site. Prepared by Lawrence and Associates (March 2005), the study included the installation of several pumping and observation wells. The wells were drilled to a maximum depth of 91 feet below ground surface (bgs), where bedrock was encountered. The pumping and observation wells were constructed approximately 1,800 feet north of the project site and within the same geologic unit (Lower Caspar Orchard marine terrace sediments) underlying the project site. Testing of the wells determined groundwater was approximately 20 feet bgs and produced a long term yield of 4 to 5 gallons per minute (gpm) for a 2-inch diameter well with a 40-foot well screen.

The model area developed by Lawrence and Associates (March 2005), while considerably larger than the project area, included the location of the proposed project. A total of 24 wells, pumping at an average rate of 10 gpm were evaluated to access the possible impacts to groundwater. It was determined that neither the direction nor magnitude of the groundwater gradient changed significantly with pumping. The groundwater model predicted that the water pumped was approximately 92% from aquifer storage and about 8% from a reduction in stream flow from Newman Gulch. It was determined that the reduction in flow was less than the standard significance of 10 percent. In addition, the groundwater model showed that pumping from the wells would not cause the standards of significance for groundwater level or quantity to be exceeded.

Based on the geotechnical investigation performed by LACO and Associates (June 2012) for the project site, a groundwater well with a screen interval between 25 to 60 feet bgs within the terrace sediments at the site will likely provide at least 2 gpm. The report recommended that at a minimum, the well should be located at least 100 feet from the leachfield, and at the easterly portion of the site where the terrace sediments are likely thicker and the higher elevation will facilitate gravity flow to the facility. During the site investigation by LACO, groundwater was encountered at the project site to be on average 10 feet bgs. In the upslope areas, shallow perched groundwater was encountered at depths ranging from approximately 2 to 5 feet bgs.

Water demand for the project is expected to be less than 1,000 gallons per day, mainly for employee use. Assuming the groundwater well produces 2 gpm, the pump would need to operate for about 9 hours per day to meet the projects daily water demand.

The required groundwater production rate would be lower than the significance threshold of 10 percent. Therefore, impacts from groundwater pumping would be less than significant.

Mitigation Measures: No Mitigation is necessary.

Level of Significance: Less than significant.

Impact HWQ-3: Substantial Additional Sources of Polluted Runoff or Otherwise Substantially Degrade Water Quality.

The development of the proposed project would alter the types, quantities, and timing of stormwater contaminants relative to existing conditions. If this stormwater runoff is uncontrolled and not treated, the water quality of the discharge could affect off-site drainage channels and downstream water bodies.

Construction activities could result in stormwater discharges of suspended solids and other pollutants into local drainage channels from the project site. Construction related chemicals (e.g., fuels, paints, adhesives, etc.) could be washed into surface waters by stormwater runoff. The deposition of pollutants (e.g., gas, oil, etc.) onto the ground surface by construction equipment could similarly result in the transport of pollutants to surface waters by stormwater runoff or in seepage of such pollutants into groundwater.

The operation of the proposed project site could also introduce new stormwater pollutant sources. These pollutant sources would include oils and greases, petroleum hydrocarbons (e.g., gas and diesel fuels), nitrogen, phosphorous, and heavy metals. These pollutants could adversely affect stormwater discharges from the site.

The Local Enforcement Agency's Solid Waste Facilities permit for the potential site would prohibit the discharge of drainage containing solids, wash water, or leachate from solid wastes (14 CCR Article 6). The proposed project would be required to comply with these requirements by containing waste processing operations within the interior of the transfer station building and directing contact water into the building's interior collection system. Therefore, the discharge of drainage during operation from the solid waste processing area would not occur.

The type and concentration of stormwater discharge contaminants for developed areas varies based on a variety of factors, including intensity of urban uses such as vehicle traffic, types of activities occurring on site, types of chemicals used on-site (e.g., pesticides, herbicides, cleaning agents, petroleum by-products), road surface pollutants, and rainfall intensity. The design of the facility's stormwater management system would incorporate Low Impact Development (LID) strategies including minimization of the amount of stormwater generated and treated, retention and detention in vegetated bioswales, rain gardens, and oil/water separators in order to limit the contaminants entering stormwater flows. However, due to the industrial nature of the proposed project, there is the potential to contribute additional sources of polluted runoff and to degrade water quality during site operations if not handled properly and done in compliance with State regulations. The impact to water quality is considered significant.

Mitigation Measures HWQ-1a: Manage Construction Storm Water and HWQ-1b: Industrial Storm Water General Permit.

Level of Significance: Less than significant with mitigation.

As described above under HWQ-1a and HWQ-1b, the implementation of BMPs, consistent with the requirements of the site's NPDES General Permit for Discharge of Stormwater associated with construction and operational activities, would ensure that the project does not violate any water quality standards. With implementation of the Mitigation Measures HWQ-1a and HWQ-1b, the project's construction and operational water quality impacts would be reduced to a less than significant level.

Impact HWQ-4: Substantially Alter Existing Drainage Pattern, or Substantially Increase Rate or Amount of Runoff in a Manner which would Result in Flooding On- or Off-site.

The project would not significantly alter the existing drainage patterns at the site. However, development of the project could lead to increased runoff due to removal of vegetation and the creation of impervious surfaces. Culverts, storm drains, seasonal drainage swales, and inlet and outlet structures would need to be constructed to manage stormwater. Prevention of localized flooding would depend on adequately sizing the onsite drainage features. The County requires that drainage features be designed in accordance with the Mendocino County Drainage Standards, and that peak runoff for the 2, 10, 50 and 100-year/24-hour storm events following development are not greater than under pre-development conditions.

A surface water hydrologic analysis has been performed for the project, considering pre- and post-development conditions (GHD 2014) and can be found in Appendix G. As part of this analysis the project area was divided into two drainage areas, identified as Drainage Area 1 and 2 (see Figure 2-3, in the Hydrologic Study located in Appendix G). A comparison of the peak runoff rates and volume for the 2, 10, 50 and 100-year/24-hour storm events under existing and project conditions are presented in Table 3.9-1. Comparing existing conditions to project conditions, shows that the project would increase runoff rates and volumes as a result of the change in land use due to the increase in impervious area (e.g., roofs and pavement surfaces), resulting in a significant impact.

The hydrologic report did not explicitly assess the stormwater contribution from the groundwater well house and access road (10-foot wide and 55-foot long), which would add approximately 0.01 acres of impervious area to the project site. Further review determined that the addition of 0.01 acres of impervious area would add approximately 0.02 cfs to the stormwater runoff for the facility.

Given the conservative nature of the hydrologic analysis, the original estimate of the amount of impervious area for the proposed transfer station took into account the entire foot print of the facility. This estimate is considered conservative due to the fact that the facility is not entirely impervious (e.g., some areas will be gravel and have grass strips). If the pervious areas were subtracted out and the impervious area of the well house and access road are added to the hydrologic analysis, there would be no net increase in the amount of impervious area. Therefore, the predicted stormwater runoff volumes in the hydrologic analysis are still considered valid.

Stormwater captured in the project area will be conveyed through sheet flow to a series of bioswales that surround the facility. The purpose of the bioswales is to control the concentration of flow from the project area as well as filter out sediment and chemical constituents that could impair water quality. This would be achieved by allowing stormwater to partially infiltrate and pass through the bioswale before being released to the detention basins.

Bioswales have been shown to remove pollutants such as phosphorous, metals (e.g., Cu, Zn, Pb), nitrogen, solids, organics, and bacteria at removal rates ranging from 68-98% (CASQA 2003). In order to handle runoff effectively, a bioswale needs to be sized appropriately for the area that it collects stormwater.

Table 3.9-1: Peak Runoff Rates and Volumes for Pre and Post-Project Conditions

| Drainage Area | | 2-year/24-hour | | | 10-year/24-hour | | | 50-year/24-hour | | | 100-year/24-hour | | |
|----------------|----------------------------|----------------|--------------|---------|-----------------|--------------|---------|-----------------|--------------|---------|------------------|--------------|---------|
| | | Pre-Project | Post-Project | % Diff. | Pre-Project | Post-Project | % Diff. | Pre-Project | Post-Project | % Diff. | Pre-Project | Post-Project | % Diff. |
| Basin 1 | Peak Flow (cfs) | 3.8 | 5.2 | 26% | 8.0 | 10.0 | 15% | 12.8 | 14.3 | 10% | 14.7 | 16.1 | 9% |
| | Total Storm Volume (ac-ft) | 0.22 | 0.30 | 26% | 0.48 | 0.56 | 15% | 0.74 | 0.82 | 10% | 0.84 | 0.92 | 9% |
| Basin 2 | Peak Flow (cfs) | 4.6 | 5.5 | 16% | 10.0 | 11.0 | 8% | 15.5 | 16.4 | 6% | 17.8 | 18.7 | 5% |
| | Total Storm Volume (ac-ft) | 0.27 | 0.32 | 16% | 0.58 | 0.63 | 8% | 0.89 | 0.94 | 6% | 1.02 | 1.07 | 5% |

Estimating the size of the required swale should be based on estimates that include site runoff, site soils, slope, swale vegetation, infiltration time, and space available. Based on the results of the surface water hydrologic analysis performed for the project, water surface elevations for the receiving stormwater channels are approximately 1-foot or less (assuming a 2-foot wide channel) and channel velocities are not expected to be above 4 feet per second (fps), under all storm events

A preliminary detention basin analysis was conducted to determine approximate detention basin volumes that would be necessary to keep runoff rates and volumes to pre-project conditions (GHD 2014). The detention basins were sized to reduce peak flow rates and volumes to pre-project conditions. These results were then compared to results from methods used to size detention ponds to minimize sediment transport potential from on-site to off-site drainages. The results from the hydrologic analyses demonstrate that use of the proposed detention ponds would serve to retain the potential increase in peak flows, runoff volumes, and increased sedimentation associated with conversion from existing to project conditions.

The required detention pond volumes are presented in Table 3.9-2. As shown in Table 3.9-2, the detention basin sizes presented can be constructed on-site.

Table 3.9-2: Detention Basin Volumes

| Drainage Area | Detention Basin Volume (ac-ft) |
|---------------|--------------------------------|
| Basin 1 | 0.77 |
| Basin 2 | 0.85 |

The largest storage volume required is for Detention Basin 2, with 0.85 acre-feet. Based on the results of the surface water hydrologic analysis for the project site, the required area for each detention basin is approximately 50 by 129 feet.

The drainage patterns for the project area are unlikely to significantly change under the proposed project. Under existing conditions, overland flow from Drainage Area 1 and 2 flows predominately to the northwest and to the south, respectively. Runoff generated on-site would continue to be allowed to flow in the same orientation and direction as under existing conditions.

Mitigation Measure HWQ-4: Reduce Potential for Offsite Runoff.

The applicant shall design and construct detention basins within the project area to reduce stormwater runoff volume, rates, and sedimentation in addition to allowing stormwater to infiltrate. The specific locations of these detention basins will be determined during the development of the grading and drainage plans, as required by Mendocino County. To facilitate this, the applicant shall submit a final detailed design-level hydrologic and hydraulic analysis as necessary to Mendocino County detailing the implementation of the proposed drainage plans, including detention basin facilities that will conform to the following standards and include the following components, at a minimum:

1. The project shall ensure the peak runoff for the 2-, 10-, 50- and 100-year/24-hour storm events for post-development conditions is not greater than under existing conditions. The final grading and drainage plan, including detention basin designs, shall be prepared by a California licensed Professional or Civil Engineer. All design and construction details shall be depicted on the grading and drainage plans and shall include, but not be limited to, inlet and outlet water control structures, grading, designated maintenance access, and connection to existing drainage facilities.

2. Mendocino County shall review and approve the grading and drainage plans prior to implementation to ensure compliance with County standards. The project shall incorporate any additional improvements deemed necessary by the County.
3. Once constructed, the drainage components, including detention basins and conveyance structures will be inspected by the County and maintained per the guidelines outlined in the projects SWPPP.

The contractor shall ensure that all disturbed areas of the project are graded in conformance with the approved grading and drainage plans in such a manner as to direct stormwater runoff to properly designed detention basins.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure HWQ-4 would reduce the impact to less than significant by requiring the project to incorporate all necessary drainage and stormwater management systems, and to comply with all stormwater system design, construction, and operational requirements in the mitigation measure and by Mendocino County. In combination, the project's stormwater management components and compliance with mitigation measures and regulatory requirements act to preclude potentially adverse drainage and stormwater runoff impacts.

More specifically, the project drainage concepts will maintain the site's primary drainage patterns, and will modify and enhance drainage areas in order to accept developed stormwater discharged from the project site. Stormwater conveyance capabilities and capacities provided by the project will ensure that post-development stormwater runoff volumes and velocities do not exceed pre-development conditions. In addition, long term maintenance of stormwater controls would be required for compliance with the project's SWPPP.

3.9.6 Cumulative Impacts

Impact HWQ-C1: Result in a Cumulatively Considerable Contribution to Cumulative Impacts Related to Hydrology and Water Quality.

Cumulative projects identified in Table 3.0-1 would have the potential to affect water quality and increased runoff during construction and long-term operation. The projects would contribute stormwater flows to the local and regional drainage facilities. However, construction activities associated with cumulative projects would be subject to existing federal, State, and local regulations. Existing County policies for project design and approval, as well as NCRWQCB regulations, would minimize potential impacts to a less than significant level. Implementation of the Project plus the cumulative projects would not result in a significant cumulative impact on hydrology and water quality. Therefore, cumulative impacts would be less than significant.

Mitigation Measures: No Mitigation is necessary.

Level of Significance: Less than significant.

3.10 Land Use and Planning

This section contains a discussion of the existing land use and planning setting for the project site and surrounding area and evaluates the potential impacts related to land use and planning during construction and operation of the project. Figure 2-3 shows the location of the project site, the Caspar site, and the 12.6 acres of redwood forest at the northeastern corner of Russian Gulch State Park. These 12.6 acres are forested in large second growth redwood trees. There would be no alteration or disturbance of these acres. The impacts and mitigation measures section establishes the thresholds of significance, evaluates potential land use and planning impacts, and identifies the significance of impacts. Where appropriate, mitigation measures are presented to reduce impacts to less than significant levels.

3.10.1 Setting

On-site Land Use

The project site is within a 17-acre portion of APN 019-150-05 within Mendocino County as shown in Figures 2-1 and 2-2. The topography is relatively flat and elevations range from approximately 400 to 430 feet above sea level. The site is undeveloped, consisting primarily of closed-cone coniferous forest (Bishop pine forest and pygmy cypress forest). The project site is bordered by SR 20 along the south.

The 60-acre Caspar site includes the footprint of the closed landfill, the existing transfer station, and the remaining property consists of vegetation (shrubs and trees) (Figure 2-3). The topography is relatively flat (excluding the footprint of the closed landfill) and elevations range from approximately 364 to 409 feet above sea level.

The 12.6 acres of redwood forest at the northeastern corner of Russian Gulch State Park (Figure 2-3), north of Caspar Little Lake Road, is undeveloped and consists of forestland. The topography slopes gently down from south to north and elevations range from approximately 495 to 565 feet above sea level.

Surrounding Land Use

Land uses in the vicinity the project site consist of:

North: Coniferous forest.

East: Coniferous forest. There are also a few low density single family residential homes and the Wildwood Campground and RV Park is approximately 0.6 mile east of the site.

South: SR 20 is directly south of the project site along with coniferous forest and scattered low density single family residential homes.

West: The CalFire helipad is immediately adjacent to the project site to the west. Farther west consists of low density single family residential homes and coniferous forest.

Land uses surrounding the Caspar site include low density single family residential homes to the west, north and east; coniferous forest in all directions; and Russian Gulch State Park to the south. Land uses surrounding the 12.6 acre portion of Russian Gulch State Park consist of forestland in all directions with a few rural residential homes northwest along Caspar Little Lake Road.

General Plan Land Use Designations

A general plan can be described as a City/County's blueprint for future development. It has a long-term outlook, identifying the types of development that will be allowed, the spatial relationships among land uses, and the general pattern of future development and circulation. Mendocino County's General Plan (August 2009) is the guiding plan for the project area and surrounding unincorporated area.

The General Plan land use designation for the project site is Public Lands (PL – Timber Preserve). Allowable uses include agricultural, forestry, conservation and development of natural resources, public facilities (proposed project), recreation, and utility installations.

General Plan Land Use designations for surrounding land to the north are Forestland (F-L). Land to the east is designated Upland Residential (RMR 40), Rural Residential (RR10), and Timber Preserve (FL160). Land to the south is designated Timber Preserve (PL), and land to the west (beyond the helipad) is designated Rural Residential (RR2).

The Caspar site is designated Public Facility (PF - Public Facility) and would remain PF, therefore, there is no further analysis of the Caspar site below. The 12.6 acres at Russian Gulch State Park is designated Public Lands (PL) and would remain PL.

Zoning Designations

The Mendocino County Zoning Code provides the general requirements for all development and new land uses and mandates that all proposed projects be consistent with the County's Zoning Code. Zoning on the project site is Timberland Production (TP). Permitted uses in this district include residential use types, civic use types, agricultural use types and accessory uses as provided in Chapter 20.164. The project would require a Major Use Permit. Uses subject to a Major Use Permit include residential, civic (proposed project), commercial, and agricultural use types. Section 20.068.030 (Special Provisions) states that no use permit shall be granted in a TPZ District until a specific finding has been made that the proposed use is compatible with the growing and harvesting of timber and timber products.

The Caspar site is zoned Public Facility (PF-PD) and would remain PF-PD. Zoning to the north of the project site also is TP. Zoning to the east is Upland Residential (UR), Rural Residential (RR), and Timber Preserve (TP). Zoning to the south is TP, and zoning to the west is RR. The 12.6 acres at Russian Gulch State Park is zoned PF and would remain PF.

3.10.2 Regulatory Framework

Federal

There are no federal land use plans, policies or regulations pertaining to the project.

State

There are no State land use plans, policies or regulations pertaining to the project. AB 384 removes the project site from the JDSF and therefore the JDSF Management Plan is no longer applicable.

Regional and Local

Mendocino County General Plan

The following goals and policies related to land use and planning are applicable to the proposed project.

Goal DE-1: (Land Use): Land use patterns that maintain the rural character of Mendocino County, preserve its natural resources, and recognize the constraints of the land and the limited availability of infrastructure and public services.

Policy DE-2: Figure 3-14, “Land Use Map,” depicts the land use policy of the County of Mendocino. The standards shown or contained in this General Plan shall apply to the land use categories shown on the Land Use Map. All discretionary approvals shall be in conformance with these standards unless explicitly stated otherwise in this General Plan.

Policy DE-19: Land Use Category: PL-Public Lands

Intent: The Public Lands classification is intended to be applied to land in public ownership not appropriately included in some other classification. The classification is also intended to be applied to lands held and managed for public recreation or appropriate for acquisition for public purposes.

General Uses: Agricultural uses, forestry, conservation and development of natural resources, public facilities, recreation, utility installations.

Minimum Parcel Size: Not applicable.

Maximum Dwelling Density: No dwellings permitted except where required to meet the Public Lands intent.

Policy DE-43: Maximize land use compatibility between community areas and the surrounding lands.

Policy DE-203: All development projects shall include plans and facilities to store and manage solid waste and hazardous materials and wastes in a safe and environmentally sound manner.

Mendocino County Zoning Code

Division I of Title 20 of the Mendocino County Municipal Code constitutes the zoning ordinance of Mendocino County. The *Mendocino County Zoning Code*, which incorporates by reference the County’s Zoning Map, implements the General Plan and provides location-specific regulations, such as use restrictions and building height, setback, and bulk limitations. Zoning designations in the project area are discussed above.

3.10.3 Evaluation Criteria and Significance Thresholds

Consistent with CEQA Guidelines Appendix G, an impact to land use and planning is considered significant if the proposed project would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

Areas of No Project Impact

Construction and operation of the project would not result in impacts related to some of the significance criterion identified in Appendix G of the current CEQA Guidelines. The following significance criteria are not discussed further in the impact analysis, for the following reason:

- **Physically divide an established community.** The project is not capable of physically dividing an established community because the project site is not located within an established community.
- **Conflict with any applicable habitat conservation plan or natural community conservation plan.** There are no habitat conservation plans or natural community conservation plans applicable to the proposed project (USFWS 2014; CDFW 2014).

3.10.4 Methodology

For the purposes of this impact analysis, a significant impact would occur if implementation of the proposed project would result in inconsistencies or conflicts with the adopted goals and policies of the Mendocino County General Plan and/or applicable rules and regulations of the Mendocino County Zoning Code.

3.10.5 Impacts and Mitigation Measures

Impact LU-1: Conflict with Any Applicable Land Use Plan, Policy, or Regulation.

The project site has a General Plan Land Use designation of PL – Timber Preserve and a zoning designation of TP - Timberland Production. The PL land use classification is intended to be applied to land in public ownership that is not appropriately included in some other classification. The classification is also intended to be applied to lands held and managed for public recreation or appropriate for acquisition for public purposes. General uses include agricultural uses, forestry, conservation and development of natural resources, public facilities, recreation, and utility installations. As a public facility, the construction and operation of a transfer station is an allowable use within the PL designation. Therefore, the project would not conflict with the General Plan land use designation.

The *Mendocino County Zoning Code* (Title 20) states that the TP “district is intended to be applied to areas of the County which because of their general soil types, location and timber growing capabilities are suited for and should be devoted to the growing, harvesting, and production of timber and timber related products and are taxed as such.” Permitted uses in this district include residential use types, civic use types, agricultural use types and accessory uses as provided in Chapter 20.164. The proposed project will require a Major Use Permit per Section 20.068.025, (B) Civic Use Types, of the *Mendocino County Zoning Code*. According to this section of the code, Civic Use Types include Major Impact Services and Utilities such as the proposed project. Uses subject to a Major Use Permit include residential, civic (proposed project), commercial, and agricultural use types. Major Impact Services and Utilities are allowed in this district with issuance of a Major Use Permit. Therefore, the project would not conflict with the Zoning Code.

At the request of the County of Mendocino and City of Fort Bragg, Assembly Bill (AB) 384 was enacted in 2011 which included provisions authorizing a land swap whereby the State would transfer ownership of the 17-acre JDSF site (project site) to the County/City in exchange for either ownership of 35 acres at the Caspar Landfill site or control over its future uses. The land swap would be consistent with AB 384 and the California Board of Forestry and Fire Protection

Resolution on the transfer of JDSF land for construction of a solid waste transfer station (State of California Board of Forestry and Fire Protection 2010).

The project site is not within the coastal zone and is not subject to a Specific Plan. The proposed project would not conflict with the Mendocino County General Plan or Zoning Code, therefore, there is no impact.

Mitigation Measures: No mitigation is necessary.

Level of Significance: **No impact.**

3.10.6 Cumulative Impacts

Impact LU-C-1: Result in Cumulatively Considerable Contribution to Cumulative Impacts Related to Land Use.

Cumulative development would result in new residential, commercial/industrial, lodging, and recreational uses (reference Table 3-1). Cumulative projects would be evaluated on a project-by-project basis. Each proposed project would undergo a similar plan review process as the proposed project, in order to determine potential land use planning policy and regulation conflicts. Each cumulative project would be analyzed independent of other projects, within the context of their respective land use and regulatory setting. As part of the review process, each project would be required to demonstrate compliance with the provisions of the applicable land use designation(s) and zoning district(s). It is assumed that cumulative development would progress in accordance with the General Plan and Zoning/Development Code of the respective jurisdictions and regulations and guidelines of the each jurisdiction' is consistently upheld. The project was determined to have no impact with regard to applicable land use plans, policies, and regulations; therefore it cannot contribute to a cumulative impact.

Mitigation Measures: No mitigation is necessary.

Level of Significance: **No Impact.**

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3.11 Noise

This section describes the existing noise setting and evaluates the potential impacts related to noise and vibration during construction and operation of the project. The impacts and mitigation measures section establishes the thresholds of significance, evaluates potential noise and vibration impacts, and identifies the significance of impacts. Where appropriate, mitigation is presented to reduce impacts to less than significant levels.

3.11.1 Setting

Fundamentals of Acoustics

Noise may be defined as unwanted sound. Noise is often objectionable when it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 3.11-1.

There are several methods of characterizing sound. The most common method in California is the A-weighted sound level or (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called Leq. The most common averaging period is hourly, but Leq can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep - 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Day/Night Average Sound Level (Ldn) is average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 PM and 7:00 AM. The Community Noise Equivalent

Level, (CNEL), is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 PM - 10:00 PM) and a 10 dB addition to nocturnal (10:00 PM - 7:00 AM) noise levels.

Table 3.11-1 Definitions of Acoustical Terms

| Term | Definitions |
|--|---|
| Decibel, dB | A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter). |
| Frequency, Hz | The number of complete pressure fluctuations per second above and below atmospheric pressure. |
| A-Weighted Sound Level, dBA | The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this section are A-weighted, unless indicated otherwise. |
| L01, L10, L50, L90 | The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period. |
| Equivalent Noise Level, Leq | The average A-weighted noise level during the measurement period. |
| Community Noise Equivalent Level, CNEL | The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 PM to 10:00 PM and after addition of 10 decibels to sound levels in the night between 10:00 PM and 7:00 AM. |
| Day/Night Noise Level, Ldn or DNL | The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 PM and 7:00 AM. |
| Lmax, Lmin | The maximum and minimum A-weighted noise level during the measurement period. |
| Ambient Noise Level | The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location. |
| Intrusive | That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level. |

Fundamentals of Groundborne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several methods are typically used to quantify the amplitude of vibration including Peak Particle Velocity (PPV) and Root Mean Square (RMS) velocity. PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. RMS velocity is defined as the average of the squared amplitude of the signal, usually measured in decibels referenced to 1micro-in/sec and reported in VdB. PPV and VdB vibration velocity amplitudes are used in this analysis to evaluate the effect on buildings and human response to vibration.

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration

complaints, even though there is very little risk of actual structural damage. This rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows. In urban environments sources of groundborne vibration include construction activities, light and heavy rail transit, and heavy trucks and buses.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related groundborne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

Project Site

The proposed location for the new transfer station lies within the Jackson Demonstration State Forest (JDSF) approximately 3.5 miles southeast of downtown Fort Bragg. Sensitive receptors include residences to the west of the site, located north and south of SR 20, residences to the southeast of the site, and the Wildwood Campground and RV Park, located approximately 2,000 feet to the east.

Existing Noise Environment

A noise monitoring survey was performed between Wednesday, August 13, 2014 and Thursday, August 14, 2014 in order to document ambient noise conditions at locations representative of the nearest residences in the vicinity of the project site. The noise monitoring survey included one unattended long-term noise measurement (LT-1) and two attended short-term noise measurements (ST-1 and ST-2). Noise measurement locations are shown on Figure 3.11-1 and noise measurement data are shown on Figure 3.11-2.

Long-term noise measurement LT-1 quantified existing noise levels at a distance of 75 feet from the centerline of SR 20. Ambient noise levels measured at this location were primarily the result of local traffic along the roadway. Hourly average noise levels typically ranged from about 60 to 69 dBA Leq during daytime hours. Maximum instantaneous noise levels during the daytime were typically 75 dBA Lmax to 85 dBA Lmax. The calculated day-night average noise level at LT-1 was 69 dBA Ldn. These data are summarized in Figure 3.11-2.

A series of short-term noise measurements were made on Wednesday, August 13, 2014 in order to document ambient noise levels with various distances from SR 20 adjacent to residential receptors

located west of the site. Short-term noise measurement site ST-1 was 155 feet from the centerline of SR 20. The average noise level measured during the late afternoon was 57 dBA Leq. The estimated day-night average noise level at this position was 60 dBA Ldn. Noise measurement ST-2 was made approximately 350 feet from the center of SR 20, and the average noise during the late afternoon was 50 dBA Leq. The estimated day-night average noise level at Site ST-2 was 52 dBA Ldn. Based on these measured data, noise levels at the residences located furthest from SR 20, approximately 530 feet from the roadway centerline, are estimated to be 47 dBA Ldn.

3.11.2 Regulatory Framework

Federal

No federal standards related to noise and vibration would be applicable to the project.

State

No State regulations related to noise and vibration would be applicable to the project. However, the California Department of Transportation (Caltrans) has published guidelines for evaluating potential vibration impacts from construction projects. Caltrans' Transportation and Construction Vibration Guidance Manual indicates that vibration in excess of 0.3 inches per second (in/sec) PPV could cause cosmetic damage to structures, and 0.1 in/sec PPV could cause residential annoyance during sleep periods.

Regional and Local

Mendocino County General Plan Goals and Policies

The Noise Element of the Mendocino County General Plan (adopted August, 2009) sets forth goals and policies related to noise and land use compatibility. Applicable policies to this project are as follows:

- Policy DE-98: The County will protect residential areas and other noise-sensitive uses from excessive noise by doing the following:
- 1) Requiring that new land uses, new roadways, and other new noise sources do not create unacceptable noise levels on adjacent parcels.
 - 2) Allowing homes or noise-sensitive uses to be developed only in places where existing and projected noise levels will meet the exterior noise guidelines and standards shown in Policies DE-100 and DE-101.
 - 3) Requiring that County decisions which would cause or allow an increase in noise created by stationary or mobile sources (such as development of noise-generating land uses or the construction of new or wider roadways) be informed by a noise analysis and accompanied by noise reduction measures to keep noise at acceptable levels.
- Policy DE-99: To implement Policy DE-98, the following shall apply:
- 1) No new use regulated by the County shall be permitted to generate noise that would cause the ambient noise on any adjacent parcel to exceed the "completely compatible" 24-hour guidelines shown in Policy DE-101 or the 30-minute noise standards in Policy DE-100.
 - 2) The County shall ensure that noise mitigation to achieve a "completely compatible" 24-hour exterior noise level and conformance with the 30-minute

exterior noise standard is provided in conjunction with any decision (Ex: roadway construction projects, public park construction, General Plan amendments, changes of zone conditional use permits, and site plan review approval) it makes that would cause a violation of item 1) above.

- 3) Developers of new residential or other noise-sensitive uses which are placed in environments subject to existing or projected noise that exceeds the “completely compatible” guidelines in Policy DE-101 shall be responsible for ensuring that acceptable exterior and interior noise levels will be achieved.
- 4) The County shall ensure that roadway projects include mitigation measures to maintain at least “tentatively compatible” noise levels as shown in Policy DE-101. Mitigation for roadway noise may be deferred where “tentatively compatible” noise guidelines would be exceeded on vacant lands, but shall be installed as part of the roadway project where the noise would affect existing homes. Deferred mitigation shall be the responsibility of the project which places residential units on vacant lands.
- 5) Developers of new noise-creating uses shall be responsible for implementing noise reduction techniques either at the source or at the residential use to achieve acceptable exterior and interior noise levels.
- 6) The County shall be responsible for providing noise mitigation required as the result of County decisions to increase transportation noise standards.
- 7) The County shall seek to obtain noise mitigation from other agencies (including the State of California) required to address the noise impacts of decisions made by those agencies (including, but not limited to, roadway widenings).

Action Item DE-99.1: Apply the State Noise Insulation Standards, zoning and building controls, buffers, sound barriers, traffic controls, and other effective measures to reduce exposure to unsafe and undesired noise sources.

Action Item DE-99.2: Require acoustical studies for:

- 1) The Significant new noise generators,
- 2) New noise-sensitive uses in noise-impacted areas or near noise generators, or
- 3) New uses which are proposed to be developed in areas which do not meet the “completely compatible” exterior noise guidelines contained in Policy DE-100 or Policy DE-101.

If information on the noise environment at a project site is not available, a measurement of the noise environment by a qualified acoustical engineer may be needed to make a determination whether a proposed project complies with the guidelines and standards in Policy DE-100 or DE-101.

Action Item DE-99.3: The County will seek to obtain noise mitigation from other agencies (including the State of California) required to address the noise impacts of decisions made by those agencies (including, but not limited to, roadway widenings and railroad operations).

Policy DE-100: The following are the County’s standards for maximum exterior noise levels for residential land uses.

Table 3-J (as identified in General Plan)
Exterior Noise Level Standards (Levels not to be exceeded more than 30 minutes in any hour)

| | Time Period | |
|---|--------------------|----|
| Single-Family Homes and Duplexes | 10 p.m. to 7 a.m. | 50 |
| | 7 a.m. to 10 p.m. | 60 |
| Multiple Residential 3 or More Units Per Building (Triplex +) | 10 p.m. to 7 a.m. | 55 |
| | 7 a.m. to 10 p.m. | 60 |

- Where existing ambient noise levels exceed these standards, the ambient noise level shall be the highest allowable noise level as measured in dBA Leq (30 minutes).
- The noise levels specified above shall be lowered by 5 dB for simple tonal noises (such as humming sounds), noises consisting primarily of speech or music, or for recurring impulsive noises (such as pile drivers, punch presses, and similar machinery).
- The County may impose exterior noise standards which are less restrictive than those specified above, provided that:
 - 1) The noise impact on the residential or other noise-sensitive use is addressed in an environmental analysis,
 - 2) A finding is made by the approving body stating the reasons for accepting a higher exterior noise standard, and
 - 3) Interior noise standards will comply with those identified in Policy DE-103.

Policy DE-101: The following are noise compatibility guidelines for use in determining the general compatibility of planned land uses:

Table 3-K (as identified in General Plan)
Noise Compatibility Guidelines (Expressed as a 24-hour day-night average or Ldn)

| Land Use | Completely Compatible | Tentatively Compatible | Normally Incompatible | Completely Incompatible |
|-----------------|------------------------------|-------------------------------|------------------------------|--------------------------------|
| Residential | Less than 55 dBA | 55-60 dBA | 60-75 dBA | Greater than 75 dBA |
| Commercial | Less than 65 dBA | 65-75 dBA | 75-80 dBA | Greater than 80 dBA |
| Industrial | Less than 70 dBA | 70-80 dBA | 80-85 dBA | Greater than 85 dBA |

See Policy DE-102 for the definitions of these levels of compatibility.

- These guidelines apply to land designated by this General Plan for these uses. Residential, retail, or public parks which have been developed on land

designated for other uses shall be subject to the exterior noise guidelines for the land on which they are located.

- Non-residential uses located on residentially designated land shall be subject to the exterior noise guidelines for residential lands.
- All uses on Commercial lands, including non-commercial uses, shall be subject to the standards for Commercial land.
- Land use designations not listed above do not have exterior noise compatibility standards. Land use designations with no exterior noise compatibility standard include office and industrial.

Policy DE-102: The following definitions shall be used in combination with the standards in the Noise Compatibility Guidelines shown above.

- “Transportation Noise” consists of noise generated by motor vehicles, trains, and airports.
- “Completely Compatible” means that the specified land use is satisfactory and both the indoor and outdoor environments are pleasant.
- “Tentatively Compatible” means that noise exposure may be of concern, but common building construction practices will make the indoor living environment acceptable, even for sleeping quarters, and the outdoor environment will be reasonably pleasant.
- “Normally Incompatible” means that noise exposure warrants special attention, and new construction or development should generally be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features are included in the design. Careful site planning or exterior barriers may be needed to make the outdoor environment tolerable.
- “Completely Incompatible” means that the noise exposure is so severe that new construction or development should generally not be undertaken.

Policy DE-104: New or expanded uses shall comply with adopted noise standards to ensure minimal impact on established noise-sensitive uses.

Policy DE-105: A 5 dB increase in CNEL or Ldn noise levels shall be normally considered to be a significant increase in noise.

Action Item DE-105.1: Adopt standards and requirements for acoustical studies to ensure consistent identification of noise impacts.

Mendocino County Inland Zoning Code

Title 20, Division 1 presents exterior noise limit standards as summarized in Table 3.11-2, below:

Table 3.11-2 Mendocino County Inland Zoning Code Exterior Noise Limit Standards

| Receiving Land Use Category ^{(3),(4)} | Time Period | Noise Level Standards (dBA) ^{(1),(2)} | |
|--|--|--|-------------------------------|
| | | Rural/Suburban | Urban/Highways ⁽⁵⁾ |
| One and Two Family Residential | 10:00 p.m. - 7:00 a.m. | 40 | 50 |
| | 7:00 a.m. - 10:00 p.m. | 50 | 60 |
| Multifamily Public Spaces | 10:00 p.m. - 7:00 a.m. | 45 | 55 |
| | 7:00 a.m. - 10:00 p.m. | 50 | 60 |
| Limited Commercial Some Multifamily | 10:00 p.m. - 7:00 a.m. | 55 | |
| | 7:00 a.m. - 10:00 p.m. | 60 | |
| Commercial | 10:00 p.m. - 7:00 a.m. | 60 | |
| | 7:00 a.m. - 10:00 p.m. | 65 | |
| Light Industrial Heavy Industrial | Any time | 70 | |
| | Any time | 75 | |
| Adjustments to Noise Level Standard | | | |
| Duration | | | |
| L50 | 30 minutes per hour | Standard | |
| L25 | 15 minutes per hour | Standard + 5 dB | |
| L0 | Maximum permissible level | Standard + 20 dB | |
| Character | Tone, whine, screech, hum, or impulsive, hammering, riveting, or music or speech | Standard + 5 dB | |
| Ambient Level(1) | Existing ambient L50, L25 Existing ambient L0 | Standard + 5dB Existing maximum | |

Interpretive Footnotes

- (1) When an acoustical study demonstrates that ambient levels exceed the noise standard, then the ambient levels become the standard.
- (2) Higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected.
- (3) County staff shall recommend which receiving land use category applies to a particular project, based on the mix of uses and community noise levels. Industrial noise limits intended to be applied at the boundary of industrial zones, rather than within industrial areas.
- (4) The "rural/suburban" standard should be applied adjacent to noise sensitive uses such as hospitals or convalescence homes.
- (5) "Highways" apply to roads and highways where average daily traffic (ADT) exceeds 10,000. (Ord. No. 4017 (part), adopted 1998)

3.11.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to noise, as defined by the CEQA Guidelines (Appendix G), if it would:

- Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

Significance Threshold (Sources)

- 55 dBA Ldn – (Mendocino County General Plan Policy DE-99)
- 60 dBA L50 – (Mendocino County General Plan Policy DE-100)
- 50 dBA L50 – (Mendocino County Inland Zoning Code (Daytime Noise Level Standard for Rural/Suburban One and Two Family Residential Land Uses))

- Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

Significance Threshold (Sources)

0.3 in in/sec PPV – cosmetic damage to structures – (Caltrans Transportation and Construction Vibration Guidance Manual)

- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

Significance Threshold (Sources)

5 dBA Ldn above existing conditions – (Mendocino County General Plan Policy DE-105)

- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

Significance Threshold (Sources)

Daytime - 60 dBA Leq and 5 dBA Leq or more above the ambient for a period greater than one year – (Standard industry practice)

- Located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and expose people residing or working in the project area to excessive noise levels.
- Located within the vicinity of a private airstrip, and expose people residing or working in the project area to excessive noise levels.

Areas of No Project Impact

As explained below, the project would not result in impacts related to two of the significance criteria identified in Appendix G of the current California Environmental Quality Act (CEQA) Guidelines. The following significance criteria are not discussed further in the impact analysis, for the following reasons:

- **Located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and expose people residing or working in the project area to excessive noise levels.** The proposed project is not located within an airport land use plan or within two miles of a public airport. Therefore this significance criterion is not applicable to the proposed project and is not discussed further.
- **Located within the vicinity of a private airstrip, and expose people residing or working in the project area to excessive noise levels.** The proposed project is not located within the vicinity of a private airstrip. Therefore this significance criterion is not applicable to the proposed project and is not discussed further.

3.11.4 Methodology

The noise and vibration impact assessment evaluates noise and vibration impacts associated with construction and operation of the project. The assessment of potential noise impacts was conducted using the anticipated noise that would be produced during construction and operation of the project as compared to noise level thresholds established by the regulatory criteria. The assessment of vibration impacts was conducted using information on anticipated vibration levels generated during the construction of the project.

For construction noise, the potential for impacts was assessed by considering several factors, including the proximity of project-related noise sources to noise-sensitive land uses (i.e., sensitive receptors), typical noise levels associated with construction equipment, the potential for construction noise levels to interfere with daytime activities, and the duration that sensitive receptors would be affected. Construction equipment for this project would include aerial lifts, air compressors, bore/drill rigs, cement and mortar mixers, concrete/industrial saws, cranes, crawler tractors, crushing equipment, dumpers/tenders, excavators, forklifts, generator sets, graders, off-highway tractors, off-highway trucks, pavers and paving equipment, plate compactors, pressure washers, pumps, rollers, rough terrain forklifts, rubber tired dozers and loaders, scrapers, signal boards, skid steer loaders, surfacing equipment, sweepers/scrubbers, loaders/backhoes, trenchers, welders, and other general equipment. For operational noise, the potential for impacts was assessed by evaluating the noise generation potential of noise sources, proximity of sensitive receptors, and the potential for operational noise to remain within the established local limits at the nearest receptors. Operational noise sources for this project would include automobile and truck traffic accessing the site, noise generated by equipment located inside the industrial building and transmitted outside through the doorways, and two front-end loaders (one inside the building, one outside).

A computer model was used to calculate operational noise levels for the proposed project. The model, SoundPLAN Version V7.3, is a three-dimensional ray-tracing program, which takes into account the sources of noise, the frequency spectra, and the topography of the area. A2013 Annual Average Daily Traffic (AADT) volume of 10,800 vehicles (Caltrans 2013b) was input into the model and calibrated to long-term and short-term noise measurement data collected during the noise monitoring survey as presented in the setting section, resulting in a modeled input of 15,500 vehicles over a 24 hour period. The source noise level data used to represent the noise levels resulting from operations at the proposed transfer station were taken from previous measurements at similarly sized facilities (6 to 15 acre sites) of similar usage¹. The source noise level for operations inside the waste and unloading area (including trucks and a front-end loader) was 72 dBA Leq at a distance of 50 feet from the loading bay exit. An additional front-end loader was input as the primary noise source at the outdoor recycling area and a source noise level of 74 dBA Leq at a distance of 50 feet was used. Automobile and truck traffic volumes were also input into the model based on the data contained in the Central Cost Transfer Station Project Vehicle Miles Traveled memo prepared by MSWMA and dated January 8, 2015 (the VMT data from the memo is summarized in Table 3.7-1 of Section 3.7). All operations were assumed to occur between the hours of 8:00 a.m. and 5:00 p.m.

The Caltrans guidelines for vibration are the basis for the significance criteria for annoyance and potential building damage (Caltrans 2013a). Caltrans recommends a vibration limit of 0.5 in/sec PPV for buildings structurally sound and designed to modern engineering standards, 0.3 in/sec PPV for buildings that are found to be structurally sound but where structural damage is a major concern, and a conservative limit of 0.08 in/sec PPV for ancient buildings or buildings that are documented to be structurally weakened. Proposed construction areas would not be in the vicinity of fragile structures but older structures exist within the vicinity of the project site. Based on Caltrans guidance, this analysis establishes 0.3 in/sec PPV as the significance threshold for construction vibration to avoid damage to buildings from vibration sources.

¹ Greenwaste Recovery Inc, Material Processing and Transfer Station, Santa Clara, California (I&R job #09-049); and Pacific Recycling Solutions, Recycling and Resource Recovery Center, Ukiah, California (I&R job #12-001)

3.11.5 Impacts and Mitigation Measures

Impact NO-1: Exposure of Persons to or Generation of Noise Levels in Excess of Standards.

Mendocino County General Plan Policy DE-99 states, “No new use regulated by the County shall be permitted to generate noise that would cause the ambient noise on any adjacent parcel to exceed the ‘completely compatible’ 24-hour guidelines shown in Policy DE-101 (55 dBA Ldn) or the 30-minute noise standards in Policy DE-100 (60 dBA L50).” The Inland Zoning Code establishes a more restrictive noise standard of 50 dBA L50, except in areas where ambient noise levels exceed the standard. In these cases, the adjusted noise limit is 55 dBA L50.

Figure 3.11-3 (Map 1) shows the noise contour output from the Sound PLAN noise model for all operations and traffic resulting from the proposed project. The noise contours are in terms of the hourly average noise level represented by the Leq acoustical descriptor. The Leq is typically 0 to 3 dBA higher than the 30-minute, or median (L50) noise level. For comparative purposes with the L50 noise level limit, the Leq is considered a conservative descriptor. The Leq is also the building block used in the calculation of the Ldn, which is used to test whether or not a substantial permanent increase in noise levels would occur with the operation of the project (discussed under Impact NO-3).

The ambient noise environment resulting from traffic along SR 20 exceeds 50 dBA L50 during the daytime at the nearest receptors to the project site which adjoin the roadway. As noted above, the adjusted noise limit is 55 dBA L50 during the daytime. Ambient noise levels at second row receptors near the site are at or below 50 dBA L50 during the daytime, therefore, the unadjusted noise limit of 50 dBA L50 applies.

The noise contours displayed in Figure 3.11-3 (Map 1) show that operational noise levels from vehicles and equipment operating at the project site (including the sounds of intermittent back-up alarms) at the nearest residential property lines west of the site would range from 49 to 50 dBA Leq. Operational noise levels would not exceed the adjusted noise limit of 55 dBA L50 during the daytime at the first-row residence near SR 20 or the unadjusted noise limit of 50 dBA L50 at the second-row residence located further from SR 20.

The noise contours displayed in Figure 3.11-4 (Map 2) show the day-night average noise levels expected as a result of the operation of the project between the hours of 8:00 a.m. and 5:00 p.m. In all cases, operational noise levels resulting from the project would be less than the “completely compatible” noise level of 55 dBA Ldn and below ambient noise levels resulting from SR 20 traffic.

Operational noise levels would comply with Mendocino County General and Inland Zoning Code standards, and therefore the impact would be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

Impact NO-2: Result in Exposure of Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels.

Construction of the Central Coast Transfer Station would include the following construction phases; site preparation, grading/excavation, trenching, exterior building construction, interior building construction, and paving. Major sources of groundborne vibration such as impact or vibratory pile drivers are not proposed as part of the project.

Table 3.11-3 presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet. As indicated in Table 3.11-3, vibration levels produced by a vibratory roller can reach 0.210 in/sec, PPV at a distance of 25 feet. Jackhammers typically generate vibration levels of 0.035 in/sec PPV and drilling typically generates vibration levels of 0.09 in/sec PPV at a distance of 25 feet. Vibration levels would vary depending on soil conditions, construction methods, and equipment used.

Table 3.11-3 Vibration Source Levels for Project Construction Equipment

| Equipment | PPV at 25 ft. (in/sec) | Approximate Lv at 25 ft. (VdB) |
|------------------|------------------------|--------------------------------|
| Vibratory Roller | 0.210 | 94 |
| Hoe Ram | 0.089 | 87 |
| Large bulldozer | 0.089 | 87 |
| Caisson drilling | 0.089 | 87 |
| Loaded trucks | 0.076 | 86 |
| Jackhammer | 0.035 | 79 |
| Small bulldozer | 0.003 | 58 |

Source: Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, May 2006.

A review of the construction equipment list for the project was made to identify the specific pieces of construction equipment that would result in the highest vibration levels at nearby receptors. A vibratory roller would be used during the grading/excavation and paving phases of the project, and the nearest receptor would be located approximately 100 feet from portions of the SR 20 that would undergo grading and paving. At a distance of 100 feet, vibration levels produced by a vibratory roller would be approximately 0.046 in/sec PPV, below the 0.3 in/sec PPV threshold used to avoid cosmetic damage to buildings that are found to be structurally sound but where structural damage is a major concern. Vibration levels produced by other equipment proposed as part of the project and at locations further from receptors would also be less than the 0.3 in/sec PPV threshold. This would be a less-than-significant impact.

Closure of the Caspar site would not involve any activities that would result in groundborne vibrations. Recyclables stored at the Caspar Facility would be removed with existing equipment, and then operation would cease. Operation at the proposed Central Coast Transfer Station would involve use of standard off-road equipment, none of which would result in groundborne vibrations detected off site. There would be no impact to groundborne vibrations from closure of the Caspar site or operation of the new facility.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

Impact NO-3: Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity.

Mendocino County General Plan Policy DE-105 states, "A 5 db increase in CNEL or Ldn noise levels shall be normally considered to be a significant increase in noise."

Figure 3.11-5 (Map 3) shows the existing noise contour output from the SoundPLAN noise model. Existing residential land uses adjoining SR 20 are currently exposed to noise levels ranging from about 60 to 70 dBA Ldn. Second-row residences are typically exposed to noise levels ranging from 45 to 55 dBA Ldn due to SR 20 traffic.

Figure 3.11-6 (Map 4) shows the existing plus project condition. The Ldn noise contours in the immediate vicinity of the site extend westward, northward, and eastward from the transfer station, but do not change dramatically at the nearest sensitive receptors to the west or east.

Figure 3.11-7 (Map 5) shows the noise increase (Ldn) when comparing the existing and existing plus project conditions. The maximum noise increase attributable to project operations is 1 dBA Ldn. This permanent noise increase would occur at the second-row residence from SR 20, northwest of the project site. The predicted Ldn noise level increase at the remainder of residential receptors in the project vicinity would be less than 1 dBA Ldn. The impact resulting from the operation of the project would be less than significant as project-generated noise levels at noise-sensitive receptors are calculated to increase by less than 5 dBA Ldn above existing background noise levels.

Closure of the Caspar Facility does not involve any new noise-generating activities. In fact, noise would be reduced at the site with closure of the facility as the compactor and loader would no longer be in use. There would be no impact to ambient noise at the Caspar site.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

Impact NO-4: Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity.

Construction of the Central Coast Transfer Station would include the following construction phases; site preparation, grading/excavation, trenching, exterior building construction, interior building construction, and paving. Construction noise levels were calculated with the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM v 1.1). Construction equipment identified on the proposed construction equipment list was input into the RCNM Model. The results of the calculations showed that hourly average noise levels would range from 82 to 86 dBA Leq at a distance of 50 feet from the center of the construction site during busy construction periods. There would be variations in construction noise levels on a day-to-day basis depending on the specific activities occurring at the site. Appendix K includes the output data for RCNM model.

The daytime exterior noise level threshold is 60 dBA Leq recognizing that at this level, noise begins to interfere with outdoor speech communication. Additionally, at residential properties exposed to an exterior noise level of 60 dBA Leq, interior noise levels would be expected to be about 45 dBA Leq assuming that a typical house achieves an approximate 15 dBA reduction indoors with the windows open. Interior noise levels exceeding 45 dBA Leq can interfere with activities such as reading or watching television.

Construction generated noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and receptor. The nearest receptors are located approximately 500 feet from the primary construction areas, and would typically be exposed to construction noise levels of approximately 62 to 66 dBA Leq. When construction activities would occur at portions of the site closest to existing receptors (at distances of approximately 100 to 200 feet) hourly average noise levels resulting from project construction activities would range from 60 to 80 dBA Leq. Daytime construction noise levels are calculated to exceed the 60 dBA Leq threshold at receptors within

1,000 feet of the center of the construction site having direct line of sight to project construction activities. Shielding by buildings or terrain would result in lower construction noise levels at distant receptors. For example, the CAL FIRE helipad is positioned between and above (the facility was constructed with substantial fill thus increasing the elevation of the helipad) the project site and residences to the northwest and west.

Although construction noise levels would exceed the 60 dBA Leq noise level threshold, the impact from daytime construction noise over an approximate six to seven-month construction period is not considered significant. The impact would be less than significant recognizing the relatively short-duration of the proposed construction activities.

Closure of the Caspar Facility does not involve any new noise-generating activities. Recyclables stored at the Caspar Facility would be removed with existing equipment, and then operation would cease.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

3.11.6 Cumulative Impacts

Impact NO-C-1: Cumulative Impacts from Noise.

Construction

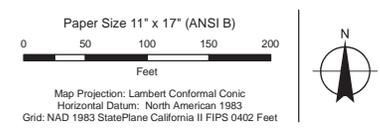
The nearest cumulative project that could be constructed concurrently with the proposed project is the Hare Creek Shopping Mall in Fort Bragg. The exact timing for construction of this project is unknown. However, the distance separating the Hare Creek Shopping Mall site and the project site from one another would be too far for noise from the cumulative projects to add to one another and result in a significant cumulative noise impact at receptors common to each project. The project's construction would not contribute to a significant cumulative impact.

Operation

As noted above, the maximum noise increase attributable to project operations is 1 dBA Ldn. This permanent noise increase would occur at the second-row residence from SR 20, northwest of the project site. The predicted Ldn noise level increase at the remainder of residential receptors in the project vicinity would be less than 1 dBA Ldn. The impact resulting from the operation of the project would be less than significant as project-generated noise levels at noise-sensitive receptors are calculated to increase by less than 5 dBA Ldn above existing background noise levels. There are no cumulative projects in the project vicinity. The closest cumulative project to the project site is the proposed Hare Creek Shopping Mall at the corner of SR 20 and Highway 1, approximately three miles west of the project site. The distance is too far to create a cumulative impact. Therefore, project operation would not contribute to a significant cumulative impact.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.



Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
 Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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 Data source: Data Custodian, Data Set Name/Title, Version/Date. Created by gldavidson



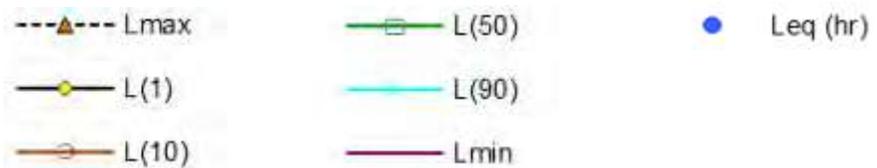
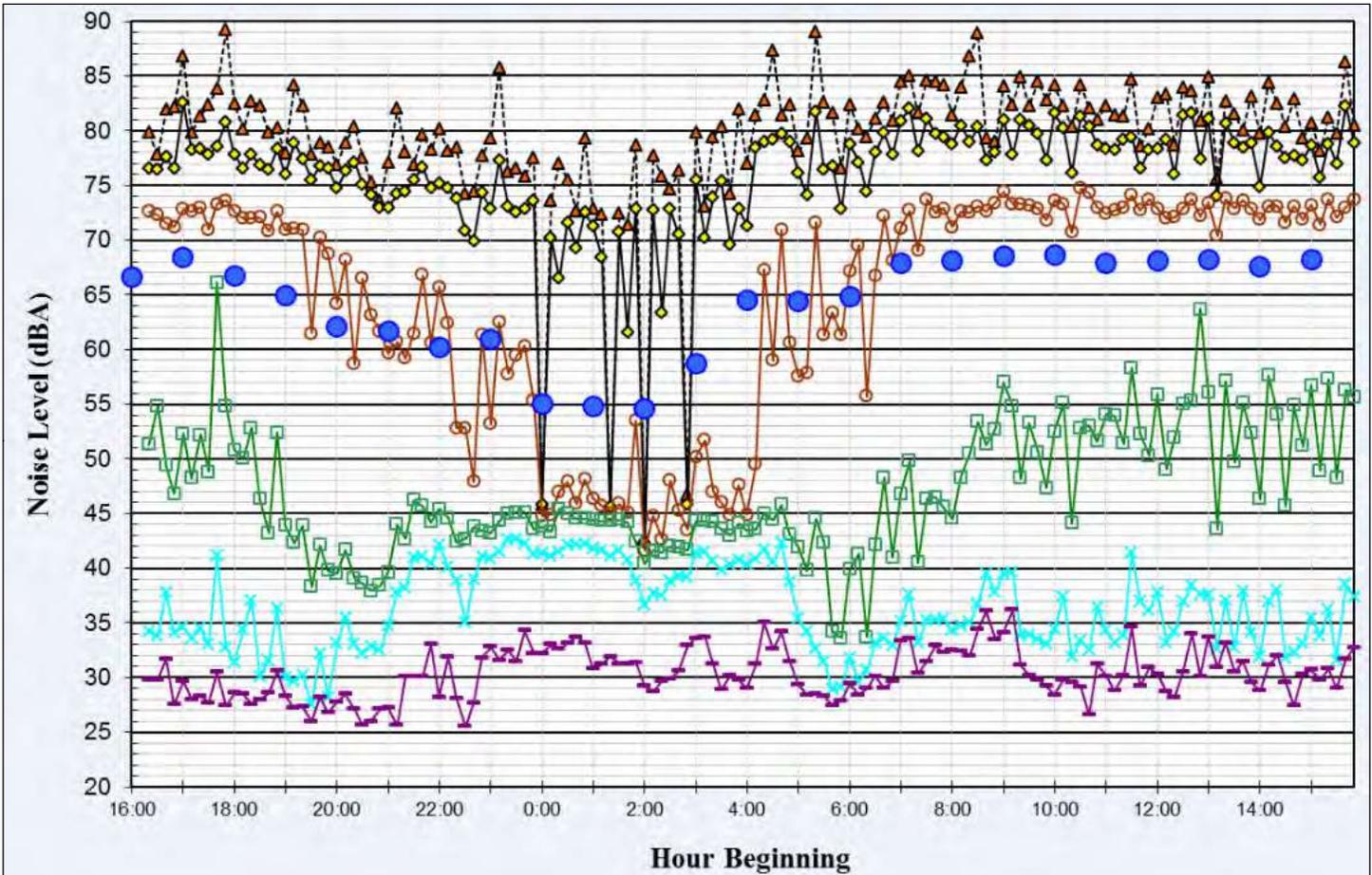
Mendocino Solid Waste Management Authority
 Central Coast Transfer Station EIR
 Job Number 8411065
 Revision A
 Date 07 Jul 2014

Noise Measurement Locations Figure 3.11-1

718 Third Street Eureka CA 95501 USA T 707 443 8326 F 707 444 8330 E eureka@ghd.com W www.ghd.com

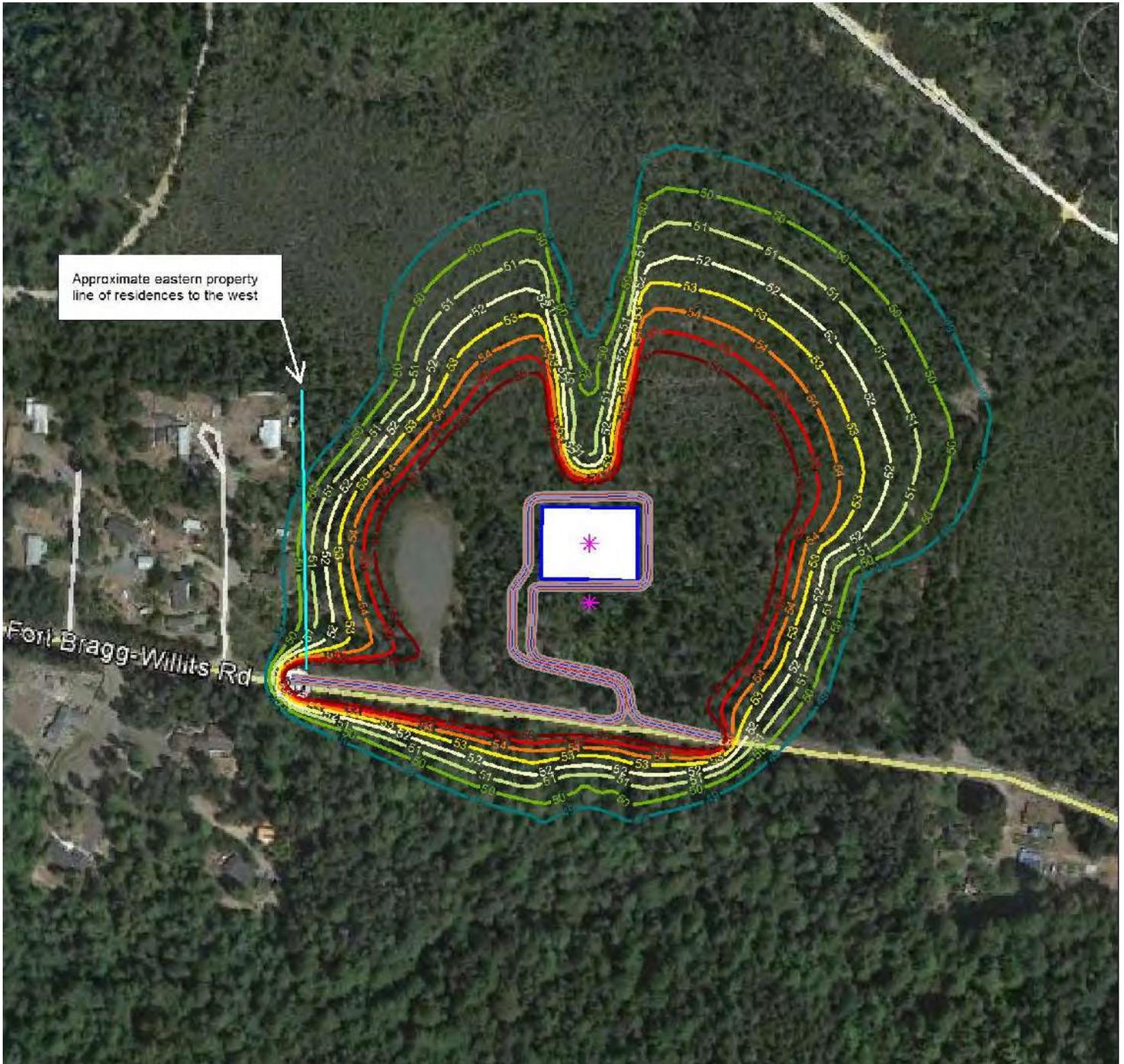
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**Noise Levels at Noise Measurement Site LT-1
~75 feet from the Center of SR 20
August 13-14, 2014**

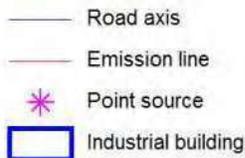
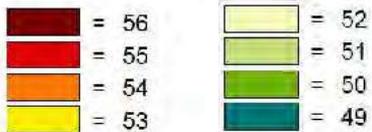


G:\0016201 MendoSolidWasteMgmtAuthority\8411065 MSWMA TransferStationEIR\08-GIS\Maps\Figures\EIR\F3.11-2_SummaryNoiseMeasData.mxd
© 2012. Whilst every care has been taken to prepare this map, GHD (and DATA CUSTODIAN) make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.
Data source: Data Custodian, Data Set Name/Title, Version/Date. Created by:jrousseau

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Leq Noise Level
in dB(A)



Leq Noise Levels from Project

Acoustical attenuation provided by ground and foliage
Calculated at 5 feet above ground

Not to Scale

Paper Size ANSI A



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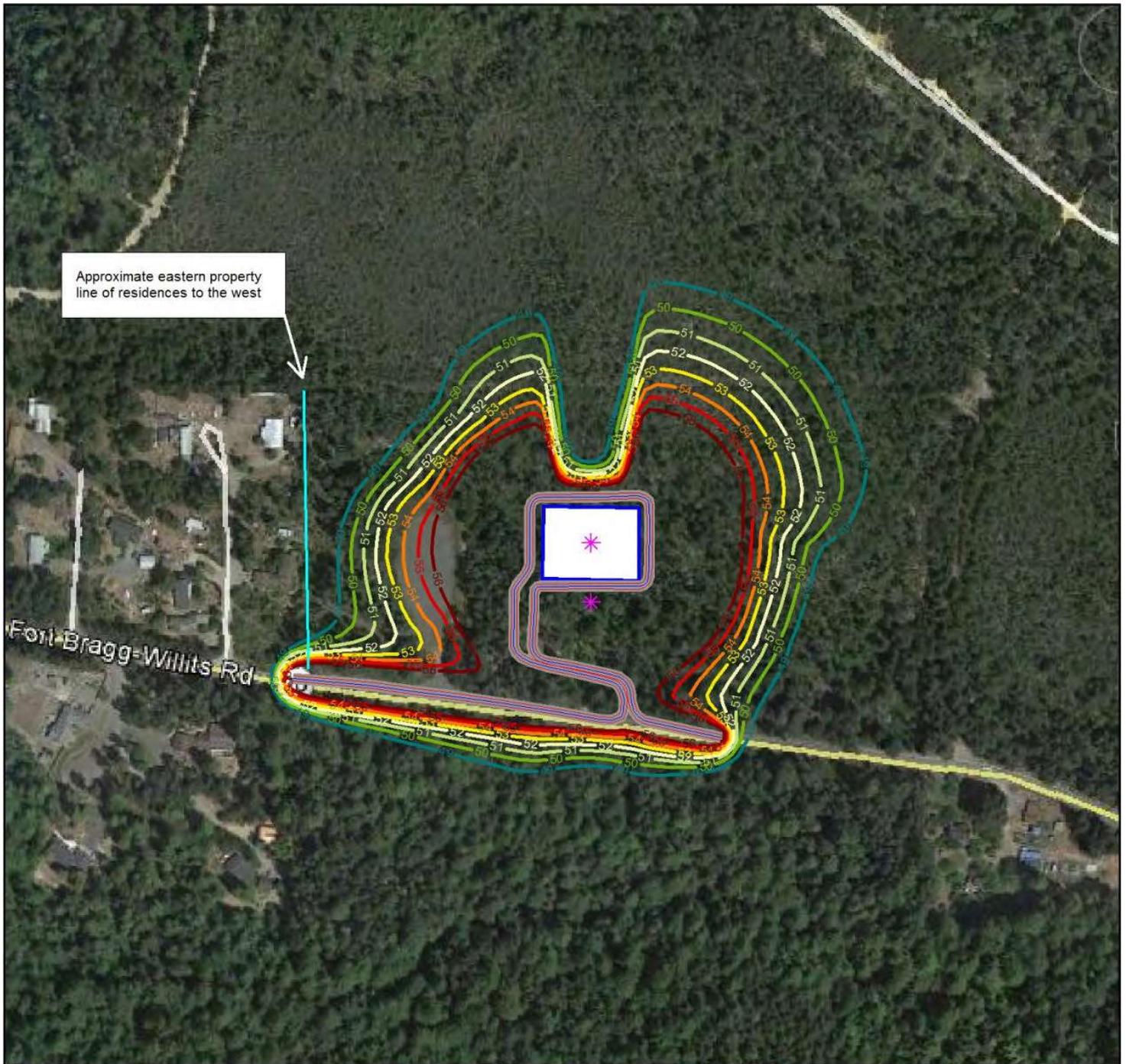
Central Coast Transfer Station
Project No. 14-016

| | |
|------------|-------------|
| Job Number | 8411065.99 |
| Revision | A |
| Date | 18 Nov 2014 |

Operational Noise Level

Figure 3.11-3

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Approximate eastern property line of residences to the west

Ldn Noise Level
in dB(A)

| | |
|--|--|
|  = 56 |  = 52 |
|  = 55 |  = 51 |
|  = 54 |  = 50 |
|  = 53 |  = 49 |

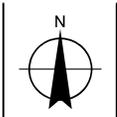
-  Road axis
-  Emission line
-  Point source
-  Industrial building

Ldn Noise Levels from Project

Acoustical attenuation provided by ground and foliage
Calculated at 5 feet above ground

Not to Scale

Paper Size ANSI A



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Project No. 14-016

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Revision | A
Date | 18 Nov 2014

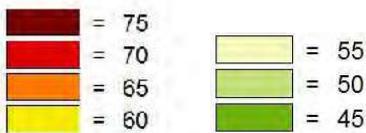
Operational Noise Level

Figure 3.11-4

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Ldn Noise Level
in dB(A)



-  Road axis
-  Emission line
-  Point source
-  Industrial building

Existing Ldn Noise Levels

Acoustical attenuation provided by ground and foliage
Calculated at 5 feet above ground

Not to Scale

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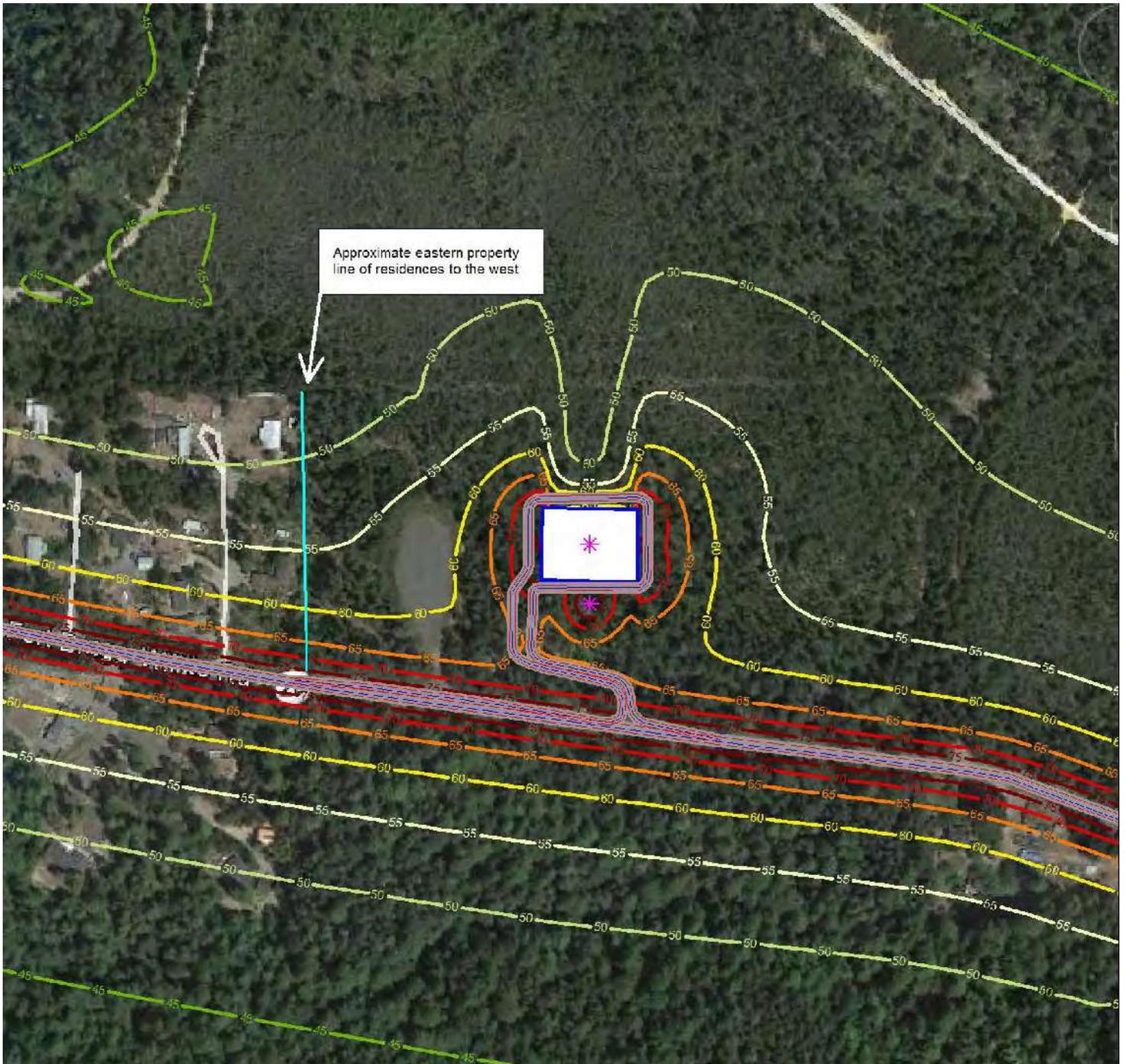
Central Coast Transfer Station
Project No. 14-016

Job Number 8411065.99
Revision A
Date 18 Nov 2014

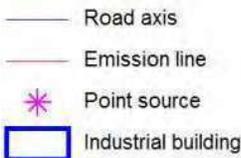
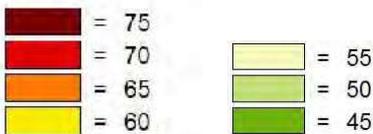
Existing Noise Level

Figure 3.11-5

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Ldn Noise Level
in dB(A)



Existing plus Project Ldn Noise Levels

Acoustical attenuation provided by ground and foliage
Calculated at 5 feet above ground

Not to Scale

Paper Size ANSI A



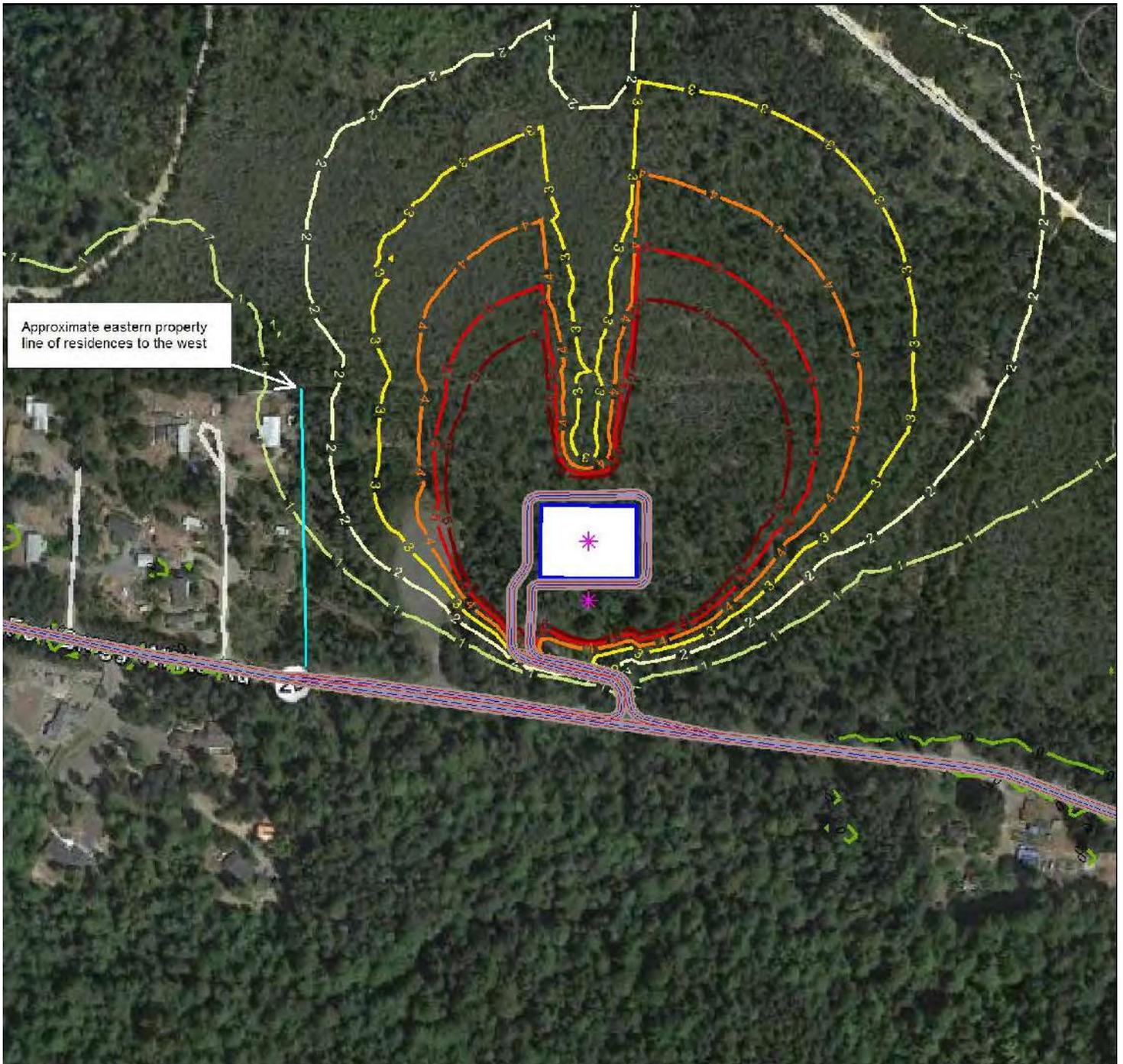
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Project No. 14-016

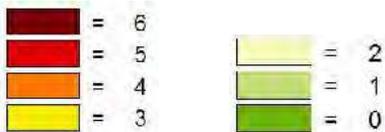
Job Number | 8411065.99
Revision | A
Date | 18 Nov 2014

Existing Plus Ldn Noise Levels Figure 3.11-6

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Ldn Noise Level Increase
in dB(A)



-  Road axis
-  Emission line
-  Point source
-  Industrial building

Ldn Noise Level Increases from Project

Acoustical attenuation provided by ground and foliage
Calculated at 5 feet above ground

Not to Scale

Paper Size ANSI A



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Project No. 14-016

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Revision A
Date 18 Nov 2014

Ldn Noise Level Increases Figure 3.11-7

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3.12 Transportation

This section evaluates the potential impacts related to transportation during construction and operation of the project. To provide the basis for this evaluation, the setting section describes the existing transportation setting for the project area, and the regulatory framework section describes applicable federal, State, and local regulations. The evaluation section establishes the thresholds of significance, evaluates potential transportation impacts, identifies the significance of impacts, and applies mitigation measures if applicable.

3.12.1 Setting

The following discusses the transportation-related context in which the proposed project would be constructed and would operate, including a description of the project area and roadway network that serves the project site; existing transit service, bicycle, and pedestrian facilities near the project site; definitions of intersection and roadway segment level of service (LOS); and a summary of current LOS conditions. Figure 3.12-1 shows the project area roadways and the specific intersections evaluated in this EIR. The setting focuses on the site for the proposed Central Coast Transfer Station. Closure of the Caspar Facility and the land transfer described in the Project Description would not result in new land uses that would generate traffic or affect the local transportation system. Therefore, the transportation-related context for Caspar Facility area is not described in this section.

Existing Roadway System

Roadways in the project area are classified as state highways, which are high-speed limited access roadways serving primarily regional and County-wide travel. The proposed project site is located off of State Route 20 (SR 20), a two-lane east/west highway extending from State Route 1 near Fort Bragg to US Highway 101 in Willits. The posted speed limit on SR 20 within the project area is 55 miles per hour.

The average daily traffic along SR 20 near the project site is approximately 3,100 vehicles, with 300 vehicles occurring during the peak hour (Caltrans 2013). Trucks with two or more axles account for approximately 10 to 16 percent of the average daily traffic along SR 20 (Caltrans 2012).

SR 20 intersects with SR 1 approximately three miles to the west of the project site. The westbound approach of SR 20 to SR 1 features dedicated left and right-turn lanes. At its intersection with SR 20, SR 1 features a dual left turn lane and one through lane in the southbound direction, and a dual through lane with a channelized right turn lane in the northbound direction. The posted speed limit on SR 1, in the vicinity of the intersection, is 40 miles per hour.

Existing Public Transit, Bicycle, and Pedestrian Facilities

The Mendocino Transit Authority (MTA) provides regional transit service on a daily basis to the nearby City of Fort Bragg. MTA Transit Route 65 is the only known bus route that currently traverses SR 20 in the project area, providing regional service between Fort Bragg, Willits, Ukiah and Santa Rosa. No bus stops or transit facilities for Route 65 are located within, or adjacent to, the project site.

No bicycle routes, sidewalks, or other bicycle and pedestrian facilities are currently located along SR 20 adjacent to the project area. The nearest striped bicycle lanes are located approximately 0.6 mile to the west of the proposed project site, near the intersection of SR 20 and Gravel Pit Road.

Pedestrian traffic in the vicinity of the project site is limited, as the area is at the edge of rural residential development and nearly three miles from any commercial facilities.

The 2012 Mendocino County Regional Bikeway Plan (Mendocino County 2012) includes a proposed bikeway improvement project along SR 20 that would install a Class III bicycle route from SR 1 to the Lake County Line. Class III bicycle route improvements typically include designated pavement markings to indicate the use of bicycles within the vehicular travel lane of a roadway. The portion of SR 20 that fronts the proposed transfer facility does not yet have these improvements.

Existing Intersection Level of Service

LOS is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, LOS A represents free flow conditions and LOS F represents forced flow or breakdown conditions. The LOS designation for intersections is generally accompanied by a unit of measure, which indicates a level of delay.

As part of the traffic impact study prepared for the proposed project (see Appendix H), the existing LOS for the intersection of SR 20 and SR 1 was calculated. The existing LOS calculations for this intersection are summarized in Table 3.12-1, which shows that the intersection currently operates at LOS B or better during peak periods. Because there is no existing intersection along SR 20 at the proposed project site, no existing LOS for this intersection is computable.

Table 3.12-1 Summary of Existing Peak Hour Intersection Level of Service Calculations

| Intersection | | Existing Conditions | | |
|--------------|---------------------------|---------------------|-----------------|---------------------|
| | | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak |
| | | Delay/LOS | Delay/LOS | Delay/LOS |
| 1. | SR 20 / SR 1 ¹ | 10.2/B | 15.1/B | 13.0/B |
| 2. | SR 20 / Project Access | N/A | N/A | N/A |

Notes: ¹LOS based on HCM2010 method of analysis for signalized intersections.

Existing Intersection Queuing Length

As part of the traffic impact study prepared for the proposed project (see Appendix H), the existing peak hour 50th percentile queue lengths were reviewed against the existing lane storage capacity at the intersection of SR 20 and SR 1. The existing peak hour queue lengths for the intersection are summarized in Table 3.12-2, which shows that the queue lengths are within existing storage lane capacity at the intersection.

Table 3.12-2 Summary of Existing Peak Hour Intersection Queue Analysis

| Movement | Lanes / Available Storage | Queue Length - 50th (feet) | | |
|-----------------------|---------------------------|----------------------------|------|--------|
| | | a.m. | p.m. | midday |
| SR 20 / SR 1 | | | | |
| Westbound Right Turn | 1 / 120 ft | 0 | 0 | 0 |
| Northbound Through | 1 / 170 ft | 60 | 94 | 82 |
| Northbound Right Turn | 1 / 120 ft | 0 | 0 | 0 |
| Southbound Left Turn | 2 / 320 ft | 26 | 48 | 35 |

Notes: Queue shown is maximum after two cycles.

3.12.2 Regulatory Framework

Federal

There are no federal regulations that apply to the proposed project related to transportation in Mendocino County.

State

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for planning, design, construction, and maintenance of all State highways. The project proposes improvements to SR 20 to provide access to the project site. Such improvements would be under the jurisdiction of Caltrans, as would any changes in traffic levels at the signalized intersection of SR 20 and SR 1.

The Caltrans Guide for the Preparation of Traffic Impact Studies (Guide) (2002) includes criteria for evaluating the effects of land use development and changes to the circulation system on state highways. The Guide defines when traffic studies should be conducted to address impacts to state facilities. The Guide states that Measures of Effectiveness are used to evaluate Caltrans facilities, and provides a LOS significance threshold for signalized intersections. Specifically, the Guide states that the agency strives to maintain a LOS value of C or better on its signalized intersections. The Guide states, however, that the appropriate target LOS varies by facility and congestion level, and is defined differently by Caltrans depending on the analyzed facility.

Mendocino County General Plan

The County of Mendocino General Plan provides goals and policies for roadway systems and transportation corridors within the County. While the study area roadway network falls within the limits of Mendocino County, the General Plan does not provide an explicit LOS standard for intersections.

The Development Element of the Mendocino County 2009 General Plan contains several goals and policies related to the overall transportation and circulation system in Mendocino County. The policies most applicable to the proposed project are listed below.

Goal DE-9 (Road Systems): A Countywide road system that provides safe, efficient and attractive access, coordinated with interstate, state, local and area-wide systems.

- Policy DE-126: Provide for multiple transportation modes and functions within transportation corridors and rights-of-way constructed by project developers or using appropriate grants funding.
- Policy DE-128: Ensure that transportation infrastructure accommodates the safety and mobility of motorists, pedestrians, bicyclists, and persons in wheelchairs.
- Policy DE-136: The County will ensure that development projects which propose direct access to a state highway have legal entitlements for such access.
- Policy DE-145: Maximize the compatibility of major highway and road realignments, extensions and capacity-increasing projects with community objectives, and minimize impacts on commercial areas, neighborhoods, and resources.
- Policy DE-148: Land divisions and other discretionary projects shall not be approved until access and road improvements adequate for the intended uses, density or intensity are identified and constructed or funding mechanisms are in place.
- Policy DE-149: Major development applications shall include traffic studies to evaluate and mitigate cumulative effects on network level of service and safety.

3.12.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to transportation, as defined by the CEQA Guidelines (Appendix G), if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Areas of No Project Impact

As explained below, construction and operation of the project would not result in impacts related to two of the significance criteria identified in Appendix G of the current CEQA Guidelines. The following significance criteria are not discussed further in the impact analysis section for the following reasons:

Would the Project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the County congestion management agency for

designated roads or highways? Mendocino County is considered rural and does not have a Congestion Management Agency or an adopted Congestion Management Program. Therefore, no conflict with an applicable congestion management program would occur. This significance criterion is not applicable to the proposed project and is not discussed further.

Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? The proposed project is not located within an airport land use plan or within two miles of a public airport. Project construction and operation would include only ground-based travel. Therefore, this significance criterion is not applicable to the proposed project and is not discussed further.

3.12.4 Methodology

A traffic impact study prepared for the project provides an evaluation of operating conditions for select intersections during weekday and weekend peak periods (see Appendix H). The traffic impact study analyzed existing conditions, existing conditions plus the project, cumulative conditions, and cumulative conditions plus the project. In addition to vehicular analysis, the traffic impact study provides an evaluation of project impacts related to vehicle queuing, public transit routes, and pedestrian and bicycle movements.

Closure of the Caspar Facility and the land transfer described in the Project Description would not result in new land uses that would generate new traffic or otherwise result in transportation-related impacts. Therefore, closure of the Caspar Facility and the land transfer were not evaluated further in the traffic impact study prepared for the project.

Level of Service Methodology

Two intersections were analyzed using methodologies from the 2010 Highway Capacity Manual. The methodology used to analyse the signalized intersection of SR 20 at SR 1 is based on factors including traffic volumes, green time for each movement, phasing, whether or not the signals are coordinated, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For the purpose of analysis, a LOS C standard is used as the significance threshold. The ranges of delay associated with the various signalized LOS are indicated in Table 3.12-3.

Table 3.12-3 Signalized Level of Service Ranges of Delay

| Level of Service | Description | Average Control Delay (Seconds Per Vehicle) |
|------------------|---|---|
| A | Operations with very low delay occurring with favorable progression and/or short cycle lengths. | < 10.0 |
| B | Operations with low delay occurring with good progression and/or short cycle lengths. | 10.1 to 20.0 |
| C | Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear. | 20.1 to 35.0 |
| D | Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and/or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable. | 35.1 to 55.0 |
| E | Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay. | 55.1 to 80.0 |
| F | Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths. | > 80.0 |

Source: 2010 Highway Capacity Manual (Transportation Research Board, 2010).

The methodology used to analyze the proposed unsignalized intersection of SR 20 at the proposed project site is based on the unsignalized intersection capacity method. For side-street stop controls, this method determines a LOS for each minor turning movement by estimating the level of average delay in seconds per vehicle. The movement with the highest level of delay is presented as the worst case LOS. The ranges of delay associated with the various unsignalized levels of service are indicated in Table 3.12-4.

Table 3.12-4 Unsignalized Level of Service

| Level of Service | Description | Average Control Delay (Seconds Per Vehicle) |
|------------------|---|---|
| A | Little or no delay | < 10.0 |
| B | Short traffic delays | 10.1 to 15.0 |
| C | Average traffic delays | 15.1 to 25.0 |
| D | Long traffic delays | 25.1 to 35.0 |
| E | Very long traffic delays | 35.1 to 50.0 |
| F | Extreme traffic delays with intersection capacity exceeded (for an all-way stop), or with approach/turn movement capacity exceeded (for a side street stop controlled intersection) | > 50.0 |

Source: 2010 Highway Capacity Manual (Transportation Research Board, 2010).

Vehicle Queuing Methodology

Vehicle queuing was evaluated for the signalized intersection of SR 20 at SR 1. The evaluation determines the capacity of intersection movements to accommodate the number of vehicles expected to wait at the intersections before being able to pass through or turn. The analysis was

performed to determine if there is enough queuing space between intersections, or if project-related traffic may result in the overflow of vehicles that would obstruct the operations of the roadway. For the analysis, the Synchro software program was used to determine the 50th percentile movement queue lengths based on the 2010 Highway Capacity Manual methodology for movements with storage lanes.

As the Highway Capacity Manual does not provide specific guidance for the procedure to determine the length of vehicle queues at unsignalized intersections, queuing analysis at the proposed intersection of SR 20 and the project site was not explicitly performed. However, the conceptual site plan was utilized to evaluate how the proposed geometrics affect the adjacent roadway. Most critical to this evaluation is distance provided between the proposed ingress lanes and the scale at which arriving vehicles must stop to be weighed to determine the potential queuing effect that the scale could have, and the potential for the length of queue to “back-up” onto the left and right-turn lanes proposed for SR 20.

Hazardous Design and Emergency Access

The project is evaluated for consistency with applicable Caltrans roadway regulations and emergency access requirements.

Public Transit, Bicycle, and Pedestrian Facilities

The project is evaluated for consistency with policies contained in the Mendocino County General Plan and the Mendocino County Regional Bikeway Plan regarding public transit, bicycle and pedestrian facilities.

3.12.5 Impacts and Mitigation Measures

Impact TR-1: Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System.

Construction

LOS standards are intended to regulate long-term impacts from operation of future projects as opposed to temporary impacts from construction. Therefore, a qualitative analysis of potential construction related impacts on motor vehicle traffic is provided here. Construction traffic associated with the proposed project would result in a short-term increase in construction-related vehicle trips on SR 20 and SR 1. Construction would result in vehicle trips by construction workers, haul-truck trips for disposal of construction debris, and material and equipment deliveries to the project site. Construction-related traffic would be temporary, would vary on a daily basis, and would be spread out over the course of a work day.

Based on traffic count data obtained in August 2013, the existing LOS for the intersection of SR 20 at SR 1 is LOS B during peak periods. Therefore, under existing conditions, the intersection is known to have recently been operating satisfactorily in accordance with the Caltrans LOS C standard. Only a portion of the construction-related vehicles expected on any one day would occur during a peak hour period, and therefore, even with the addition of temporary construction-related vehicles, the temporary contribution of construction traffic is not anticipated to cause local intersection LOS to deteriorate below adopted standards. Traffic impacts during construction would be less than significant.

Construction of the acceleration and deceleration lanes adjacent to SR 20 may require a temporary partial lane closure along SR 20 adjacent to the project site. Although such closures are anticipated

to be of short-duration, they would temporarily alter the normal functionality of the highway and result in a temporary decrease in its overall performance and safety, including the potential for conflicts between construction vehicles with slower speeds and wider turning radii than autos and vehicles sharing the roadway, as well as confusion or frustration of drivers related to construction activities and traffic routing. The impact would be significant.

Operation

Roadway Level of Service

Project-generated trips are expected to consist of self-haul trash and recyclables, franchise hauler traffic, othaul traffic for recyclables, and transfer truck traffic. The projected peak hour project-generated traffic based on the traffic counts at the existing Caspar self-haul transfer station with respect to the different types of project trips is summarized in Table 3.12-5. For the purpose of analysis, it was assumed that 10 percent of the weekday and weekend daily project-generated trips would occur during the peak hour of the adjacent roadway traffic volumes.

Table 3.12-5 Summary of Projected Peak Hour Project Trips

| | Weekday Daily Traffic (Total Trips) | Weekday Peak Hour Traffic (Total Trips) | Weekend Daily Traffic (Total Trips) | Weekend Peak Hour Traffic (Total Trips) |
|------------------------------------|-------------------------------------|---|-------------------------------------|---|
| Self-Haul Customers | 91 | 10 | 138 | 14 |
| Franchise Hauler Collection Trucks | 20 | 2 | 0 | 0 |
| Recycling Othaul | 1 | 0 | 0 | 0 |
| Transfer Truck Othaul | 2 | 2 | 2 | 2 |
| Employee Commute | 4 | 4 | 4 | 0 |

Vehicular trips generated by the new transfer facility would utilize SR 20 for both entrance and exit access. For the purpose of analysis, the distribution of project-generated trips to local roadways was performed based on the probable origins and destinations of the trips relative to the location of existing facilities that would be replaced by the new facility, as well as existing traffic patterns established from existing turning movement counts, and knowledge of the population distribution of the region. Specifically, self-haul customers and franchise hauler trucks were assumed to arrive/depart from the west of the project site and rural areas outside and within the City of Fort Bragg. Recycling othaul traffic is minimal, and was assumed to not affect the peak hour of operations. Transfer truck othaul traffic was assumed to arrive/depart from the east of the project site.

The LOS calculations of study intersections with the addition of project-generated traffic are summarized in Table 3.12-6. With the addition of project-related traffic, the intersection of SR 20 at SR 1 would continue to operate acceptably at LOS B, and the new intersection of SR 20 at the project site would operate acceptably at LOS A and LOS B. Therefore, the vehicular traffic impact from the project would be less than significant.

Table 3.12-6 Summary of Peak Hour Intersection Level of Service Calculations – Existing plus Project

| Intersection | Existing | | | Existing plus Project | | |
|--|-----------------|-----------------|---------------------|-----------------------|-----------------|---------------------|
| | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak |
| | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS |
| 1. SR- 20 / SR 1 ¹ | 10.2/B | 15.1/B | 13.0/B | 10.4/B | 15.6/B | 13.3/B |
| 2. SR 20 / Project Access ² | | | | | | |
| <i>Eastbound Left Turn</i> | <i>N/A</i> | <i>N/A</i> | <i>N/A</i> | <i>0.8/A</i> | <i>0.5/A</i> | <i>0.6/A</i> |
| <i>Southbound Approach</i> | <i>N/A</i> | <i>N/A</i> | <i>N/A</i> | <i>9.6/A</i> | <i>10.1/B</i> | <i>9.5/A</i> |

Notes: *Italics* = results for minor movements at unsignalized intersections

Bold = results exceed acceptable LOS

* = Intersection in downtown, no LOS threshold

Results are indicated in Delay (average seconds per vehicle)/LOS

¹LOS based on HCM2010 method of analysis for Signalized intersections.

²LOS based on HCM2010 method of analysis for TWSC intersections.

Queue Length

Queue lengths at the intersection of SR 20 and SR 1 with the addition of project-generated traffic are summarized in Table 3.12-7. The peak hour 50th percentile queue lengths are within the existing storage lane capacities of the intersection. Therefore, the project impact on queue length and lane storage capacity at the intersection of SR 20 and SR 1 would be less than significant.

Evaluation of the proposed geometrics of the conceptual site plan show that the scalehouse for incoming vehicles at the project site is proposed to be approximately 350 feet from the proposed point of ingress. Assuming a standard passenger vehicle or pickup truck would be the typical type of vehicle to utilize the scalehouse, this distance provides room for approximately 14 vehicles in queue. Looking at the anticipated traffic volumes to be generated by the project site, the maximum traffic flow coming into the site would be expected to be 18 vehicles per hour. Using an assumed service rate of approximately two minutes per vehicle at the scalehouse, the average queue at the scalehouse during a peak hour would be approximately one vehicle. Based on probable arrival rates during the peak hour, it is not anticipated that any maximum queue lengths will surpass the amount of distance provided with the proposed site entrance geometrics. The impact would be less than significant.

Table 3.12-7 Summary of Existing plus Project Peak Hour Intersection Queue Analysis

| Movement | Lanes / Avail. Storage | Queue Length - 50th / 95th (feet/feet) | | |
|---------------------|------------------------|--|------|--------|
| | | a.m. | p.m. | midday |
| SR 1 / SR 20 | | | | |
| WBR | 1 / 120 ft | 0 | 0 | 0 |
| NBT | 1/ 170 ft | 60 | 95 | 83 |
| NBR | 1 / 120 ft | 0 | 0 | 0 |
| SBL | 2 / 320 ft | 27 | 50 | 36 |

Notes: Queue shown is maximum after two cycles.

Mitigation Measure TR-1: Traffic Control Plan.

The County and City shall require the construction contractor to prepare and implement an approved traffic control plan for the proposed construction activities. The plan shall conform to applicable provisions of the State's Manual of Traffic Controls for Construction and Maintenance Work Areas, shall include measures that address work that would occur within the Caltrans right-of-way, and shall include, but not necessarily be limited to, the following measures as applicable to site-specific conditions:

- Flaggers and signage shall be used to guide vehicles through and/or around the construction zone.
- Lane closures shall be limited during peak hours to the extent feasible. In addition, outside of allowed working hours, or when work is not in progress, roadways shall be restored to normal operations, where feasible, with all trenches covered with steel plates.
- Signs shall be provided to advise bicyclists and pedestrians of temporary detours around construction zones.
- Access to the CalFire helipad shall be maintained during construction by using steel trench plates. If access must be restricted for brief periods (more than one hour), CalFire shall be notified in advance of such closures.
- The contractor(s) shall be required to have ready at all times the means necessary to accommodate access by emergency vehicles, such as plating over excavations, short detours, and/or alternate routes.

Level of Significance: Less than significant with mitigation.

Mitigation Measure TR-1 would require the County and City and their contractor to implement a traffic control plan to reduce potential impacts on traffic flows and safety hazards during construction activities. With implementation of this mitigation measure, the potential impact of increased traffic safety hazards for during construction of the project would be reduced to a less-than-significant level.

Impact TR-2: Substantially Increase Hazards Due to Design Feature or Incompatible Use.

Evaluation criterion TR-2 is intended to address siting and design impacts and, therefore, does not apply to temporary construction impacts. Therefore, this significance criterion is not applicable to project construction activities and is only evaluated as it relates to long-term operational impacts.

The project would include improvements to SR 20, including acceleration and deceleration lanes in accordance with preliminary discussions with Caltrans and the Caltrans Highway Design Manual. As described in Section 2, Project Description, and illustrated on Figure 2-2, a portion of SR-20 would be widened from the roadway centerline north to accommodate the lanes, as well as for the new eastbound and westbound turn pockets at the project access point. SR-20 is anticipated to be widened by approximately 12 to 15 feet over an approximately 1,300 foot reach of SR-20.

SR 20 is currently traversed by similarly sized haul trucks as would occur under the proposed project, and the new improvements would provide an adequate line of sight. Because the project would not introduce vehicles that are incompatible with current or anticipated roadways, and because the improvements to SR 20 would be designed and constructed in accordance with Caltrans oversight, the potential safety hazards associated with project-operation would be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

Impact TR-3: Result in Inadequate Emergency Access.

Construction of the acceleration and deceleration lanes adjacent to SR 20 may require a temporary partial lane closure along SR 20 adjacent to the project site. Such closures are anticipated to be of short duration, and access through the construction area would be maintained at all times to allow traffic flow in both directions, including emergency vehicles. Therefore, a temporary lane closure along SR 20 would not substantially block or delay emergency access through the area, and the potential impact of construction activities on emergency access would be less than significant.

Following construction, the entrance to the project site and the internal roadways would provide adequate emergency access. The LOS analyses performed for the project determined that the maximum increase in average control delay would be less than one second. Therefore, emergency vehicles would be able to move along local roadway corridors and intersections with essentially the same ability as under existing conditions. No entrances or exits of nearby emergency facilities would be blocked or impeded by the proposed roadway improvements and project-generated traffic. Therefore, the long-term impact on emergency access would be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

Impact TR-4: Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities.

MTA Bus Route 65 is the only public transit bus route that currently traverses SR 20 in the project area. Because no bus stops for Route 65 are located within the project construction area, and because SR 20 would remain open to vehicle travel during construction, the construction-related impact on the performance or safety of Route 65 would be less than significant.

Following construction, SR 20 in the project area would include acceleration / deceleration lanes for vehicles entering and exiting the project site. These improvements would not interrupt Bus Route 65, and given that the maximum peak hour increase in average control delay as a result of the project would be less than one second, travel times for Route 65 would not be affected. The project impact on public transit would be less than significant.

No bicycle routes or pedestrian facilities are currently located within the project area along SR 20. Therefore, construction activities would not impact the performance or safety of bicycle or pedestrian facilities. No impact would occur.

Following construction, the project would not prevent the establishment of a future Class III bicycle route along SR 20 as envisioned in the Mendocino County Regional Bikeway Plan. Class III bicycle routes do not require substantial space restrictions. Striping and signage in accordance with the design speed of SR 20 would be required to indicate that vehicles and bicycles are adjacent to and/or within the road. The project's improvements to SR 20 would not preclude the Class III bicycle improvements from being implemented as adequate space would be available. No operational impact to bicycle facilities would occur.

Mitigation Measures: No mitigation is necessary.

Level of Significance: No impact.

3.12.6 Cumulative Impacts

Impact TR-C-1: Result in Cumulatively Considerable Contribution to Cumulative Impacts Related to Transportation.

Construction

As noted in Impact TR-1 above, LOS standards are intended to regulate long-term impacts from operation of future projects as opposed to temporary impacts from construction. Therefore, a qualitative analysis, rather than a quantitative analysis, of potential construction related cumulative impacts on motor vehicle traffic is provided here.

The cumulative projects identified in Chapter 3 of this EIR would occur in the City of Fort Bragg and the City of Willits. Based on the location of the cumulative projects, the distribution of construction traffic is anticipated to primarily include SR 1. The intersection of SR 1 at SR 20, which would likely be used by construction traffic from both the project and cumulative projects, currently operates acceptably at LOS B during peak periods. Cumulative construction traffic would be temporary, would vary on a daily basis, and would be spread out over the course of a work day. Only a portion of the cumulative construction-related vehicles expected on any one day would occur during a peak hour period, and therefore, even with the addition of temporary cumulative construction-related vehicles, the temporary contribution of construction traffic is not anticipated to cause local intersection LOS to deteriorate below adopted standards. Therefore, cumulative traffic impacts during construction would be less than significant.

Operation

Roadway Level of Service

To evaluate the cumulative effect of the project on local roadways, the same methodology was applied as was utilized for the project-specific analysis reported in Impact TR-1. The potential cumulative impacts of future development to the study area were evaluated consistent with Caltrans requirements, which uses a 20-year forecast to represent cumulative conditions. The 20-year forecast conditions were estimated using Caltrans 20-year growth factors, which included applying a 20-year growth factor of 1.05 to the existing turning movement volumes for SR 20 and a factor of 1.15 to the existing turning movement volumes for SR 1.

Cumulative without Project

The LOS calculations for the intersection of SR 20 at SR 1 under cumulative conditions without the project is summarized in Table 3.12-8, which shows that the intersection would operate at LOS B during peak periods. Because there is no existing intersection along SR 20 at the proposed project site, no cumulative LOS for this intersection is computable.

Table 3.12-8 Summary of Cumulative Peak Hour Intersection Level of Service Calculations

| Intersection | | Cumulative Condition | | |
|--------------|---------------------------|----------------------|-----------------|---------------------|
| | | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak |
| | | Delay/LOS | Delay/LOS | Delay/LOS |
| 1. | SR 20 / SR 1 ¹ | 10.6/B | 18.9/B | 14.2/B |

Notes: *Italics* = results for minor movements at unsignalized intersections
 * = Intersection in downtown, no LOS threshold
 Results are indicated in Delay (average seconds per vehicle)/LOS
¹LOS based on HCM2010 method of analysis for Signalized intersections.

Cumulative with Project

With the addition of project-related traffic volumes to the projected cumulative traffic volumes, all of the movements within the study intersections are expected to operate at acceptable LOS with respect to significance thresholds. The intersection of SR 20 at SR 1 goes from LOS B in the cumulative condition to LOS C in the weekday PM peak hour.

The LOS calculations for the study intersections under cumulative conditions with the project are summarized in Table 3.12-9. Under the cumulative plus project scenario, the addition of project-related traffic volumes would lower the LOS at the intersection of SR 20 at SR 1 from LOS B to LOS C in the weekday PM peak hour. This LOS would not exceed the Caltrans LOS C threshold. Under the cumulative plus project scenario, the LOS at the proposed new intersection of SR 20 at the project site would operate acceptably at LOS A and LOS B. Because the study intersections are expected to continue operating at acceptable LOS under cumulative conditions, the cumulative impact would be less than significant.

Table 3.12-9 Summary of Peak Hour Intersection Level of Service Calculations - Cumulative plus Project

| Intersection | | Cumulative plus Project | | |
|--------------|-------------------------------------|-------------------------|-----------------|---------------------|
| | | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak |
| | | Delay/LOS | Delay/LOS | Delay/LOS |
| 1. | SR- 20 / SR 1 ¹ | 10.9/B | 20.0/C | 14.7/B |
| 2. | SR 20 / Project Access ² | | | |
| | <i>Eastbound Left Turn</i> | <i>0.8/A</i> | <i>0.5/A</i> | <i>0.6/A</i> |
| | <i>Southbound Approach</i> | <i>9.6/A</i> | <i>10.2/B</i> | <i>9.6/A</i> |

Notes: *Italics* = results for minor movements at unsignalized intersections
 * = Intersection in downtown, no LOS threshold
 Results are indicated in Delay (average seconds per vehicle)/LOS
¹LOS based on HCM2010 method of analysis for Signalized intersections.
²LOS based on HCM2010 method of analysis for TWSC intersections.

Queue Length

Queue lengths for the intersection of SR 20 at SR 1 under cumulative conditions with the project are summarized in Table 3.12-10. The anticipated peak hour 50th percentile queue lengths are within the existing storage lane capacities of the intersection. Therefore, the cumulative impact on queue length and lane storage capacity at the intersection of SR 20 and SR 1 would be less than significant.

Table 3.12-10 Summary of Cumulative plus Project Peak Hour Intersection Queue Analysis

| Movement | Lanes / Available Storage | Queue Length - 50th (feet) | | |
|-----------------------|---------------------------|----------------------------|------|--------|
| | | a.m. | p.m. | midday |
| SR 1 / SR 20 | | | | |
| Westbound Right Turn | 1 / 120 ft | 0 | 6 | 0 |
| Northbound Through | 1 / 170 ft | 72 | 116 | 102 |
| Northbound Right Turn | 1 / 120 ft | 0 | 0 | 0 |
| Southbound Left Turn | 2 / 320 ft | 32 | 80 | 46 |

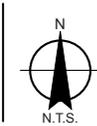
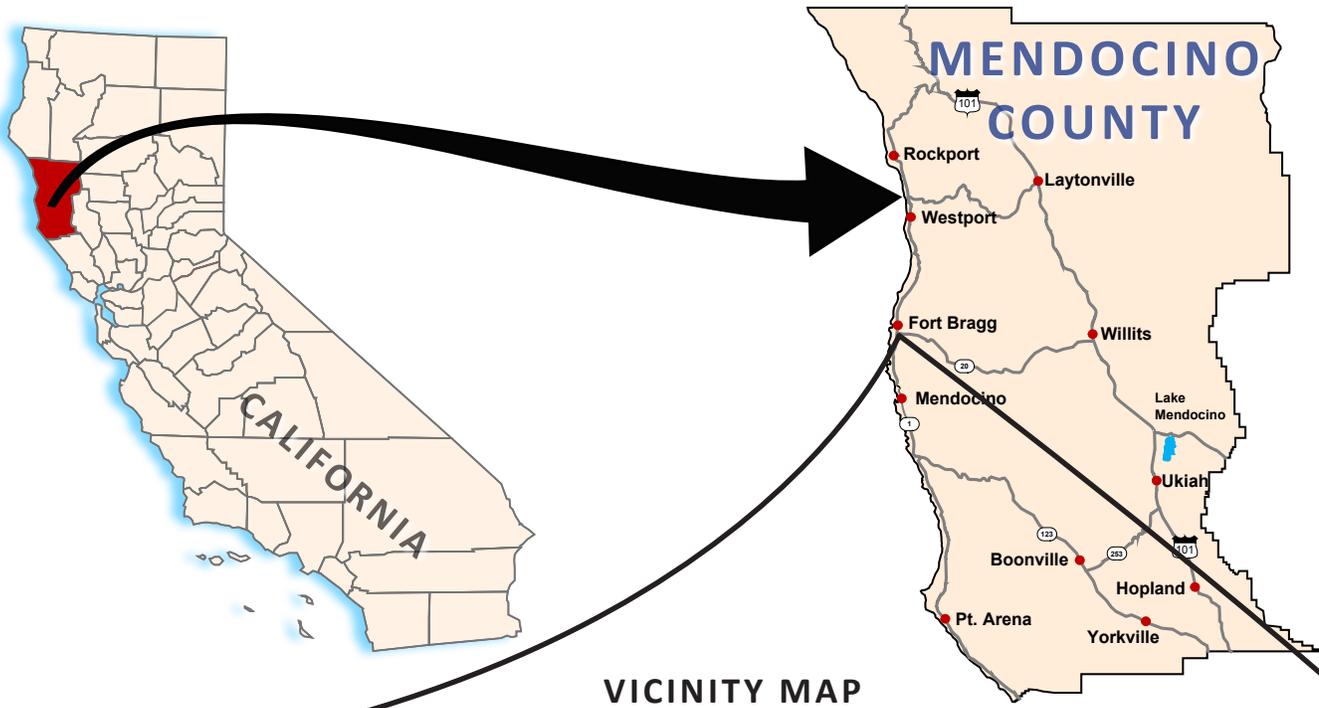
Notes: Queue shown is maximum after two cycles
Bold = results where available storage is exceeded by more than one standard vehicle, 25 ft.

Public Transit, Bicycles, and Pedestrian Facilities

As described in Impact TR-4, the project would not result in a conflict with applicable goals and policies regarding public transit, bicycle or pedestrian facilities. Therefore, the project would not contribute to any conflict with the applicable policies and plans in the cumulative condition.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.



Mendocino Solid Waste Management Authority
Central Coast Transfer Station EIR

Job Number | 8411065
Revision |
Date | Aug 2014

Roadway and Intersection Locations **Figure 3.12-1**

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4.0 Alternatives Description and Analysis

4.1 Introduction

This chapter presents the alternatives analysis for the project. Section 15126.6(a) of the CEQA Guidelines requires EIRs to “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.” Section 15126.6(b) of the CEQA Guidelines also identifies the purpose of an EIR’s discussion and analysis of project alternatives which is to identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The CEQA Guidelines further require that the alternatives be compared to the proposed project’s environmental impacts and that the “no project” alternative be considered (Section 15126.6[d][e]). CEQA Guidelines Section 15126.6(e)(1) states that the purpose of describing and analyzing the no project alternative is “to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.” The no project analysis is required to “discuss the existing conditions at the time the notice of preparation is published...as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services (Section 15126.6[e][2]). If the project is a “development project on identifiable property, the “no project” alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved. In certain instances, the no project alternative means “no build” wherein the existing environmental setting is maintained. This would be the case for the Central Coast Transfer Station project. The “no project” alternative would entail continuing existing self-haul operations at the Caspar Facility and continuing use of the Willits Transfer Station as the coast’s commercial long-haul transfer station.

4.1.1 Identifying Project Alternatives

The County of Mendocino and City of Fort Bragg began their search for a potential transfer station site in 2007. Consultants surveyed dozens of potential locations throughout the greater Fort Bragg area. From 2009 to 2011, City and County staff studied five potential locations. In 2011, the City and County named two of these sites as finalists for more intensive investigation, and on August 13, 2013, designated 30075 Fort Bragg-Willits Road (SR 20) as the preferred project site. The alternatives analyzed in this chapter in addition to the proposed project include the No Project Alternative and the Caspar Site Alternative. The environmentally superior alternative is described in

Section 4.3, and alternatives which were considered but are not being carried further in this Draft EIR are described in Section 4.4 below.

4.2 Description of Alternatives

4.2.1 Alternative 1: No Project Alternative

Under the No Project Alternative solid waste in the coastal watershed would continue to be handled in the same manner as under existing conditions. Waste would be hauled to the Willits Transfer Station and self-haul would continue to occur at the Caspar facility. No new development would occur at the SR 20 site. Existing haul routes would remain the same and there would be no modification to any of the existing facilities including those at the Caspar, Pudding Creek, or Albion sites.

The SR 20 site is currently undeveloped and consists of various forest land and vegetation. Under the No Project Alternative the SR 20 site would remain as part of the JDSF. In the short- and long-term no changes are expected to the project site. Therefore, the project site would remain in its undeveloped, forested, and vegetated state.

Under the No Project Alternative the hauling inefficiency would remain the same as under existing conditions. The No Project Alternative includes no changes or improvements to the existing facilities and therefore would not increase criteria air pollutants, energy use, GHG emissions, noise, or traffic relative to existing conditions; however, the efficiencies that would be gained with the project would not occur. In fact, in the context of GHG, the project would cause a net reduction of emissions and therefore results in a beneficial impact. Impacts of the No Project Alternative on GHG emissions, as well as energy, would be greater than with the project.

Under the No Project Alternative there would be no vegetation removal, ground disturbance or construction, and therefore there would be no impact on aesthetics, forest resources, biological resources, cultural resources, geology, hazards, or land use.

4.2.2 Alternative 2: Caspar Site

The Caspar site is located at 14000 Prairie Way in Caspar (Figure 2-3). The 62-acre Caspar site was used for a landfill from 1967 to 1992 and for a self-haul transfer station from 1992 until the present. It is jointly owned by the County and City. The surrounding area is rural residential. The nearest residence is 950 feet from the transfer station area and there are three residences within 1,000 feet. Russian Gulch State Park borders the facility to the south.

The Caspar site was originally forest land but much of the original vegetation was stripped many years ago and there is now a large cleared area used for the existing self-haul facility. Little or no vegetation removal would be required if the proposed project was sited at the Caspar site.

A proposal from the County Solid Waste Division in 2006 for a new 2,500 square-foot self-haul building included schematics that showed how new construction could fit into the existing developed area. A commercial transfer station would require a larger footprint but it could be placed at the same spot, toward the southern end of the existing facilities. Electrical service, road access, and water wells are already established at the Caspar site, and on-site wastewater disposal could be developed to replace the existing portable toilets.

Aesthetics

The visual resource impacts of this alternative would be greater than the proposed project because the existing Caspar site has less vegetation to shield views of a new facility from a greater number of residences and recreational users. Even though this alternative would include development of a transfer station facility at an existing solid waste facility, there would be greater viewsheds impacted at the Caspar site compared to the proposed project site.

Agriculture and Forest Resources

There would be no impact to agricultural resources or conflict with a Williamson Act or agricultural zoning with Alternative 2. There would also be no forest land impacts with Alternative 2 because this alternative is already developed as a solid waste facility and would not require the removal of forest land to expand the facility.

Air Quality

The air quality impacts, for both air pollutants and air contaminants, associated with construction activities at the Caspar site would generally be similar to the proposed project, assuming development of a similar transfer station. The operational air quality impacts with this alternative would be approximately the same as the proposed project if the transfer station is constructed at the Caspar site because operation would be similar to the proposed project. However, the air pollutant emissions from transfer trailers, franchise hauler's collection trucks and self-haul vehicles would be higher with this alternative than the proposed project because the Caspar site is approximately seven miles south of the approximate center of waste generation, which is considered to be the intersection of SR 1 at SR 20. Overall, this alternative would have greater air quality impacts than the proposed project.

Biological Resources

Implementation of this alternative would eliminate the biological resources impacts anticipated with implementation of the proposed project because this site is already developed and used as a transfer station. A commercial transfer station at the Caspar site could be placed within the boundaries of the existing facility, toward the southern end of the site. Because the Caspar site is already developed, the biological resources impacts associated with this alternative would be less than with the proposed project as no impacts would occur at the SR 20 site.

Cultural Resources

The potential impacts on cultural resources anticipated with this alternative are expected to be less than with the proposed project because the Caspar site is already developed including paved and graded areas. However, as with the proposed project, construction of the project at the Caspar site could unearth unknown cultural resources which would be a significant impact. The same mitigation measures for the proposed project (Mitigation Measures CR-1, CR-2, and CR-3) would also be applicable to this alternative.

Geology and Soils

The Caspar site is located in a similar geologic area, and with similar soils, as the proposed project site. Also, the Caspar site is relatively flat and has been partially developed. Therefore, the development of the Caspar site for transfer station operations would be expected to result in the same seismic and erosion hazards that would be anticipated with development of the project site.

Greenhouse Gas Emissions

Operationally, this alternative would have similar emissions as the proposed project because they would both be similarly sized. Overall, this alternative would generate higher emissions than the proposed project because the Caspar site is approximately seven miles south of the approximate center of waste generation (SR 1 at SR 20), which means collection trucks (and self-haul vehicles) would need to make an average round trip of approximately 14 miles to the Caspar site to empty each load. Since the outbound transfer trucks will exit the region via SR 20, they would similarly have to drive these additional miles.

Hazards and Hazardous Materials

The Caspar site would include the same uses on a similarly sized site as the proposed project. Therefore, the Caspar site would generally have the same hazard impacts as the proposed project.

Hydrology and Water Quality

Similar to the project site, the Caspar site is relatively flat and would not experience excessive erosion with additional site development. The Caspar site would direct stormwater runoff to the existing facilities currently used by the existing transfer station. Also, the Caspar site is already partially developed with impervious surfaces. Therefore, it would not be expected to substantially increase the peak runoff during storm events. As with the project site, the hydrology and water quality impacts associated with this site would be considered less than significant following implementation of appropriate hydrology and water quality mitigation measures. The hydrology impacts associated with this alternative are anticipated to be less than with the proposed project.

Land Use and Planning

The Caspar site would require an amendment to its Major Use Permit for the new facility. However, since the site is already used for solid waste transfer activities, the issues involved with the amendment would be limited. Therefore, the land use impacts of this alternative would be less than the proposed project if a new transfer building was fully enclosed.

Noise

Similar to the proposed project, development of this alternative would generate construction noise associated with the use of heavy equipment for demolition, site grading and excavation, installation of utilities, paving, and building fabrication. The noise impact of a facility at Caspar would depend on whether the transfer building was fully enclosed. If it was not, noise impacts could be greater than the proposed project. However, the Caspar site has fewer residential homes within the project vicinity compared to the proposed project.

Transportation

Transportation impacts associated with this alternative would be greater than with the proposed project. The disadvantages of the Caspar site arise from its location. Access goes through the intersection of Highway 1 with County Road 409. Caltrans has stated that this intersection is substandard for large, slow truck traffic and has limited potential for improvements because of the presence of the Highway 1 bridge over Caspar Creek just to the north. Caltrans has indicated that the left turn pocket off Highway 1 is 300 feet and the standard size would need to be 435 feet.

The Caspar site's geographic location is relatively inefficient for purposes of a transfer station. Caspar was originally purchased by the City and County for use as a landfill, so a remote location was desirable. A transfer station, conversely, is most efficient when it is close to the center of waste generation and to the route of outhaul. The Caspar site is approximately seven miles south of the

approximate center of waste generation (Highway 1 at SR 20), which means collection trucks would need to make an average round trip of approximately 14 miles to the Caspar site to empty each load. Since the outbound transfer trucks will exit the region via SR 20, they would similarly have to drive these additional miles. Compared to the proposed project site on SR 20, the Caspar location would result in approximately 25,000 additional miles of truck travel per year.

4.3 Environmentally Superior Alternative

As summarized in Table 1-1, in Chapter 1, the project would have impacts to air quality, odors, biological resources, cultural resources, geology and soils, hydrology, and transportation. All of which have been mitigated to less than significant. Based on the analysis above, the No Project Alternative has greater impacts than the project under two resource categories (GHG emissions and energy) and fewer impacts under all other categories. While Alternative 2: Caspar Site has greater impacts than the project under five resource categories (aesthetics, air quality, GHG emissions, energy, and traffic) with all other resource impacts being the same (odor, cultural, geology, and hazards) or less (biological resources, hydrology, and land use). Selection of the environmentally superior alternative could depend on what weight is given to the various environmental impacts. This can be a subjective judgment. If it is assumed that all categories of environmental impact have equal weight, then the environmentally superior alternative, based on the analysis above, is the No Project Alternative because it has the fewest number of impacts to environmental resources. According to CEQA Guidelines Section 15126.6(e), if the No Project Alternative is determined to be the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. Among the other alternatives, the environmentally superior alternative is the proposed project as mitigated, given it would achieve greater reductions in various environmental resource categories including aesthetics, air quality, energy consumption, greenhouse gas emissions, and transportation. Although it has greater impacts to biological resources than Alternative 2, the impacts have been fully mitigated and are outweighed by the beneficial impact to GHG emissions and energy consumption.

4.4 Alternatives Considered but not Carried Forward in this EIR

4.4.1 Georgia-Pacific Woodwaste Landfill, Georgia-Pacific Haul Road, Fort Bragg

Approximately 20 acres of the 80-acre Georgia-Pacific woodwaste landfill property could be the site of a transfer station; however, the owner is not willing to sell. Its remote location would have the advantage of isolation from other land uses, but the least expensive access route would be Summers Lane, which is a narrow residential road. In addition to improvements to Summers Lane, Summers Lane would need to be extended 3,000 feet to reach the woodwaste landfill property. A 2007 estimate of these road improvement costs was estimated at \$2 million. There is no electric service currently to this site. This potential site is comprised entirely of pygmy forest. Together with the new road construction and installation of utilities, this site would require removal of more forest land than other sites, the owner is continuing to address SWRCB clean-up requirements, and the owner is not a willing seller.

4.4.2 Empire Waste Management, 219 Pudding Creek Road, Fort Bragg

Empire Waste Management, the franchised solid waste collector for the City and County, owns 9.24 acres which accommodates a recycling buy-back center, truck garage, and truck depot. There is space on the northern edge of this property where a transfer station building could be built. Empire

Waste Management is willing to build such a facility, but only under its own ownership and operation, therefore, one of the primary project objectives of public ownership could not be met.

This site would have the advantages of pre-existing uses for recycling and heavy truck operation, together with existing utilities, paved access, and other services. The disadvantages of this site arise from its location on the north side of the City of Fort Bragg, approximately 2.6 miles beyond the City center on Main Street. Access for transfer station traffic would be through the City's congested Main Street (SR 1), which reduces from four to two lanes at Laurel Street, creating a "choke point" with substantial backups during peak periods and seasons. The City does not want to increase truck traffic at this location. Furthermore, development of a transfer station at this location would likely require installation of a traffic signal at the intersection of SR 1 and Pudding Creek Road.

A transfer station at this site would be very close to the 63-unit Ocean Lake Subdivision which borders Empire Waste Management's property to the north, therefore, it would be less successful in meeting one of the project objectives of isolation from other land uses.

4.4.3 California Western (Skunk Train) Railroad

Solid waste transfer via railroad, instead of highway, was suggested by some people who commented on the scope of this EIR. If it were feasible, rail haul would alter the design of the project, but it would not eliminate the need for a transfer station facility where both the franchised collector's trucks and self-haul vehicles could dump waste.

Rail haul requires extra steps in loading and unloading compared to truck haul and is only used in the solid waste industry for very long hauls, typically several hundred miles or more. The California Western Railroad connects Fort Bragg to Willits but there is no rail service beyond Willits. Therefore, the use of rail haul for this project would require unloading and reloading at the Willits Transfer Station (which is close to the California Western Railroad tracks). This would be inconsistent with one of the project objectives which is to make it possible for Central Coast solid waste to be hauled directly to a destination landfill.

Rail haul on the California Western Railroad route would be subject to occasional interruption due to landslides, washouts, and tunnel collapse. Therefore, a truck haul backup would need to be constantly available, either by maintaining specialized flatbed semi-trailers that can accommodate the rail containers, or by using conventional truck transfer trailers. Either approach would impose additional costs.

Rail haul wouldn't avoid the need for a transfer station facility similar in size to the proposed project, therefore, the siting challenge would be altered, but not eliminated. Presumably the new site would be adjacent or very near to the California Western Railroad depot at the west end of Laurel Street. Due to frequent traffic congestion, the City of Fort Bragg has opposed siting a transfer station anywhere north of the point where Main Street reduces down to two lanes. Also, land near the California Western Railroad depot is valuable and privately owned, meaning that acquisition would be costly and possibly require condemnation. The vicinity of the California Western Railroad depot includes extensive residential, commercial, tourist, and historic sites.

4.4.4 Leisure Time RV Park, 30801 SR 20, Fort Bragg

This property is a 24.3 acre parcel on the south side of SR 20 currently used as a trailer park. The owner has offered to sell the property for \$1.2 million; however, this would significantly increase the capital expense of development of a transfer station. The property has 700 feet of frontage on SR

20, with good sight distance in both directions. No major streams or waterways are located on the property and approximately 12 acres are flat and useable. A seven-acre portion of the property is already cleared of forest. Private sewer and water systems are in place.

This site would have some of the same advantages as the proposed project site, which is approximately 0.7 mile farther east on SR 20. The proposed project site and this site both lie along the exit route for solid waste transfer on SR 20. This site would require removal of little or no forest since a substantial area is already cleared. However, it is close to many residences to the northwest, west, and east. The closest residential building is approximately 20 feet from the western boundary. There are approximately 24 residential parcels within 1,000 feet of the western boundary and 12 parcels within 1,000 feet of the eastern boundary. Therefore it would be less successful in meeting one of the project objectives of isolation from other land uses.

4.4.5 Mendocino Parks & Recreation District Property, 30812 SR 20, Fort Bragg

These 173.5 acres are presently undeveloped land, mostly forested. As of October, 2014, the property is owned by the Mendocino Parks & Recreation District which is in bankruptcy and owes approximately \$2.3 million on the property. The property is listed for sale. Acquisition cost would significantly increase the capital expense of transfer station development. Furthermore, the City of Fort Bragg attempted to purchase the property at fair market value as established by an appraisal in early 2014 and its purchase offer was rejected, thus it is not certain that the property could be sold to a public entity (public entities are prohibited by law from paying more than fair market value for property).

No major streams or waterways are located on the property. It is flat to gently sloping and mostly forested with Pygmy species. It contains some wetlands. The property is the headwaters of the Sholars Bog.

Approximately seven acres were cleared of vegetation for use as a stockpile area, and would therefore be the most appropriate as part of the property for transfer station development. This cleared area is located in the southwestern corner of the property, close to the intersection of SR 20 with Summers Lane. An access driveway connects to SR 20, with good sight distance in both directions.

This site would have some of the same advantages of the preferred site, which is about 0.7 mile farther east on SR 20. Both lie along the exit route for solid waste transfer. This site would require removal of little to no forest since a substantial area is already cleared. However, it is closer to a much greater number of residences to the northwest, west, and south. The closest neighbor's building is 20 feet from the northern boundary of the site. There are approximately 35 residential parcels within 1,000 feet of the western and northern borders. Therefore, it would be less successful in meeting the project objective of isolation from other land uses.

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5.0 Other CEQA-Required Sections

5.1 Significant Unavoidable Effects

Detailed mitigation measures proposed by the County and City have been identified throughout Chapter 3 of this report and are intended to mitigate project effects to the extent feasible. All of these mitigation measures are identified in Table 1-1. After implementation of the proposed mitigation measures, there are no significant unavoidable impacts.

5.2 Growth-Inducing Impacts of the Project

CEQA Guidelines Section 15126.2(d) requires an EIR to discuss the growth-inducing impact(s) of a proposed project. Specifically, CEQA Guidelines state that the EIR shall “discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.”

Projects can have direct and/or indirect growth inducement potential. An example of direct growth inducement would be the construction of new housing. Examples of indirect growth inducement include establishing substantial new permanent employment opportunities and removing obstacles to population growth (e.g. the expansion or improvement of utilities which allows for more growth within a service area).

Growth inducement itself is not an environmental effect but may lead to an environmental effect(s). Environmental effects may include increased demand on other public services and infrastructure, increased noise and traffic, degradation or loss of plant or animal habitats, degradation of air and water quality, or conversion of open space land to urban development.

The proposed Central Coast Transfer Station facility would accommodate 58% more waste than is currently handled for the Mendocino County Solid Waste Refuse Collection Area #2. The increased capacity is not considered growth inducing because there are currently no limitations on growth in the Mendocino County Solid Waste Refuse Collection Area #2 with regard to waste disposal. The facility would be designed to accommodate growth established by local general plans, and future technology that would allow waste to be processed in a more efficient manner.

The proposed project would generate new employment within the County, which could contribute to the demand for housing. The proposed project is expected to generate a net employment increase of three full-time equivalent (FTE) employees (loss of two FTE at Caspar self-haul facility and addition of five FTE at new Central Coast Transfer Station). However, due to the project's location along a primary transportation corridor within Mendocino County, employees would be drawn from throughout the region. Employees would logically be anticipated to reside in Fort Bragg primarily and in the greater region secondarily. Fort Bragg has a variety of housing options and had a 10.4 percent vacancy rate as of 2010 (U.S. Census Bureau 2010). The expected dispersal of employees

across the region would minimize the effects of increased housing demands within the City of Fort Bragg and Mendocino County. For these reasons, the proposed project would not be expected to generate a substantial demand for new housing, nor be growth-inducing.

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Appendices

Appendix A
Notice of Preparation and
Letters in Response to NOP

Notice of Preparation

January 27, 2014

To: State Clearinghouse
Responsible Agencies
Trustee Agencies

Subject: Notice of Preparation of an Environmental Impact Report

Project name: Central Coast Transfer Station

Lead Agency:

County of Mendocino & City of Fort Bragg, acting together through their Caspar Landfill Joint Powers Agreement [CEQA Guidelines Section 15051(d)]
c/o Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482
Contact: Mike Sweeney, General Manager
Phone: (707) 468-9710

The lead agency will prepare an Environmental Impact Report (EIR) for the project identified below. We need to know the views of your agency as to the scope and content of environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR prepared by our agency when considering any permit or other approvals for the project.

The project description, location, and potential environmental impacts are described in the attachment.

Due to the time limits imposed by State Law, your response must be sent at the earliest possible date but *not later than 30 days* after receipt of this Notice of Preparation.

A scoping meeting will be held on February 19, 2014, at 2 p.m. at Town Hall, 363 N. Main Street, Fort Bragg, California.

Please send your response to Mike Sweeney, General Manager, Mendocino Solid Waste Management Authority, 3200 Taylor Drive, Ukiah CA 95482, sweeney@pacific.net. Please include the name of a contact person at your agency.

Mike Sweeney
General Manager, Mendocino Solid Waste Management Authority

Attachment to

Notice of Preparation

Central Coast Transfer Station Environmental Impact Report

1. Project Description & Location

The project is the construction and operation of a municipal solid waste transfer station serving the incorporated City of Fort Bragg and the surrounding unincorporated coastal area of Mendocino County extending from the town of Westport to the Navarro River. The proposed transfer station location is a 17-acre portion of Jackson Demonstration State Forest, adjacent to State Highway 20, at 30075 Highway 20, Fort Bragg, California, and is 3.0 miles east of the intersection of State Highway 1 and State Highway 20.

The site is a portion of Mendocino County Assessor's Parcel Number 019-150-5 and is undeveloped forest land. While it is just within the northern edge of Jackson Demonstration State Forest, the site has no recreational facilities or recreational access and no recent history of timber production. County of Mendocino zoning is Timber Production Zone. The site is outside the Coastal Zone.

The facility will include an enclosed waste transfer building, a scalehouse, an outdoor recycling drop-off area that may have roof coverage, paved driveways, perimeter fencing, a water well and other utility services. A conceptual site plan is attached, which shows the elements of the proposed facility; however, the facility is not at the final design stage.

The facility would serve both self-haul and commercial customers in a wasteshed consisting of the incorporated City of Fort Bragg and the surrounding unincorporated area in County Solid Waste Refuse Collection Area #2. In 2012, this wasteshed generated 11,060 tons of solid waste. The facility would replace the existing Caspar self-haul transfer station at 14000 Prairie Way, Caspar, which would be closed once the Central Coast Transfer Station is operational. The facility would receive not only the self-haul traffic, but also the compactor trucks and roll-off trucks of Empire Waste Management which is the franchised solid waste collector for both the city and county areas. The facility would eliminate the existing practices of hauling solid waste in suboptimal truck payloads to the Willits Transfer Station where it is reloaded for further transfer to Potrero Hills Landfill in Suisun, California. Instead, the facility would allow transfer trucks to be loaded to maximum highway weight for direct haul to Potrero Hills or some other regional landfill. The destination landfill would be determined by the contract with the private operator, and could be any of the large landfills currently available in Northern California, such as Potrero Hills, Redwood, Hay Road, Ostrum Road, or Anderson.

The haul route would be State Highway 20, with State Highway 1 as an emergency alternative.

The transfer station will operate five days per week for self-haul customers and the franchised hauler, and on a limited basis two additional days per week for the franchised hauler only. Based on the current wastestream, the solid waste throughput would average 35 tons per day. To accommodate future growth and technological changes, the facility would be designed to handle an average of 75 tons per day.

The only hazardous wastes that would be accepted at the facility would be household-generated recyclable items such as motor oil, oil filters, batteries, electronics and antifreeze. Drop-off collection events for other household hazardous waste (HHW) is provided monthly by the Mendocino Solid Waste Management Authority (MSWMA) at a different location in Fort Bragg.

The facility would occupy only a portion of the 17-acre property, approximately four acres. The remainder of the property would remain forestland with the minimum possible disturbance.

The site is bordered by forestland to the north, east and south (across State Highway 20), and by a helicopter landing pad to the west. There is one residence across State Highway 20 to the southeast, and rural resident development to the west beyond the helicopter landing pad. The closest residence to the projected transfer station building site is approximately 600 feet away to the west.

2. Project Maps

A regional map, an aerial closeup and a conceptual site plan are attached.

3. Probable Environmental Effects of the Project

A. Traffic

Access to the facility will be via State Highway 20, which is the principal road serving the Fort Bragg coastal area. Development of the project will result in the redirection of the current self-haul customer traffic from the Caspar Transfer Station to the new facility. Additional trips will be generated by the franchised hauler's collection trucks and outbound solid waste transfer trucks. While the volume of traffic generated by the project won't be substantial in relation to the capacity of State Highway 20 or its existing traffic volume, the turning movements into and out of the facility will require analysis in the EIR. Another issue will be sufficient queuing capacity. It is anticipated that changes will be made to the conceptual site plan prior to Draft EIR circulation to address this issue.

B. Biological Resources

The project site is relatively undisturbed mixed conifer forest. A biological resource assessment has been prepared which identified special-status plant and animal species and habitats. A wetland delineation was also prepared, which mapped wetlands on a small portion of the site. The project will require removal of vegetation on a portion of the site to allow construction of buildings, paved areas and driveways. The biological resources impacts, the significance of potential impacts, and potential mitigation measures need to be further analyzed.

C. Odor and Air Quality

The project will have the potential, unless there is effective mitigation, to generate odors from solid waste at the facility. The project will generate diesel truck and equipment emissions during construction and operation.

D. Greenhouse Gas Emissions and Energy Use

Operation and construction of the facility will cause the release of greenhouse gases primarily from vehicles. However, the purpose of the project is to reduce cost, energy use, and greenhouse gas emissions compared to the existing solid waste transfer system in use in the region. Therefore the net impact on Greenhouse Gas Emissions is expected to be reduced with project implementation.

E. Aesthetics

The facility will include a large metal building with sufficient height to allow dump truck operation. There will also be a paved outdoor recycling dropoff area and smaller buildings. Unless the undisturbed vegetation on-site provides a sufficient visual screen, or other visual mitigation is introduced, there is the potential for negative aesthetic impacts.

F. Noise

Construction of the project would result in noise generated by construction equipment. The facility will generate noise from its traffic and from equipment used for solid waste and recycling operations. Appropriate design of the facilities can mitigate noise impacts. Additionally, there is substantial existing ambient noise from traffic on State Highway 20.

G. Agriculture and Forest Resources

The project will remove the entire 17-acre site from future timber operations. However, the acquisition of the site will be accomplished through a land exchange that would result in Jackson Demonstration State Forest acquiring additional forest land, together with the State of California gaining control over 35 acres of City & County property that has similar characteristics to the project site. The net effect of these ownership changes would determine whether there are potentially significant environment impacts.

H. Cultural Resources

There is no evidence of prior development on the site. An anthropological survey will determine whether there are cultural resources on the project site which require avoidance or mitigation.

I. Geology/Soils/Seismicity

The geotechnical characteristics of the site must be suitable for the proposed development, considering both potential for fault rupture, ground shaking, landslides and any other consequences of geologic hazards.

J. Hazards & Hazardous Materials

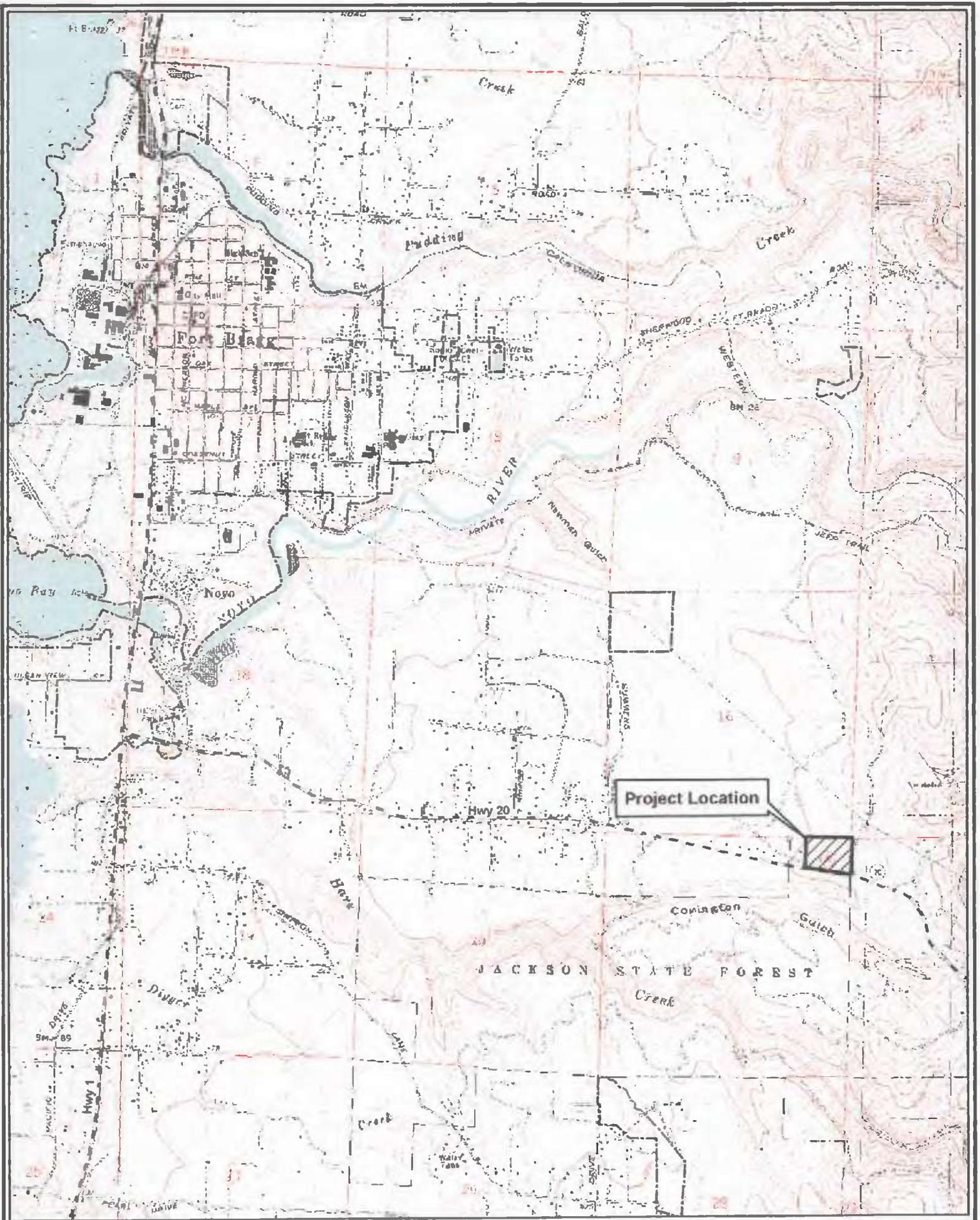
While the facility will not receive hazardous waste except for self-haul recyclable oil, oil filters, antifreeze, electronics and batteries, any municipal solid waste disposal site can create the potential for release of hazardous materials into the environment. The operation of a solid waste transfer station can create hazards that could affect the personal safety of employees and/or users.

K. Hydrology and Water Quality

Construction of the project would result in the potential for short-term impacts to surface water quality due to grading and other temporary surface disturbance. After construction, the project will affect stormwater due to covering of native soils in some areas with impervious roofs and pavement. The facility will draw its water supply from an on-site well. Wastewater generated during operation may be disposed of in an on-site disposal system.

L. Land Use and Planning

The site lies outside the Coastal Zone and within the unincorporated territory of the County of Mendocino. The County's zoning is Timber Production Zone and General Plan Land Use is Timber Preserve. "Major Impact Services and Utilities" are allowed in this zoning under a major use permit. Issuance of this permit by the Mendocino County Board of Supervisors would be an integral part of the project.



Project Location

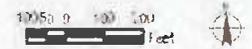
 Project Site

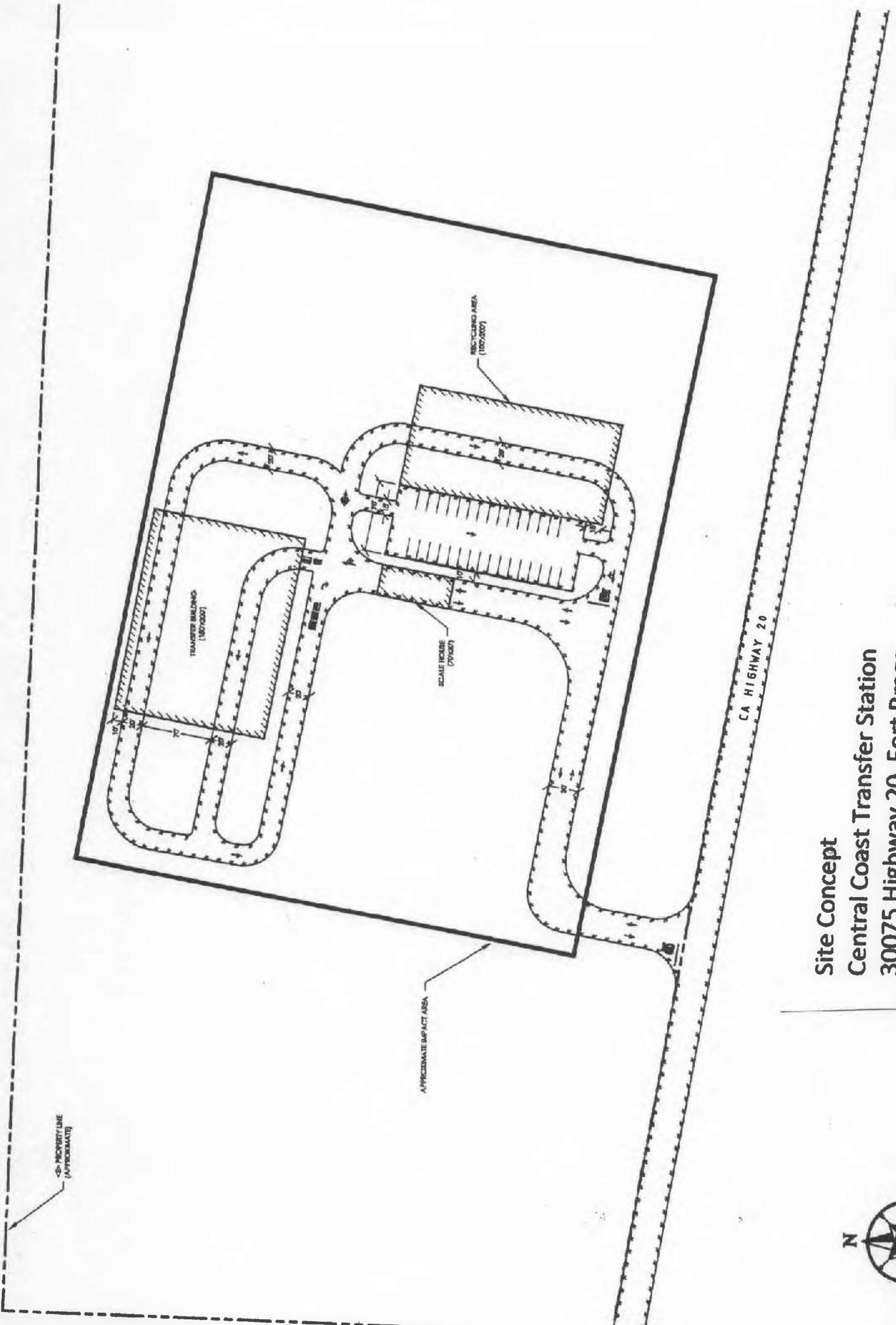




Highway 20 North Transfer Station Site
30075 Highway 20, Fort Bragg

- Proposed Transfer Station Site
- Parcels
- Highways
- Roads
- Streams





Site Concept
Central Coast Transfer Station
30075 Highway 20, Fort Bragg



ELAINE TAVELLI
Post Office Box 1791
Fort Bragg, CA 95437

February 7, 2014

Mendocino Solid Waste Authority
3200 Taylor Drive
Ukiah, CA 95482

RE: EIR Report Scoping Meeting February 19, 2014

Dear Sir:

I am unable to attend the Noticed meeting, but would like to see the issues below studied in the EIR.

1. Illumination of the proposed site, referred to in the Mendocino County General Plan as dark sky policy.
2. Water and conservation effects of the proposed development, with attention paid to the use of Low Impact Policy (LIP) in development techniques.
3. Damage to water quality due to decreased water infiltration, changes in run-off patterns, and decreased population of native plants.
4. Protection of the pygmy forest and its unique scenic value.
5. Protection of Timberland Protection zone.
6. Guidelines for commercial signage and off-premises signs.
7. Elimination of visual blight along State Route 20 east of Fort Bragg.

The above provisions of the Mendocino County Plan are meant to maintain the rural quality of life desired by resident and visitors. Please add to the scoping intent and public comment.

Sincerely,

A handwritten signature in cursive script that reads "Elaine Tavelli". The ink is dark and the signature is centered below the word "Sincerely,".

Elaine Tavelli

cc: City Council Members, Fort Bragg
Board of Supervisors, Mendocino County

DEPARTMENT OF TRANSPORTATION

DISTRICT I, P. O. BOX 3700
EUREKA, CA 95502-3700
PHONE (707) 441-4540
FAX (707) 441-5869
TTY 711



*Flex your power!
Be energy efficient!*

February 12, 2014

Mike Sweeney
General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

1-MEN-20-2.90
Fort Bragg Transfer Station
DB # 19060

Dear Mr. Sweeney,

Thank you for the opportunity to comment on the proposed Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the Central Coast Transfer Station. The project proposes to develop 4 acres of a 17-acre parcel along State Route (SR) 20, approximately three miles east of SR 1 in Mendocino County (1-MEN-20-2.90). The proposed project will construct a municipal solid waste transfer station which will serve the City of Fort Bragg and the surrounding coastal area from Westport to the Navarro River. The facility will include an enclosed waste transfer building, a scale house, an outdoor recycling drop-off area, and water well. According to the NOP, the facility will have an average solid waste throughput of 35-tons per day, but will be designed to handle an average throughput of 75-tons per day.

We have been working with the Mendocino Solid Waste Management Authority (MSWMA) during the pre-development process of this proposal and have the following comments for preparation of the next phase of this project:

Based on information gathered during pre-development correspondence, it is estimated that the facility could generate as much as 40-50 trips per hour during the weekday peak period. To minimize impact to through-traffic on SR 20, the project will require mitigation for the proposed turn movements to-and-from the facility. Construction of an eastbound left turn lane and a westbound right turn lane as opening day mitigation is required for this project. The following calculations are based on Index 405.2 of the Caltrans Highway Design Manual, 6th Edition:

- The left turn lane should be a minimum of 583-ft. (storage=100-ft., deceleration=483-ft.)
- The right turn lane should be a minimum of 375-ft. (storage=100-ft., deceleration=275-ft.)

Recognizing that it's still early in the process, Caltrans is willing to consider alternate mitigation if identified in the traffic analysis of the EIR.

All work within the State right of way requires an approved encroachment permit. Encroachment permit applications are reviewed for consistency with State standards and are subject to Department approval. Request for Caltrans encroachment permit application forms can be sent to

Mike Sweeney

2/12/2014

Page 2

Caltrans District 1 Permits Office, P.O. Box 3700, Eureka, CA 95502-3700, or requested by phone at (707) 445-6389. For additional information, the Caltrans Permit Manual is available online at: <http://www.dot.ca.gov/traffops/developserv/permits/>

If you have questions regarding the comments outlined in this letter or need further assistance, please contact me at (707) 441-4540 or tatiana.ahlstrand@dot.ca.gov.

Sincerely,



Tatiana Ahlstrand
Associate Transportation Planner
District 1 Office of Community Planning

2-19-14

To The Fort Bragg City Council:

I Fred Uhlisch have owned this property on Portersfield Ln for the past 30 yrs. I lived here for 23 yrs. since retiring. I am concerned and opposed to this dump or transfer station moving here to my back yard for numerous reasons: The noise, air pollution, air vapors from autos, trucks exhaust from the traffic congestion with the traffic light on the truck turn out.

Garbage drippings along with the garbage odor. Trucks that leak oil along with spillage during refueling which will eventually end up in the Noyo River contaminating Ft. Bragg water supply. due to the natural water shed running down hill.

Increasing dump fees. Decrease in property values. Possible ground water contamination and decreasing or eliminating my well water supply.

Rare plants & trees to be destroyed in the pygmy forests.

The alternatives which have been presented seemed to be pushed under the table and:

1- Pudding Creek Recycling which is established.

- 2- Skunk Train by Rail - which would eliminate fuel cost and wear and tear on Hwy 20. the main artery for Tourists etc to Ft. Bragg.
- 3- Shipping out by ship.

How about using the method use in Sweden called "Waste-to-Energy" which creates steam that runs turbines that provide energy for electric power. There are scrubbers + filters to clean the emissions to the air.

Sincerely
F. Ulrich

Statement by Erik Thorbecke, February 19, 2014 Presented to the Mendocino County Board of Supervisors, members of the Fort Bragg City Council and Mike Sweeney.

Allow me to introduce myself. I am Erik Thorbecke and reside half the year on my wife's Cherry Cove Ranch which borders the proposed transfer station on Highway 20. Cherry Cove Ranch has been in Charla's family ever since her grandfather who had emigrated from Norway bought the property in 1892 (we still have the deed signed by President Benjamin Harrison). Charla grew up on the ranch and we were married here. It is one of the few remaining private redwood forests in the area (the oldest redwood tree on our ranch is over one thousand year old).

Charla and I tried hard over the years to enhance the natural beauty of the ranch even when we were away at Cornell University where I was a professor of economics. When Charla came back to settle permanently here in 2000, her goal was to continue to try to beautify the ranch. Your own mayor lived with his family on the ranch for a few years when he first moved back to Fort Bragg. He and his family contributed to develop the ranch and can testify to its natural beauty. The reward for all these efforts is the proposal to place a dump next to our land.

While the proposed transfer station would strongly negatively affect the ranch, we are also very concerned about the potential negative environmental impact on Fort Bragg residents. Our principal concerns are; i) that the municipal water supply might be polluted because of possible seepage from the transfer station, ii) that traffic congestion will lead to increased incidence of accidents at a vulnerable section of Highway 20 marked by a sharp turn a couple of hundred yards east of the proposed station, iii) the unfavorable impression on visitors and tourists of seeing a dump at the gateway of Fort Bragg.

We fully understand that the city needs a transfer station. We are convinced that there are better, less expensive, more environmentally-friendly alternatives such as Pudding Creek combined with the trash being moved by rail to Willits (both the manager of the Pudding Creek station and the manager of the local train company are supportive of this option)

Finally, let me make it clear that as a professional economist (Ph. D. UC, Berkeley, Professor of Economics Emeritus Cornell University) with a long career in economic development, I plan to subject the EIR to close critical scrutiny when it is completed.

Mike Sweeney

From: "Jennifer Silva" <jsilva@pacific.net>
Date: Thursday, February 20, 2014 8:14 AM
To: "Mike Sweeney" <sweeney@pacific.net>
Subject: Fw: Coastal Transfer Station att: Mike Sweeney

Jennifer Silva
Office Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482
707-468-9710
707-462-3517 (fax)
www.MendoRecycle.org

-----Original Message-----

From: Rick Sacks
Sent: Thursday, February 20, 2014 7:41 AM
To: undisclosed-recipients:
Subject: Coastal Transfer Station att: Mike Sweeney

Mike,

In considering the relocation of the transfer station following yesterday's scoping meeting at Town Hall, I wanted to make a couple comments.

A friend of mine that is a professor at the university in Ames, Iowa, would tell me about this incinerator that provides clean emissions and cheap electricity in that community burning the trash rather than shipping it. I don't know what percentage does not get burned, but it sure sounded like a step forward. You might contact that town for information to tell us why it would not work here please.

As far as trucking trash out, we have Solid Waste of Willits and Waste Management both able to bid on this and possibly a couple others. This provides some alternative should one fail or be disappointing in some regard. With the train option, there is zero competition and the track record (pun intended) shows a history with failing companies and a bankruptcy, and a collapsed tunnel. Should the old tracks fail, do we

live with a growing mound meanwhile?

Other than that, thanks for conducting an orderly meeting and keeping us in the loop as government should.

Rick Sacks

Scoping Session Comments

I am concerned about the transfer station proposed for Highway 20 in Fort Bragg. I believe the proposed station threatens the habitat of the pygmy forest and will have a negative impact on groundwater, especially in times of drought such as we are now experiencing.

I am particularly concerned with what is not addressed in the Scoping Session Agenda, namely the future of waste management here and elsewhere. Communities will one day be charged with taking responsibility for their own garbage. In order to preserve the environment and conserve resources, the onus will be passed to local communities. Shifting the location of a dump and expecting different results is absurd; there are better solutions to our garbage problems, and I call upon the investigators preparing the EIR to consider other options.

A cogeneration plant can provide electricity while burning our trash, and waste management authorities should look into acquiring cost-effective burners, now or in the near future. Controlling our own trash will create jobs that can be paid for by the bottles and cans and electronics we recycle. Presently, we have little control over how much we pay to have our trash hauled or the tipping fee charged self-haulers. The projected five million dollar cost for the new dump will be paid for by the people in the form of increased taxes or fees, despite the pretense that the dump's operator will absorb the cost of construction without raising disposal rates.

While waiting for cogeneration technology to become cost effective for smaller communities, it will be cleaner and cheaper to transfer our garbage by rail. The Skunk train is ready and available to haul trash from Fort Bragg to Willits. I was surprised to learn that until recently Mr. Sweeney had not contacted Robert Pinole, the Skunk train manager. It is evident that Mr. Sweeney has already made up his mind that a transfer station on Highway 20 is the best available option. Mr. Pinole says he can do it faster and cleaner with available equipment.

Meanwhile, county residents should be taught how to compost their waste to fertilize their gardens. Local gardens and farmers markets are increasingly important and, in times of drought, vital to the preservation of rural economies.

The residents of Road 409 have spoken out about the stench, traffic problems, litter, air and water pollution, and other environmental hazards, and they have forced the joint powers to close their garbage station. The same problems will force the early closure of the five-million-dollar boondoggle on Highway 20, and there are even more environmental hazards along the way should the operation proceed.

The proposed seventeen acres on Highway 20 is presently pristine pygmy with rare and endangered plants and nesting birds. There are less than 4000 acres of pygmy in the world, mostly in California. We cannot replace the pygmy forest once the land is bulldozed and paved over, as is proposed.

To assert, as Mr. Sweeney has repeatedly done, that the stench of garbage would be eliminated by fully-enclosed trailers and sweetened with perfume, ignores one's olfactory senses and the repugnance many people feel about dealing with stink by sweetening it. Moreover, self-haulers will not be required to perfume their loads.

While promising that nearby properties will not be affected, the noise and traffic created while the garbage station is being built and the roads widened are not mitigated. It goes without saying that property values will be compromised. The potential threat to life and limb due to the proximity of the helicopter pad adjacent to the proposed station poses an even greater danger. Used to carry patients suffering from conditions the local hospital cannot treat, the helipad saves lives when the local hospital is mired in fog and landing there is prohibited. The helipad is also used by CDF in times of forest fire or other emergencies.

Fort Bragg's economy is based on a thriving tourist trade. With the addition of several large trucks a day and heavy construction, Highway 20 will experience logjams and vehicular accidents that will keep tourists away. Self-haulers will litter the highway, undetected by Fort Bragg's police but quite apparent to residents who will have to avoid the litter while driving at or below the posted speed limit of 55 mph.

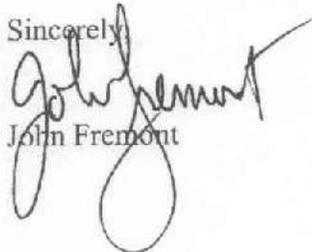
While Mr. Sweeney claims no water will be leached into the ground, cleanup and restroom effluent will undoubtedly infiltrate the ground, poisoning local wells and reservoirs that the city is building less than two miles downstream from the proposed plant.

In order to assess the impact of constructing and operating this plant, many tests must be undertaken. For example, a soils report by a geotechnical engineer based on a minimum of fifteen-foot borings at various locations on site should be undertaken. If the soil is sandy clay with a caliche base at, say, twelve feet, drainage can be sent downhill and the city's water poisoned.

The project is fraught with trouble. There are better solutions to our garbage problems. I entreat the authorities to look elsewhere. What failed to appease the residents of 409 is not going to please the residents and travelers along Highway 20.

Thank you for your attention.

Sincerely,



John Fremont

Post Office Box 944
Mendocino, CA 95460

19 February 2014

Mike Sweeney, General Manager
Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

Re: Notice of Preparation, Central Coast Transfer Station Environmental Impact Report

Dear Mr. Sweeney:

On February 19th, 2014, I attended the scoping session for the Draft Environmental Impact Report for the proposed Highway 20 transfer station. Among items discussed in the introduction to the proceedings was the "net benefit" of timber to be swapped from the Russian Gulch State Parks property to Jackson State Demonstration Forest in the legislated land swap. This net benefit concept needs to be applied in the Draft EIR to all aspects of the project. For example, the DEIR should adequately study the current traffic conditions at the existing Caspar Transfer Site and compare the overall net advantages and limitations, including but not limited to financial costs, of moving the waste stream traffic from Road 409 to Highway 20.

Recently, we have noted that "pod" semis leaving Road 409 and heading north no longer use the stop sign at the foot of the road. Rather, they use the dirt area just north of the stop sign to get a head start from less of an angle so that they may merge more easily into Highway One. A truck using this method of egress to the highway completely blocks the view of passenger vehicles pulling in at the stop sign. Conversely, when coming off the Caspar Bridge heading south, we have seen waste trucks cutting across the infield so that they do not have to wait in the turn lane before heading east on Road 409.

Views north and south from the Road 409 intersection are already limited by brush along the roadside to the south, and the bridge railing to the north. Trucks block the limited views and impede safe access to the highway. A 24 ton semi would impede visibility at this site even more. These safety situations would be eliminated if the transfer station were elsewhere. The DEIR should reflect these realities. Traffic conditions, safety considerations, and transportation cost savings/expenses for all alternatives under consideration for waste hauling need to be clearly detailed in the DEIR.

Thank you for addressing these issues in the DEIR.

William Lemos

To the engineers preparing an EIR on the transfer station proposed for Highway 20 in Fort Bragg.

Dear Reporters:

I believe the proposed station threatens the habitat of the pygmy forest and will have a negative impact on groundwater leached to the reservoir two miles away.

The residents of Road 409 have spoken out about the stench, traffic problems, litter, air and water pollution, and other environmental hazards, and they have forced the joint powers to close their garbage station. The same problems will force the early closure of the five-million-dollar boondoggle on Highway 20, and there are even more environmental hazards along the way should the operation proceed.

The proposed seventeen acres on Highway 20 is presently pristine pygmy with rare and endangered plants and nesting birds. There are some 2000 acres of pygmy in the world, mostly in California. We cannot replace the pygmy once the land is bulldozed and paved over, as is proposed.

Shifting the location of a dump from Road 409 and expecting different results is an exercise in futility; there are better solutions to our garbage problems, and I call upon investigators preparing the EIR to consider other options. To assert that the stench of garbage would be eliminated by fully enclosed trailers and sweetened with perfume ignores one's olfactory sensitivities and the repugnance many people feel about dealing with stink by sweetening it. Moreover, self-haulers will not be required to perfume their loads and will strew garbage along Highway 20.

The noise and traffic created while the garbage station is being built and the roads widened cannot be mitigated. It goes without saying that property values will be compromised. The potential threat to life and limb due to the proximity of the helicopter pad adjacent to the proposed station poses an even greater danger. Used to carry patients suffering from conditions the local hospital cannot treat, the helipad saves lives when the local hospital is mired in fog and landing there is prohibited. The helipad is also used by CDF in times of forest fire or other emergencies.

Fort Bragg's economy is based on a thriving tourist trade. With the addition of several large trucks a day and heavy construction, Highway 20 will experience logjams and vehicular accidents that will keep tourists away. Self-haulers will litter the highway, undetected by Fort Bragg's police but quite apparent to residents who will have to avoid the litter while driving at the posted speed limit of 55 mph.

Claims that no water will be leached into the ground are unfounded. Trailer cleanup and restroom effluent will undoubtedly infiltrate the ground, poisoning local wells and reservoirs that the city is building less than two miles downstream from the proposed plant.

A better solution is a cogeneration plant that can provide electricity while burning our trash, and EIR authorities should do a cost-benefit analysis of controlling our own trash. Co-generation will create jobs that can be paid for by recycled bottles, cans and electronics.

Residents will have little control over how much they will have to pay to have their trash removed or the tipping fee charged self-haulers. The projected five million dollar cost for the new dump will be paid for in the form of increased taxes or fees, despite the pretense that the dump's operator will absorb the cost of construction without raising disposal rates. I request the EIR compare current disposal rates with projected tipping fees.

While waiting for cogeneration technology to become cost effective for smaller communities, it will be cleaner and cheaper to transfer our garbage by rail. The Skunk train is ready and available to haul trash from Fort Bragg to Willits, but this has not been considered by the joint powers authority. Robert Pinole, the Skunk train manager, says he can do it faster and cleaner with available equipment.

In order to assess the impact of constructing and operating the proposed transfer station, many tests should be undertaken. A soils report by a geotechnical engineer based on a minimum of fifteen-foot borings at various locations on site should be undertaken. If the soil is sandy clay with a caliche base at, say, twelve feet, drainage will be sent downhill and the city's water poisoned.

Sincerely,

John Fremont

Mike Sweeney
General Manager
Mendocino Solid Waste Management Authority,
3200 Taylor Drive, Ukiah CA 95482

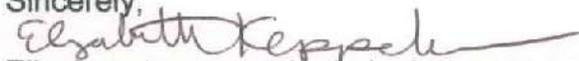
Thank you for the opportunity to share concerns at the scoping meeting for the proposed Central Coast Transfer Station on February 19, 2014. I am convinced the plan to develop this facility along the Highway 20 corridor on State Forest land 3 miles east of Highway 1 is both ill-conceived and short-sighted.

In addition to the items already listed as potential issues in the Notice of Preparation of the EIR, <http://www.mendorecycle.org/NOP/NOP%20Central%20Coast%20TS%20EIR.pdf>, the Environmental Impact Report must address the following specifics:

- A) Traffic/Safety: Impacts to bicycle use and safety should be evaluated. Numerically, traffic increases may not be significant, but the nature of this traffic aggravates risks in the form of additional large truck traffic and self-haulers distracted by their loads to the detriment of keeping their eyes on the road and bike lane. Bicyclists may also be at increased risk of accidents due to an increase of road-side litter and debris from self-haulers driving at speeds up to and in excess of posted limits.
- B) Biological Resources:
 - a. Mendocino County designates the pygmy forest as an "Environmentally Sensitive Habitat Area" and restricts development. The pygmy forest supports a rare and fragile association of soils, microbes, plants, and animals (including at least four species of lichens previously unreported in California). The delicate balance of this unique community is vulnerable to hydrologic change resulting from vegetation removal, and construction of roads or other impervious surfaces, ditches, and other drainage features, as well as, the addition of nutrients resulting from garbage and other unnatural discharges. Biological resources may be further threatened by the introduction of rats and other vermin that follows hand-in-hand with garbage nuisances.
 - b. Wetland habitats will also be affected by hydrologic change and ground disturbance. Drainage required for suitable building foundations may diminish nearby wetlands.
- C) Odor and Air Quality:
- D) Greenhouse Gas Emissions and Energy Use: Again, the nature of the traffic increases and perceived safety risk may further deter bicycle commuters from traveling the highway bike lane and thereby enhance emissions and energy use.
- E) Aesthetics:
 - a. The Highway 20 corridor is the primary gateway to the Mendocino Coast. Visitors do not travel that route hoping to see or smell our garbage as they wind through the final few miles to the coast. Siting a solid waste facility here is not a prudent move for an economically depressed community hoping to advance and benefit from its reputation as a world class tourist destination.
 - b. Additionally, new turn lanes will require highway widening and conversion of forested road sides to paved surfaces.
 - c. Road-side litter will increase. This increase will be aggravated by the higher speed limits along the highway relative to county roads where alternative sites exist.
 - d. Illegal dumping along the Highway 20 corridor will impact both private property and Jackson State Forest.

- F) Noise: There is no assurance that hours of operation will be limited to minimize the impact of noise.
- G) Agriculture and Forest Resources: Although the Jackson State Forest will not suffer a net loss in acreage as a result of the land swap, the dispersed recreation that currently occurs at the Highway 20 site will be impacted. Numerous trails traverse the parcel providing evidence of recreational use. The land that Jackson will acquire from Russian Gulch State Park is already available for dispersed recreation. The acquired land lies within the Caspar Creek Experimental Watersheds, and as such, will not be available for the full spectrum of uses that other forested acreage is.
- H) Cultural Resources
- I) Geology/Soils/Seismicity: Aside from geologic hazards, the soils at this site are a unique resource. Characterized by low nutrient content, acidity, and a relatively impervious shallow hard pan, rapid surface runoff occurs during even small to moderate rainfall events. After several inches of rain, the soil becomes saturated and a perched water table forms at the surface. Such conditions preclude standard septic systems because the waste water cannot be absorbed and filtered adequately. Similarly, accidental discharge of waste materials would not be absorbed and filtered by the soil making timely containment of seepage, spills, or leaks difficult to impossible.
- J) Hazards and Hazardous Materials:
- a. Non-point source of pollution from roads and vehicles is probable. This pollution would occur in the Noyo Watershed, Fort Bragg's municipal water source.
 - b. Although discharge of wastewater or non-treated runoff would not be permitted, these measures are not fail-proof. Accidents happen as evidenced by the recent tragedies in West Virginia and North Carolina. Accidental discharges could potentially affect municipal water supply, as well as the wells of residents in the unincorporated area between Highway 20 and the Noyo River.
- K) Hydrology and Water Quality:
- a. The proposed site is within the Noyo River Watershed. Not only does this watershed provide Fort Bragg's municipal drinking water, it is also a sediment-impaired river and habitat for threatened and endangered salmonids. The community of Fort Bragg has very few options if this water supply is compromised by unintended, unforeseen release of hazardous waste or sediment. The fish have no options.
 - b. Surface water and subsurface flow paths must both be evaluated using field-based methodologies.
 - c. Storm water runoff models must accurately reflect the hydrology of the soils. These do not exist for pygmy soils and extrapolations from nearby watersheds could result in errors of several orders of magnitude.
 - d. Altered hydrology resulting from removal of vegetation, creation of new impervious surfaces, and construction of drainage structures will potentially affect wetlands, streamflow processes, and water quality.
- L) Land-use planning: Conversion from Timber Production/Preserve is unwarranted when the Pudding Creek Recycling Center and the Road 409 Caspar Landfill sites are already converted and industrialized.

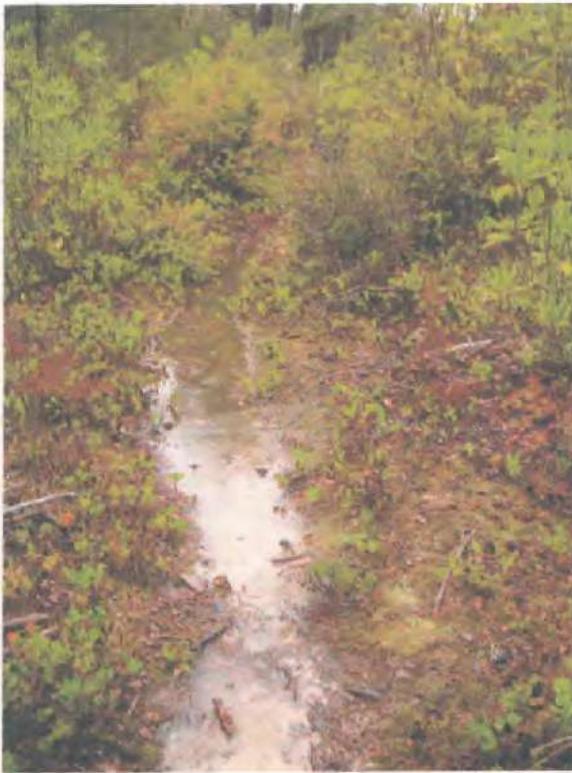
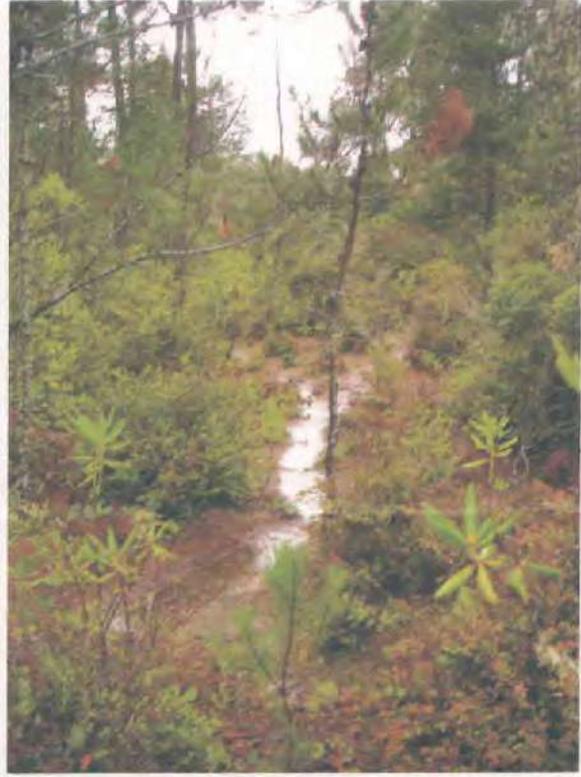
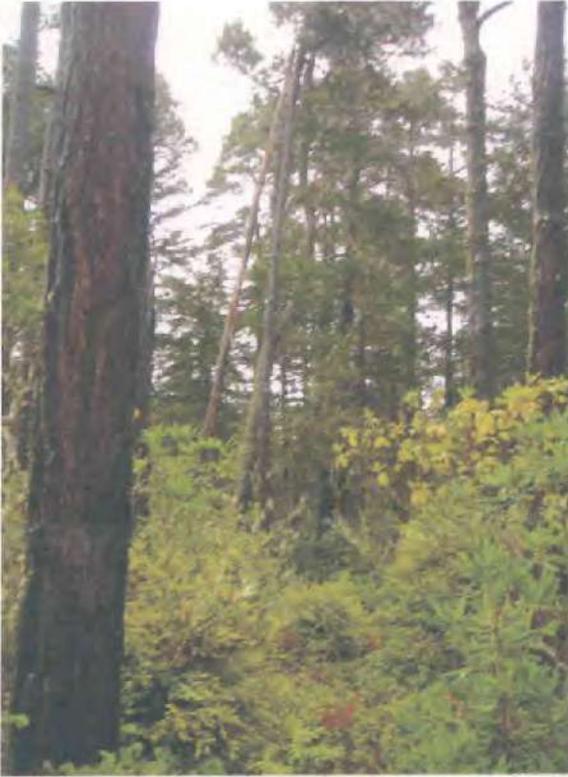
Sincerely,



Elizabeth Keppeler, hydrologist, 31681 Highway 20, Fort Bragg, CA 95437

(The attached photos depict elevated water table and surface runoff during a recent rain event)

Proposed Transfer Station Site 3 miles out Highway 20, February 8, 2013:



Sierra Club, Mendocino Group
PO Box 522
Mendocino CA 95460

February 26, 2014

Mike Sweeney
General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah CA 95482
<sweeney@pacific.net>

Subject: Central Coast Transfer Station, Notice Of Preparation of an Environmental Impact Report

Dear Mr. Sweeney:

Thank you for the opportunity to offer scoping comments on the Notice of Preparation of an Environmental Impact Report for the proposed project, the construction and operation of a waste transfer station 3 miles inland on Highway 20, Fort Bragg.

Our comments fall into two areas: the effects of the project on biological resources and the effects of building the project to over twice the size needed for the current waste stream volumes.

Biological Resources - Mendocino Pygmy Cypress Forest and Bishop Pine Forest

We are concerned that in choosing, as an option, the Highway 20 site for the construction and operation of a waste transfer station – Waste Management is giving inadequate consideration to the sensitivity of, and the potential impacts to, the rare Mendocino Pygmy Cypress and Northern Bishop Pine Forests located on site. We are also concerned that any hydrological changes to the site as a result of the project will impact the off-site pygmy forest to the north as well as impact the on-site vegetation.

It seems counterproductive to start by selecting a site that includes a habitat type unique to Mendocino County. This rare vegetation type deserves the utmost protection yet is fast being destroyed and degraded by (mostly) private development. It would be unconscionable for the county itself to choose to degrade what should be seen as an invaluable and irreplaceable biological asset of the county, a treasure to be guarded.

We concur with the scoping comments of the California Native Plant Society and defer, in general, to their expertise regarding the specifics of potential impacts to rare plants and vegetation at this site. We believe it too sensitive an area for such a use and that an EIR

would find there were potential impacts that could not be mitigated. There should be no impacts to pygmy forest as a result of this project.

We urge the city and the county to re-consider its choice of this site as suitable for a transfer station and to look at alternatives that would not impact rare vegetation types.

The Proposed Project is Oversized

We believe that Mendocino County should be exploring options such as, for example, reducing the waste stream or using waste to generate energy rather than hauling it out of the county. In addition, the proposed project is being scaled at a capacity of more than twice what is needed to handle current waste. "To accommodate future growth and technological changes..." the facility will be designed to handle 75 tons/day, more than double our current waste stream that averages 35 tons/day. This suggests that (1) the design is creating the potential for expansion without adequate consideration for the multiplication of impacts relevant to biological resources, water quality and quantity, traffic, noise, odor, etc. and (2) that exploration of waste reduction for the future has not been considered.

The project needs to be amended to include exploration of alternative means of waste disposal and of the reduction, rather than expansion, of the waste stream

Sincerely,

Linda Perkins
Conservation Chair

cc: Rick Macedo, California Department of Fish and Wildlife and
<jsilva@MendoRecycle.org>

Jennifer Silva

From: "Erik Thorbecke" <et17@cornell.edu>
Date: Thursday, February 27, 2014 2:42 PM
To: "Jennifer Silva" <jsilva@pacific.net>
Subject: EIR Proposed Transfer Station on Highway 20

Attention: EIR and Mike Sweeney

Please take into consideration in your EIR the sundews a small fly eating plant found in the Pigmy forest.

Yours truly,

Charla Thorbecke

Jennifer Silva

From: "Erik Thorbecke" <et17@cornell.edu>
Date: Tuesday, February 25, 2014 2:13 PM
To: "Jennifer Silva" <jsilva@pacific.net>
Attach: Statement by Charla Thorbecke.docx
Subject: Scoping meeting on Proposed Transfer station on Highway 20

Dear Jennifer,
I attach the statement of my wife read at the scoping meeting.
Please forward to Mike Sweeney and EIR team.
All the best,
Erik

Statement by Charla Thorbecke

To the Mendocino County Board of Supervisor and members of the Fort Bragg City Council and Mike Sweeney:

Thank you for this opportunity to speak.

I am Charla Westerberg Thorbecke. My grandparents bought our land on highway 20 in 1892

My land borders the proposed transfer station.

I am against the transfer station being built on highway 20.

First the city water supply from Newman gulch is likely to be contaminated from seepage from the transfer station.

Second, the Pygmy forest on the proposed site will be destroyed. There are only 4,000 acres of Pygmy forest left in the whole world and when you destroy the 17 acres of pigmy forest land, you destroy it not just for Fort Bragg and Mendocino County but for the whole world.

The pigmy forest should be a welcoming park to Fort Bragg. Welcoming visitors at the gateway of Fort Bragg should be the goal.

There are better alternatives. The transfer station should be at Pudding Creek, and the trash hauled by rail to Willits. It is time for Fort Bragg to wake up. Don't spend our money on trash but on true development.

Mike Sweeney

From: "Melehani, Candace@DGS" <Candace.Melehani@dgs.ca.gov>
Date: Tuesday, January 21, 2014 9:12 AM
To: "Mike Sweeney" <sweeney@pacific.net>
Subject: RE: Land Exchange - AB 384

Thank you for the billing information. I will add it to the request and move it forward.

I will also remind Matt that you are waiting for his call.

Candace Melehani
Asset Management Branch
Real Estate Services Division
Department of General Services
707 Third Street, 5th Floor
West Sacramento, CA 95605
(916) 376-1894 (Tel)
(916) 376-1833 (Fax)
candace.melehani@dgs.ca.gov

From: Mike Sweeney [mailto:sweeney@pacific.net]
Sent: Tuesday, January 21, 2014 9:11 AM
To: Melehani, Candace@DGS
Subject: Re: Land Exchange - AB 384

I regret that I haven't heard from Matt Keefe but I don't want to delay anything here.

The agency that will pay costs is

Mendocino Solid Waste Management Authority
ATTN: Mike Sweeney, General Manager
101 W. Church St. #9
Ukiah, CA 95482

after April 1, 2014, our mailing address will change to

Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

Mike Sweeney

From: <mailto:Candace.Melehani@dgs.ca.gov>
Sent: Tuesday, January 14, 2014 2:39 PM
To: sweeney@pacific.net
Subject: RE: Land Exchange - AB 384

Hi Mr. Sweeney,

I just wanted to let you know that Matt Keefe will be calling you with information on what the review will entail as well as an estimate of the cost. I'm not sure when he will make the call but hopefully within the next day or so.

Thanks,

Candace Melehani
Asset Management Branch
Real Estate Services Division
Department of General Services
707 Third Street, 5th Floor
West Sacramento, CA 95605
(916) 376-1894 (Tel)
(916) 376-1833 (Fax)
candace.melehani@dgs.ca.gov

From: Melehani, Candace@DGS
Sent: Monday, January 13, 2014 5:07 PM
To: 'sweeney@pacific.net'
Subject: FW: Land Exchange - AB 384

Dear Mr. Sweeney,

The email message displayed below indicates that Mike Salyer with CAL FIRE spoke to you in late November about a proposed land exchange to facilitate development of a city/county waste management transfer station in Mendocino county.

CAL FIRE has asked the Department of General Services (DGS) to perform appraisal review services in connection with the land exchange and has indicated that DGS should bill your organization directly for the requested services. Will you please provide contact information for the person who should receive the bill as well as any special instructions that may be required? Typically, DGS bills for the services before delivery of the work product.

Sincerely,

Candace Melehani
Asset Management Branch
Real Estate Services Division
Department of General Services
707 Third Street, 5th Floor
West Sacramento, CA 95605
(916) 376-1894 (Tel)
(916) 376-1833 (Fax)
candace.melehani@dgs.ca.gov

From: Salyer, Mike@CALFIRE

Sent: Thursday, November 21, 2013 11:25 AM
To: Klinger, Alice@DGS; Van Zuuk, Marc@CALFIRE
Cc: Butler, Michael@DGS; Melehani, Candace@DGS; Pisi, Lorina@CALFIRE
Subject: RE: Land Exchange - AB 384

Alice,

I spoke today with the Mendocino City/County representative, Mike Sweeney at 707-468-9710, regarding the proposed land exchange that will facilitate development of a City/County waste management transfer station. Mr. Sweeney said he had anticipated that costs associated with the exchange are the responsibility of his organization (I'm not sure if he works for the County, City or a JPA). I explained that CAL FIRE would initiate a CRUISE request to commence; however, DGS needs compensated for their services. He asked that DGS bill his organization directly, if possible. Subsequent to my recent conversation with him, I recommend DGS contact him about billing arrangements.

CAL FIRE will start the CRUISE process ASAP.

Let me know if you have questions.

Michael Salyer SR/WA
Capital Outlay Project Manager
California Department of Forestry & Fire Protection
CAL FIRE Headquarters, Technical Services Section
1300 U Street, Sacramento, CA 95818
916-324-1643 Direct
916-324-3400 FAX
Mike.Salyer@fire.ca.gov



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Northern Region 1
601 Locust Street
Redding, CA 96001
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



February 28, 2014

Mr. Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, California 95482
sweeney@pacific.net

Dear Mr. Sweeney:

**RE: Notice of Preparation for the Central Coast Transfer Station
Draft Environmental Impact Report (SCH # 2014012058)
Mendocino County, California**

On January 29, 2014, the California Department of Fish and Wildlife (CDFW) received from Mendocino County (Mendocino Solid Waste Management) and the City of Fort Bragg (joint-Lead Agency) a Notice of Preparation for the Central Coast Transfer Station (CCTS) Draft Environmental Impact Report (DEIR; State Clearing House Number 2014012058). CDFW staff visited the project site and reviewed the project description, biological resources assessment, and project maps.

CDFW has jurisdiction over the conservation, protection and management of fish, wildlife, native plants and their habitat. As a responsible agency, CDFW administers the California Endangered Species Act (CESA) and other provisions of the Fish and Game Code (FGC) that conserve the State's fish and wildlife public trust resources.

CDFW's primary environmental concerns involve future development within the project area that include: a) impacts to Mendocino Pygmy Cypress Woodland and Northern Bishop Pine Forest habitats, b) impacts to wetland habitat, c) impacts to special-status plant and wildlife species, d) water use and potential impacts to downstream water availability, e) erosion and potential impacts to water quality on-site and downstream and f) potential cumulative impacts especially to Mendocino Pygmy Woodland Forest and Northern Bishop Pine Forest habitats.

CDFW offers the following comments and recommendations on this project in our role as a trustee and responsible agency pursuant to the California Environmental Quality Act (CEQA; California Public Resource Code §21000 *et seq.*).

Project Description

The proposed CCTS will include construction and operation of a municipal solid waste transfer station that will process materials from the incorporated City of Fort Bragg and the surrounding unincorporated coastal area of Mendocino County (Westport south to the Navarro River). The proposed CCTS location involves 17 acres of undeveloped forest land (Mendocino Pygmy Forest Woodland and Northern Bishop Pine Forest)

within Jackson Demonstration State Forest (JDSF) at address 30075, Highway 20, Fort Bragg, California (Mendocino County Assessor's Parcel Number 019-150-5). Specific project components include a waste transfer building, a scalehouse, outdoor recycling drop-off area, paved driveways, perimeter fencing, water well and other utility services.

Mendocino Pygmy Cypress Woodland and Northern Bishop Pine Forest Habitats

The proposed CCTS site currently maintains exceptionally high quality Mendocino Pygmy Cypress Woodland and good Northern Bishop Pine Forest habitats. While many of these habitat types have been degraded or eradicated throughout Mendocino County, this site has been generally protected from habitat-altering, adverse impacts. With the exception of the "helicopter pad" that exists to the west, this parcel supports habitat of the highest quality.

When assessing potential impacts to sensitive plant alliances, CDFW ranks alliances according to their degree of imperilment (as measured by rarity, trends, and threats). Mendocino Pygmy Cypress Woodland and Northern Bishop Pine vegetation types are State rank S2 alliances, which defines these habitats as highly imperiled or "rare and threatened in California."

Mendocino County's General Plan Policy RM-84 provides guidance for projects that will impact Mendocino Pygmy Cypress Woodland habitat. Policy RM-84, among other directives, calls for protecting this habitat by minimizing "vegetation removal" and the "disruption of vegetation continuity." In addition, Jackson Demonstration State Forest's (JDSF) 2008 EIR/Management Plan discloses the intent to "maintain the current distribution and species composition of Mendocino Pygmy Cypress Woodland habitat and protect it from harmful human disturbance, while continuing to allow compatible recreational activities..."

Given this project has the potential to remove acres of high quality habitat in a rare, threatened, and declining vegetation type, CDFW finds it is highly likely this project will result in significant impacts to Mendocino Pygmy Cypress Woodland. Because the proposed project location is likely to result in significant impacts to rare vegetation types, CDFW recommends the DEIR include at least one feasible alternative project location that would avoid or substantially lessen the impacts to rare vegetation types (**Recommendation 1**). This alternative project site(s) could serve as the environmentally superior alternative pursuant to CEQA Section 15126.6(e)(2).

The DEIR should detail how proposed impacts to Mendocino Pygmy Cypress Woodland habitat address directives in Mendocino County's General Plan and in Jackson Demonstration State Forest's (JDSF) 2008 EIR/Management Plan that call for protecting this sensitive habitat (**Recommendation 2**). Should direct or indirect significant impacts to Mendocino Pygmy Cypress Woodland and Northern Bishop Pine Forest habitats occur as a result of this project, the DEIR should prepare a detailed mitigation plan that outlines measures for avoidance, minimization, mitigation, and monitoring.

CDFW is unaware of any documented successful large-scale ecological restoration of Mendocino Pygmy Cypress Woodland habitat. Consequently, if avoidance is not a feasible alternative, acquisition and management in perpetuity of high quality Mendocino Pygmy Cypress Woodland and Northern Bishop Pine Forest habitats may be the only feasible mitigation strategy for addressing the potential project-related loss of these sensitive endemic habitats (**Recommendation 2**). Because habitat preservation as a form of compensatory mitigation results in the direct loss of habitat area, this type of mitigation strategy typically requires higher mitigation ratios than other types of mitigation.

Wetlands

The biological resources assessment prepared for the property identified existing wetland habitat. It is the policy of the Fish and Game Commission (Commission), to seek to provide for the protection, preservation, restoration, enhancement and expansion of wetland habitat in California. Further, it is the policy of the Fish and Game Commission to strongly discourage development in or conversion of wetlands. It opposes, consistent with its legal authority, any development or conversion which would result in a reduction of wetland acreage or wetland habitat values. To that end, the Commission opposes wetland development proposals unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. The Commission has directed CDFW to apply this policy as appropriate. The DEIR should prepare a detailed conservation plan which outlines measures for avoidance, minimization, mitigation, and monitoring of affected wetland habitat (**Recommendation 3**).

Rare Plants and Wildlife

The biological resources assessment prepared for the property identified several special-status plant and wildlife species. While no plant or wildlife species listed pursuant to CESA have been identified on the subject parcel, the identified special-status species may qualify as endangered, rare or threatened species pursuant to CEQA Section 15380. Therefore, the DEIR should include a detailed plan that includes avoidance measures, mitigation, and monitoring (**Recommendation 4**).

Mitigation and Project Alternatives

The DEIR should analyze and disclose all probable costs of the proposed CCTS including costs for land acquisition, restoration and maintenance that will likely be required to, in part, adequately mitigate for project-related impacts (**Recommendation 5**). Because an Environmental Impact Report must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly [CEQA Section 15126.6(b)]. For purposes of analyzing environmentally superior alternatives, DEIR's

project alternatives section should include locations that are void of or have a minimum amount of sensitive species and/or habitats (**Recommendation 6**).

Water Supply and Demand

The City of Fort Bragg and several nearby communities face water shortage concerns especially during dry-year periods. The DEIR shall analyze and disclose the CCTS's potential impacts involving water consumption including: a) total estimated water consumption per day, week and year; b) a hydrological analysis that determines if the water source will come from groundwater (e.g. percolating groundwater) or from a source that is hydrologically connected to surface water and c) a hydrological-based assessment that addresses potential impacts to surface water including small watercourse and down-slope connecting streams/rivers (**Recommendation 7**).

In addition to water availability, the proposed project could result in accelerated erosion and resulting adverse impacts to downstream water quality. The DEIR should include a detailed erosion control plan and Low Impact Development (LID) strategy that details site-specific measures for reducing erosion, maintaining on- and off-site water quality and encouraging on-site retention of storm flow runoff (**Recommendation 8**).

Cumulative Impacts

Mendocino County currently lacks a comprehensive plan for protecting sensitive species and habitats including Mendocino Pygmy Cypress Woodland and Northern Bishop Pine Forest. Impacts to these sensitive habitats are on-going, especially outside of the Coastal Zone. The DEIR's cumulative impacts section should analyze and disclose how the proposed CCTS may contribute to impacts incrementally with consideration given to other closely related past, present or reasonably foreseeable probable future projects (CEQA Guidelines section 15355) (**Recommendation 9**).

Lake and Streambed Alteration Agreement

The project area is drained by a series of small watercourses. Depending upon a given watercourse and proposed activities within or near these watercourses, an Agreement may be required by CDFW pursuant to FGC section 1602 (**Recommendation 10**). For more information on this process, refer to <http://www.dfg.ca.gov/habcon/1600/>.

Recommendations:

For the protection of fish, wildlife and plant resources and their habitats, CDFW recommends that the following be fully addressed in the DEIR:

1. DEIR shall include at least one feasible alternative project location that would avoid or substantially lessen the impacts to rare vegetation types.
2. The DEIR shall detail how proposed impacts to Mendocino Pygmy Cypress Woodland habitat address protection directives in Mendocino County's General

Plan and in the Jackson Demonstration State Forest's (JDSF) 2008 EIR/Management Plan.

3. The DEIR shall include a detailed mitigation plan which outlines measures for avoidance, minimization, mitigation, and monitoring. Should the approved project result in adverse impacts to sensitive habitats, the mitigation plan should include proposals for acquiring, restoring, managing and protecting in perpetuity nearby, high quality habitats including Mendocino Pygmy Woodland Forest, Northern Bishop Pine and wetland.
4. The DEIR shall include a detailed plan that includes avoidance measures, mitigation, and monitoring for special-status species including those designated as endangered, rare or threatened species pursuant to CEQA section 15380.
5. The DEIR shall analyze and disclose all probable costs of the proposed CCTS project including costs for land acquisition, restoration and maintenance that will likely be required to, in part, adequately mitigate the project.
6. The DEIR's project alternatives section shall include alternate locations that are void of or have a minimum amount of sensitive species and/or habitats.
7. The DEIR shall analyze and disclose the CCTS's potential impacts involving water consumption including: a) total estimated water consumption per day, week and year; b) a hydrological analysis that determines if the water source will come from groundwater (e.g. percolating groundwater) or from a source that is hydrologically connected to surface water and c) a hydrological-based assessment that addresses potential impacts to surface water including small watercourse and down-slope connecting streams/rivers.
8. The DEIR shall include a detailed erosion control plan and LID strategy that details site-specific measures for reducing erosion, maintaining on- and off-site water quality and encouraging on-site retention of storm flow runoff.
9. The DEIR's cumulative impacts section should analyze and disclose how the proposed CCTS project may contribute to impacts incrementally with consideration given to other closely related past, present or reasonably foreseeable probable future projects (CEQA Guidelines section 15355).

Mr. Mike Sweeney
February 28, 2014
Page 6

10. If project-related activities will result in substantial modifications to streambed, bank, or channel or substantial water diversion from a lake or stream, the project proponent is required to notify CDFW pursuant to FGC section 1602 before undertaking any of these activities (see to <http://www.dfg.ca.gov/habcon/1600/>).

If you have questions or comments regarding this matter, please contact Environmental Scientist Rick Macedo at (707) 928-4369, or at 619 Second Street, Eureka, California, 95501.

Sincerely,



Curt Babcock
Environmental Program Manager

cc: Ms. Linda Ruffing
City of Fort Bragg
416 N. Franklin Street
Fort Bragg, California 95437
lruffing@fortbragg.com

ec: Curt Babcock, Rick Macedo, Angela Liebenberg, Terra Fuller, Wes Stokes, Scott Koller, Gordon Leppig, Michael van Hattem, Brad Valentine, and Laurie Hansberger
California Department of Fish and Wildlife
curt.babcock@wildlife.ca.gov, richard.macedo@wildlife.ca.gov,
angela.liebenberg@wildlife.ca.gov, terra.fuller@wildlife.ca.gov,
wesley.stokes@wildlife.ca.gov, scott.koller@wildlife.ca.gov,
michael.vanhattem@wildlife.ca.gov, gordon.leppig@wildlife.ca.gov,
Brad.Valentine@wildlife.ca.gov, laurie.hansberger@wildlife.ca.gov,

CEQA-2014-0028-R1



Mendocino County Health & Human Services Agency

Healthy People, Healthy Communities

Dave Jensen, Director

Public Health Branch

Division of Environmental Health

Ukiah Office: 860 N Bush St, Ukiah CA 95482 Phone: 707-234-6625
Fort Bragg Office: 120 W Fir St, Fort Bragg CA 95437 Phone: 707-961-2714



February 27, 2014

Mendocino Solid Waste Management Authority
Mike Sweeney
3200 Taylor Dr.
Ukiah Ca, 95482

Subject: Comments on the Notice of Preparation of an Environmental Impact Report for proposed Central Coast Transfer Station.

The Mendocino County Environmental Health serving as the designated Local Enforcement Agency (LEA) has reviewed the Notice of Preparation of an Environmental Impact Report for the proposed Central Coast Transfer Station located 30075 Highway 20, Fort Bragg, Ca.

The proposed facility would serve both self-haul and commercial costumers and would be designed to handle an average of 75 tons of material per day. The project, as designed, will require a Medium Transfer Solid Waste permit from the Mendocino County LEA. With the average amount of waste throughput, the operator can either apply for a Medium Volume transfer station permit (below 100 TPD) or a Large Volume transfer station permit (above 100 TPD at any give time) if the operator foresees the need for a higher tier in the future. In both instances, the operation shall comply with requirements set forth by CalRecycle's Title 14 and/or Title 27 along with the California State Minimum Standards.

Phil Chou
Environmental Health Tech
(707) 234-6625

| | | | | | |
|--|---|---|--|---|--|
| Administrative Services 747 S. State St. Ukiah, CA 95482 Ph. 707-472-2333 Fax 707-472-2335 | Adult & Aging Services 747 S. State St. Ukiah, CA 95482 Ph. 707-463-7900 Fax 707-463-7979 | Children & Family Services 727 S. State St. Ukiah, CA 95482 Ph. 707-463-7990 Fax 707-463-7960 | Behavioral Health & Recovery Services 1120 S. Dora St. Ukiah, CA 95482 Ph. 707-472-2300 Fax 707-472-2300 | Public Health Services 1120 S. Dora St. Ukiah, CA 95482 Ph. 707-472-2700 Fax 707-472-2773 | Employment & Family Assistance Services 737 S. State St. Ukiah, CA 95482 Ph. 707-463-7700 Fax 707-463-7700 |
|--|---|---|--|---|--|



CALIFORNIA
NATIVE PLANT SOCIETY
Dorothy King Young Chapter
P.O. Box 850 - Point Arena, CA 95468

February 27, 2014

Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482
Mike Sweeney, Manager

Board of Directors:

Meg Courtney, Ron Orenstein, Dan Hamburg, John McCowen, Mary Anne Landis

Re: Comments, Proposed Waste Transfer Station, Fort Bragg

Dear Mr. Sweeney and MSWMA Board of Directors,

These comments are submitted on behalf of the Dorothy King Young Chapter of the California Native Plant Society (CNPS). CNPS requests that this letter be entered into the record for this project.

Location of Transfer Station

CNPS understands that the City of Fort Bragg needs a better way to handle its waste. At the same time, CNPS very much wants to see a solution that preserves irreplaceable Mendocino Cypress Woodland, commonly known as "Mendocino Pygmy Forest." Since the preferred site for the new transfer station on Highway 20 contains this rare plant community, CNPS would like other, less environmentally sensitive sites to be considered. The preferred site also contains another rare plant community, Northern Bishop Pine Forest, several rare plant species and wetlands

One obvious alternative is the existing disposal center on Pudding Creek Road. It appears that this site was discounted because it is already under the control of one entity and could not be taken over by an independent company. It is not clear why this must be regarded as a negative factor.

Clearly the plan to truck large waste loads over Highway 20 argues for a transfer station along that road, but it would be preferable to choose a site that does not contain pygmy forest. Free acquisition of the preferred site on Highway 20 might be offset by the high cost of mitigation for damage to biological resources.

Comments on Biological Resources Assessment

4.2 The concept of "transitional pygmy forest" cited in the Assessment has no scientific validity. When taller trees are found in pygmy forest it may indicate that something has penetrated the hardpan layer, allowing for larger tree growth. Pygmy forest also occurs in a mosaic with other plant communities, such as bishop pine forest, and this can occur where soil types meet.

Table 1 There is no point in identifying "tall" or "short" or "extreme" pygmy forest. The plant community characterized by the presence of Mendocino cypress and Bolander pine is one rare plant community, recognized as such by the California Department of Fish and Wildlife. The height of the plants is not an issue.

Figure 3 See comments above.

4.3.2 With regard to distribution of Mendocino Pygmy Cypress Forest, all reliable evidence indicates that this vegetation type does not occur in Sonoma County. The so-called "pygmy forest" within Salt

Point State Park was erroneously thought to include Bolander pine. Repeated visits to the site by plant experts have failed to locate this pine. Unlike Bolander pine, pygmy cypress is well known to occur on a variety of soil types. The vegetation type at the Salt Point location appears to be Northern Maritime Chaparral, with chaparral shrubs like manzanita sharing dominance with somewhat dwarfed cypress and bishop pine trees.

With regard to the pygmy forest "morpho-types" cited in the Assessment, CNPS asks that the EIR not rely on this language. Height has no effect on determination of rarity, and "transitional" has no validity.

High Vulnerability of Pygmy Forest

If the transfer station is built on a site containing pygmy forest, the Environmental Impact Report (EIR) must include all current scientific information about this rare and unique resource. Mendocino Cypress Woodland is a very rare plant community dominated by two rare trees: Pygmy cypress (*Hesperocyparis pygmaea*) and Bolander pine (*Pinus contorta* ssp. *bolanderi*). It doesn't matter how tall or short the trees are, since their height can vary due to the density and thickness of the underlying hardpan layer.

Pygmy forest is totally dependent on a shallow, flat, nutrient-depleted, highly acidic substrate, in which water is trapped by an underlying layer of hardpan rock or dense clay. Water in this forest is slow moving, spreading laterally. The plants that grow in this environment are highly adapted to these extreme conditions and highly sensitive to any alterations to these conditions.

Activities like digging, trenching or paving that alter the hydrology or break up the hardpan layer are very damaging, and often ultimately fatal to pygmy forest. Pygmy forest is also degraded by the influx of nutrients, as from sewage or plant fertilizers.

The unusual requirements for pygmy forest viability make it impossible to preserve pygmy forest merely by limiting the development footprint, or "avoiding" some pygmy forest during construction. Pygmy forest is highly vulnerable to cumulative impacts from nearby habitat alteration, including activities on adjacent parcels.

Thus, on-site mitigation measures for impacts to pygmy forest are rendered largely inadequate. Project proponents must look to offsite mitigation measures designed to preserve contiguous tracts of pygmy forest in perpetuity.

Pygmy Forest Rarity and Condition

In recent years there have been few surveys for pygmy forest occurrence or viability, due to lack of agency funding. Data, observations and photo-documentation by local biologists and state agency personnel are vitally important to inform and augment data collected earlier.

Some estimates put the total number of acres of Mendocino pygmy forest at 2,600 or less. Acceptance of this statistic must be tempered by evidence that the majority of pygmy forest stands are in decline, and that it is often not possible to examine pygmy forest on private lands.

The California Department of Fish and Wildlife, in 2013, stated that: "... approximately 70 percent of pygmy forest habitat is currently under some form of unprotected status (e.g., subject to ministerial building construction, future development or other impacts that would eradicate or notably alter natural function of this habitat type). Consequently, the amount of unprotected pygmy forest acreage may be as low as 540 to acres to as high as 1,200 acres."

However, much of pygmy forest under public ownership, and supposedly protected, is receiving very poor protection from such impacts as macro-trash dumping, homeless encampments, off-road vehicle use, unauthorized trail building and wild craft collecting of lichens and manzanita branches.

An internal report from State Parks, dated April 16, 26 & 30 – 2012, provides a number of blatant examples for the area where State Parks property intersects with Jackson Demonstration State Forest, owned by the California Department of Forestry and Fire Protection (CalFire).

Ideally, a thorough survey of all public forest stands on public and private lands would classify occurrences by level of degradation, and pygmy forest stands below a certain degradation threshold would be excluded from the total acreage.

Mitigation Measures

As explained above, the transfer station project can be expected to cause heavy impacts to the pygmy forest that cannot be mitigated with on-site measures.

Much of the pygmy forest in public ownership that was meant to be protected, often receives very little protection at all. Private pygmy forest lands adjacent to these public lands are also impacted by the spillover from unauthorized and damaging activities.

One suggested mitigation measure would be to create a cooperative partnership between State Parks, CalFire, Mendocino County and private landowners to increase protection of pygmy forest lands already set aside. This could take the form of monitoring, signage, barriers, a public awareness campaign and enforcement measures.

A letter from Richard Macedo of the California Department of Fish and Wildlife, dated 10/31/2013 states that: “[The] Department is interested in working with Mendocino County staff to develop a county-wide strategy for protecting and managing pygmy forest habitat. This strategy will likely focus on protecting large, contiguous areas of this unique habitat. Without such a plan, we will continue to lose pygmy forest areas as well as experience reduced options for abating this loss.”

Protecting large tracts of existing pygmy forest on public lands, plus adjacent private lands, would dovetail nicely with the Department’s strategy. An ideal area for this type of mitigation is the pygmy forest in Jug Handle State Reserve that continues into Jackson Demonstration State Forest and includes the Mitchell Creek area.

CNPS would also hope to see effective mitigation measures for loss of Bishop Pine Forest, rare plant species and wetlands.

Sincerely,



Lori Hubbard, Conservation Chair
Dorothy King Young Chapter, California Native Plant Society

CC: Misha Schwarz, Project Manager
GHD - 3831 North Freeway Blvd.
Suite 220
Sacramento, CA 95834

Richard Macedo
California Department of Fish & Wildlife
Coastal Conservation Planning
Northern Region

Linda Ruffing
Community Development Director
City of Fort Bragg

Greg Suba, Conservation Director
California Native Plant Society
2707 K Street, Suite 1
Sacramento, CA 95816-5113

Transferring of Trash

To whom it may concern,

Whilst reading the paper this afternoon, I was perplexed at how such a topic would arrive at such confusion. Fort Bragg is a small city, and the surrounding towns are vastly less populated. Alas, we produce garbage like anywhere else. There have been several opinions on how to rid of the waste from this area. I will add several more.

- Keep it Local – Everybody, mostly, on the coast does their best to support the mindset and framework that keeping things local is the most efficient way to sustain the economy of this city, and those around us. So, why not just deal with it here? Why do we need to use resources to ship garbage to another place? While shipping it out on the train, being the most efficient way to distribute, or receive anything, still seems like we are sweeping dust under the carpets.
- Canada Burns It – There are several manufactures that produce machines which incinerate garbage (ALL KINDS, including hazardous materials, metals, etc.) using Plasma Gasification. They burn, and evaporate the garbage down at temperatures that are close to, or hotter than, the Sun. Garbage (Household, Industrial, Biomass, and other wastes) is fed into the chamber and incinerated with Plasma and O₂ into slag or recovered metals. When you incinerate vapor is created, which can thereby be cooled by quenching it. It is then filtered and cleaned, heated again, and the by-product is steam. Steam creates pressure, which can, therefore, rotate a turbine, which can then be used for several options. One is creating raw power, which can be punched back into the city's grid, thus requiring fewer resources to send it to Fort Bragg. PG&E would be happy to receive that likely. Or, the steam could be used to create Ethanol, which could be sold for roughly \$1.25/ gal. Why can we not employ several trained technicians (thus creating jobs locally) to operate a facility that does this? All you would need is a place, and not very large, to situate the procedure, and people to run it. It would save fuel and give something back to the community. A temporary city tax would fund the project, and then the process itself would be able to pay the city back in hardly anytime at all, then the tax would be lifted. These are just a few ideas of what is possible with Plasma Gasification. The options of what you can do with this are only limited by not considering options.
- Re-cycle – I do not understand the re-cycling process and its fickle ways. How can something be turned down to be re-cycled? Everything should be re-cycled that is being discarded. Not doing this seems highly illogical. Why can we not have a local re-cycling facility that gathers and/or collects re-cyclable goods? What excuses do we have for not doing this? Is it just our laziness, or are people just uninformed? One thought: Most of the people around here drink

out of glass bottles. When they are thrown away, they could be sent to a facility to be sorted, stripped of everything, sanitized, and placed back into local bottling companies. Here is another major idea, take a third, or even one half of the glass bottles and shatter or crush them, tumble them to a safe standard, and dump them back into glass beach that supports a massive tourist drive. We are the only city on the coast to have a Glass Beach (which people sometimes drive days to visit), so why are we not supporting that by keeping the beaches environment, local artisans, and thus the local economy, sustained?

- Create a fuel for Stoves – People in this community depend on several sources of heat. Propane, Natural Gas, Kerosine, Electricity, and especially Wood. If we are going to clear-cut forests, God help us, why not recycle ANYTHING left behind to decompose? These trimmings that are just left behind could be turned into firewood, pellets, compost to be sold or used locally, etcetera. This goes for paper as well; any and all paper can be re-cycled to be turned into fire logs which can burn for several hours, among regular re-cycling to be re-created into re-cycled paper.
- Compost – This should be an easy one guys. Take yard waste, process or shred it, add a decomposition accelerant, and reuse it.

These are just a few thoughts from an average resourceful mind. It is not rocket science people. Use what you have, and find ways to re-use, re-fine, and re-cycle the remains. I supported the idea to deliver or send goods via boat (as we have a harbor[and they used that method here over a century ago as well]), and especially trains (as we have tracks leading to another major local city). We cannot continue to function under the presumption that the only method of something is to use trucks and fuel. Drivers and workers can remain employed locally under different titles. People would be employed; jobs would be created, and people would be happy to support such a responsible cause in such an awe inspiring area.

Positively,

Andrew Atkinson

witherupandwrite@gmail.com

562.472.7996

From: [Ron Munson](#)

Sent: Sunday, March 09, 2014 11:40 AM

To: jsilva@mendorecycle.org

Subject: support for Highway 20 transfer station

My family and I support the preferred alternative of locating the new waste transfer station out Highway 20. It is the most logical and expedient location for hauling the waste to it's inland destination.

It does not make sense to have the waste trucked through town to Pudding Creek and back out through town again, nor does it make sense to haul it down to Caspar and back.

The design element also seems sufficient to alleviate fears of water contamination.

In spite of appeals to protect the pygmy forest community, this seems to be the most appropriate place for the transfer station. The pygmy forest is characterized by acidic impoverished soils that do not support vigorous vegetative growth.

The idea of utilizing the train is intriguing, but does not seem not practical at this time. I doubt the idea of burning the waste for power generation would do much for air quality here either. Most of the opposition to the Highway 20 location seems to come from the NIMBYs. Those of us who support the Highway 20 location are apt to be less vocal, so we want to let you know that we do support this preferred alternative.

Thanks,

Ron & Susan Munson

Appendix B

Health Impact Calculations

Central Coast Transfer Station Construction Health Impact Summary
Unmitigated DPM
Construction Health Impact Summary

| Construction Year | Maximum Concentrations | | Cancer Risk (per million) | | Hazard Index (-) | Maximum Annual PM2.5 Concentration ($\mu\text{g}/\text{m}^3$) |
|----------------------|--|---|---------------------------|-----------------|-------------------|---|
| | Exhaust PM2.5/DPM ($\mu\text{g}/\text{m}^3$) | Fugitive PM2.5 ($\mu\text{g}/\text{m}^3$) | Child | Adult | | |
| | 2016 | 0.1326 | 0.1521 | 11.6 | 0.6 | 0.027 | 0.285 |
| Total Maximum Annual | - 0.1326 | - 0.1521 | 11.6 - | 0.6 - | - 0.027 | - 0.285 |

Central Coast Transfer Station Construction Health Impact Summary
Construction Emissions by Phase and Year

| Year | Unmitigated Exhaust PM2.5 Emissions (TPY) | | | | | |
|--------------|---|----------|----------|----------|----------|---------------|
| | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Phase 5 | Total |
| 2016 | 0.0736 | | | | | 0.0736 |
| Total | 0.0736 | 0 | 0 | 0 | 0 | 0.0736 |

| Year | Fugitive PM2.5 Emissions (TPY) | | | | | |
|--------------|--------------------------------|----------|----------|----------|----------|----------------|
| | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Phase 5 | Total |
| 2016 | 0.0659 | | | | | 0.06590 |
| Total | 0.0659 | 0 | 0 | 0 | 0 | 0.0659 |

Central Coast Transfer Station Construction Health Impact Summary

Unmitigated DPM Construction Emissions and Modeling Emission Rates

| Construction Year | Activity | Source | DPM Emissions | | | | Modeled Area (m ²) | DPM Emission Rate g/s/m ² |
|----------------------|--------------|---------|---------------|---------------|---------------|----------|--------------------------------------|---|
| | | | (ton/year) | (lb/yr) | (lb/hr) | (g/s) | | |
| 2016 | Construction | Exhaust | 0.0736 | 147.2 | 0.01680 | 2.12E-03 | 12064.0 | 1.76E-07 |
| Total | | | 0.0736 | 147.20 | 0.0168 | | | 1.7550E-07 |

Notes:

Emissions assumed to be evenly distributed over each construction areas

24 hr/day = (8am - 5pm)
 365 days/yr =
 8760 hours/year =

Central Coast Transfer Station Construction Health Impact Summary
Maximum DPM Cancer Risk Calculations From Construction
Off-Site Residential Receptor Locations - 1.5 meter height

Cancer Risk (per million) = CPF x Inhalation Dose x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)⁻¹

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10⁻⁶ / AT

Where: C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

AT = Averaging time period over which exposure is averaged.

10⁻⁶ = Conversion factor

Values

| Parameter | Child | Adult |
|-----------|----------|----------|
| CPF = | 1.10E+00 | 1.10E+00 |
| DBR = | 581 | 302 |
| A = | 1 | 1 |
| EF = | 350 | 350 |
| AT = | 25,550 | 25,550 |

Construction Cancer Risk by Year - Maximum Impact Receptor Location

| Exposure Year | Exposure Duration (years) | Child - Exposure Information | | | Child Cancer Risk (per million) | Adult - Exposure Information | | | Adult Cancer Risk (per million) | HI | Fugitive PM2.5 | Total PM2.5 | |
|------------------------------------|---------------------------|------------------------------|--------|---------------|---------------------------------|------------------------------|----------|---------------|---------------------------------|------|----------------|-------------|---------------|
| | | DPM Conc (ug/m3) | | Adjust Factor | | Modeled | | Adjust Factor | | | | | |
| | | Year | Annual | | | Year | Annual | | | | | | |
| | | Year | Annual | Factor | | Year | Annual | Factor | | | | | (per million) |
| 1 | 1 | 2016 | 0.1326 | 10 | 11.61 | 2016 | 0.132585 | 1 | 0.60 | 2016 | 0.027 | 0.1521 | 0.285 |
| 2 | 1 | | 0.0000 | 10 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 3 | 1 | | 0.0000 | 4.75 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 4 | 1 | | 0.0000 | 3 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 5 | 1 | | 0.0000 | 3 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 6 | 1 | | 0.0000 | 3 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 7 | 1 | | 0.0000 | 3 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 8 | 1 | | 0.0000 | 3 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 9 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 10 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 11 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 12 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 13 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 14 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 15 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 16 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 17 | 1 | | 0.0000 | 1.5 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 18 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| . | . | . | . | . | . | . | . | . | . | | | | |
| . | . | . | . | . | . | . | . | . | . | | | | |
| . | . | . | . | . | . | . | . | . | . | | | | |
| 65 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 66 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 67 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 68 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 69 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 70 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| Total Increased Cancer Risk | | | | | 11.61 | | | | 0.60 | | | | |

Central Coast Transfer Station Construction Health Impact Summary
Mitigated
Construction Health Impact Summary

| Construction Year | Maximum Concentrations | | Cancer Risk (per million) | | Hazard Index (-) | Maximum Annual PM2.5 Concentration ($\mu\text{g}/\text{m}^3$) |
|----------------------|--|---|---------------------------|-----------------|-------------------|---|
| | Exhaust PM2.5/DPM ($\mu\text{g}/\text{m}^3$) | Fugitive PM2.5 ($\mu\text{g}/\text{m}^3$) | Child | Adult | | |
| | | | - | - | | |
| 2016 | 0.0670 | 0.1521 | 5.9 | 0.3 | 0.013 | 0.219 |
| Total Maximum Annual | - 0.0670 | - 0.1521 | 5.9 - | 0.3 - | - 0.013 | - 0.219 |

Central Coast Transfer Station Construction Health Impact Summary
Construction Emissions by Phase and Year

| Year | Mitigated Exhaust PM2.5 Emissions (TPY) | | | | | |
|--------------|---|----------|----------|----------|----------|---------------|
| | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Phase 5 | Total |
| 2016 | 0.0372 | | | | | 0.0372 |
| Total | 0.0372 | 0 | 0 | 0 | 0 | 0.0372 |

| Year | Fugitive PM2.5 Emissions (TPY) | | | | | |
|--------------|--------------------------------|----------|----------|----------|----------|----------------|
| | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Phase 5 | Total |
| 2016 | 0.0659 | | | | | 0.06590 |
| Total | 0.0659 | 0 | 0 | 0 | 0 | 0.0659 |

Central Coast Transfer Station Construction Health Impact Summary

DPM Construction Emissions and Modeling Emission Rates

| Construction | | | DPM Emissions | | | | Modeled Area | DPM Emission Rate |
|--------------|--------------|---------|---------------|--------------|---------------|----------|-------------------|--------------------|
| Year | Activity | Source | (ton/year) | (lb/yr) | (lb/hr) | (g/s) | (m ²) | g/s/m ² |
| 2016 | Construction | Exhaust | 0.0372 | 74.4 | 0.00849 | 1.07E-03 | 12064.0 | 8.87E-08 |
| Total | | | 0.0372 | 74.40 | 0.0085 | | | 8.8705E-08 |

Notes:

Emissions assumed to be evenly distributed over each construction areas

24 hr/day = (8am - 5pm)
 365 days/yr =
 8760 ours/year =

Central Coast Transfer Station Construction Health Impact Summary
Maximum DPM Cancer Risk Calculations From Construction
Off-Site Residential Receptor Locations - 1.5 meter height

Cancer Risk (per million) = CPF x Inhalation Dose x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)⁻¹

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10⁻⁶ / AT

Where: C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

AT = Averaging time period over which exposure is averaged.

10⁻⁶ = Conversion factor

Values

| Parameter | Child | Adult |
|-----------|----------|----------|
| CPF = | 1.10E+00 | 1.10E+00 |
| DBR = | 581 | 302 |
| A = | 1 | 1 |
| EF = | 350 | 350 |
| AT = | 25,550 | 25,550 |

Construction Cancer Risk by Year - Maximum Impact Receptor Location

| Exposure Year | Exposure Duration (years) | Child - Exposure Information | | | Child Cancer Risk (per million) | Adult - Exposure Information | | | Adult Cancer Risk (per million) | HI | Fugitive PM2.5 | Total PM2.5 | |
|------------------------------------|---------------------------|------------------------------|--------|---------------|---------------------------------|------------------------------|----------|---------------|---------------------------------|------|----------------|-------------|-------|
| | | DPM Conc (ug/m3) | | Adjust Factor | | Modeled | | Adjust Factor | | | | | |
| | | Year | Annual | | | Year | Annual | | | | | | |
| | | Year | Annual | Year | | Annual | Year | Annual | | | | | Year | Annual |
| 1 | 1 | 2016 | 0.0670 | 10 | 5.87 | 2016 | 0.067013 | 1 | 0.30 | 2016 | 0.013 | 0.1521 | 0.219 |
| 2 | 1 | | 0.0000 | 10 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 3 | 1 | | 0.0000 | 4.75 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 4 | 1 | | 0.0000 | 3 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 5 | 1 | | 0.0000 | 3 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 6 | 1 | | 0.0000 | 3 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 7 | 1 | | 0.0000 | 3 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 8 | 1 | | 0.0000 | 3 | 0.00 | | 0.000000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 9 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | 0 | 0.000 | 0.0000 | 0.000 |
| 10 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 11 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 12 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 13 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 14 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 15 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 16 | 1 | | 0.0000 | 3 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 17 | 1 | | 0.0000 | 1.5 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 18 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| . | . | . | . | . | . | . | . | . | . | | | | |
| . | . | . | . | . | . | . | . | . | . | | | | |
| . | . | . | . | . | . | . | . | . | . | | | | |
| 65 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 66 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 67 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 68 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 69 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| 70 | 1 | | 0.0000 | 1 | 0.00 | | 0.0000 | 1 | 0.00 | | | | |
| Total Increased Cancer Risk | | | | | 5.87 | | | | 0.30 | | | | |

Appendix C

CalEEMod Model Run

MSWMA Central Coast Transfer Station Mendocino-Coastal County, Annual

1.0 Project Characteristics

1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|------------------------|-------|----------|-------------|--------------------|------------|
| General Light Industry | 30.00 | 1000sqft | 5.00 | 30,000.00 | 0 |

1.2 Other Project Characteristics

| | | | | | |
|-------------------------|--------------------------------|-------------------------|-------|---------------------------|-------|
| Urbanization | Rural | Wind Speed (m/s) | 2.7 | Precipitation Freq (Days) | 86 |
| Climate Zone | 1 | Operational Year | 2017 | | |
| Utility Company | Pacific Gas & Electric Company | | | | |
| CO2 Intensity (lb/MWhr) | 641.35 | CH4 Intensity (lb/MWhr) | 0.029 | N2O Intensity (lb/MWhr) | 0.006 |

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on project description and estimate of acreage

Construction Phase - Based on provided construction equipment list and schedule

Off-road Equipment - Based on provided construction equipment list and schedule

Off-road Equipment - Based on provided construction equipment list and schedule

Off-road Equipment - Based on provided construction equipment list and schedule

Off-road Equipment - Based on provided construction equipment list and schedule

Off-road Equipment - Based on provided construction equipment list and schedule

Off-road Equipment - Based on provided construction equipment list and schedule

Trips and VMT - Asphalt trips = 1210 cy/9 * 2 = 269

Grading - Based on provided construction equipment list and schedule

Vehicle Trips - Used EMFAC2011 to separately compute mobile emissions

Construction Off-road Equipment Mitigation - Tier 2 equipment and BMPs for PM2.5/PM10

Operational Off-Road Equipment - Estimate based on project description

| Table Name | Column Name | Default Value | New Value |
|-------------------------|----------------------------|---------------|-----------|
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 3.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 4.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 2.00 |

| | | | |
|-------------------------|----------------------------|------------|------------|
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 5.00 |
| tblConstEquipMitigation | NumberOfEquipmentMitigated | 0.00 | 1.00 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstEquipMitigation | Tier | No Change | Tier 2 |
| tblConstructionPhase | NumDays | 18.00 | 44.00 |
| tblConstructionPhase | NumDays | 230.00 | 76.00 |
| tblConstructionPhase | NumDays | 8.00 | 31.00 |
| tblConstructionPhase | NumDays | 18.00 | 14.00 |
| tblConstructionPhase | NumDays | 5.00 | 13.00 |
| tblConstructionPhase | PhaseEndDate | 12/15/2016 | 11/1/2016 |
| tblConstructionPhase | PhaseEndDate | 10/26/2016 | 10/14/2016 |
| tblConstructionPhase | PhaseEndDate | 6/30/2016 | 6/27/2016 |
| tblConstructionPhase | PhaseEndDate | 11/21/2016 | 10/20/2016 |
| tblConstructionPhase | PhaseEndDate | 7/25/2016 | 7/12/2016 |
| tblConstructionPhase | PhaseStartDate | 10/15/2016 | 9/1/2016 |
| tblConstructionPhase | PhaseStartDate | 7/13/2016 | 7/1/2016 |
| tblConstructionPhase | PhaseStartDate | 5/19/2016 | 5/15/2016 |
| tblConstructionPhase | PhaseStartDate | 11/2/2016 | 10/1/2016 |
| tblConstructionPhase | PhaseStartDate | 6/28/2016 | 6/15/2016 |
| tblGrading | AcresOfGrading | 7.94 | 4.00 |
| tblGrading | MaterialExported | 0.00 | 5,000.00 |
| tblGrading | MaterialImported | 0.00 | 6,000.00 |
| tblLandUse | LotAcreage | 0.69 | 5.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 6.00 | 5.60 |
| tblOffRoadEquipment | UsageHours | 7.00 | 2.20 |
| tblOffRoadEquipment | UsageHours | 8.00 | 4.10 |

| | | | |
|--------------------------------|----------------------------|-------|--------|
| tblOffRoadEquipment | UsageHours | 8.00 | 3.60 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.80 |
| tblOffRoadEquipment | UsageHours | 8.00 | 4.10 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.90 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.90 |
| tblOffRoadEquipment | UsageHours | 8.00 | 5.70 |
| tblOffRoadEquipment | UsageHours | 8.00 | 4.10 |
| tblOffRoadEquipment | UsageHours | 8.00 | 7.40 |
| tblOffRoadEquipment | UsageHours | 7.00 | 5.10 |
| tblOffRoadEquipment | UsageHours | 8.00 | 4.10 |
| tblOffRoadEquipment | UsageHours | 8.00 | 7.40 |
| tblOffRoadEquipment | UsageHours | 8.00 | 3.00 |
| tblOperationalOffRoadEquipment | OperHoursPerDay | 8.00 | 4.00 |
| tblOperationalOffRoadEquipment | OperHoursPerDay | 8.00 | 4.00 |
| tblOperationalOffRoadEquipment | OperOffRoadEquipmentNumber | 0.00 | 1.00 |
| tblOperationalOffRoadEquipment | OperOffRoadEquipmentNumber | 0.00 | 1.00 |
| tblOperationalOffRoadEquipment | OperOffRoadEquipmentNumber | 0.00 | 1.00 |
| tblProjectCharacteristics | OperationalYear | 2014 | 2017 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 0.30 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 0.30 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 0.30 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 0.30 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 0.30 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 0.30 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 0.30 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 269.00 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 0.30 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 0.30 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 0.30 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 0.30 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 0.30 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 0.30 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 0.30 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 0.30 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 0.30 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 0.30 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 0.30 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 0.30 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 0.30 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 0.30 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 0.30 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 0.30 |
| tblVehicleTrips | ST_TR | 1.32 | 0.10 |
| tblVehicleTrips | SU_TR | 0.68 | 0.10 |
| tblVehicleTrips | WD_TR | 6.97 | 0.10 |

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|------|---------|-----|----|-----|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-----|-----|------|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |

| | | | | | | | | | | | | | | | | |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| 2016 | 0.5094 | 1.2961 | 1.1900 | 1.2600e-003 | 0.2806 | 0.0782 | 0.3588 | 0.0659 | 0.0736 | 0.1395 | 0.0000 | 113.9991 | 113.9991 | 0.0277 | 0.0000 | 114.5811 |
| Total | 0.5094 | 1.2961 | 1.1900 | 1.2600e-003 | 0.2806 | 0.0782 | 0.3588 | 0.0659 | 0.0736 | 0.1395 | 0.0000 | 113.9991 | 113.9991 | 0.0277 | 0.0000 | 114.5811 |

Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2016 | 0.4199 | 1.0740 | 1.1298 | 1.2600e-003 | 0.1580 | 0.0372 | 0.1952 | 0.0165 | 0.0372 | 0.0536 | 0.0000 | 113.9990 | 113.9990 | 0.0277 | 0.0000 | 114.5810 |
| Total | 0.4199 | 1.0740 | 1.1298 | 1.2600e-003 | 0.1580 | 0.0372 | 0.1952 | 0.0165 | 0.0372 | 0.0536 | 0.0000 | 113.9990 | 113.9990 | 0.0277 | 0.0000 | 114.5810 |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------------------|--------------|--------------|-------------|-------------|---------------|--------------|--------------|----------------|---------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Percent Reduction | 17.57 | 17.14 | 5.06 | 0.00 | 43.71 | 52.46 | 45.61 | 75.01 | 49.54 | 61.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

2.2 Overall Operational

Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.1520 | 0.0000 | 2.8000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 5.4000e-004 | 5.4000e-004 | 0.0000 | 0.0000 | 5.7000e-004 |
| Energy | 6.0000e-004 | 5.4100e-003 | 4.5500e-003 | 3.0000e-005 | | 4.1000e-004 | 4.1000e-004 | | 4.1000e-004 | 4.1000e-004 | 0.0000 | 47.1717 | 47.1717 | 1.9800e-003 | 4.9000e-004 | 47.3665 |
| Mobile | 4.6000e-003 | 0.0153 | 0.0515 | 7.0000e-005 | 1.2974 | 1.9000e-004 | 1.2975 | 0.1297 | 1.8000e-004 | 0.1299 | 0.0000 | 5.6821 | 5.6821 | 2.6000e-004 | 0.0000 | 5.6875 |
| Offroad | 0.1171 | 1.3998 | 0.4931 | 1.2600e-003 | | 0.0587 | 0.0587 | | 0.0540 | 0.0540 | 0.0000 | 117.1540 | 117.1540 | 0.0359 | 0.0000 | 117.9078 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 7.5513 | 0.0000 | 7.5513 | 0.4463 | 0.0000 | 16.9229 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 2.2010 | 10.9205 | 13.1214 | 0.2266 | 5.4400e-003 | 19.5654 |
| Total | 0.2742 | 1.4205 | 0.5495 | 1.3600e-003 | 1.2974 | 0.0593 | 1.3566 | 0.1297 | 0.0546 | 0.1843 | 9.7522 | 180.9288 | 190.6810 | 0.7110 | 5.9300e-003 | 207.4506 |

Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|----------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-------------|-------------|-------------|-------------|-------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.1520 | 0.0000 | 2.8000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 5.4000e-004 | 5.4000e-004 | 0.0000 | 0.0000 | 5.7000e-004 |
| Energy | 6.0000e-004 | 5.4100e-003 | 4.5500e-003 | 3.0000e-005 | | 4.1000e-004 | 4.1000e-004 | | 4.1000e-004 | 4.1000e-004 | 0.0000 | 47.1717 | 47.1717 | 1.9800e-003 | 4.9000e-004 | 47.3665 |
| Mobile | 4.6000e-003 | 0.0153 | 0.0515 | 7.0000e-005 | 1.2974 | 1.9000e-004 | 1.2975 | 0.1297 | 1.8000e-004 | 0.1299 | 0.0000 | 5.6821 | 5.6821 | 2.6000e-004 | 0.0000 | 5.6875 |
| Offroad | 0.1171 | 1.3998 | 0.4931 | 1.2600e-003 | | 0.0587 | 0.0587 | | 0.0540 | 0.0540 | 0.0000 | 117.1540 | 117.1540 | 0.0359 | 0.0000 | 117.9078 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 7.5513 | 0.0000 | 7.5513 | 0.4463 | 0.0000 | 16.9229 |

| | | | | | | | | | | | | | | | | |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 2.2010 | 10.9205 | 13.1214 | 0.2265 | 5.4300e-003 | 19.5619 |
| Total | 0.2742 | 1.4205 | 0.5495 | 1.3600e-003 | 1.2974 | 0.0593 | 1.3566 | 0.1297 | 0.0546 | 0.1843 | 9.7522 | 180.9288 | 190.6810 | 0.7109 | 5.9200e-003 | 207.4471 |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------------------|--------------|--------------|--------------|--------------|---------------|--------------|-------------|----------------|---------------|--------------|-------------|--------------|--------------|-------------|-------------|--------------|
| Percent Reduction | 42.69 | 98.54 | 89.75 | 92.65 | 0.00 | 98.99 | 4.33 | 0.00 | 98.92 | 29.30 | 0.00 | 64.75 | 61.44 | 5.06 | 0.17 | 56.84 |

3.0 Construction Detail

Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|------------|---------------|----------|-------------------|
| 1 | Site Preparation | Site Preparation | 5/1/2016 | 5/18/2016 | 5 | 13 | |
| 2 | Grading | Grading | 5/15/2016 | 6/27/2016 | 5 | 31 | |
| 3 | Trenching | Trenching | 6/15/2016 | 7/12/2016 | 5 | 20 | |
| 4 | Building Construction | Building Construction | 7/1/2016 | 10/14/2016 | 5 | 76 | |
| 5 | Interior Construction | Architectural Coating | 9/1/2016 | 11/1/2016 | 5 | 44 | |
| 6 | Paving | Paving | 10/1/2016 | 10/20/2016 | 5 | 14 | |

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 45,000; Non-Residential Outdoor: 15,000 (Architectural Coating –

OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|------------------------------------|--------|-------------|-------------|-------------|
| Site Preparation | Excavators | 1 | 4.60 | 162 | 0.38 |
| Site Preparation | Other Construction Equipment | 1 | 5.50 | 171 | 0.42 |
| Site Preparation | Rubber Tired Dozers | 1 | 7.40 | 255 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 7.40 | 97 | 0.37 |
| Grading | Excavators | 1 | 4.10 | 162 | 0.38 |
| Grading | Graders | 1 | 4.10 | 174 | 0.41 |
| Grading | Other Construction Equipment | 1 | 2.30 | 171 | 0.42 |
| Grading | Other Construction Equipment | 1 | 4.10 | 171 | 0.42 |
| Grading | Rubber Tired Dozers | 1 | 4.10 | 255 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 1 | 4.10 | 97 | 0.37 |
| Trenching | Excavators | 1 | 4.80 | 162 | 0.38 |
| Trenching | Other Construction Equipment | 1 | 4.80 | 171 | 0.42 |
| Trenching | Plate Compactors | 1 | 4.80 | 8 | 0.43 |
| Trenching | Tractors/Loaders/Backhoes | 1 | 4.80 | 97 | 0.37 |
| Building Construction | Cement and Mortar Mixers | | 4.20 | 9 | 0.56 |
| Building Construction | Cranes | 1 | 2.20 | 226 | 0.29 |
| Building Construction | Forklifts | 1 | 3.60 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 6.80 | 84 | 0.74 |
| Building Construction | Skid Steer Loaders | 1 | 4.10 | 64 | 0.37 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 5.10 | 97 | 0.37 |
| Building Construction | Welders | 1 | 3.00 | 46 | 0.45 |
| Interior Construction | Aerial Lifts | 1 | 3.80 | 62 | 0.31 |
| Interior Construction | Air Compressors | 2 | 5.60 | 78 | 0.48 |
| Interior Construction | Other General Industrial Equipment | 1 | 5.80 | 87 | 0.34 |
| Interior Construction | Skid Steer Loaders | 1 | 6.40 | 64 | 0.37 |

| | | | | | |
|--------|---------------------------|---|------|-----|------|
| Paving | Cement and Mortar Mixers | 1 | 5.70 | 9 | 0.56 |
| Paving | Pavers | 1 | 6.90 | 125 | 0.42 |
| Paving | Paving Equipment | 1 | 6.90 | 130 | 0.36 |
| Paving | Rollers | 1 | 5.70 | 80 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | 1 | 5.70 | 97 | 0.37 |

Trips and VMT

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Site Preparation | 4 | 10.00 | 0.00 | 0.00 | 0.30 | 0.30 | 0.30 | LD_Mix | HDT_Mix | HHDT |
| Grading | 6 | 15.00 | 0.00 | 1,088.00 | 0.30 | 0.30 | 0.30 | LD_Mix | HDT_Mix | HHDT |
| Trenching | 4 | 10.00 | 0.00 | 0.00 | 0.30 | 0.30 | 0.30 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 6 | 13.00 | 5.00 | 0.00 | 0.30 | 0.30 | 0.30 | LD_Mix | HDT_Mix | HHDT |
| Interior Construction | 5 | 3.00 | 0.00 | 0.00 | 0.30 | 0.30 | 0.30 | LD_Mix | HDT_Mix | HHDT |
| Paving | 5 | 13.00 | 0.00 | 269.00 | 0.30 | 0.30 | 0.30 | LD_Mix | HDT_Mix | HHDT |

3.1 Mitigation Measures Construction

- Use Cleaner Engines for Construction Equipment
- Use Soil Stabilizer
- Replace Ground Cover
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2016

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0362 | 0.0000 | 0.0362 | 0.0199 | 0.0000 | 0.0199 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0139 | 0.1525 | 0.1094 | 1.2000e-004 | 7.9300e-003 | 7.9300e-003 | | 7.3000e-003 | 7.3000e-003 | | 0.0000 | 11.2548 | 11.2548 | 3.3900e-003 | 0.0000 | 11.3261 |
| Total | 0.0139 | 0.1525 | 0.1094 | 1.2000e-004 | 0.0362 | 7.9300e-003 | 0.0441 | 0.0199 | 7.3000e-003 | 0.0272 | 0.0000 | 11.2548 | 11.2548 | 3.3900e-003 | 0.0000 | 11.3261 |

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.7000e-004 | 7.0000e-005 | 1.0500e-003 | 0.0000 | 6.5900e-003 | 0.0000 | 6.5900e-003 | 6.6000e-004 | 0.0000 | 6.6000e-004 | 0.0000 | 0.0253 | 0.0253 | 0.0000 | 0.0000 | 0.0254 |
| Total | 2.7000e-004 | 7.0000e-005 | 1.0500e-003 | 0.0000 | 6.5900e-003 | 0.0000 | 6.5900e-003 | 6.6000e-004 | 0.0000 | 6.6000e-004 | 0.0000 | 0.0253 | 0.0253 | 0.0000 | 0.0000 | 0.0254 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0163 | 0.0000 | 0.0163 | 4.4800e-003 | 0.0000 | 4.4800e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.0200e-003 | 0.1035 | 0.0782 | 1.2000e-004 | | 2.9300e-003 | 2.9300e-003 | | 2.9300e-003 | 2.9300e-003 | 0.0000 | 11.2548 | 11.2548 | 3.3900e-003 | 0.0000 | 11.3261 |
| Total | 4.0200e-003 | 0.1035 | 0.0782 | 1.2000e-004 | 0.0163 | 2.9300e-003 | 0.0192 | 4.4800e-003 | 2.9300e-003 | 7.4100e-003 | 0.0000 | 11.2548 | 11.2548 | 3.3900e-003 | 0.0000 | 11.3261 |

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.7000e-004 | 7.0000e-005 | 1.0500e-003 | 0.0000 | 4.0400e-003 | 0.0000 | 4.0400e-003 | 2.0000e-004 | 0.0000 | 2.0000e-004 | 0.0000 | 0.0253 | 0.0253 | 0.0000 | 0.0000 | 0.0254 |
| Total | 2.7000e-004 | 7.0000e-005 | 1.0500e-003 | 0.0000 | 4.0400e-003 | 0.0000 | 4.0400e-003 | 2.0000e-004 | 0.0000 | 2.0000e-004 | 0.0000 | 0.0253 | 0.0253 | 0.0000 | 0.0000 | 0.0254 |

3.3 Grading - 2016

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0500 | 0.0000 | 0.0500 | 0.0265 | 0.0000 | 0.0265 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0320 | 0.3451 | 0.2216 | 2.6000e-004 | | 0.0183 | 0.0183 | | 0.0168 | 0.0168 | 0.0000 | 24.8111 | 24.8111 | 7.4800e-003 | 0.0000 | 24.9683 |
| Total | 0.0320 | 0.3451 | 0.2216 | 2.6000e-004 | 0.0500 | 0.0183 | 0.0683 | 0.0265 | 0.0168 | 0.0433 | 0.0000 | 24.8111 | 24.8111 | 7.4800e-003 | 0.0000 | 24.9683 |

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0139 | 0.0174 | 0.1971 | 2.0000e-005 | 0.0552 | 9.0000e-005 | 0.0553 | 5.5300e-003 | 8.0000e-005 | 5.6100e-003 | 0.0000 | 1.4245 | 1.4245 | 3.0000e-005 | 0.0000 | 1.4252 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 9.6000e-004 | 2.6000e-004 | 3.7600e-003 | 0.0000 | 0.0236 | 0.0000 | 0.0236 | 2.3600e-003 | 0.0000 | 2.3600e-003 | 0.0000 | 0.0904 | 0.0904 | 2.0000e-005 | 0.0000 | 0.0907 |
| Total | 0.0149 | 0.0176 | 0.2009 | 2.0000e-005 | 0.0788 | 9.0000e-005 | 0.0789 | 7.8900e-003 | 8.0000e-005 | 7.9700e-003 | 0.0000 | 1.5148 | 1.5148 | 5.0000e-005 | 0.0000 | 1.5159 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0225 | 0.0000 | 0.0225 | 5.9700e-003 | 0.0000 | 5.9700e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 9.3900e-003 | 0.2263 | 0.1828 | 2.6000e-004 | | 6.6200e-003 | 6.6200e-003 | | 6.6200e-003 | 6.6200e-003 | 0.0000 | 24.8111 | 24.8111 | 7.4800e-003 | 0.0000 | 24.9683 |
| Total | 9.3900e-003 | 0.2263 | 0.1828 | 2.6000e-004 | 0.0225 | 6.6200e-003 | 0.0291 | 5.9700e-003 | 6.6200e-003 | 0.0126 | 0.0000 | 24.8111 | 24.8111 | 7.4800e-003 | 0.0000 | 24.9683 |

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0139 | 0.0174 | 0.1971 | 2.0000e-005 | 0.0338 | 9.0000e-005 | 0.0339 | 1.7100e-003 | 8.0000e-005 | 1.8000e-003 | 0.0000 | 1.4245 | 1.4245 | 3.0000e-005 | 0.0000 | 1.4252 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 9.6000e-004 | 2.6000e-004 | 3.7600e-003 | 0.0000 | 0.0145 | 0.0000 | 0.0145 | 7.3000e-004 | 0.0000 | 7.3000e-004 | 0.0000 | 0.0904 | 0.0904 | 2.0000e-005 | 0.0000 | 0.0907 |
| Total | 0.0149 | 0.0176 | 0.2009 | 2.0000e-005 | 0.0483 | 9.0000e-005 | 0.0484 | 2.4400e-003 | 8.0000e-005 | 2.5300e-003 | 0.0000 | 1.5148 | 1.5148 | 5.0000e-005 | 0.0000 | 1.5159 |

3.4 Trenching - 2016

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 8.6000e-003 | 0.0918 | 0.0618 | 9.0000e-005 | | 5.2000e-003 | 5.2000e-003 | | 4.7800e-003 | 4.7800e-003 | 0.0000 | 8.4174 | 8.4174 | 2.5000e-003 | 0.0000 | 8.4700 |
| Total | 8.6000e-003 | 0.0918 | 0.0618 | 9.0000e-005 | | 5.2000e-003 | 5.2000e-003 | | 4.7800e-003 | 4.7800e-003 | 0.0000 | 8.4174 | 8.4174 | 2.5000e-003 | 0.0000 | 8.4700 |

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.1000e-004 | 1.1000e-004 | 1.6200e-003 | 0.0000 | 0.0101 | 0.0000 | 0.0101 | 1.0200e-003 | 0.0000 | 1.0200e-003 | 0.0000 | 0.0389 | 0.0389 | 1.0000e-005 | 0.0000 | 0.0390 |
| Total | 4.1000e-004 | 1.1000e-004 | 1.6200e-003 | 0.0000 | 0.0101 | 0.0000 | 0.0101 | 1.0200e-003 | 0.0000 | 1.0200e-003 | 0.0000 | 0.0389 | 0.0389 | 1.0000e-005 | 0.0000 | 0.0390 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 3.5600e-003 | 0.0769 | 0.0663 | 9.0000e-005 | | 2.5400e-003 | 2.5400e-003 | | 2.5400e-003 | 2.5400e-003 | 0.0000 | 8.4174 | 8.4174 | 2.5000e-003 | 0.0000 | 8.4700 |
| Total | 3.5600e-003 | 0.0769 | 0.0663 | 9.0000e-005 | | 2.5400e-003 | 2.5400e-003 | | 2.5400e-003 | 2.5400e-003 | 0.0000 | 8.4174 | 8.4174 | 2.5000e-003 | 0.0000 | 8.4700 |

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.1000e-004 | 1.1000e-004 | 1.6200e-003 | 0.0000 | 6.2200e-003 | 0.0000 | 6.2200e-003 | 3.1000e-004 | 0.0000 | 3.1000e-004 | 0.0000 | 0.0389 | 0.0389 | 1.0000e-005 | 0.0000 | 0.0390 |
| Total | 4.1000e-004 | 1.1000e-004 | 1.6200e-003 | 0.0000 | 6.2200e-003 | 0.0000 | 6.2200e-003 | 3.1000e-004 | 0.0000 | 3.1000e-004 | 0.0000 | 0.0389 | 0.0389 | 1.0000e-005 | 0.0000 | 0.0390 |

3.5 Building Construction - 2016

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0505 | 0.4120 | 0.2892 | 4.5000e-004 | | 0.0275 | 0.0275 | | 0.0263 | 0.0263 | 0.0000 | 39.8073 | 39.8073 | 8.0100e-003 | 0.0000 | 39.9755 |
| Total | 0.0505 | 0.4120 | 0.2892 | 4.5000e-004 | | 0.0275 | 0.0275 | | 0.0263 | 0.0263 | 0.0000 | 39.8073 | 39.8073 | 8.0100e-003 | 0.0000 | 39.9755 |

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 3.4700e-003 | 5.3700e-003 | 0.0423 | 1.0000e-005 | 0.0193 | 4.0000e-005 | 0.0193 | 1.9300e-003 | 4.0000e-005 | 1.9700e-003 | 0.0000 | 0.4549 | 0.4549 | 1.0000e-005 | 0.0000 | 0.4550 |
| Worker | 2.0300e-003 | 5.6000e-004 | 8.0000e-003 | 0.0000 | 0.0501 | 1.0000e-005 | 0.0501 | 5.0100e-003 | 1.0000e-005 | 5.0200e-003 | 0.0000 | 0.1920 | 0.1920 | 4.0000e-005 | 0.0000 | 0.1928 |
| Total | 5.5000e-003 | 5.9300e-003 | 0.0503 | 1.0000e-005 | 0.0694 | 5.0000e-005 | 0.0694 | 6.9400e-003 | 5.0000e-005 | 6.9900e-003 | 0.0000 | 0.6469 | 0.6469 | 5.0000e-005 | 0.0000 | 0.6478 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0177 | 0.3794 | 0.2905 | 4.5000e-004 | | 0.0149 | 0.0149 | | 0.0149 | 0.0149 | 0.0000 | 39.8072 | 39.8072 | 8.0100e-003 | 0.0000 | 39.9755 |
| Total | 0.0177 | 0.3794 | 0.2905 | 4.5000e-004 | | 0.0149 | 0.0149 | | 0.0149 | 0.0149 | 0.0000 | 39.8072 | 39.8072 | 8.0100e-003 | 0.0000 | 39.9755 |

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 3.4700e-003 | 5.3700e-003 | 0.0423 | 1.0000e-005 | 0.0118 | 4.0000e-005 | 0.0119 | 6.0000e-004 | 4.0000e-005 | 6.4000e-004 | 0.0000 | 0.4549 | 0.4549 | 1.0000e-005 | 0.0000 | 0.4550 |
| Worker | 2.0300e-003 | 5.6000e-004 | 8.0000e-003 | 0.0000 | 0.0307 | 1.0000e-005 | 0.0307 | 1.5500e-003 | 1.0000e-005 | 1.5600e-003 | 0.0000 | 0.1920 | 0.1920 | 4.0000e-005 | 0.0000 | 0.1928 |
| Total | 5.5000e-003 | 5.9300e-003 | 0.0503 | 1.0000e-005 | 0.0425 | 5.0000e-005 | 0.0426 | 2.1500e-003 | 5.0000e-005 | 2.2000e-003 | 0.0000 | 0.6469 | 0.6469 | 5.0000e-005 | 0.0000 | 0.6478 |

3.6 Interior Construction - 2016

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.3476 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0237 | 0.1842 | 0.1468 | 2.2000e-004 | | 0.0142 | 0.0142 | | 0.0137 | 0.0137 | 0.0000 | 19.2924 | 19.2924 | 3.8900e-003 | 0.0000 | 19.3742 |
| Total | 0.3713 | 0.1842 | 0.1468 | 2.2000e-004 | | 0.0142 | 0.0142 | | 0.0137 | 0.0137 | 0.0000 | 19.2924 | 19.2924 | 3.8900e-003 | 0.0000 | 19.3742 |

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.7000e-004 | 8.0000e-005 | 1.0700e-003 | 0.0000 | 6.6900e-003 | 0.0000 | 6.6900e-003 | 6.7000e-004 | 0.0000 | 6.7000e-004 | 0.0000 | 0.0257 | 0.0257 | 0.0000 | 0.0000 | 0.0258 |
| Total | 2.7000e-004 | 8.0000e-005 | 1.0700e-003 | 0.0000 | 6.6900e-003 | 0.0000 | 6.6900e-003 | 6.7000e-004 | 0.0000 | 6.7000e-004 | 0.0000 | 0.0257 | 0.0257 | 0.0000 | 0.0000 | 0.0258 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|---------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.3476 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 9.1000e-003 | 0.1879 | 0.1463 | 2.2000e-004 | | 7.5900e-003 | 7.5900e-003 | | 7.5900e-003 | 7.5900e-003 | 0.0000 | 19.2924 | 19.2924 | 3.8900e-003 | 0.0000 | 19.3742 |
| Total | 0.3567 | 0.1879 | 0.1463 | 2.2000e-004 | | 7.5900e-003 | 7.5900e-003 | | 7.5900e-003 | 7.5900e-003 | 0.0000 | 19.2924 | 19.2924 | 3.8900e-003 | 0.0000 | 19.3742 |

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.7000e-004 | 8.0000e-005 | 1.0700e-003 | 0.0000 | 4.1000e-003 | 0.0000 | 4.1000e-003 | 2.1000e-004 | 0.0000 | 2.1000e-004 | 0.0000 | 0.0257 | 0.0257 | 0.0000 | 0.0000 | 0.0258 |
| Total | 2.7000e-004 | 8.0000e-005 | 1.0700e-003 | 0.0000 | 4.1000e-003 | 0.0000 | 4.1000e-003 | 2.1000e-004 | 0.0000 | 2.1000e-004 | 0.0000 | 0.0257 | 0.0257 | 0.0000 | 0.0000 | 0.0258 |

3.7 Paving - 2016

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 7.9500e-003 | 0.0824 | 0.0562 | 8.0000e-005 | | 4.8900e-003 | 4.8900e-003 | | 4.5000e-003 | 4.5000e-003 | 0.0000 | 7.7771 | 7.7771 | 2.3000e-003 | 0.0000 | 7.8254 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 7.9500e-003 | 0.0824 | 0.0562 | 8.0000e-005 | | 4.8900e-003 | 4.8900e-003 | | 4.5000e-003 | 4.5000e-003 | 0.0000 | 7.7771 | 7.7771 | 2.3000e-003 | 0.0000 | 7.8254 |

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 3.4500e-003 | 4.2900e-003 | 0.0487 | 0.0000 | 0.0137 | 2.0000e-005 | 0.0137 | 1.3700e-003 | 2.0000e-005 | 1.3900e-003 | 0.0000 | 0.3522 | 0.3522 | 1.0000e-005 | 0.0000 | 0.3524 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.7000e-004 | 1.0000e-004 | 1.4700e-003 | 0.0000 | 9.2300e-003 | 0.0000 | 9.2300e-003 | 9.2000e-004 | 0.0000 | 9.2000e-004 | 0.0000 | 0.0354 | 0.0354 | 1.0000e-005 | 0.0000 | 0.0355 |
| Total | 3.8200e-003 | 4.3900e-003 | 0.0502 | 0.0000 | 0.0229 | 2.0000e-005 | 0.0229 | 2.2900e-003 | 2.0000e-005 | 2.3100e-003 | 0.0000 | 0.3876 | 0.3876 | 2.0000e-005 | 0.0000 | 0.3879 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 3.3500e-003 | 0.0718 | 0.0607 | 8.0000e-005 | | 2.4700e-003 | 2.4700e-003 | | 2.4700e-003 | 2.4700e-003 | 0.0000 | 7.7771 | 7.7771 | 2.3000e-003 | 0.0000 | 7.8254 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 3.3500e-003 | 0.0718 | 0.0607 | 8.0000e-005 | | 2.4700e-003 | 2.4700e-003 | | 2.4700e-003 | 2.4700e-003 | 0.0000 | 7.7771 | 7.7771 | 2.3000e-003 | 0.0000 | 7.8254 |

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 3.4500e-003 | 4.2900e-003 | 0.0487 | 0.0000 | 8.3700e-003 | 2.0000e-005 | 8.3900e-003 | 4.2000e-004 | 2.0000e-005 | 4.4000e-004 | 0.0000 | 0.3522 | 0.3522 | 1.0000e-005 | 0.0000 | 0.3524 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.7000e-004 | 1.0000e-004 | 1.4700e-003 | 0.0000 | 5.6600e-003 | 0.0000 | 5.6600e-003 | 2.9000e-004 | 0.0000 | 2.9000e-004 | 0.0000 | 0.0354 | 0.0354 | 1.0000e-005 | 0.0000 | 0.0355 |
| Total | 3.8200e-003 | 4.3900e-003 | 0.0502 | 0.0000 | 0.0140 | 2.0000e-005 | 0.0141 | 7.1000e-004 | 2.0000e-005 | 7.3000e-004 | 0.0000 | 0.3876 | 0.3876 | 2.0000e-005 | 0.0000 | 0.3879 |

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|-------------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 4.6000e-003 | 0.0153 | 0.0515 | 7.0000e-005 | 1.2974 | 1.9000e-004 | 1.2975 | 0.1297 | 1.8000e-004 | 0.1299 | 0.0000 | 5.6821 | 5.6821 | 2.6000e-004 | 0.0000 | 5.6875 |
| Unmitigated | 4.6000e-003 | 0.0153 | 0.0515 | 7.0000e-005 | 1.2974 | 1.9000e-004 | 1.2975 | 0.1297 | 1.8000e-004 | 0.1299 | 0.0000 | 5.6821 | 5.6821 | 2.6000e-004 | 0.0000 | 5.6875 |

4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|------------------------|-------------------------|-------------|-------------|---------------|---------------|
| | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| General Light Industry | 3.00 | 3.00 | 3.00 | 11,590 | 11,590 |
| Total | 3.00 | 3.00 | 3.00 | 11,590 | 11,590 |

4.3 Trip Type Information

| Land Use | Miles | | | Trip % | | | Trip Purpose % | | |
|------------------------|------------|------------|-------------|-----------|------------|-------------|----------------|----------|---------|
| | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C- | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| General Light Industry | 14.70 | 6.60 | 6.60 | 59.00 | 28.00 | 13.00 | 92 | 5 | 3 |

| LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.384082 | 0.108040 | 0.162747 | 0.139268 | 0.082424 | 0.009513 | 0.021337 | 0.076815 | 0.001366 | 0.001470 | 0.007920 | 0.001291 | 0.003726 |

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|---------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 41.2803 | 41.2803 | 1.8700e-003 | 3.9000e-004 | 41.4393 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 41.2803 | 41.2803 | 1.8700e-003 | 3.9000e-004 | 41.4393 |
| NaturalGas Mitigated | 6.0000e-004 | 5.4100e-003 | 4.5500e-003 | 3.0000e-005 | | 4.1000e-004 | 4.1000e-004 | | 4.1000e-004 | 4.1000e-004 | 0.0000 | 5.8914 | 5.8914 | 1.1000e-004 | 1.1000e-004 | 5.9272 |
| NaturalGas Unmitigated | 6.0000e-004 | 5.4100e-003 | 4.5500e-003 | 3.0000e-005 | | 4.1000e-004 | 4.1000e-004 | | 4.1000e-004 | 4.1000e-004 | 0.0000 | 5.8914 | 5.8914 | 1.1000e-004 | 1.1000e-004 | 5.9272 |

5.2 Energy by Land Use - NaturalGas

Unmitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|------------------------|----------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|---------------|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| General Light Industry | 110400 | 6.0000e-004 | 5.4100e-003 | 4.5500e-003 | 3.0000e-005 | | 4.1000e-004 | 4.1000e-004 | | 4.1000e-004 | 4.1000e-004 | 0.0000 | 5.8914 | 5.8914 | 1.1000e-004 | 1.1000e-004 | 5.9272 |
| Total | | 6.0000e-004 | 5.4100e-003 | 4.5500e-003 | 3.0000e-005 | | 4.1000e-004 | 4.1000e-004 | | 4.1000e-004 | 4.1000e-004 | 0.0000 | 5.8914 | 5.8914 | 1.1000e-004 | 1.1000e-004 | 5.9272 |

Mitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|------------------------|----------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|---------------|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| General Light Industry | 110400 | 6.0000e-004 | 5.4100e-003 | 4.5500e-003 | 3.0000e-005 | | 4.1000e-004 | 4.1000e-004 | | 4.1000e-004 | 4.1000e-004 | 0.0000 | 5.8914 | 5.8914 | 1.1000e-004 | 1.1000e-004 | 5.9272 |
| Total | | 6.0000e-004 | 5.4100e-003 | 4.5500e-003 | 3.0000e-005 | | 4.1000e-004 | 4.1000e-004 | | 4.1000e-004 | 4.1000e-004 | 0.0000 | 5.8914 | 5.8914 | 1.1000e-004 | 1.1000e-004 | 5.9272 |

5.3 Energy by Land Use - Electricity

Unmitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|------------------------|-----------------|-----------|-------------|-------------|---------|
| Land Use | kWh/yr | MT/yr | | | |
| General Light Industry | 141900 | 41.2803 | 1.8700e-003 | 3.9000e-004 | 41.4393 |

| | | | | | | | | | | | | | | | | |
|-------------------|---------------|---------------|--------------------|---------------|--|---------------|---------------|--|---------------|---------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|
| Consumer Products | 0.1172 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 3.0000e-005 | 0.0000 | 2.8000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 5.4000e-004 | 5.4000e-004 | 0.0000 | 0.0000 | 5.7000e-004 |
| Total | 0.1520 | 0.0000 | 2.8000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 5.4000e-004 | 5.4000e-004 | 0.0000 | 0.0000 | 5.7000e-004 |

7.0 Water Detail

7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|-------------|-----------|--------|-------------|---------|
| Category | MT/yr | | | |
| Mitigated | 13.1214 | 0.2265 | 5.4300e-003 | 19.5619 |
| Unmitigated | 13.1214 | 0.2266 | 5.4400e-003 | 19.5654 |

7.2 Water by Land Use

Unmitigated

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|------------------------|--------------------|----------------|---------------|--------------------|----------------|
| Land Use | Mgal | MT/yr | | | |
| General Light Industry | 6.9375 / 0 | 13.1214 | 0.2266 | 5.4400e-003 | 19.5654 |
| Total | | 13.1214 | 0.2266 | 5.4400e-003 | 19.5654 |

Mitigated

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|------------------------|--------------------|----------------|---------------|--------------------|----------------|
| Land Use | Mgal | MT/yr | | | |
| General Light Industry | 6.9375 / 0 | 13.1214 | 0.2265 | 5.4300e-003 | 19.5619 |
| Total | | 13.1214 | 0.2265 | 5.4300e-003 | 19.5619 |

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

| | Total CO2 | CH4 | N2O | CO2e |
|--|-----------|-----|-----|------|
| | | | | |

| | MT/yr | | | |
|-------------|--------|--------|--------|---------|
| Mitigated | 7.5513 | 0.4463 | 0.0000 | 16.9229 |
| Unmitigated | 7.5513 | 0.4463 | 0.0000 | 16.9229 |

8.2 Waste by Land Use

Unmitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|------------------------|----------------|---------------|---------------|---------------|----------------|
| Land Use | tons | MT/yr | | | |
| General Light Industry | 37.2 | 7.5513 | 0.4463 | 0.0000 | 16.9229 |
| Total | | 7.5513 | 0.4463 | 0.0000 | 16.9229 |

Mitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|------------------------|----------------|---------------|---------------|---------------|----------------|
| Land Use | tons | MT/yr | | | |
| General Light Industry | 37.2 | 7.5513 | 0.4463 | 0.0000 | 16.9229 |
| Total | | 7.5513 | 0.4463 | 0.0000 | 16.9229 |

9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------------|--------|-----------|-----------|-------------|-------------|-----------|
| Cranes | 1 | 4.00 | 260 | 226 | 0.29 | Diesel |
| Forklifts | 1 | 4.00 | 260 | 89 | 0.20 | Diesel |
| Rubber Tired Loaders | 1 | 8.00 | 260 | 199 | 0.36 | Diesel |

UnMitigated/Mitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|----------------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Equipment Type | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Forklifts | 0.0137 | 0.1187 | 0.0812 | 1.0000e-004 | | 9.7900e-003 | 9.7900e-003 | | 9.0100e-003 | 9.0100e-003 | 0.0000 | 9.2139 | 9.2139 | 2.8200e-003 | 0.0000 | 9.2732 |
| Rubber Tired Loaders | 0.0612 | 0.7810 | 0.2328 | 8.0000e-004 | | 0.0266 | 0.0266 | | 0.0245 | 0.0245 | 0.0000 | 73.9021 | 73.9021 | 0.0226 | 0.0000 | 74.3776 |
| Cranes | 0.0421 | 0.5000 | 0.1792 | 3.7000e-004 | | 0.0223 | 0.0223 | | 0.0205 | 0.0205 | 0.0000 | 34.0380 | 34.0380 | 0.0104 | 0.0000 | 34.2570 |
| Total | 0.1171 | 1.3998 | 0.4931 | 1.2700e-003 | | 0.0587 | 0.0587 | | 0.0540 | 0.0540 | 0.0000 | 117.1540 | 117.1540 | 0.0359 | 0.0000 | 117.9078 |

10.0 Vegetation

| Project Name: | | Central Coast Transfer Station EIR | | | | Complete ALL Portions in Yellow | | | |
|---|-------------------------------|---|-------------|-----------|-----------------|---|--------------|----------|---|
| | | See Equipment Type TAB for type, horsepower and load factor | | | | | | | |
| Project Size | | 30,000 square feet bldgs | | 17 acres | | Permanent impact = 3.76 acres, const/temporary impact = 0.96 acres. | | | |
| Construction Hours | | 8 am to | | 6 pm | | | | | |
| Qty | Description | HP | Load Factor | Hours/day | Total Work Days | Avg. Hours per day | Annual Hours | Comments | |
| Quantity | Site Preparation | Start Date: | 5/1/2016 | | Total days: | 13 | | | Any pavement demolished and hauled? <u>n/a</u> tons |
| | | End Date: | 5/14/2016 | | | | | | |
| 1 | Excavator | 162 | 0.38 | 6 | 10 | 4.6 | 60 | | |
| 1 | Rubber Tired Dozers | 255 | 0.38 | 8 | 12 | 7.4 | 96 | | |
| 1 | Backhoe | 97 | 0.37 | 8 | 12 | 7.4 | 96 | | |
| 1 | Dump Truck ¹ | 171 | 0.42 | 6 | 10 | 4.6 | 60 | | |
| 1 | Water Truck ¹ | 171 | 0.42 | 6 | 12 | 5.5 | 72 | | |
| Grading / Excavation | | Start Date: | 5/15/2016 | | Total days: | 31 | | | Soil Hauling Volume |
| | | End Date: | 6/15/2016 | | | | | | Export volume = 5,000 cubic yards? Import volume = 6,000 cubic yards? |
| 1 | Excavator | 162 | 0.38 | 6 | 21 | 4.1 | 126 | | |
| 1 | Grader | 174 | 0.41 | 6 | 21 | 4.1 | 126 | | |
| 1 | Rubber Tired Bull Dozers | 255 | 0.40 | 6 | 21 | 4.1 | 126 | | |
| 1 | Backhoe | 97 | 0.37 | 6 | 21 | 4.1 | 126 | | |
| 2 | Dump Truck ¹ | 171 | 0.42 | 6 | 21 | 4.1 | 252 | | |
| 1 | Vibratory Roller ¹ | 171 | 0.42 | 6 | 12 | 2.3 | 72 | | |
| 1 | Water Truck ¹ | 171 | 0.42 | 6 | 21 | 4.1 | 126 | | |
| Trenching | | Start Date: | 6/15/2016 | | Total days: | 20 | | | |
| | | End Date: | 7/5/2016 | | | | | | |
| 1 | Backhoe | 97 | 0.37 | 6 | 16 | 4.8 | 96 | | |
| 1 | Excavator | 162 | 0.38 | 6 | 16 | 4.8 | 96 | | |
| 1 | Dump Truck ¹ | 171 | 0.42 | 6 | 16 | 4.8 | 96 | | |
| 1 | Plate Compactor | 8 | 0.43 | 6 | 16 | 4.8 | 96 | | |
| 1 | Water Truck ¹ | 171 | 0.42 | 6 | 16 | 4.8 | 96 | | |
| Building - Exterior | | Start Date: | 7/1/2016 | | Total days: | 76 | | | Cement Trucks? <u>?</u> Total Round-Trips |
| | | End Date: | 9/15/2016 | | | | | | Electric? (Y/N) <u>N</u> Otherwise assumed diesel Liquid Propane (LPG)? (Y/N) <u>N</u> Otherwise Assumed diesel Or temporary line power? (Y/N) <u>N</u> |
| 1 | Crane | 226 | 0.29 | 8 | 21 | 2.2 | 168 | | |
| 1 | Forklift | 89 | 0.20 | 6 | 45 | 3.6 | 270 | | |
| 1 | Generator Sets | 84 | 0.74 | 8 | 65 | 6.8 | 520 | | |
| 1 | Backhoes | 97 | 0.37 | 6 | 65 | 5.1 | 390 | | |
| 1 | Welders | 46 | 0.45 | 5 | 45 | 3.0 | 225 | | |
| 1 | Flatbed Truck ¹ | 171 | 0.42 | 6 | 60 | 4.7 | 360 | | |
| 1 | Mini Bobcat ¹ | 171 | 0.42 | 7 | 45 | 4.1 | 315 | | |
| 1 | Cement and Mortar Mixers | 9 | 0.56 | 8 | 40 | 4.2 | 320 | | |
| 1 | Water Truck ¹ | 171 | 0.42 | 6 | 65 | 5.1 | 390 | | |
| Building - Interior/Architectural Coating | | Start Date: | 9/1/2016 | | Total days: | 44 | | | |
| | | End Date: | 10/15/2016 | | | | | | |
| 2 | Air Compressors | 78 | 0.32 | 7 | 35 | 5.6 | 490 | | |
| 1 | Aerial Lift | 62 | 0.30 | 8 | 21 | 3.8 | 168 | | |
| 1 | Pneumatic Tools ² | 150 | 0.34 | 8 | 32 | 5.8 | 256 | | |
| 1 | Mini Bobcat ¹ | 171 | 0.42 | 8 | 35 | 6.4 | 280 | | |
| Paving | | Start Date: | 10/1/2016 | | Total days: | 14 | | | Asphalt 1,210 cy |
| | | Start Date: | 10/15/2016 | | | | | | |
| 1 | Cement and Mortar Mixers | 9 | 0.56 | 8 | 10 | 5.7 | 80 | | |
| 1 | Pavers | 125 | 0.42 | 8 | 12 | 6.9 | 96 | | |
| 1 | Paving Equipment | 130 | 0.36 | 8 | 12 | 6.9 | 96 | | |
| 1 | Vibratory Roller ¹ | 80 | 0.38 | 8 | 10 | 5.7 | 80 | | |
| 1 | Backhoes | 97 | 0.37 | 8 | 10 | 5.7 | 80 | | |
| 1 | Water Truck ¹ | 171 | 0.42 | 8 | 12 | 6.9 | 96 | | |

Central Coast Transfer Station

Change in Vehicle Emissions

| Vehicle Type | Annual Trips | Miles/Trip | Annual VMT | Emissions (tons/year) | | | | | |
|--------------------------------------|--------------|------------|------------|-----------------------|----------|----------|----------|----------|----------|
| | | | | ROG | NOx | PM10 | PM2.5 | CO2e | |
| Self haul ¹ | 42640 | 3.0 | (162,032) | -0.09778 | -0.20809 | -0.0109 | -0.00529 | -86.199 | |
| Franchise Trucks ² | 3276 | 28.0 | 19,656 | 0.004737 | 0.116474 | 0.005767 | 0.003744 | 25.39785 | |
| Solid Waste Transfer | 2080 | 29.8 | (129,646) | | | | | | |
| Existing ³ | 7176 | 35.4 | (254,030) | -0.06123 | -1.50529 | -0.07454 | -0.04839 | -328.237 | |
| New ⁴ | 4160 | 11 | 124,384 | 0.039458 | 0.923666 | 0.026097 | 0.016738 | 248.2216 | |
| Net | | | | -0.02177 | -0.58162 | -0.04844 | -0.03165 | -80.0153 | |
| Recyclables and Greenwaste | 260 | 1 | 9.8 | (5,096) | -0.00123 | -0.0302 | -0.0015 | -0.00097 | -6.58463 |
| Albion Transfer Station ⁵ | 52 | | 2,111 | | | | | | |
| Existing ³ | 104 | 29.9 | (3,110) | -0.00075 | -0.01843 | -0.00091 | -0.00059 | -4.01797 | |
| New ⁴ | 32 | 0 | 957 | 0.000304 | 0.007105 | 0.000201 | 0.000129 | 1.909397 | |
| Net | | | | -0.00045 | -0.01132 | -0.00071 | -0.00046 | -2.10857 | |
| t Emissions Resulting from Project | | | (406,806) | (0.14) | (1.30) | (0.10) | (0.07) | (229.52) | |

¹ Assumed to be a mix of light-duty, medium-duty and light heavy-duty trucks per County distribution

² Assumed to be Solid Waste Collection Truck type

³ Assumed to be T6 Heavy-Duty diesel truck

⁴ Assumed to be T7 Heavy-Duty diesel truck

⁵ Only comparing difference in trips from transfer station

EMFAC2011 Emission Rates

Region Type: County

Region: Mendocino

Calendar Year: 2016

Season: Annual

Vehicle Classification: EMFAC2007 Categories

| Region | CalYr | Season | Veh_Class | Fuel | MdlYr | Speed (miles/hr) | VMT (miles/day) | ROG_RUNEX (gms/mile) | ROG Addl (gms/mile) | CO_RUNEX (gms/mile) | NOX_RUNEX (gms/mile) | CO2_RUNE (gms/mile) | CO2_RUNEX (gms/mile) | Pavley I+II | PM10_RUN (gms/mile) | PM10 Addl (gm/mi) | PM2_5_RU (gms/mile) | PM2.5 (gm/mi) | |
|-----------|-------|--------|-----------|--------------------------|-----------|---------------------|--------------------|-------------------------|------------------------|------------------------|-------------------------|------------------------|-------------------------|-------------|------------------------|----------------------|------------------------|------------------|----------|
| Mendocino | 2016 | Annual | LDA LDA | GAS | Aggregate | 30 | 89044.36 | 0.056728404 | 0.124309587 | 1.696039 | 0.17036 | 0.043444 | 355.1843 | 286.6522 | 10.31393 | 0.002409 | 0.045405 | 0.002209 | 0.01833 |
| Mendocino | 2016 | Annual | LDA LDA | DSL | Aggregate | 30 | 1280.482 | 0.041765526 | 0 | 0.243244 | 0.504664 | 0 | 303.1941 | 250.6177 | 0 | 0.029518 | 0.04479 | 0.027156 | 0.017766 |
| Mendocino | 2016 | Annual | LDT1 LDT1 | GAS | Aggregate | 30 | 25262.89 | 0.187610849 | 0.476597522 | 4.974333 | 0.54686 | 0.094607 | 410.8542 | 341.0522 | 13.13209 | 0.005741 | 0.046063 | 0.005257 | 0.01893 |
| Mendocino | 2016 | Annual | LDT1 LDT1 | DSL | Aggregate | 30 | 18.04352 | 0.064780407 | 0 | 0.297033 | 0.485806 | 0 | 308.4613 | 247.6839 | 0 | 0.055723 | 0.04479 | 0.051265 | 0.017766 |
| Mendocino | 2016 | Annual | LDT2 LDT2 | GAS | Aggregate | 30 | 38187.68 | 0.085570746 | 0.237633243 | 2.55094 | 0.346026 | 0.090124 | 484.9049 | 416.5498 | 15.08766 | 0.00275 | 0.045453 | 0.002519 | 0.018373 |
| Mendocino | 2016 | Annual | LDT2 LDT2 | DSL | Aggregate | 30 | 17.08649 | 0.040926587 | 0 | 0.249483 | 0.577427 | 0 | 307.8161 | 263.6712 | 0 | 0.032506 | 0.04479 | 0.029906 | 0.017766 |
| Mendocino | 2016 | Annual | LHD1 LHD1 | GAS | Aggregate | 30 | 14212.97 | 0.232874033 | 1.161582376 | 3.31895 | 0.81285 | 0.955611 | 619.4336 | 597.7534 | 22.93039 | 0.002687 | 0.04586 | 0.002485 | 0.018751 |
| Mendocino | 2016 | Annual | LHD1 LHD1 | DSL | Aggregate | 30 | 17923.33 | 0.193750755 | 0 | 0.845265 | 3.503303 | 0 | 525.9836 | 507.5742 | 0 | 0.04398 | 0.089373 | 0.040462 | 0.036577 |
| Mendocino | 2016 | Annual | LHD2 LHD2 | GAS | Aggregate | 30 | 887.631 | 0.177038017 | 0.805521294 | 2.995275 | 0.521226 | 0.794448 | 619.4336 | 597.7534 | 24.23544 | 0.002038 | 0.04597 | 0.0018 | 0.018763 |
| Mendocino | 2016 | Annual | LHD2 LHD2 | DSL | Aggregate | 30 | 2796.529 | 0.174770219 | 0 | 0.799534 | 3.23273 | 0 | 523.7197 | 505.3895 | 0 | 0.039855 | 0.102082 | 0.036667 | 0.042004 |
| Mendocino | 2016 | Annual | MCY MCY | GAS | Aggregate | 30 | 1855.547 | 2.179263763 | 1.079729159 | 17.81984 | 1.180672 | 0.083609 | 144.2192 | 139.1715 | 11.35237 | 0.000497 | 0.045335 | 0.000402 | 0.018196 |
| Mendocino | 2016 | Annual | MDV MDV | GAS | Aggregate | 30 | 32744.8 | 0.150296733 | 0.397474219 | 3.932504 | 0.703914 | 0.178895 | 612.64 | 548.7652 | 20.92417 | 0.003474 | 0.045661 | 0.003204 | 0.01857 |
| Mendocino | 2016 | Annual | MDV MDV | DSL | Aggregate | 30 | 29.81686 | 0.04507713 | 0 | 0.230933 | 0.367396 | 0 | 297.8068 | 262.5196 | 0 | 0.036706 | 0.04479 | 0.03377 | 0.017766 |
| Mendocino | 2016 | Annual | MH MH | GAS | Aggregate | 30 | 705.0114 | 0.320214343 | 0.041496897 | 8.705412 | 1.368708 | 0.013755 | 619.4336 | 597.7535 | 0.321273 | 0.003728 | 0.044812 | 0.003395 | 0.017785 |
| Mendocino | 2016 | Annual | MH MH | DSL | Aggregate | 30 | 102.3942 | 0.214615041 | 0 | 0.836424 | 7.920518 | 0 | 1231.56 | 1188.455 | 0 | 0.195202 | 0.142468 | 0.179586 | 0.058913 |
| Mendocino | 2016 | Annual | OBUS OBUS | GAS | Aggregate | 30 | 131.6733 | 0.295597959 | 1.611986494 | 4.50719 | 1.904395 | 2.730667 | 619.4336 | 597.7534 | 37.06574 | 0.001056 | 0.045781 | 0.00098 | 0.018685 |
| Mendocino | 2016 | Annual | OBUS OBUS | DSL | Aggregate | 30 | 155.4577 | 0.203701149 | 0 | 0.776778 | 6.471737 | 0 | 1538.158 | 1484.322 | 0 | 0.070848 | 0.143954 | 0.06518 | 0.06028 |
| Mendocino | 2016 | Annual | SBUS SBUS | GAS | Aggregate | 30 | 229.9028 | 1.791560519 | 0.813625478 | 26.92729 | 3.271198 | 0.349482 | 619.4336 | 597.7534 | 13.07875 | 0.00749 | 0.0458 | 0.006594 | 0.018639 |
| Mendocino | 2016 | Annual | SBUS SBUS | DSL | Aggregate | 30 | 465.6944 | 0.15915236 | 0 | 0.610942 | 9.667998 | 0 | 1240.621 | 1197.199 | 0 | 0.098394 | 0.762181 | 0.090523 | 0.326814 |
| Mendocino | 2016 | Annual | T6 T6 | GAS | Aggregate | 30 | 811.0065 | 0.360495821 | 2.011027567 | 6.21666 | 1.113125 | 1.151809 | 619.4336 | 597.7535 | 33.41336 | 0.001874 | 0.048266 | 0.001627 | 0.020594 |
| Mendocino | 2016 | Annual | T6 T6 | DSL | Aggregate | 30 | 3637.946 | 0.218841316 | 0 | 0.82772 | 5.380454 | 0 | 1215.795 | 1173.242 | 0 | 0.122463 | 0.143958 | 0.112666 | 0.060283 |
| Mendocino | 2016 | Annual | T7 T7 | GAS | Aggregate | 30 | 152.1526 | 1.661370094 | 2.607095355 | 45.97242 | 6.288087 | 1.800171 | 619.4335 | 597.7534 | 19.24998 | 0.002077 | 0.047498 | 0.001799 | 0.019983 |
| Mendocino | 2016 | Annual | T7 T7 | DSL | Aggregate | 30 | 14096.08 | 0.288040148 | 0 | 1.161025 | 6.742736 | 0 | 1877.732 | 1812.012 | 0 | 0.091161 | 0.099343 | 0.083868 | 0.038318 |
| Mendocino | 2016 | Annual | UBUS UBUS | GAS | Aggregate | 30 | 522.0258 | 0.456405153 | 0.198727858 | 6.688119 | 3.054707 | 0.255796 | 619.4336 | 597.7534 | 4.858079 | 0.000945 | 0.044833 | 0.000876 | 0.017805 |
| Mendocino | 2016 | Annual | UBUS UBUS | DSL | Aggregate | 30 | 270.6803 | 0.657928147 | 0 | 2.446614 | 18.03907 | 0 | 2588.998 | 2498.383 | 0 | 0.320035 | 0.850584 | 0.294433 | 0.363106 |
| Mendocino | 2016 | Annual | T7 SWCV | DSL | Aggregate | 30 | 76.15569 | 0.114512271 | 0.130363504 | 0.575166 | 14.98173 | | 1914.415 | 1847.41 | | 0.068723 | 0.102931 | 0.063225 | 0.040187 |
| | | | | Self Haul (LD/MD) travel | | | 128396.6 | 1.00 | 0.547943717 | 3.225849 | 1.166104 | | 523.4453 | 483.0447 | | 0.061093 | | 0.029659 | |
| | | | | T6 Diesel | | | | | 0.218841316 | | 5.380454 | | | 1173.242 | | 0.26642 | | 0.172949 | |
| | | | | T7 Diesel | | | | | 0.288040148 | | 6.742736 | | | 1812.012 | | 0.190504 | | 0.122186 | |

| EMFAC2011 Veh & Tech | EMFAC2011 Vehicle | Description | Source | EMFAC2007 Vehicle | EMFAC2007 Vehicle Code | Truck / Non-Truck Category | Truck 1 / Truck 2 / Non-Truck Category | | |
|-------------------------------------|-------------------------------|--|---------------|-------------------|------------------------|----------------------------|--|--------|---------|
| LDA - DSL | LDA | Passenger Cars | EMFAC2011-LDV | LDA | PC | Non-Trucks | Non-Trucks | | |
| LDA - GAS | | | EMFAC2011-LDV | | | Non-Trucks | Non-Trucks | | |
| LDT1 - DSL | LDT1 | Light-Duty Trucks (0-3750 lbs) | EMFAC2011-LDV | LDT1 | T1 | Non-Trucks | Non-Trucks | | |
| LDT1 - GAS | | | EMFAC2011-LDV | | | Non-Trucks | Non-Trucks | | |
| LDT2 - DSL | LDT2 | Light-Duty Trucks (3751-5750 lbs) | EMFAC2011-LDV | LDT2 | T2 | Non-Trucks | Non-Trucks | | |
| LDT2 - GAS | | | EMFAC2011-LDV | | | Non-Trucks | Non-Trucks | | |
| LHD1 - DSL | LHD1 | Light-Heavy-Duty Trucks (8501-10000 lbs) | EMFAC2011-LDV | LHDT1 | T4 | Trucks | Truck 1 | | |
| LHD1 - GAS | | | EMFAC2011-LDV | | | Trucks | Truck 1 | | |
| LHD2 - DSL | LHD2 | Light-Heavy-Duty Trucks (10001-14000 lbs) | EMFAC2011-LDV | LHDT2 | T5 | Trucks | Truck 1 | | |
| LHD2 - GAS | | | EMFAC2011-LDV | | | Trucks | Truck 1 | | |
| MCY - GAS | MCY | Motorcycles | EMFAC2011-LDV | MCY | MC | Non-Trucks | Non-Trucks | | |
| MDV - DSL | MDV | Medium-Duty Trucks (5751-8500 lbs) | EMFAC2011-LDV | MDV | T3 | Non-Trucks | Non-Trucks | | |
| MDV - GAS | | | EMFAC2011-LDV | | | Non-Trucks | Non-Trucks | | |
| MH - DSL | MH | Motor Homes | EMFAC2011-LDV | MH | MH | Non-Trucks | Non-Trucks | | |
| MH - GAS | | | EMFAC2011-LDV | | | Non-Trucks | Non-Trucks | | |
| T6 Ag - DSL | T6 Ag | Medium-Heavy Duty Diesel Agriculture Truck | EMFAC2011-HD | MHDT | T6 | Trucks | Truck 2 | | |
| T6 CAIRP heavy - DSL | T6 CAIRP heavy | Medium-Heavy Duty Diesel CA International Registration Plan Truck with GVWR>26000 lbs | EMFAC2011-HD | | | Trucks | Truck 2 | | |
| T6 CAIRP small - DSL | T6 CAIRP small | Medium-Heavy Duty Diesel CA International Registration Plan Truck with GVWR<=26000 lbs | EMFAC2011-HD | | | Trucks | Truck 2 | | |
| T6 instate construction heavy - DSL | T6 instate construction heavy | Medium-Heavy Duty Diesel instate construction Truck with GVWR>26000 lbs | EMFAC2011-HD | | | Trucks | Truck 2 | | |
| T6 instate construction small - DSL | T6 instate construction small | Medium-Heavy Duty Diesel instate construction Truck with GVWR<=26000 lbs | EMFAC2011-HD | | | Trucks | Truck 2 | | |
| T6 instate heavy - DSL | T6 instate heavy | Medium-Heavy Duty Diesel instate Truck with GVWR>26000 lbs | EMFAC2011-HD | | | Trucks | Truck 2 | | |
| T6 instate small - DSL | T6 instate small | Medium-Heavy Duty Diesel instate Truck with GVWR<=26000 lbs | EMFAC2011-HD | | | Trucks | Truck 2 | | |
| T6 OOS heavy - DSL | T6 OOS heavy | Medium-Heavy Duty Diesel Out-of-state Truck with GVWR>26000 lbs | EMFAC2011-HD | | | Trucks | Truck 2 | | |
| T6 OOS small - DSL | T6 OOS small | Medium-Heavy Duty Diesel Out-of-state Truck with GVWR<=26000 lbs | EMFAC2011-HD | | | Trucks | Truck 2 | | |
| T6 Public - DSL | T6 Public | Medium-Heavy Duty Diesel Public Fleet Truck | EMFAC2011-HD | | | Trucks | Truck 2 | | |
| T6 utility - DSL | T6 utility | Medium-Heavy Duty Diesel Utility Fleet Truck | EMFAC2011-HD | | | Trucks | Truck 2 | | |
| T6TS - GAS | T6TS | Medium-Heavy Duty Gasoline Truck | EMFAC2011-LDV | | | Trucks | Truck 2 | | |
| T7 Ag - DSL | T7 Ag | Heavy-Heavy Duty Diesel Agriculture Truck | EMFAC2011-HD | | | HHDT | T7 | Trucks | Truck 2 |
| T7 CAIRP - DSL | T7 CAIRP | Heavy-Heavy Duty Diesel CA International Registration Plan Truck | EMFAC2011-HD | | | | | Trucks | Truck 2 |
| T7 CAIRP construction - DSL | T7 CAIRP construction | Heavy-Heavy Duty Diesel CA International Registration Plan Construction Truck | EMFAC2011-HD | | | | | Trucks | Truck 2 |
| T7 NNOOS - DSL | T7 NNOOS | Heavy-Heavy Duty Diesel Non-Neighboring Out-of-state Truck | EMFAC2011-HD | | | | | Trucks | Truck 2 |
| T7 NOOS - DSL | T7 NOOS | Heavy-Heavy Duty Diesel Neighboring Out-of-state Truck | EMFAC2011-HD | | | | | Trucks | Truck 2 |
| T7 other port - DSL | T7 other port | Heavy-Heavy Duty Diesel Drayage Truck at Other Facilities | EMFAC2011-HD | | | | | Trucks | Truck 2 |
| T7 POAK - DSL | T7 POAK | Heavy-Heavy Duty Diesel Drayage Truck in Bay Area | EMFAC2011-HD | | | | | Trucks | Truck 2 |
| T7 POLA - DSL | T7 POLA | Heavy-Heavy Duty Diesel Drayage Truck near South Coast | EMFAC2011-HD | | | | | Trucks | Truck 2 |
| T7 Public - DSL | T7 Public | Heavy-Heavy Duty Diesel Public Fleet Truck | EMFAC2011-HD | Trucks | Truck 2 | | | | |
| T7 Single - DSL | T7 Single | Heavy-Heavy Duty Diesel Single Unit Truck | EMFAC2011-HD | Trucks | Truck 2 | | | | |
| T7 single construction - DSL | T7 single construction | Heavy-Heavy Duty Diesel Single Unit Construction Truck | EMFAC2011-HD | Trucks | Truck 2 | | | | |
| T7 SWCV - DSL | T7 SWCV | Heavy-Heavy Duty Diesel Solid Waste Collection Truck | EMFAC2011-HD | Trucks | Truck 2 | | | | |
| T7 tractor - DSL | T7 tractor | Heavy-Heavy Duty Diesel Tractor Truck | EMFAC2011-HD | Trucks | Truck 2 | | | | |
| T7 tractor construction - DSL | T7 tractor construction | Heavy-Heavy Duty Diesel Tractor Construction Truck | EMFAC2011-HD | Trucks | Truck 2 | | | | |
| T7 utility - DSL | T7 utility | Heavy-Heavy Duty Diesel Utility Fleet Truck | EMFAC2011-HD | Trucks | Truck 2 | | | | |
| T7IS - GAS | T7IS | Heavy-Heavy Duty Gasoline Truck | EMFAC2011-LDV | Trucks | Truck 2 | | | | |
| PTO - DSL | PTO | Power Take Off | EMFAC2011-HD | Trucks | Truck 2 | | | | |
| SBUS - DSL | SBUS | School Buses | EMFAC2011-LDV | SBUS | SB | Non-Trucks | Non-Trucks | | |
| SBUS - GAS | | | EMFAC2011-LDV | | | Non-Trucks | Non-Trucks | | |
| UBUS - DSL | | | UBUS | | | Urban Buses | EMFAC2011-LDV | UBUS | UB | Non-Trucks | Non-Trucks |
| UBUS - GAS | EMFAC2011-LDV | Non-Trucks | | Non-Trucks | | | | | |
| Motor Coach - DSL | Motor Coach | Motor Coach | EMFAC2011-HD | OBUS | OB | Non-Trucks | Non-Trucks | | |
| OBUS - GAS | OBUS | Other Buses | EMFAC2011-LDV | | | Non-Trucks | Non-Trucks | | |
| All Other Buses - DSL | All Other Buses | All Other Buses | EMFAC2011-HD | | | Non-Trucks | Non-Trucks | | |

Appendix D

Biological Resources Assessment

Biological Resources Assessment

Portion of Jackson State Demonstration Forest
Fort Bragg, Mendocino County, California

Prepared For:

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June 2013



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EXECUTIVE SUMMARY

The purpose of this report is to provide an analysis of natural community and special-status species issues at an approximately 20.7-acre portion of a 200-acre Jackson Demonstration State Forest parcel (APN 019-15-005) situated north of Highway 20, near Fort Bragg, Mendocino County, California (Study Area).

On March 15, May 11, and July 10, 2012, WRA, Inc. (WRA) conducted a wetland delineation, biological resources assessment, and protocol-level rare plant survey within the Study Area and immediately adjacent areas (Study Area). WRA observed five biological communities and 77 plant species. Five sensitive biological communities covering approximately 17 acres of the Study Area were identified. Seven special-status plant species were assessed to have a moderate or high potential to occur in the Study Area. Of these, four species, California sedge (*Carex californica*), pygmy cypress (*Hesperocyparis pygmaea*), coast lily (*Lilium maritimum*), and Bolander's pine (*Pinus contorta* ssp. *bolanderi*), were observed within the Study Area. Six special-status wildlife species have a moderate or high potential occur in the Study Area.

1.0 INTRODUCTION

On March 15, May 11, and July 10, 2012, WRA, Inc. (WRA) performed an assessment of biological resources in 20.7 acres of a 200-acre parcel (APN 019-15-005) situated north of California Highway 20, near Fort Bragg, Mendocino County, California (Study Area; Figure 1). The Study Area is located along and immediately north of California Highway 20, approximately three aerial miles southeast of downtown Fort Bragg. The property is currently held in the Jackson Demonstration State Forest under the ownership of the California Department of Forestry and Fire Protection. The purpose of the assessment was to gather information necessary to complete a review of biological resources to support regulatory agency permits and a California Environmental Quality Act (CEQA) review. This report describes the results of the site visit, which includes (1) a protocol-level rare plant survey; (2) assessment for the presence of special-status wildlife species; (3) a delineation of wetlands and non-wetland waters; and (4) an assessment of potentially sensitive biological resources protected by local, state, and federal laws and regulations.

A biological resources assessment provides general information on the potential presence of sensitive species and habitats. The biological assessment is not an official protocol-level survey for listed species that may be required for project approval by local, state, or federal agencies. However, a protocol-level rare plant survey and a routine wetland delineation of wetlands and non-wetlands were conducted concurrent with this assessment, the results of which are summarized herein and detailed in a separate report (Appendix E). This assessment is based on information available at the time of the study and on site conditions that were observed on the date of the site visit.

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts.

2.1 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, the California Department of Fish and Game (CDFG¹) Streambed Alteration Program, and CEQA; or local ordinances or policies such as city or county tree ordinances.

¹ California Department of Fish and Game (CDFG) changed their official title to California Department of Fish Wildlife (CDFW) January 1, 2013. CDFG is used herein only for publications & references dated prior to January 1, 2013, otherwise CDFW is used for all other references to the agency as well as publications dated post January 1, 2013.

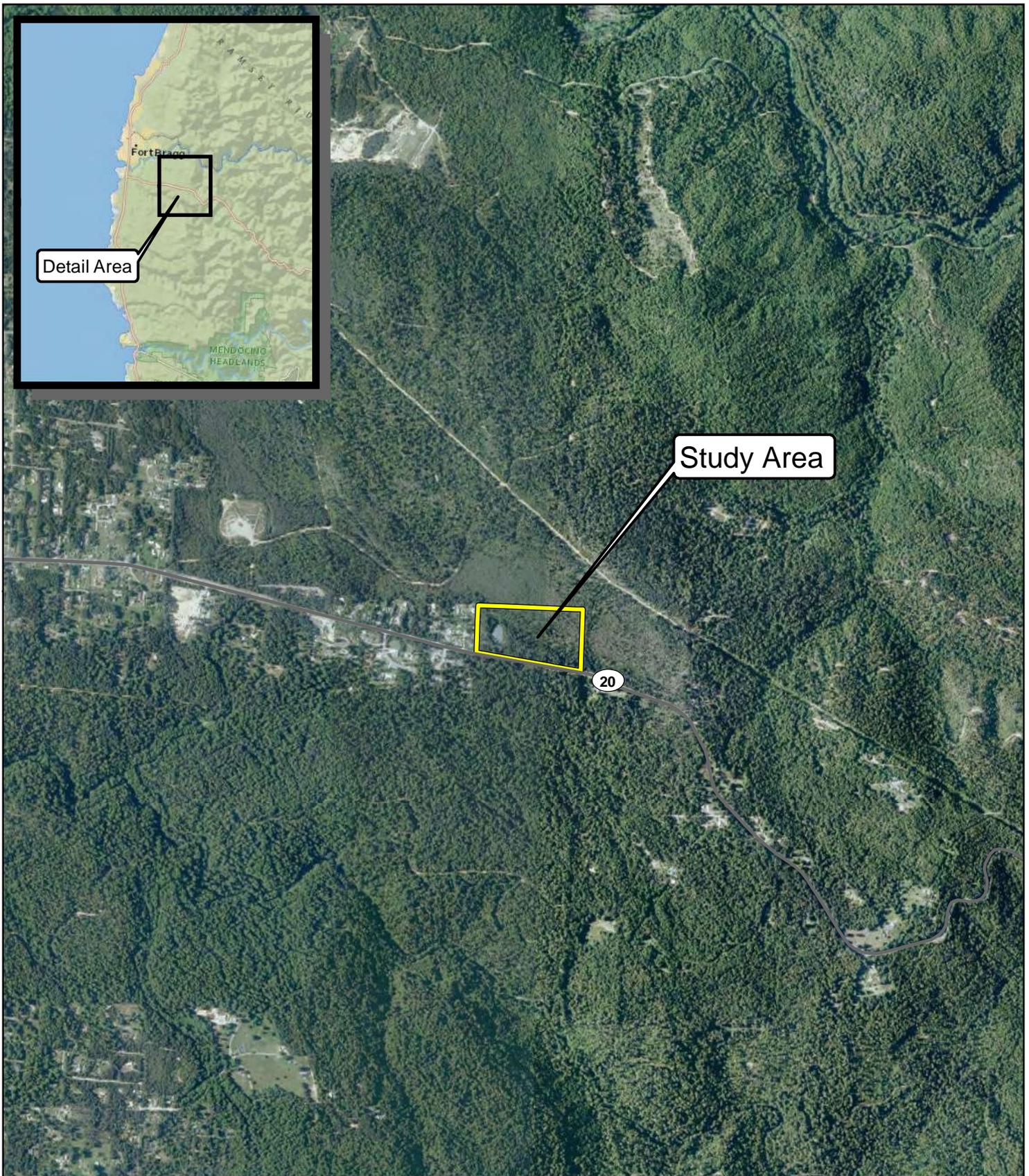


Figure 1. Study Area Location



Mendocino County, California

Map Date: October 2012
 Map By: Chris Zumwalt
 Base Source: ESRI World Imagery

2.1.1 *Waters of the United States*

The U.S. Army Corps of Engineers (Corps) regulates “Waters of the United States” under Section 404 of the Clean Water Act. Waters of the U.S. are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast* (WMVC; Corps 2010), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as “other waters” and are often characterized by an ordinary high water mark (OHWM). Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into Waters of the U.S generally requires an individual or nationwide permit from the Corps under Section 404 of the Clean Water Act.

2.1.2 *Waters of the State*

The term “Waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes “isolated” wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact Waters of the State, are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

2.1.3 *Streams, Lakes, and Riparian Habitat*

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFG under Sections 1600-1616 of California Fish and Game Code. Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term “stream”, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life...[including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). “Riparian” is defined as “on, or pertaining to, the banks of a stream.” Riparian vegetation is defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG

1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFG.

2.1.4 Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFG. CDFG ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB; CDFG 2012). Sensitive plant communities are also identified by CDFG (2009). CNDDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2013) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFG or USFWS must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

2.2 Special-status Species

Plant and Wildlife Species

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed species and species proposed for listing. In addition, CDFW Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, United States Fish and Wildlife Service (USFWS) Birds of Conservation Concern, and CDFW special-status invertebrates are all considered special-status species. Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under the CEQA. In addition to regulations for special-status species, most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act of 1918. Under this legislation, destroying active nests, eggs, and young is illegal.

Plant species included within the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (Inventory) with California Rare Plant Rank (Rank) of 1 and 2 are also considered special-status plant species and must be considered under CEQA. Very few Rank 3 or Rank 4 plants meet the definitions of Section 1901 Chapter 10 of the Native Plant Protection Act or Sections 2062 and 2067 of the CDFG Code that outlines the California Endangered Species Act. However, CNPS and CDFW strongly recommend that these species be fully considered during the preparation of environmental documentation relating to CEQA. This may be particularly appropriate for the type locality of a Rank 4 plant, for populations at the periphery of a species range or in areas where the taxon is especially uncommon or has sustained heavy losses, or from populations exhibiting unusual morphology or occurring on unusual substrates.

3.0 METHODS

On March 15, May 11, and July 10, 2012, the Study Area was traversed on foot to determine (1) plant communities present within the Study Area, (2) whether existing conditions provide suitable habitat for any special-status plant or wildlife species, (3) the presence of special-status plant species through the performance of a protocol-level rare plant survey, and (4) whether sensitive habitats are present. Additionally, a routine delineation of wetlands and non-wetland waters was performed on July 10, 2012, the results of which are included in Appendix E. All plant and wildlife species encountered were recorded, and are summarized in Appendix A. Plants were identified using *The Jepson Manual: Vascular Plants of California 2nd Edition* (Baldwin et al. 2012), to the taxonomic level necessary to determine rarity. Some plants were cross referenced and identified using *The Jepson Manual* (Hickman 1993) as some agencies and jurisdictions may base rarity on older names. Names given follow *The Jepson Manual: Vascular Plants of California 2nd Edition* (Baldwin et al. 2012). For cases in which regulatory agencies or CNPS base rarity on older plant classification, precedence was given to the classification used by those agencies.

3.1 Biological Communities

Prior to the site visit, the *Soil Survey of Mendocino County, California, Western Part* (USDA 2006), the U.S. Geologic Survey (USGS) Fort Bragg 7.5-minute quadrangle map (USGS 1960), and available aerial imagery of the Study Area were examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Study Area. Biological communities present in the Study Area were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

3.1.1 Non-sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations, and ordinances. These communities may, however, provide suitable habitat for some special-status plant or wildlife species and are identified or described in Section 4.3.1 below.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are given special protection under CEQA and other applicable federal, state, and local laws, regulations and ordinances. Applicable laws and ordinances are discussed above in Section 2.0. Special methods used to identify sensitive biological communities are discussed below.

Wetlands and Non-wetland Waters

The Study Area was surveyed to determine if any wetlands and non-wetland waters potentially subject to jurisdiction by the Corps and RWQCB were present. The delineation followed protocols outlined in the *Corps of Engineers Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast* (WMVC; Corps 2010). The three parameters used to delineate wetlands are the presence of: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology.

Data on vegetation, hydrology, and soils collected at sample points during the delineation site visit were reported on WMVC Supplement data forms. Once an area was determined to be a potential jurisdictional wetland, its boundaries were delineated using a sub-meter accurate global positioning system (GPS) unit and mapped on a topographic map. The areas of potential jurisdictional wetlands were measured digitally using ArcGIS software. Detailed methodology is included in a separate delineation report (Appendix E).

WRA also evaluated the presence of “waters of the U.S.” other than wetlands (non-wetland waters) potentially subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act. Other areas, besides wetlands, subject to Corps jurisdiction include lakes, rivers and streams (including intermittent streams) in addition to all areas below the high tide line (HTL) in areas subject to tidal influence. Identification of the ordinary high water mark followed the Corps Regulatory Guidance Letter No. 05-05, *Ordinary High Water Mark Identification* (Corps 2005).

Because the RWQCB does not currently ascribe a specific methodology for delineating Waters of the State, all wetlands and non-wetland waters were assessed following Corps guidelines. Likewise, the Study Area was surveyed to locate any potential streams, lakes, and riparian habitat following the standard guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code* (CDFG 1994). The field guidance for CDFG Section 1602 jurisdiction is typically understood to include all streams and to extend laterally to the top-of-bank. If riparian vegetation is present within the top-of-bank, then CDFG jurisdiction extends to the outer dripline of such vegetation.

Other Sensitive Biological Communities

Prior to the site visit, aerial photographs, soil maps, geologic maps, the *List of Vegetation Alliances* (CDFG 2009), *A Manual of California Vegetation* (Sawyer et al. 2009), and *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) were reviewed to assess the potential for sensitive biological communities to occur in the Study Area. Other sensitive biological communities were classified based on existing descriptions in Holland (1986), Sawyer et al. (2009), and CDFG (2009). However, in some cases it may be necessary to identify variants of vegetation alliances and/or associations. Other biological communities observed within the Study Area that were classified sensitive include those afforded special consideration under CEQA, all vegetation alliances with a State (“S”) ranking of S1 through S3, and/or designated with a star (*) in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) or in the *List of Vegetation Alliances* (CDFG 2009). These communities are described in Section 4.3 below.

3.2 Special-status Species

3.2.1 Literature Review

The potential for special-status species to occur within the Study Area was evaluated by first determining which special-status species occur in the vicinity of the Study Area through a literature and database search. Database searches for known occurrences of special-status species focused on the Inglenook, Fort Bragg, Mendocino, Dutchmans Knoll, Noyo Hill, and Mathison Peak 7.5 minute USGS quadrangles. The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Study Area:

- California Natural Diversity Database (CNDDDB) records (CDFG 2012)
- USFWS quadrangle species lists (USFWS 2012)
- CNPS Inventory records (CNPS 2012)
- Consortium of California Herbaria (CCH 2012)
- CDFG publication "California's Wildlife, Volumes I-III" (Zeiner et al. 1990)
- CDFG publication "Amphibians and Reptile Species of Special Concern in California" (Jennings and Hayes 1994)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)

3.2.2 Site Assessment

A site visit was made to the Study Area to search for suitable habitats for special-status species. Habitat conditions observed at the Study Area were used to evaluate the potential for presence of special-status species based on these searches and the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Study Area was then evaluated according to the following criteria:

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Present. Species is observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

The site assessment is intended to identify the presence or absence of suitable habitat for each special-status species known to occur in the vicinity in order to determine its potential to occur in the Study Area. The site visit does not constitute a protocol-level survey and is not intended to determine the actual presence or absence of a species; however, if a special-status species is observed during the site visit, its presence will be recorded and discussed.

For some species, a site assessment visit at the level conducted for this report may not be sufficient to determine presence or absence of a species to the specifications of regulatory agencies. In these cases, a species may be assumed to be present or further protocol-level special-status species surveys may be necessary. WRA conducted protocol-level rare plant surveys concurrent with the site assessment (see Section 3.2.3 below); however, special-status wildlife species for which further protocol-level surveys may be necessary are described below in Section 5.0.

3.2.3 Protocol-level Rare Plant Survey

Three floristic, protocol-level rare plant surveys were conducted on March 15, May 11, and July 10, 2012. The surveys corresponded to peak periods for observing and accurately identifying hundreds of plant species in Mendocino County, including the seven vascular special status plant species with the potential to occur in the Study Area. The field survey was conducted by botanists with extensive experience in the flora of coastal forest habitats of Mendocino County. Where and when possible, WRA reviewed dates of historical documentation, consulted with other botanists, or conducted reference site visits to ensure that the surveys were conducted within a period sufficient to identify the potentially occurring special status plant species.

The surveys followed the protocol for plant surveys described by Nelson (1987), which complies with recommended resource agency guidelines (CNPS 2001, CDFG 2000, CDFG 2009, USFWS 1996). All plants were identified using *The Jepson Manual, 2nd Edition* (Baldwin et al. 2012), to the taxonomic level necessary to determine whether or not they were rare. Names given follow the Baldwin et al. (2012). The plant surveys were floristic in nature with all observed species recorded and included as a species list provided in Appendix A.

To estimate the numbers of extensive, stand-forming special-status plant species, several vegetation plots were located within each vegetation community. All trees within a 50-foot radius were counted and their cover density estimated, while special-status herbaceous species within a 30-foot radius were counted and their cover density estimated across the stand (Appendix D). Conversely, discrete populations of special-status species were mapped and counted.

4.0 SITE DESCRIPTION AND RESULTS

The Study Area occupies approximately 20.7-acre section of Jackson Demonstration State Forest located immediately north of California Highway 20, approximately three aerial miles southeast of Fort Bragg, Mendocino County. It is set in a relatively undisturbed extensive closed-cone coniferous forest. Calfire maintains an emergency helipad within the property immediately adjacent to the Study Area. Rural residences are present as neighboring parcels to the east and west, with contiguous open space to the north, and Highway 20 to the south.

Appendix A lists the plant species observed in the Study Area during the site assessment. The following sections discuss the biological communities observed in the Study Area as well as the potential for occurrence of special-status species.

4.1 Topography and Soils

The Study Area is situated on a marine terrace north of Covington Gulch. As such the topography in the northern, eastern, and central portions is relatively flat. Elevations range from approximately 400 to 430 feet above sea level. The Study Area generally slopes from the northeast to southwest, with few, virtually indistinct micro-topographic shifts.

The *Soil Survey of Mendocino County, California, Western Part* (USDA 2006) indicates that the Study Area contains two native soil types containing two soil series each, the Shinglemill-Gibney complex, and the Blacklock and Aborigine soils. Individual soil series are described below and illustrated in Figure 2.

Shinglemill loam, 2 to 15 percent slopes: This series consists of very deep loam soils formed in marine sediments of mixed rock type located on marine terraces and coastal hills at elevations ranging from 200 to 750 feet. These soils are considered hydric, and are poorly drained with slow to medium runoff, and slow permeability. Native vegetation associated with these soils includes coastal coniferous forest including Bishop pine (*Pinus muricata*), pygmy cypress (*Hesperocyparis pygmaea*), evergreen huckleberry (*Vaccinium ovatum*), glossy-leaf manzanita (*Arctostaphylos nummularia* ssp. *nummularia*), Pacific rhododendron (*Rhododendron macrophyllum*), Labrador tea (*R. columbianum*), and bear grass (*Xerophyllum tenax*) (USDA 2006).

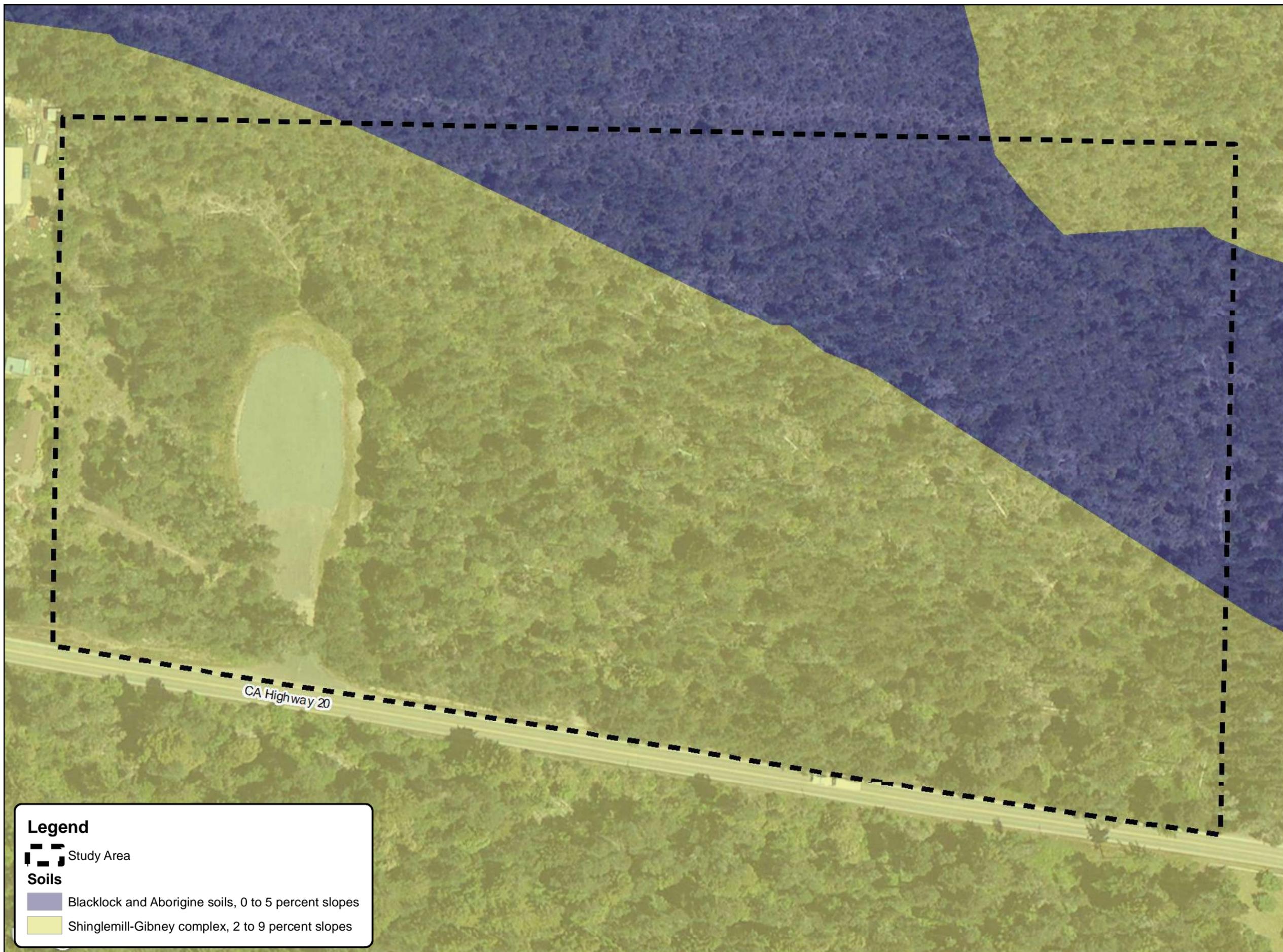
A representative profile of this series contains an O-horizon of duff typically from pine needles, manzanita and rhododendron leaves, and twigs from 2 to 0 inches depth. This is underlain by an E-horizon of very strongly acid (pH 4.5) very pale brown (10YR 7/4) and grayish brown (10YR 5/2) moist loam from approximately 0 to 3 inches depth. This is underlain by a B-horizon of very strongly acid (pH 4.6) yellowish brown (10YR 5/4, 5/6) moist loam to clay with prominent white (10YR 8/1, 8/2) mottles from approximately 3 to 63 inches depth (USDA 2006).

Shinglemill loam has the potential to support special-status plants with an affinity for high acidity, and has the potential to support wetland habitat in depressional areas where surface and subsurface waters may become impounded.

Gibney loam, 2 to 15 percent slopes: This series consists of very deep loam soils formed in marine sediments of mixed rock type located on marine terraces at elevations ranging from 200 to 750 feet. These soils are not considered hydric, and are somewhat poorly drained with slow runoff, and slow permeability. Native vegetation associated with these soils includes coastal coniferous forest including Bishop pine (*Pinus muricata*), pygmy cypress (*Hesperocyparis pygmaea*), evergreen huckleberry (*Vaccinium ovatum*), glossy-leaf manzanita (*Arctostaphylos nummularia* ssp. *nummularia*), and bear grass (*Xerophyllum tenax*) (USDA 2006).

Mendocino County,
California

Figure 2.
Study Area Soils



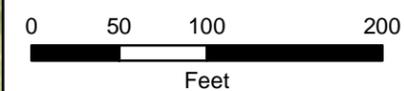
Legend

 Study Area

Soils

 Blacklock and Aborigine soils, 0 to 5 percent slopes

 Shinglemill-Gibney complex, 2 to 9 percent slopes



Map Date: October 2012
Map By: Chris Zumwalt
Base Source: Bing Maps

A representative profile of this series contains an O-horizon of duff typically from pine needles, manzanita and rhododendron leaves, and twigs from 3 to 0 inches depth. This is underlain by an A-horizon of very moderately acid (pH 5.6) yellowish (10YR 5/4) when moist loam from approximately 0 to 9 inches depth. This is underlain by a B-horizon of very strongly acid (pH 4.5) to extremely acid (pH 4.2) yellowish brown (10YR 5/4, 5/6) when moist clay loam to clay to light brownish clay (2.5Y 6/2) when moist sandy clay loam with distinct to prominent strong brown (7.5YR 5/6) mottles from approximately 9 to 63 inches depth (USDA 2006).

Gibney loam has the potential to support special-status plants with an affinity for high acidity, and has the potential to support wetland habitat in depressional areas where surface and subsurface waters may become impounded.

Blacklock fine sandy loam, 0 to 7 percent slopes: This series consists of shallow sandy loam soils formed in sandy marine sediments located on marine terraces at elevations ranging from 25 to 650 feet. These soils are considered hydric, and are very poorly drained with slow to medium runoff, and moderate permeability. Native vegetation associated with these soils includes Bishop pine (*Pinus muricata*), pygmy cypress (*Hesperocyparis pygmaea*), western hemlock (*Tsuga heterophylla*), evergreen huckleberry (*Vaccinium ovatum*), glossy-leaf manzanita (*Arctostaphylos nummularia* ssp. *nummularia*), Pacific rhododendron (*Rhododendron macrophyllum*), salal (*Gaultheria shallon*), Labrador tea (*R. columbianum*), and bear grass (*Xerophyllum tenax*) (USDA 2006).

A representative profile of this series consists of an O-horizon of duff from pine needles and manzanita leaves and twigs from 1 to 0 inches depth. This is underlain by an A-horizon of very strongly acid (pH 4.6) dark gray (10YR 4/1) when moist fine sandy loam to gray (10YR 6/1) when moist loamy fine sand from approximately 0 to 9 inches depth. This is underlain by an E-horizon of very strongly acid (pH 4.5) white (N 8/0) to gray (10YR 6/1) when dry loamy fine sand from approximately 9 to 13 inches depth. This is underlain by a B-horizon of very strongly acid (pH 4.6) dark reddish gray (5YR 4/2) when dry mucky loam from approximately 13 to 15 inches depth. This is underlain by a cemented B-horizon of medium acid (pH 5.2) yellowish brown (10YR 5/6) when dry strongly cemented sands to very pale brown (10YR 7/4) when dry strongly cemented sands from approximately 15 to 52 inches depth. This is underlain by a C-horizon of medium acid (pH 5.2) light olive brown (2.5Y 5/6) when dry fractured sandstone (USDA 2006).

Blacklock has a high potential to support special-status plants which are associated with hardpans and that have an affinity for high acidity. Additionally these soils are very likely to support wetland habitat in depressional or low-gradient areas due the presence of a shallow hardpan which prevents infiltration creating a perched water table.

Aborigine sandy loam, 0 to 5 percent slopes: This series consists of very deep sandy loam soils formed from marine or lacustrine sediments on marine terraces at elevations ranging from 250 to 800 feet. These soils are considered hydric, and are very poorly drained with very slow to slow runoff, and very slow permeability. Native vegetation associated with these soils includes Bishop pine (*Pinus muricata*), pygmy cypress (*Hesperocyparis pygmaea*), western hemlock (*Tsuga heterophylla*), evergreen huckleberry (*Vaccinium ovatum*), glossy-leaf manzanita (*Arctostaphylos nummularia* ssp. *nummularia*), Pacific rhododendron (*Rhododendron macrophyllum*), salal (*Gaultheria shallon*), Labrador tea (*R. columbianum*), and bear grass (*Xerophyllum tenax*) (USDA 2006).

A representative profile of this series consists of an O-horizon of duff from cypress and pine needles from 3 to 0 inches depth. This is underlain by an E-horizon of extremely acid (pH 4.4) to light brownish gray (10YR 6/2) when moist sandy loam to strongly acid (pH 5.5) pale brown (10YR 6/3) when moist loam from approximately 0 to 16 inches depth. This is underlain by B-horizon extremely acid (pH 4.2) light gray (10YR 7/1, 6/1) when moist clay and sandy clay from approximately 16 to 64 inches depth (USDA 2006).

Aborigine sandy loam has the high potential to support special-status plants with an affinity for high acidity, and may support wetland habitat in depressional areas due the presence of a shallow clay layer which reduces infiltration.

4.2 Climate and Hydrology

The Study Area is located in the coastal fog belt of Mendocino County. Average annual precipitation for Fort Bragg, located approximately three aerial miles northwest, is 41.25 inches, with the majority falling as rain and fog drip in the winter months (December through March). The mean daily low and high temperatures in degrees Fahrenheit range from 39.5 in December to 66.4 in August/September (USDA 2013).

The Study Area experiences substantial rainfall events, and evidence of surface ponding, a perched water table, and/or saturated substrates for extended periods (14 days or greater) are present sporadically within with the Study Area, particularly in the eastern portion. Areas dominated by Bishop pine (*Pinus muricata*) and tall pygmy cypress (*Hesperocyparis pygmaea*) appear to permeate somewhat rapidly, with depressional areas in transitional and extreme pygmy forest in the eastern portion experiencing extended saturation.

4.3 Biological Communities

Table 2 summarizes the area of biological communities observed in the Study Area. All biological communities within the Study Area are considered sensitive, and include Bishop pine forest, pygmy forest, forested wetland, and seasonal wetland depression. Descriptions for each biological community are contained in the following sections. Sensitive biological communities within the Study Area are illustrated in Figure 3.

4.3.1 Non-sensitive Biological Communities

The Study Area contains an approximately 1.11 acre helipad maintained by Calfire in the western portion. This area was classified as developed / ruderal and is predominantly composed of compacted gravel. The helipad is virtually devoid of vegetation with the exception of sporadic non-native herbaceous species in the center and a narrow, dense band of French broom (*Genista monspessulana*) around the perimeter.

Table 1. Biological Communities within the Study Area

| Community Type | Vegetation Type ¹ | Vegetation Alliance ² | Vegetation Association ² | Rank | Acres |
|-------------------------------|--------------------------------|---|--|-------|-------|
| Developed / Ruderal Area | | | | none | 1.11 |
| Closed-cone coniferous forest | Northern Bishop pine forest | Bishop pine forest (<i>Pinus muricata</i> Forest Alliance) | Bishop pine-evergreen huckleberry forest (<i>P. muricata-Vaccinium ovatum</i> Forest Association) | G3 S3 | 8.43 |
| | Mendocino pygmy cypress forest | Pygmy cypress forest (<i>Hesperocyparis pygmaea</i> Forest Alliance) | Pygmy cypress forest – tall pygmy forest (<i>H. pygmaea</i> Forest Association) | G2 S2 | 4.51 |
| | | | Pygmy cypress/Bolander's pine forest – transitional pygmy forest (<i>H. pygmaea/Pinus contorta</i> ssp. <i>bolanderi</i> Forest Association) | | 3.79 |
| | | | Pygmy cypress/Bolander's pine forest – extreme pygmy forest [forested wetland] (<i>H. pygmaea/P. contorta</i> ssp. <i>bolanderi</i> Forest Association) | | 2.63 |
| Meadow and seep | Seasonal Wetland Depression | Slough sedge sward (<i>Carex obnupta</i> Herbaceous Alliance) | Slough sedge/California sedge sward (<i>C. obnupta/C. californica</i> Herbaceous Association) | G4 S3 | 0.22 |
| TOTAL | | | | | 20.69 |

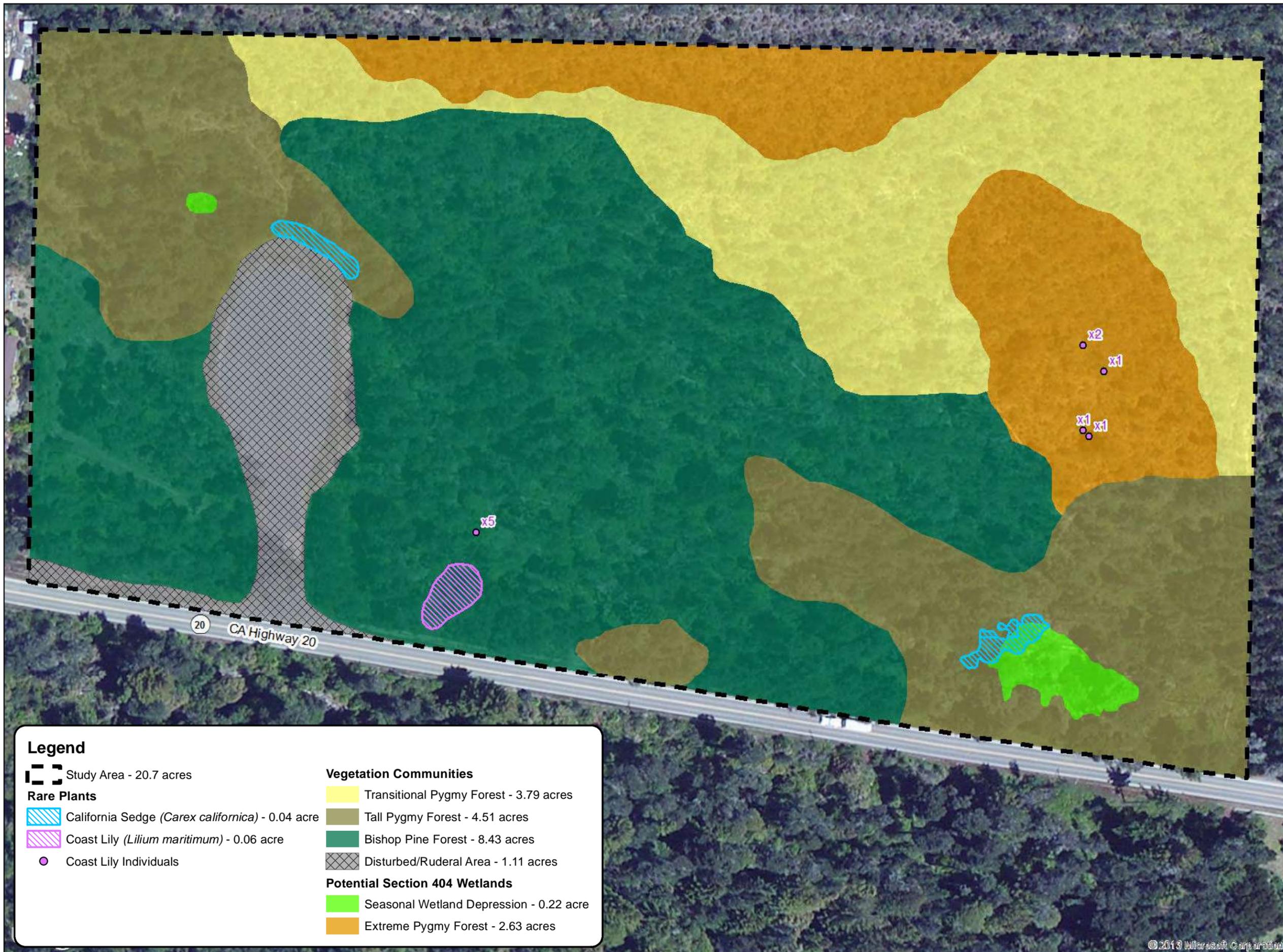
¹Holland (1986)

²Sawyer et al. (2009)

Mendocino County,
California

Figure 3.

Biological Communities
and Special-Status
Species within the
Study Area



Legend

Study Area - 20.7 acres

Rare Plants

California Sedge (*Carex californica*) - 0.04 acre

Coast Lily (*Lilium maritimum*) - 0.06 acre

Coast Lily Individuals

Vegetation Communities

Transitional Pygmy Forest - 3.79 acres

Tall Pygmy Forest - 4.51 acres

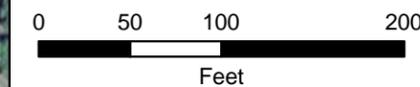
Bishop Pine Forest - 8.43 acres

Disturbed/Ruderal Area - 1.11 acres

Potential Section 404 Wetlands

Seasonal Wetland Depression - 0.22 acre

Extreme Pygmy Forest - 2.63 acres



Map Date: August 2012
Map By: Derek Chan
Base Source: Bing Maps

4.3.2 Sensitive Biological Communities

Wetlands and Non-wetland Waters

Seasonal wetland depression: Seasonal wetland depressions are known throughout California. These features are typically located in relatively flat locations underlain by clay soils or substrates with an impermeable layer within the upper two feet.

An approximately 0.22-acre seasonal wetland depression is located in the southeast corner of the Study Area (Figure 3). This wetland is a slight concave depression contains approximately 25 percent absolute cover of herbaceous species composed of slough sedge (*Carex obnupta*, OBL) and California sedge (*C. californica*, FACW). Trees and shrubs are directly rooted within this feature, but are located on the edge, and include Bolander's pine (*Pinus contorta* ssp. *bolanderi*, FAC), pygmy cypress (*Hesperocyparis pygmaea*, NL), evergreen huckleberry (*Vaccinium ovatum*, FACU), and Labrador tea (*Rhododendron columbianum*, OBL).

Field soil samples reveal that the upper soil profile (0 to 9 inches) is composed of brown (7.5YR 5/8) to dark grayish brown (10YR 4/2) sandy silts and silty clays with strongly brown (7.5YR 5/8) redoximorphic concentrations on root channels and the soil matrix. The lower soil profile (9 to 14 inches) is composed of very dark brown (10YR 2/2) clay loam with redoximorphic concentrations. Hydrology indicators include surface soil cracks (Indicator B6), a sparsely vegetated concave surface (Indicator B8), oxidized rhizospheres (Indicator C4), shallow aquitard (Indicator D3), and FAC-neutral test (Indicator D5). The boundary of this wetland was delineated based on topography and change in vegetation density.

Forested Wetland: Forested wetlands are known intermittently throughout northwestern coastal California. These features are typically located on relatively flat to slightly concave locations underlain by acidic substrates with an impermeable layer.

Within the Study Area, the boundary of forested wetlands is analogous with the extreme pygmy cypress forest (see Section 4.3.2.3 below), and compose approximately 2.63 acres (Figure 3). The vegetation is dominated by Bolander's pine (*Pinus contorta* ssp. *bolanderi*, FAC), pygmy cypress (*Hesperocyparis pygmaea*, NL), evergreen huckleberry (*Vaccinium ovatum*, FACU), and Labrador tea (*Rhododendron columbianum*, OBL), wax myrtle (*Morella californica*, FACW), salal (*Gaultheria shallon*, FACU), and California sedge (*Carex californica*, FACW).

Field soil samples reveal that the upper soil profile (0 to 6 inches) is composed of light brownish gray (10YR 6/2) and brown (7.5YR 4/3) clay sandy loam. The lower soil profile (6 to 8 inches) is composed of yellowish brown (10YR 5/6) clay sandy loam with strongly brown (10YR 5/8) redoximorphic features on the soil matrix. Hydrology indicators include oxidized rhizospheres (Indicator C3), water-stained leaves (Indicator B9), and a shallow aquitard (Indicator D3). The boundary of the forested wetland was delineated based on changes in soils, vegetation structure, and vegetation density.

The Study Area does not contain non-wetland water features. A 200-foot linear ephemeral swale is located immediately outside of the western edge of the Study Area, which flows westward and terminates in Labrador tea (*Rhododendron columbianum*) thicket (Figure 3).

Other Sensitive Biological Communities

Northern Bishop Pine Forest: Northern Bishop pine forest is known from near the coast from Fort Bragg, Mendocino County to northwestern Sonoma County, with stands on Point Reyes, Mount Tamalpais, and Monterey Peninsula (Holland 1986). This vegetation community is characteristic of the northern Bishop pine forest described in Holland (1986), and Bishop pine forest (*Pinus muricata* Forest Alliance) described in Sawyer et al. (2009). Vegetation associations were not mapped but include Bishop pine-evergreen huckleberry (*Pinus muricata*-*Vaccinium ovatum* Forest Association) and Bishop pine/Bolander's pine/pygmy cypress forest (*Pinus muricata*/*P. contorta* ssp. *bolanderi*/*Hesperocyparis pygmaea* Forest Association).

Bishop pine forest occupies approximately 8.43 acres in the southwestern and south-central portion of the Study Area (Figure 3). This community is dominated by Bishop pine (*Pinus muricata*), with several characteristic and subdominant tree species including pygmy cypress (*Hesperocyparis pygmaea*), Bolander's pine (*Pinus contorta* ssp. *bolanderi*), western hemlock (*Tsuga heterophylla*), and coast redwood (*Sequoia sempervirens*). The overstory is somewhat open to completely closed containing mature to over-mature trees. The understory contributes to the vertical structure with a high density of shrubs and depauperate herbaceous layer. Shrub species include evergreen huckleberry (*Vaccinium ovatum*), Pacific rhododendron (*Rhododendron macrophyllum*), giant chinquapin (*Chrysolepis chrysophylla*), tanoak (*Notholithocarpus densiflorus*), and salal (*Gaultheria shallon*). Herbaceous species are sparse and include bracken fern (*Pteridium aquilinum*), bear grass (*Xerophyllum tenax*), and modesty (*Whipplea modesta*). Individual trees were counted in 50-foot radius vegetation plots, and numbers estimated across the stand (Appendix D).

Mendocino Pygmy Cypress Forest: Mendocino pygmy cypress forest is known from near the coast on ancient marine terraces composed of acidic podzol-like soils (Blacklock series) from Fort Bragg to Albion in Mendocino County, and in scattered stands south into Sonoma County (Holland 1986, Sawyer et al. 2009). This vegetation community is characteristic of Mendocino pygmy cypress forest described in Holland (1986), and pygmy cypress forest (*Hesperocyparis pygmaea* Forest Alliance) described in Sawyer et al. (2009). Vegetation associations were not mapped but include pygmy cypress forest (*Hesperocyparis pygmaea* Forest Association), pygmy cypress/Bishop pine forest (*Hesperocyparis pygmaea*/*Pinus muricata* Forest Association), and pygmy cypress/Bolander's pine forest (*Hesperocyparis pygmaea*/*Pinus contorta* ssp. *bolanderi* Forest Association).

Three morpho-types were identified and mapped within the Study Area, "tall pygmy forest", "transitional pygmy forest", and "extreme pygmy forest." These mapping units were based on species composition and height of individual trees, and appeared to be correlated with the depth of a cemented hardpan within the substrate, with stunted trees (extreme pygmy forest) located on soils with a very shallow cemented hardpan. Individual trees were counted in several 50-foot radius vegetation plots each morpho-type, and numbers estimated across the stand (Appendix D).

Tall pygmy forest is dominated pygmy cypress (*Hesperocyparis pygmaea*), with a few scattered individuals of Bishop pine (*Pinus muricata*). This morpho-type occupies approximately 4.51 acres in the southeastern and northwestern portions of the Study Area (Figure 3). Although pygmy species dominated these areas, the soils do not appear to be limiting the growth of individual trees, and average heights range from 35 to 100 feet. The understory is dominated by tall, dense shrubs including Pacific

rhododendron (*Rhododendron macrophyllum*), evergreen huckleberry (*Vaccinium ovatum*), and salal (*Gaultheria shallon*).

Transitional pygmy forest is dominated pygmy cypress (*Hesperocyparis pygmaea*), with subdominants of Bishop pine (*Pinus muricata*) and Bolander's pine (*Pinus contorta* ssp. *bolanderi*). This morpho-type occupies approximately 3.79 acres in the northern and northeastern portion of the Study Area (Figure 3). The soils appear to be somewhat limiting the growth of individual trees, and average heights range from 15 to 35 feet. The understory is dominated by dense shrubs including hairy manzanita (*Arctostaphylos columbiana*), Pacific rhododendron (*Rhododendron macrophyllum*), evergreen huckleberry (*Vaccinium ovatum*), and salal (*Gaultheria shallon*).

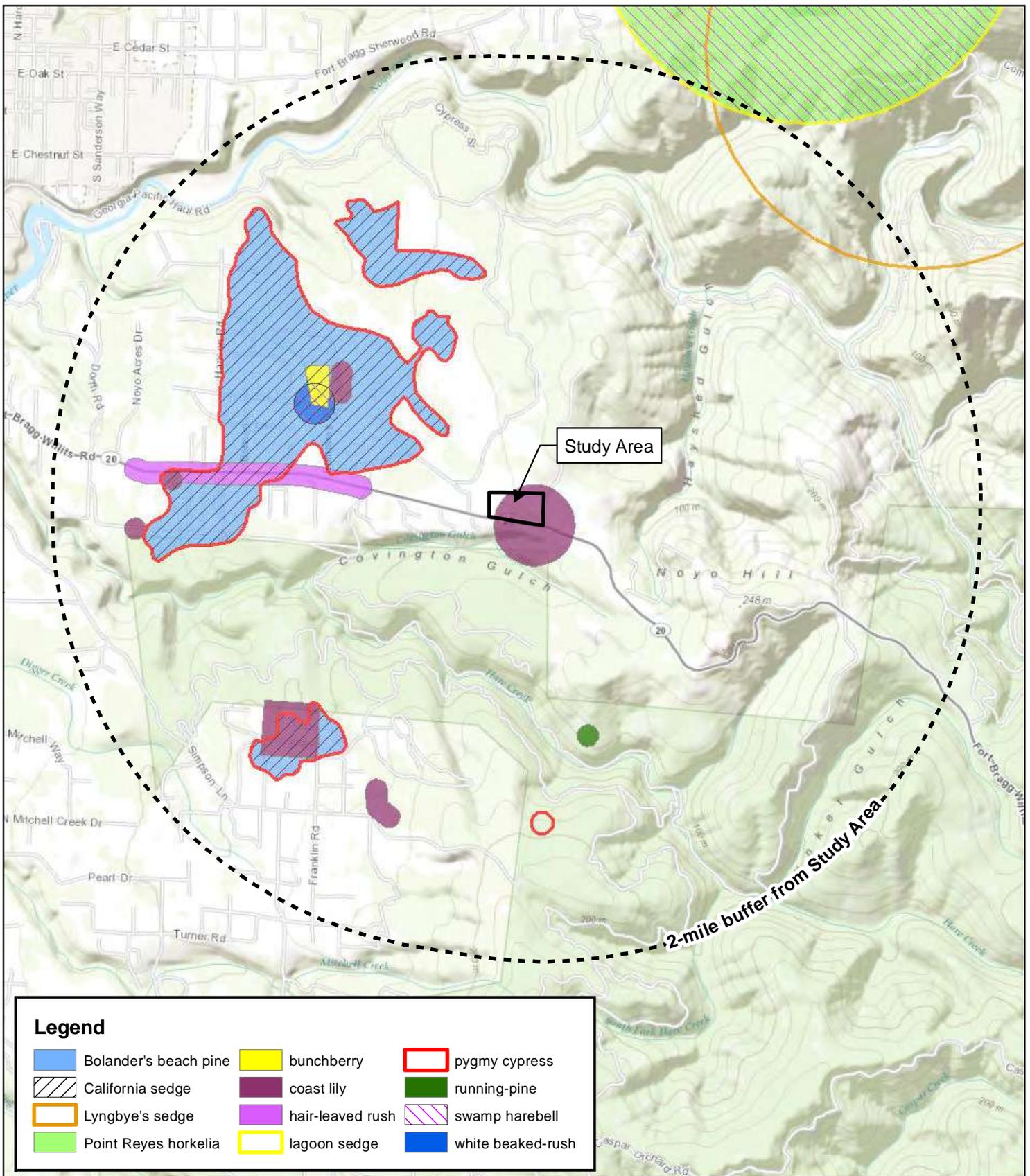
Extreme pygmy forest is dominated by pygmy cypress (*Hesperocyparis pygmaea*) and Bolander's pine (*Pinus contorta* ssp. *bolanderi*). This morpho-type occupies approximately 2.63 acres in the eastern portion of the Study Area (Figure 3). The soils appear to be extremely limiting the growth of trees and shrubs whose average height ranges from 5 to 15 feet. The understory is composed of short statured dense thickets of shrubs with greater interstitial space between thickets than in transitional pygmy forest and tall pygmy forest. Shrub species include Labrador tea (*Rhododendron columbianum*), wax myrtle (*Morella californica*), salal (*Gaultheria shallon*), and evergreen huckleberry (*Vaccinium ovatum*). The herbaceous layer is sparse with bracken fern (*Pteridium aquilinum*), bear grass (*Xerophyllum tenax*), California sedge (*Carex californica*), and sporadic coast lilies (*Lilium maritimum*). Additionally, cryptogamic crusts formed from reindeer lichens (*Cladonia portentosa*, *Cladina impexa*) are present sporadically in open areas that appear to pond water in the wet months.

4.4 Special-status Species

4.4.1 Special-status Plant Species

Forty-seven special-status plant species have been documented in the greater vicinity of the Study Area (Figure 4). Appendix B summarizes the potential for occurrence for each special-status plant species occurring in the vicinity of the Study Area. Seven species have a moderate or high potential to occur in the Study Area. The remaining 40 species are unlikely or have no potential to occur due to one or more of the following reasons:

- Hydrologic conditions (e.g. marsh habitat, perennial streams) necessary to support the special-status plant(s) are not present in the Study Area;
- Edaphic (soil) conditions (e.g. serpentine, volcanics) necessary to support the special-status plant(s) are not present in the Study Area;
- Topographic positions and landforms (e.g. north-facing, slopes, dunes) necessary to support the special-status plant(s) are not present in the Study Area;
- Associated vegetation communities (e.g. chaparral, coastal prairie) necessary to support the special-status plant(s) are not present in the Study Area;
- The degree of disturbance and/or presence of extensive highly competitive, non-native plant species (e.g. dense non-native annual grassland);
- The Study Area is outside of the known elevation and/or localized distribution of the special-status plant(s) (e.g. coastal sites).

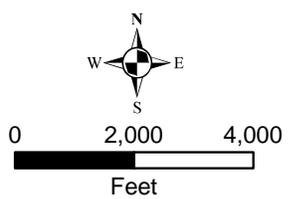


Legend

| | | |
|-----------------------|------------------|-------------------|
| Bolander's beach pine | bunchberry | pygmy cypress |
| California sedge | coast lily | running-pine |
| Lyngbye's sedge | hair-leaved rush | swamp harebell |
| Point Reyes horkelia | lagoon sedge | white beaked-rush |

Figure 4. Special Status Plant Species within 2 miles of the Study Area

Mendocino County, California



Date: June 2013
 Map By: Derek Chan
 Map Source: CNDDB

The seven species with a moderate to high potential to occur in the Study Area are detailed below. Four species were observed in the Study Area during the protocol-level survey in March, May, and/or July. Detailed population accounts are included under the species descriptions below and illustrated in Figure 3.

Mendocino manzanita (*Arctostaphylos nummularia* var. *mendocinensis*). CNPS Rank 1B. High Potential. Mendocino manzanita is an evergreen shrub in the heath family (Ericaceae) that blooms in January, but is identifiable by vegetation and ecological characteristics throughout the year. This species is located on highly acidic sandy clay podzol-like substrates (Blacklock soil series) in closed-cone coniferous forest (pygmy forest) at elevations ranging from 290 to 650 feet (CNPS 2012, CDFG 2012). Observed associated species include pygmy cypress (*Hesperocyparis pygmaea*), Bolander pine (*Pinus contorta* ssp. *bolanderi*), Bishop pine (*P. muricata*), evergreen huckleberry (*Vaccinium ovatum*), Pacific rhododendron (*Rhododendron macrophyllum*), Labrador tea (*R. columbianum*), California wax myrtle (*Morella californica*), and giant chinquapin (*Chrysolepis chrysophylla*) (CDFG 2012).

Mendocino manzanita is known from one USGS 7.5-minute quadrangle in Mendocino County (CNPS 2012). There is one CNDDDB (CDFG 2012) record within the greater vicinity of the Study Area, and 10 CCH (2012) records from Mendocino County. The nearest documented occurrence is from March 1956 east of Fort Bragg, within one mile of the Study Area (CCH 2012). The most recent documented occurrence is from December 2003 in Jughandle State Park, approximately four miles southwest of the Study Area (CCH 2012).

Mendocino manzanita has a high potential to occur in the Study Area due to the presence of suitable habitat, associated species, and Blacklock soils; however, this species was not observed during the protocol-level surveys performed in March, May, or July 2012.

Swamp harebell (*Campanula californica*). CNPS Rank 1B. High Potential. Swamp harebell is a perennial forb in the harebell family (Campanulaceae) that blooms June to October. It typically occurs in wetlands on acidic soils in bog and fen, closed-cone coniferous forest, coastal prairie, meadow, freshwater marsh, and North Coast coniferous forest habitat at elevations ranging from 3 to 1320 feet (CNPS 2012, CDFG 2012). Observed associated species include pygmy cypress (*Hesperocyparis pygmaea*), Bolander pine (*Pinus contorta* ssp. *bolanderi*), Bishop pine (*Pinus muricata*), red alder (*Alnus rubra*), coast redwood (*Sequoia sempervirens*), Douglas fir (*Pseudotsuga menziesii*), Pacific reedgrass (*Calamagrostis nutkaensis*), lady fern (*Athyrium filix-femina*), California blackberry (*Rubus ursinus*), salmonberry (*R. spectabilis*), Labrador tea (*Rhododendron columbianum*), Nootka rose (*Rosa nutkana*), evergreen huckleberry (*Vaccinium ovatum*), tinker's penny (*Hypericum anagalloides*), sedges (*Carex* spp.), rushes (*Juncus* spp.), and horsetail (*Equisetum* spp.) (CDFG 2012).

Swamp harebell is known from 26 USGS 7.5-minute quadrangles in Marin, Mendocino, Santa Cruz, and Sonoma counties (CNPS 2012). There are 27 CNDDDB (CDFG 2012) records in the greater vicinity of the Study Area, and 21 CCH (2012) records from Mendocino County. The nearest documented occurrence is from August 1983 along Summers Lane, approximately one mile northwest of the Study Area (CDFG 2012). The most recent documented occurrence from Mendocino County is from July 2007 in Little Valley Creek Basin, approximately six miles north of the Study Area (CDFG 2012).

Swamp harebell has a high potential to occur in the Study Area due to the presence of associated species, suitable habitat, suitable hydrologic and edaphic conditions, and the relative location of the documented occurrences. However, this species was not observed during the protocol-level rare plant survey conducted in July 2012.

California sedge (*Carex californica*). CNPS Rank 1B. High Potential (Present). California sedge is a perennial graminoid in the sedge family (Cyperaceae) that blooms May to August. It typically occurs in drier portions of wetlands in bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, and marshes and swamps at elevations ranging from 290 to 1090 feet (CNPS 2012, CDFG 2012). Observed associated species pygmy cypress (*Hesperocyparis pygmaea*), Bolander's pine (*Pinus contorta* ssp. *bolanderi*), evergreen huckleberry (*Vaccinium ovatum*), Pacific rhododendron (*Rhododendron macrophyllum*), Labrador tea (*R. columbianum*), salal (*Gaultheria shallon*), glossy-leaf manzanita (*Arctostaphylos nummularia*), coast lily (*Lilium maritimum*), bracken fern (*Pteridium aquilinum*), and coast sedge (*Carex obnupta*) (CDFG 2012).

California sedge is known from eight USGS 7.5-minute quadrangles in Mendocino County (CNPS 2012). There are 21 CNDDDB (CDFG 2012) records within the greater vicinity of the Study Area, and 28 CCH (2012) records from Mendocino County. The nearest and most recent documented occurrence is from June 2010 along Summers Lane, approximately one mile northwest of the Study Area (CDFG 2012).

California sedge has a high potential to occur in the Study Area due to suitable substrate and hydrologic conditions, associated habitats and species, and the relative location of nearest documented occurrences. Several hundred individuals of California sedge were observed throughout the Study Area, with the densest populations located in transitional pygmy forest and extreme pygmy forest. Individuals within the transitional and extreme pygmy forest community were estimated based on vegetation plot data, and total 644 individuals. Populations within the tall pygmy forest and seasonal wetland depression communities were discrete, and 250 individuals were counted. Therefore, an estimated total of 894 individuals are situated within the Study Area.

Green yellow sedge (*Carex viridula* var. *viridula*). CNPS Rank 2. Moderate Potential. Green yellow sedge is a perennial graminoid in the sedge family (Cyperaceae) that blooms from June to November. It typically occurs in mesic sites within bog and fen, freshwater marsh and swamp, and North Coast coniferous forest habitat at elevations ranging from 0 to 5200 feet (CNPS 2012, CDFG 2012). Observed associated species include Buxbaum's sedge (*Carex buxbaumii*), flaccid sedge (*C. leptalea*), northern bugleweed (*Lycopus uniflorus*), and marsh pea (*Lathyrus palustris*) (CDFG 2012).

Green yellow sedge is known from eight USGS 7.5-minute quadrangles in Del Norte, Humboldt, Mendocino, and Tuolumne counties (CNPS 2012). There is one CNDDDB (CDFG 2012) record within the greater vicinity of the Study Area, and no CCH (2012) records from Mendocino County. The nearest and most recent documented occurrence from Mendocino County is undated located in Inglenook Fen, MacKerricher State Park, approximately seven miles north of the Study Area (CDFG 2012).

Green yellow sedge has a moderate potential to occur in the Study Area due to the presence of associated habitats; however, few areas within the Study Area contain hydrology sufficient to support this species. Green yellow sedge was not observed during protocol-level rare plant surveys conducted in July 2012.

Pygmy cypress (*Hesperocyparis pygmaea*). CNPS Rank 1B. High Potential (Present).

Pygmy cypress is an evergreen tree in the cypress family (Cupressaceae) which is identifiable throughout the year. It typically is stand forming on podzol-like soils (e.g. Blacklock soil series) within closed-cone coniferous forest at elevations ranging from 100 to 1950 feet (CNPS 2012, CDFG 2012). Observed associated species include Bishop pine (*Pinus muricata*), Bolander's pine (*P. contorta* ssp. *bolanderi*), coast redwood (*Sequoia sempervirens*), evergreen huckleberry (*Vaccinium ovatum*), Labrador tea (*Rhododendron columbianum*), Pacific rhododendron (*R. macrophyllum*), redwood manzanita (*Arctostaphylos columbianum*), Eastwood manzanita (*A. glandulosa*), glossy-leaf manzanita (*A. nummularia*), salal (*Gaultheria shallon*), coast lily (*Lilium maritimum*), bracken fern (*Pteridium aquilinum*), and bear grass (*Xerophyllum tenax*) (CDFG 2012).

Pygmy cypress is known from 12 USGS 7.5-minute quadrangles in Mendocino and Sonoma counties (CNPS 2012). There are 22 CNDDDB (CDFG 2012) records within the greater vicinity of the Study Area, and 81 CCH (2012) records from Mendocino County. The nearest documented occurrence is from April 1986 along Summers Lane, approximately one mile northwest of the Study Area (CNDDDB 2012). The most recent documented occurrence from Mendocino County is from September 2008 near Noyo Hill in Jackson State Demonstration Forest, approximately 1.5 miles south of the Study Area.

Pygmy cypress has a high potential to occur in the Study Area due to the presence of suitable soil, associated species, and the relative location of the nearest documented occurrences. Several hundred individuals of pygmy cypress were observed throughout the Study Area, with the densest stands located in pygmy cypress forest. Due to extensive distribution of this stand-forming species, individuals were not mapped; however, 2,038 individuals were estimated across the Study Area based on vegetation plot data (Appendix D).

Coast lily (*Lilium maritimum*). CNPS Rank 1B. High Potential (Present). Coast lily is a rhizomatous perennial forb in the lily family (Fabaceae) that blooms from May to August. It typically occurs in wetlands on sandy substrates in hummocks, roadsides, ditches, and undisturbed areas in closed-cone coniferous forest, North Coast coniferous forest, broadleaf upland forest, coastal prairie, coastal scrub, and freshwater marsh and swamp habitat at elevations ranging from 15 to 1545 feet (CNPS 2012, CDFG 2012). Observed associated species include Douglas fir (*Pseudotsuga menziesii*), coast redwood (*Sequoia sempervirens*), Bishop pine (*Pinus muricatus*), Bolander's pine (*P. contorta* ssp. *bolanderi*), tanoak (*Notholithocarpus densiflorus*), giant chinquapin (*Chrysolepis chrysophylla*), wax myrtle (*Morella californica*), evergreen huckleberry (*Vaccinium ovatum*), evergreen violet (*Viola sempervirens*), bracken fern (*Pteridium aquilinum*), and deer fern (*Blechnum spicant*) (CDFG 2012).

Coast lily is known from 19 USGS 7.5-minute quadrangles in Marin, Mendocino, San Francisco, San Mateo, and Sonoma counties (CNPS 2012). There are 23 CNDDDB (CDFG 2012) records within the greater vicinity of the Study Area, and 59 CCH (2012) records from Mendocino County. The nearest documented occurrence is from July 1974 along California Highway 20 immediately adjacent to the Study Area (CNDDDB 2012). The most recent documented

occurrence from Mendocino County is from June 2007 at the Glass Beach Headlands, approximately four miles northwest of the Study Area (CNDDDB 2012).

Coast lily has a high potential to occur in the Study Area due to the presence of the associated habitat, suitable substrate and hydrology, associated species, and the relative locations of documented occurrences. Two sub-populations of coast lily were observed and mapped within the Study Area. The first population is located near Highway 20 in the southwest corner of the Study Area within Bishop pine forest, and contains 104 individuals. The second population is composed of five individuals and is located within extreme pygmy cypress forest in the eastern portion of the Study Area (Figure 3). Most individuals were in bud or flower when observed in May and/or July.

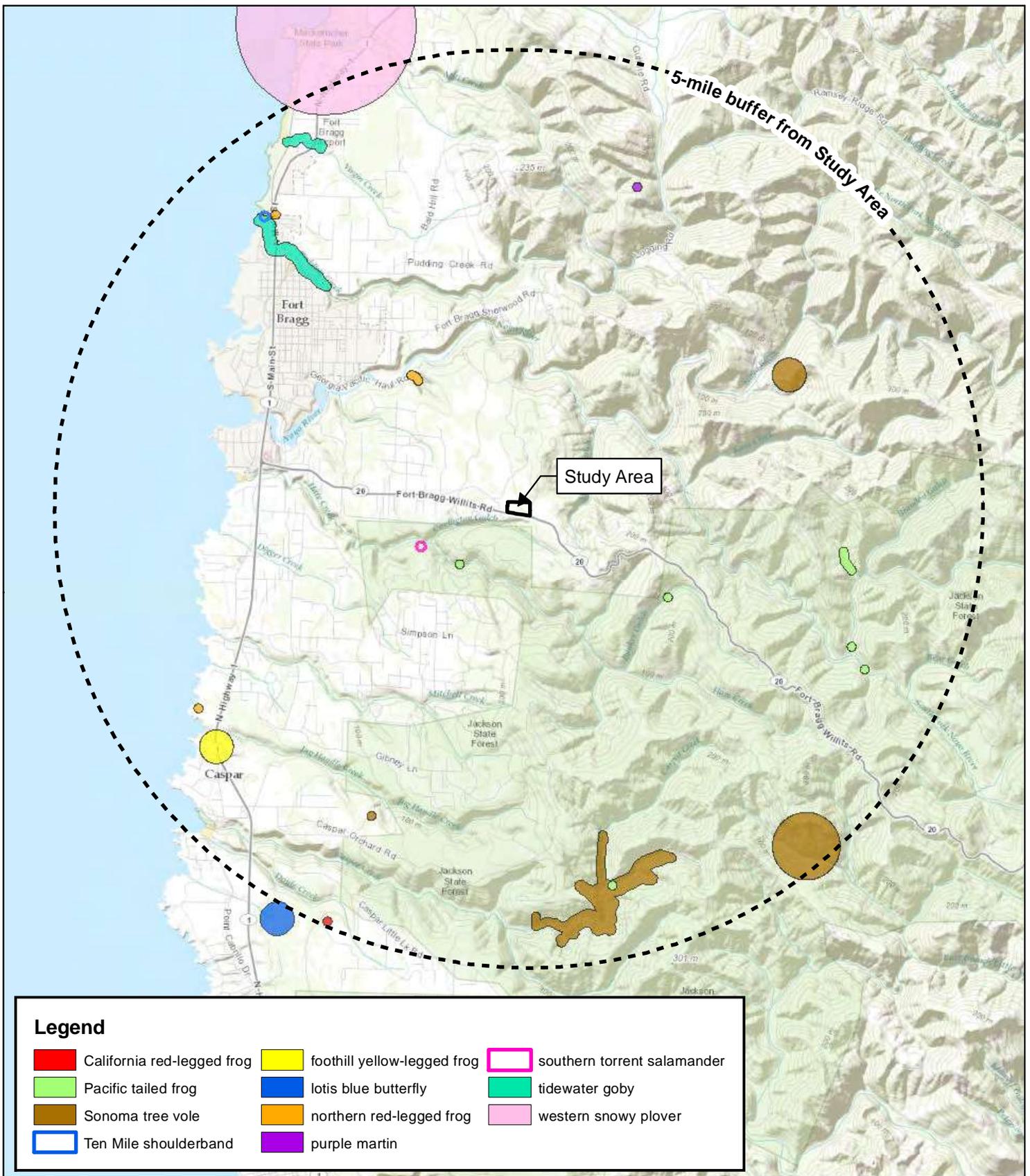
Bolander's pine (*Pinus contorta* ssp. *bolanderi*). CNPS Rank 1B. High Potential (Present). Bolander's pine is an evergreen tree in the pine family (Pinaceae) that is identifiable throughout the year based on vegetative structures and cones. It typically occurs on podzol-like soils in closed-cone coniferous forest habitat at elevations ranging from 240 to 815 feet (CNPS 2012, CNDDDB 2012). Observed associated species include pygmy cypress (*Hesperocyparis pygmaea*), Bishop pine (*Pinus muricata*), Labrador tea (*Rhododendron columbianum*), Pacific rhododendron (*R. macrophyllum*), wax myrtle (*Morella californica*), evergreen huckleberry (*Vaccinium ovatum*), giant chinquapin (*Chrysolepis chrysophylla*), California sedge (*Carex californica*), bracken fern (*Pteridium aquilinum*), coast lily (*Lilium maritimum*), and bear grass (*Xerophyllum tenax*) (CDFG 2012).

Bolander's pine is known from six USGS 7.5-minute quadrangles in Mendocino County (CNPS 2012). There are 23 CNDDDB (CDFG 2012) records in the greater vicinity of the Study Area, and 45 CCH (2012) records from Mendocino County. The nearest documented occurrence is from 1983 along Summers Lane, approximately one mile northwest of the Study Area (CDFG 2012). The most recent documented occurrence from Mendocino County is from October 2002 in Van Damme State Park, approximately ten miles south of the Study Area (CDFG 2012).

Bolander's pine has a high potential to occur in the Study Area due to the presence of associated species, suitable substrate, and the relative location of the nearest documented occurrences. Several hundred individuals of Bolander's pine were observed throughout the Study Area, with the densest stands located in pygmy forest. Due to extensive distribution of this stand-forming species, individuals were not mapped; however, 790 individuals were estimated across the Study Area based on vegetation plot data (Appendix D).

4.4.2 Special-status Wildlife Species

Fifty-one special-status species of wildlife have been recorded in the greater vicinity of the Study Area (Figure 5). Appendix B summarizes the potential for each of these species to occur in the Study Area. No special-status wildlife species were observed in the Study Area during the site assessment. Six special-status wildlife species have a moderate to high potential to occur in the Study Area. For the remaining 45 species, the Study Area either lacks potentially suitable habitat or the Study Area may contain potential habitat, but the habitat is fragmented and disturbed to the extent that the occurrence of special-status species is unlikely. Special-status wildlife species with a moderate to high potential to occur in the Study Area are discussed below.



Sonoma tree vole (*Arborimus pomo*), CDFW Species of Special Concern. High Potential.

The Sonoma tree vole is distributed along the northern California coast from Sonoma County to the Oregon border. It occurs in old-growth and other forest types of Douglas and other conifers, including stands of Bishop pine. This species breeds year-round, but most often from February through September. Nests are constructed preferentially in tall trees, and may be situated on a whorl of limbs against the trunk, or at the outer limits of branches. Males nest most frequently in a tree nest constructed of needles, or less frequently in shallow burrows at the base of the tree, beneath litter. Females tend to spend most of their lives in trees, constructing large, domed nursery nests of needles at six to 150 feet above the ground (Howell 1926). In young second-growth Douglas-fir, nests are often placed on broken tops of trees (Maser et al. 1981), although old-growth Douglas fir stands likely provide the optimal structural components for nest-building (BLM 2002). The Sonoma tree vole is a coniferous needle specialist; needles and twigs are gathered primarily during the night, and may be consumed where found or brought to the nest. Needle resin ducts are removed. The remaining part is eaten, and the resin ducts may be used to line the nest cup. This unique nest lining is an identifying characteristic of STV nests.

This species was not observed during the reconnaissance-level site visit, nor was any sign of its presence observed. However, there are several documented occurrences within five miles of the Study Area (CDFW 2013), and the Study Area contains mature Bishop pines and other conifers. For these reasons, Sonoma tree vole has a high potential to be present.

Fringed myotis (*Myotis thysanodes*), Western Bat Working Group “High Priority” Species. Moderate Potential.

This bat ranges through much of western North America and is found in various habitats, including desert scrubland, grassland, sage-grass steppe, old-growth forest, and subalpine coniferous and mixed deciduous forest. Oak and pinyon-juniper woodlands are most commonly used. Fringed Myotis roosts in colonies from ten to 2,000 individuals, although large colonies are rare. Caves, buildings, underground mines, rock crevices in cliff faces, and bridges are used for maternity and night roosts, while hibernation has only been documented in buildings and underground mines. Tree-roosting has also been documented in Oregon, New Mexico, and California (WBWG 2010).

While the Study Area does not contain optimal roosting habitat for this species, cavities and exfoliating bark within the mature conifers present may provide suitable roosting locations during certain portions of the year.

Vaux’s swift (*Chaetura vauxi*), CDFW Species of Special Concern. Moderate Potential.

Vaux's swift is a summer resident in California, breeding on the coast from central California northward and in the Cascades and Sierra Nevada. Nesting occurs in large, accessible, chimney-like tree cavities that allow birds to fly within the cavity directly to secluded nest sites. Such cavities usually occur in conifers, most particularly old redwoods (Shuford and Gardali 2008). Chimneys and similar manmade substrates are also used for nesting. This species is highly aerial and forages widely for insects in areas of open airspace. During migration, nocturnal roosting occurs communally; favored roosts may host thousands of individuals. The Study Area contains conifers with some large, vertical-oriented cavities, and thus provides suitable breeding habitat.

Olive-sided flycatcher (*Contopus cooperi*), CDFW Species of Special Concern. Moderate Potential.

The olive-sided flycatcher is a summer resident in California, wintering in Central and South America. It breeds in a variety of forested habitats, typically coniferous forests at higher elevations, but also in mixed forest and woodlands at lower elevations. Breeding habitat

is often associated with forest openings and edges, both natural (e.g., meadows, canyons) and man-made (e.g., logged areas) (Altman and Sallabanks 2012). Nests are usually in conifers, and placed at variable height on the outer portions of branches. This species forages for insects, usually from prominent tree snags. The coniferous forest of the Study Area provides suitable breeding habitat, particularly in its western portion along edge areas.

Purple martin (*Progne subis*), CDFW Species of Special Concern. Moderate Potential. This large swallow is an uncommon summer resident in California, breeding in forest and woodlands at low- to mid- elevations throughout much of the state. Nesting occurs primarily in tree cavities; trees selected are usually taller or isolated, with low canopy cover at the nest height, and situated on the upper portions of slopes and/or near bodies of water where large insects (favored prey) are abundant (Shuford and Gardali 2008). Conifers are the most frequently used tree type in northern California. Manmade structures with suitable cavities such as bridges or utility poles are also used. Coniferous forest within the Study Area includes taller trees with cavities, and recent nesting has been documented within four miles of the site (CDFW 2013).

Allen's hummingbird (*Selasphorus sasin*), USFWS Bird of Conservation Concern. Moderate Potential. Allen's hummingbird, common in many portions of its range, is a summer resident along the majority of California's coast and a year-round resident in portions of coastal southern California. Breeding occurs in association with the coastal fog belt, and typical habitats used include coastal scrub, riparian, woodland and forest edges, and eucalyptus and cypress groves (Mitchell 2000). Feeds on flower nectar, and forages for insects and spiders. The Study Area provides some forest edge habitat as well as nectar plants; this species has a moderate potential to be present, including breeding.

5.0 SUMMARY OF RESOURCES AND POTENTIAL JURISDICTION

Four sensitive biological communities were identified within the Study Area. Seven special-status plant species were assessed to have a moderate to high potential to occur, four of which were observed within the Study Area. Six special-status wildlife species have a moderate to high potential to occur within the Study Area; however, protocol-level surveys were not conducted.

5.1 Sensitive Biological Communities

Wetlands and Non-wetland Waters

Two wetland types were mapped within the Study Area, seasonal depression wetland and forest wetland. These wetlands were delineated following the Corps protocol and guidelines for the Western Mountains, Valleys, and Coasts supplement (Corps 2010), and submitted to the San Francisco Corps District (Appendix E). Therefore, these features are jurisdictional under Section 404/401 of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act, with the regulatory authority the San Francisco District Army Corps of Engineers and the North Coast Region RWQCB. Impacts to these features would require permits with the Corps and RWQCB, and would require mitigation.

Other Sensitive Biological Communities

Two sensitive forest habitats were mapped within the Study Area, Northern Bishop pine forest and Mendocino pygmy cypress forest. These forests were delineated based on aerial photographs, soil maps, and vegetation plot data (Appendix D). These forests would likely be considered during CEQA review, and impacts to these communities would likely require mitigation.

5.2 Special-status Plant Species

Four special-status plant species were mapped within the Study Area, Mendocino pygmy cypress, Bolander's pine, California sedge, and coast lily. The cypress, pine, and sedge are composed of extensive populations, while the coast lily is relatively confined to several areas. These species would likely be considered during CEQA review, and impacts to these species would likely require mitigation.

5.3 Special-status Wildlife Species

Six special-status wildlife species have the potential to be present within the Study Area, two mammals and four birds. All of these species would likely be considered during CEQA review if they are present on-site or have the potential to be present. Pre-construction surveys for such species are typically required prior to project initiation, and appropriate mitigation measures implemented (including avoidance and minimization practices), dependent upon the survey results. Sonoma tree vole and special-status bats (including those named "High Priority" species by the Western Bat Working Group) are protected by CDFW. Special-status birds are protected by the USFWS and/or CDFW. Additionally, most native birds that are not special-status receive baseline protection under both the federal Migratory Bird Treaty Act and CDFW codes. Impacts to birds generally consist of the "take" of active nests during the breeding season (i.e., nests with eggs and/or chicks).

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Appendix A

Plant Species Observed within the Study Area

Table A-1. Plant species observed in the Study Area, March 15, May 11, and July 10, 2012

| Family | Scientific name | Common name | Life form | Origin | Invasive Status ¹ | Rare Status ² | Wetland indicator ³ |
|------------------|----------------------------------|-----------------------|---------------------|------------|------------------------------|--------------------------|--------------------------------|
| Apiaceae | <i>Daucus carota</i> | wild carrot | perennial forb | non-native | assessed | -- | FACU |
| Aquifoliaceae | <i>Ilex aquifolium</i> | English holly | evergreen tree | non-native | moderate | -- | NL |
| Asteraceae | <i>Baccharis pilularis</i> | coyote brush | evergreen shrub | native | -- | -- | NL |
| Asteraceae | <i>Bellis perennis</i> | English lawn daisy | perennial forb | non-native | assessed | -- | NL |
| Asteraceae | <i>Carduus pycnocephalus</i> | Italian thistle | annual forb | non-native | moderate | -- | NL |
| Asteraceae | <i>Cirsium vulgare</i> | bull thistle | perennial forb | non-native | moderate | -- | FACU |
| Asteraceae | <i>Leontodon saxatilis</i> | hawkbit | annual forb | non-native | -- | -- | FACU |
| Asteraceae | <i>Senecio jacobaea</i> | tansy ragwort | perennial forb | non-native | limited | -- | FACU |
| Asteraceae | <i>Sonchus oleraceus</i> | common sow thistle | annual forb | non-native | -- | -- | NL |
| Brassicaceae | <i>Cardamine oligosperma</i> | Idaho bittercress | annual forb | native | -- | -- | NL |
| Brassicaceae | <i>Raphanus sativus</i> | cultivated radish | perennial forb | non-native | limited | -- | NL |
| Caprifoliaceae | <i>Lonicera hispidula</i> | pink honeysuckle | evergreen shrub | native | -- | -- | FACU |
| Cupressaceae | <i>Hesperocyparis pygmaea</i> | pygmy cypress | evergreen tree | native | -- | Rank 1B | NL |
| Cupressaceae | <i>Sequoia sempervirens</i> | coast redwood | evergreen tree | native | -- | -- | NL |
| Cyperaceae | <i>Carex californica</i> | California sedge | perennial graminoid | native | -- | Rank 2 | FACW |
| Cyperaceae | <i>Carex obnupta</i> | slough sedge | perennial graminoid | native | -- | -- | OBL |
| Dennstaedtiaceae | <i>Pteridium aquilinum</i> | bracken fern | perennial fern | native | -- | -- | FACU |
| Dryopteridaceae | <i>Polystichum munitum</i> | western sword fern | perennial fern | native | -- | -- | FACU |
| Ericaceae | <i>Arctostaphylos columbiana</i> | hairy manzanita | evergreen shrub | native | -- | -- | NL |
| Ericaceae | <i>Arctostaphylos nummularia</i> | glossy-leaf manzanita | evergreen shrub | native | -- | -- | NL |
| Ericaceae | <i>Gaultheria shallon</i> | salal | evergreen shrub | native | -- | -- | FACU |
| Ericaceae | <i>Rhododendron columbianum</i> | western Labrador tea | evergreen shrub | native | -- | -- | OBL |
| Ericaceae | <i>Rhododendron macrophyllum</i> | California rose bay | evergreen shrub | native | -- | -- | NL |
| Ericaceae | <i>Vaccinium ovatum</i> | evergreen huckleberry | evergreen shrub | native | -- | -- | FACU |
| Ericaceae | <i>Vaccinium parvifolium</i> | red huckleberry | evergreen shrub | native | -- | -- | FACU |
| Fabaceae | <i>Acacia dealbata</i> | silver wattle | evergreen tree | non-native | moderate | -- | NL |
| Fabaceae | <i>Cytisus scoparius</i> | Scotch broom | evergreen shrub | non-native | high | -- | NL |
| Fabaceae | <i>Genista monspessulana</i> | French broom | evergreen shrub | non-native | high | -- | NL |
| Fabaceae | <i>Hosackia rosea</i> | tree lotus | perennial forb | native | -- | -- | FACU |
| Fabaceae | <i>Lotus corniculatus</i> | bird's-foot trefoil | perennial forb | non-native | assessed | -- | FAC |

| Family | Scientific name | Common name | Life form | Origin | Invasive Status ¹ | Rare Status ² | Wetland indicator ³ |
|----------------|--|-------------------------|---------------------|------------|------------------------------|--------------------------|--------------------------------|
| Fabaceae | <i>Lupinus bicolor</i> | miniature lupine | annual forb | native | -- | -- | NL |
| Fabaceae | <i>Trifolium dubium</i> | shamrock clover | annual forb | non-native | -- | -- | FACU |
| Fabaceae | <i>Trifolium repens</i> | white clover | perennial forb | non-native | -- | -- | FAC |
| Fabaceae | <i>Trifolium striatum</i> | knotted clover | annual forb | non-native | -- | -- | NL |
| Fabaceae | <i>Trifolium subterraneum</i> | subterranean clover | annual forb | non-native | -- | -- | NL |
| Fabaceae | <i>Vicia sativa ssp. nigra</i> | garden vetch | annual forb | non-native | -- | -- | UPL |
| Fagaceae | <i>Chrysolepis chrysophylla</i> | giant chinquapin | evergreen tree | native | -- | -- | NL |
| Fagaceae | <i>Notholithocarpus densiflorus</i> | tanoak | evergreen tree | native | -- | -- | NL |
| Geraniaceae | <i>Geranium dissectum</i> | cutleaf geranium | annual forb | non-native | moderate | -- | NL |
| Hydrangeaceae | <i>Whipplea modesta</i> | modesty | evergreen vine | native | -- | -- | NL |
| Iridaceae | <i>Iris douglasiana</i> | Douglas' iris | perennial forb | native | -- | -- | NL |
| Juncaceae | <i>Juncus effusus ssp. pacificus</i> | Pacific rush | perennial graminoid | native | -- | -- | FACW |
| Juncaceae | <i>Juncus patens</i> | common rush | perennial graminoid | native | -- | -- | FACW |
| Juncaceae | <i>Luzula comosa</i> | Pacific woodrush | perennial graminoid | native | -- | -- | FAC |
| Juncaceae | <i>Luzula parviflora</i> | small-flowered woodrush | perennial graminoid | native | -- | -- | FAC |
| Lamiaceae | <i>Stachys rigida var. quercetorum</i> | rough hedgenettle | perennial forb | native | -- | -- | FACW |
| Liliaceae | <i>Lilium maritimum</i> | coast lily | perennial forb | native | -- | Rank 1B | FACW |
| Melanthiaceae | <i>Trillium ovatum</i> | Pacific trillium | perennial forb | native | -- | -- | FACU |
| Melanthiaceae | <i>Xerophyllum tenax</i> | common beargrass | perennial forb | native | -- | -- | NL |
| Moraceae | <i>Morella californica</i> | California wax myrtle | evergreen shrub | native | -- | -- | FACW |
| Papaveraceae | <i>Eschscholzia californica</i> | California poppy | perennial forb | native | -- | -- | NL |
| Pinaceae | <i>Pinus contorta ssp. bolanderi</i> | Bolander's pine | evergreen tree | native | -- | Rank 1B | FAC |
| Pinaceae | <i>Pinus muricata</i> | bishop pine | evergreen tree | native | -- | -- | NL |
| Pinaceae | <i>Pseudotsuga menziesii</i> | Douglas fir | evergreen tree | native | -- | -- | FACU |
| Pinaceae | <i>Tsuga heterophylla</i> | western hemlock | evergreen tree | native | -- | -- | FACU |
| Plantaginaceae | <i>Plantago lanceolata</i> | English plantain | perennial forb | non-native | limited | -- | FACU |
| Poaceae | <i>Agrostis exarata</i> | spike bentgrass | perennial graminoid | native | -- | -- | FACW |
| Poaceae | <i>Anthoxanthum odoratum</i> | sweet vernal grass | perennial graminoid | non-native | moderate | -- | FACU |
| Poaceae | <i>Briza maxima</i> | rattlesnake grass | annual graminoid | non-native | limited | -- | NL |

| Family | Scientific name | Common name | Life form | Origin | Invasive Status ¹ | Rare Status ² | Wetland indicator ³ |
|--------------|-------------------------------|------------------------|---------------------|------------|------------------------------|--------------------------|--------------------------------|
| Poaceae | <i>Bromus carinatus</i> | California brome | perennial graminoid | native | -- | -- | NL |
| Poaceae | <i>Bromus diandrus</i> | riggut brome | annual graminoid | non-native | moderate | -- | NL |
| Poaceae | <i>Bromus hordeaceus</i> | soft chess | annual graminoid | non-native | limited | -- | FACU |
| Poaceae | <i>Bromus laevipes</i> | Chinook brome | perennial graminoid | native | -- | -- | NL |
| Poaceae | <i>Cortaderia jubata</i> | pampas grass | perennial graminoid | non-native | high | -- | FACU |
| Poaceae | <i>Danthonia californica</i> | California oatgrass | perennial graminoid | native | -- | -- | FAC |
| Poaceae | <i>Festuca arundinacea</i> | tall fescue | perennial graminoid | non-native | moderate | -- | FAC |
| Poaceae | <i>Festuca idahoensis</i> | Idaho fescue | perennial graminoid | native | -- | -- | NL |
| Poaceae | <i>Festuca myuros</i> | rattail sixweeks grass | perennial graminoid | non-native | moderate | -- | FACU |
| Poaceae | <i>Festuca rubra</i> | red fescue | perennial graminoid | native | -- | -- | FAC |
| Poaceae | <i>Holcus lanatus</i> | common velvet grass | perennial graminoid | non-native | moderate | -- | FAC |
| Poaceae | <i>Hordeum brachyantherum</i> | meadow barley | perennial graminoid | native | -- | -- | FACW |
| Poaceae | <i>Triticum aestivum</i> | bread wheat | annual graminoid | non-native | -- | -- | NL |
| Polygonaceae | <i>Rumex acetosella</i> | common sheep sorrel | perennial forb | non-native | moderate | -- | FACU |
| Rhamnaceae | <i>Frangula californica</i> | California coffeeberry | evergreen shrub | native | -- | -- | NL |
| Rosaceae | <i>Cotoneaster pannosus</i> | silverleaf cotoneaster | evergreen shrub | non-native | moderate | -- | NL |
| Rosaceae | <i>Rubus ursinus</i> | California blackberry | evergreen shrub | native | -- | -- | FACU |
| Violaceae | <i>Viola sempervirens</i> | evergreen violet | perennial forb | native | -- | -- | NL |

▪ All species identified using the *Jepson Manual* (Hickman 1993) and *Jepson Manual II: Vascular Plants of California* (Baldwin et al. 2012)

▪ Nomenclature follows *Jepson Manual II: Vascular Plants of California* (Baldwin et al. 2012)

¹Invasive Status: California Invasive Plant Inventory (Cal-IPC 2006)

²Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2012)

³Wetland Status: National List of Plant Species that Occur in Wetlands, California (Lichvar 2012)

Appendix B

Potential for Special-status Species to Occur in the Study Area

Table B-1. Potential for Special-status Plant Species to Occur in the Study Area. List compiled from the California Department of Fish and Game (CDFG) Natural Diversity Database (March 2012), U.S. Fish and Wildlife Service (USFWS) Species Lists (March 2012), and California Native Plant Society (CNPS) Electronic Inventory (March 2012) searches of the Inglenook, Fort Bragg, Mendocino, Dutchmans Knoll, Noyo Hill, and Mathison Peak USGS 7.5'.

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA | RESULTS AND RECOMMENDATIONS |
|--|---------|--|---|--|
| PLANTS | | | | |
| pink sand verbena <i>Abronia umbellata</i> var. <i>breviflora</i> | Rank 1B | Coastal dune, coastal strand; located on foredunes and interdunes with low vegetation cover. Elevation range: 0 – 35 feet. Blooms: June – October. | No Potential. The Study Area does not contain coastal dune or coastal strand habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Blasdale's bent grass <i>Agrostis blasdalei</i> | Rank 1B | Coastal dune, coastal bluff scrub, coastal prairie; located on sandy to gravelly substrate close to rocks of bluff faces; typically located in nutrient poor areas with sparse vegetation cover. Elevation range: 15 – 490 feet. Blooms: May – July. | No Potential. The Study Area does not contain coastal dune, coastal bluff scrub, or coastal prairie habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| pygmy manzanita <i>Arctostaphylos nummularia</i> ssp. <i>mendocinensis</i> | Rank 1B | Closed-cone coniferous forest; located acidic, sandy clay substrate in pygmy forest stands. Elevation range: 290 – 600 feet. Blooms: January. | High Potential. The Study Area contains suitable substrate conditions and pygmy forest habitat that may support this species. The nearest documented occurrence is from approximately seven miles from the Study Area. | Not Present. This species was not observed during rare plant surveys in May and July. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|-------------|---|---|--|
| Humboldt County milk-vetch <i>Astragalus agnicidus</i> | SE; Rank 1B | Broadleaf upland forest, redwood forest; located in disturbed openings in timber lands, on south-facing aspects, and along ridgelines. Elevation range: 585 – 2600 feet. Blooms: April – September. | No Potential. The Study Area does not contain broadleaf upland forest or redwood forest necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Point Reyes Blennosperma <i>Blennosperma nanum</i> var. <i>robustum</i> | SR; Rank 1B | Coastal prairie, coastal scrub; located on open coastal hills underlain by sandy substrate. Elevation range: 30 – 475 feet. Blooms: February – April. | No Potential. The Study Area does not contain coastal prairie or coastal scrub habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Thurber's reed grass <i>Calamagrostis crassiglumis</i> | Rank 2 | Coastal scrub, freshwater marsh; typically located in marshy swales surrounded by grasslands or coastal scrub. Elevation range: 30 – 150 feet. Blooms: May – July. | No Potential. The Study Area does not contain coastal scrub or freshwater marsh habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| coastal bluff morning glory <i>Calystegia purpurata</i> ssp. <i>saxicola</i> | Rank 1B | Coastal dunes, coastal scrub; located on coastal bluffs. Elevation range: 30 – 330 feet. Blooms: May – September. | No Potential. The Study Area does not contain coastal dune or coastal scrub habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA | RESULTS AND RECOMMENDATIONS |
|--|---------|--|--|--|
| swamp harebell <i>Campanula californica</i> | Rank 1B | Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, freshwater marsh, North Coast coniferous forest; typically located in wetlands within a variety of surrounding habitats. Elevation range: 3 – 1320 feet. Blooms: June – October. | High Potential. The Study Area contains wet areas within closed-cone coniferous forest (Bishop pine forest, pygmy forest) that may support this species. The nearest documented occurrence is less than one mile from the Study Area. | Not Observed. This species was not observed during rare plant surveys in May and July. |
| California sedge <i>Carex californica</i> | Rank 2 | Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, marshes and swamps; located in drier areas of swamps, bogs, and marsh margins. Elevation range: 290 – 1090 feet. Blooms: May – August. | High Potential. The Study Area contains wetlands within closed-cone coniferous forest (pygmy forest) habitat that may support this species. | Present. Scattered individuals of this species were observed throughout the pygmy forest habitat and a seasonal wetland depression within and adjacent to the Study Area. |
| lagoon sedge <i>Carex lenticularis</i> var. <i>limnophila</i> | Rank 2 | Bogs and fens, marshes and swamps, North Coast coniferous forest; located on lakeshores and beaches. Elevation range: 0 – 20 feet. Blooms: June – August. | Unlikely. Although the Study Area contains North Coast coniferous forest and wetland habitat, this species is known from sites nearer the coast associated with inland dune wetlands and beach pine forest. | Not Present. No further actions are recommended for this species. |
| livid sedge <i>Carex livida</i> | Rank 1A | Bogs and fens; historically known from sphagnum bogs. Elevation range: unknown. Blooms: June. | No Potential. The Study Area does not contain sphagnum bog habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---------|--|--|---|
| Lyngbye's sedge <i>Carex lyngbyei</i> | Rank 2 | Marshes and swamps; brackish to freshwater. Elevation range: 0 – 35 feet. Blooms: April – August. | Unlikely. Although the Study Area contains wetland habitat, marsh habitat is not present necessary to support this species. | Not Present. No further actions are recommended for this species. |
| deceiving sedge <i>Carex saliniformis</i> | Rank 1B | Coastal prairie, coastal scrub, meadows and seeps, coastal salt marshes and swamps; located in mesic sites. Elevation range: 10 – 750 feet. Blooms: June – July. | No Potential. The Study Area does not contain coastal prairie, coastal scrub, meadow, or coastal salt marsh habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| green yellow sedge <i>Carex viridula</i> var. <i>viridula</i> | Rank 2 | Bogs and fens, freshwater marshes and swamps, North Coast coniferous forest; located in mesic sites. Elevation range: 0 – 5200 feet. Blooms: June – November. | Moderate Potential. The Study Area contains coniferous forest (Bishop pine forest) with wetland sites that may support this species; however, this species is closely associated with Douglas fir-coast redwood forest habitat not present. | Not Observed. This species was not observed during rare plant surveys in May and July. |
| Oregon coast paintbrush <i>Castilleja affinis</i> ssp. <i>littoralis</i> | Rank 2 | Coastal bluff scrub, coastal dune, coastal scrub; located on sandy substrate. Elevation range: 45 – 325 feet. Blooms: June. | No Potential. The Study Area does not contain coastal bluff scrub, coastal dune, or coastal scrub habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Humboldt Bay owl's-clover <i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i> | Rank 1B | Coastal salt marsh; located in marshes associated with salt grass, cordgrass, pickleweed, and jaumea. Elevation range: 0 – 10 feet. Blooms: April – August. | No Potential. The Study Area does not contain coastal salt marsh habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA | RESULTS AND RECOMMENDATIONS |
|--|--------------------|---|---|--|
| Mendocino Coast paintbrush <i>Castilleja mendocinensis</i> | Rank 1B | Coastal bluff scrub, coastal scrub, coastal prairie, closed-cone coniferous forest, coastal dune; typically located on open sea bluffs and cliffs. Elevation range: 0 – 520 feet. Blooms: April – August. | No Potential. The Study Area does not contain coastal scrub, coastal prairie, or coastal closed-cone coniferous forest (beach pine forest) habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Howell's spineflower <i>Chorizanthe howellii</i> | FE; ST; Rank 1B | Coastal dunes, coastal prairie, coastal scrub; located on sand dunes, sandy slopes, and sandy areas in coastal prairie. Elevation range: 0 – 115 feet. Blooms: May – July. | No Potential. The Study Area does not contain coastal dune, coastal prairie, or coastal scrub habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Whitney's farewell-to-spring <i>Clarkia amoena</i> ssp. <i>whitneyi</i> | Rank 1B | Coastal bluff scrub, coastal scrub. Elevation range: 30 – 325 feet. Blooms: June – August. | No Potential. The Study Area does not contain coastal scrub habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| round-headed Chinese houses <i>Collinsia corymbosa</i> | Rank 1B | Coastal dunes, coastal prairie. Elevation range: 0 – 65 feet. Blooms: April – June. | No Potential. The Study Area does not contain coastal dune habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Oregon goldthread <i>Coptis laciniata</i> | Rank 2 | North Coast coniferous forest, meadows and seeps; located in mesic sites, roadsides, and streamsides. Elevation range: 0 – 3250 feet. Blooms: March – April. | Unlikely. Although the Study Area contains North Coast coniferous forest (Bishop pine forest), this species is closely associated with mesic sites (e.g. streambanks) in coast redwood-Douglas fir forest habitat. | Not Present. No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|--------------------|---|--|--|
| Mendocino dodder <i>Cuscuta pacifica</i> var. <i>papillata</i> | Rank 1B | Coastal dunes; located in interdune depressions; likely hosts on lupines, catchflies, and cudweeds. Elevation range: 0 – 165 feet. Blooms: July – October. | No Potential. The Study Area does not contain coastal dune habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| supple daisy <i>Erigeron supplex</i> | Rank 1B | Coastal bluff scrub, coastal prairie; typically located in grassy sites along the coastline. Elevation range: 30 – 165 feet. Blooms: May – July. | No Potential. The Study Area does not contain coastal scrub or coastal prairie habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Menzies' wallflower <i>Erysimum menziesii</i> ssp. <i>menziesii</i> | FE; SE; Rank 1B | Coastal dune; located on stabilized and shifting dunes and coastal strand. Elevation range: 0 – 115 feet. Blooms: March – June. | No Potential. The Study Area does not contain coastal dune habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Roderick's fritillary <i>Fritillaria roderickii</i> | SE; Rank 1B | Coastal bluff scrub, coastal prairie, valley and foothill grassland; located on grassy slopes, mesas, and terraces. Elevation range: 45 – 1300 feet. Blooms: March – May. | No Potential. The Study Area does not contain coastal bluff scrub, coastal prairie, or coastal grassland habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Pacific gilia <i>Gilia capitata</i> ssp. <i>pacifica</i> | Rank 1B | Coastal bluff scrub, coastal prairie, valley and foothill grassland. Elevation range: 15 – 3090 feet. Blooms: April – August. | No Potential. The Study Area does not contain coastal bluff scrub, coastal prairie, or grassland habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| dark-eyed gilia <i>Gilia millefoliata</i> | Rank 1B | Coastal dune. Elevation range: 5 – 100 feet. Blooms: April – July. | No Potential. The Study Area does not contain coastal dune habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA | RESULTS AND RECOMMENDATIONS |
|--|---------|--|---|--|
| white seaside tarplant <i>Hemizonia congesta</i> ssp. <i>congesta</i> | Rank 1B | Coastal scrub, valley and foothill grassland; located in grassy valleys and hills, often fallow fields. Elevation range: 65 – 1820 feet. Blooms: April – November. | No Potential. The Study Area does not contain coastal scrub or grassland habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| short-leaved evax <i>Hesperevax sparsiflora</i> var. <i>brevifolia</i> | Rank 1B | Coastal bluff scrub, coastal dune; located on sandy bluffs and flats near the immediate coastline. Elevation range: 0 – 700 feet. Blooms: March – June. | No Potential. The Study Area does not contain coastal bluff scrub or coastal dune habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| pygmy cypress <i>Hesperocyparis pygmaea</i> | Rank 1B | Closed-cone coniferous forest; located on podzol-like soils (Blacklock series). Elevation range: 100 – 1950 feet. | High Potential. The Study Area contains Blacklock series soils and closed-cone coniferous forest. | Present. Extensive stands of this species are located throughout the Study Area, particularly as a stand-forming in the pygmy forest habitat. |
| Point Reyes horkelia <i>Horkelia marinensis</i> | Rank 1B | Coastal dunes, coastal prairie, coastal scrub; located on sandy flats and dunes near the coast; in open grassy sites within scrub. Elevation range: 15 – 1140 feet. Blooms: May – September. | No Potential. The Study Area does not contain coastal dune, coastal prairie, or coastal scrub habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| hair-leaved rush <i>Juncus supiniformis</i> | Rank 2 | Marshes and swamps, bogs and fens; located in sites near the coast. Elevation range: 65 – 325 feet. Blooms: April – June. | Unlikely. Although the Study Area contains wetland habitat, this species is known primarily from sphagnum bog habitat not present in the Study Area. | Not Present. No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---------|---|--|---|
| Baker's goldfields <i>Lasthenia californica</i> ssp. <i>bakeri</i> | Rank 1B | Closed-cone coniferous forest, coastal scrub; located in openings in scrub and coastal forest habitat. Elevation range: 195 – 1690 feet. Blooms: April – October. | No Potential. The Study Area does not contain coastal scrub or beach pine forest necessary to support this species. | Not Present. No further actions are recommended for this species. |
| perennial goldfields <i>Lasthenia californica</i> ssp. <i>macrantha</i> | Rank 1B | Coastal bluff scrub, coastal dune, coastal scrub. Elevation range: 15 – 1690 feet. Blooms: January – November. | No Potential. The Study Area does not contain coastal bluff scrub, coastal dune, or coastal scrub habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| coast lily <i>Lilium maritimum</i> | Rank 1B | Closed-cone coniferous forest, coastal prairie, coastal scrub, broadleaf upland forest, North Coast coniferous forest; typically located on sandy soils, often in raised hummocks or bogs, and roadside ditches. Elevation range: 15 – 1545 feet. Blooms: May – August. | High Potential. The Study Area contains closed-cone coniferous forest and closed-cone coniferous forest (Bishop pine forest, pygmy forest) that may support this species. | Present. One concentrated and a second dispersed population of this species is located within or adjacent to the Study Area. |
| northern microseris <i>Microseris borealis</i> | Rank 2 | Bogs and fens, meadows and seeps, lower montane coniferous forest. Elevation range: 3250 – 6500 feet. Blooms: June – September. | No Potential. The Study Area does not contain bog, fen, meadow, seep, or lower montane coniferous forest habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---------|--|--|--|
| Wolf's evening-primrose <i>Oenothera wolfii</i> | Rank 1B | Coastal bluff scrub, coastal dune, coastal prairie, lower montane coniferous forest; located on sandy substrates in mesic sites. Elevation range: 10 – 2600 feet. Blooms: May – October. | Unlikely. Although the Study Area contains coniferous forest, this species is most closely associate with open grassy sites (prairie, scrub) on the coast. | Not Present. No further actions are recommended for this species. |
| seacoast ragwort <i>Packera bolanderi</i> var. <i>bolanderi</i> | Rank 2 | Coastal scrub, North Coast coniferous forest. Elevation range: 100 – 2115 feet. Blooms: January – July. | Unlikely. Although the Study Area contains North Coast coniferous forest, this species is closely associated with coast redwood-Douglas fir forest habitat not present in the Study Area. | Not Present. No further actions are recommended for this species. |
| North Coast phacelia <i>Phacelia insularis</i> var. <i>continentis</i> | Rank 1B | Coastal bluff scrub, coastal dune; located on open maritime bluffs underlain by sandy substrate. Elevation range: 30 – 555 feet. Blooms: March – May. | No Potential. The Study Area does not contain coastal bluff scrub or coastal dune habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Bolander's pine <i>Pinus contorta</i> ssp. <i>bolanderi</i> | Rank 1B | Closed-cone coniferous forest; located on podzol-like soils (Blacklock series), closely associated with Bishop pine and pygmy cypress. Elevation range: 240 – 815 feet. | High Potential. The Study Area contains Blacklock series soils and closed-cone coniferous forest. | Present. Extensive stands of this species are located throughout the Study Area, particularly as stand-forming in the pygmy forest habitat. |
| dwarf alkali grass <i>Puccinellia pumila</i> | Rank 2 | Meadows and seeps, marshes and swamps; located in mineral spring meadows and coastal salt marshes. Elevation range: 1 – 35 feet. Blooms: July. | No Potential. The Study Area does not contain mineral springs, meadow, seep, or marsh habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA | RESULTS AND RECOMMENDATIONS |
|--|--------------------|---|---|--|
| white beaked-rush <i>Rhynchospora alba</i> | Rank 2 | Bogs and fens, meadows and seeps, marshes and swamps; located in freshwater perennial wetlands and sphagnum bogs. Elevation range: 195 – 6630 feet. Blooms: July – August. | No Potential. The Study Area does not contain sphagnum bog or perennial marsh wetland habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| great burnet <i>Sanguisorba officinalis</i> | Rank 2 | Bogs and fens, meadows and seeps, broadleaf upland forest, marshes and swamps, North Coast coniferous forest, riparian forest; located on rocky serpentine seeps and streams. Elevation range: 195 – 4550 feet. Blooms: July – October. | No Potential. The Study Area does not contain serpentine substrate necessary to support this species. | Not Present. No further actions are recommended for this species. |
| purple-stemmed checkerbloom <i>Sidalcea malviflora</i> ssp. <i>purpurea</i> | Rank 1B | Broadleaf upland forest, coastal scrub. Elevation range: 45 – 280 feet. Blooms: May – June. | No Potential. The Study Area does not contain coastal prairie or broadleaf upland forest habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| Monterey clover <i>Trifolium trichocalyx</i> | FE; SE; Rank 1B | Closed-cone coniferous forest; located on poorly drained, nutrient-deficient soils with a hardpan; often in openings and burned areas. Elevation range: 95 – 780 feet. Blooms: April – June. | Unlikely. This species is most closely associated with Monterey pine forests of the Central Coast, with one occurrence from coast redwood-Douglas fir forest of the North Coast. | Not Present. No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---------|--|--|--|
| coastal triquetrella <i>Triquetrella californica</i> | Rank 1B | Coastal bluff scrub, coastal scrub, valley and foothill grassland; grows within 100 feet of the coastline in scrub and grasslands on open gravel substrates of roads, hillsides, bluffs, and slopes. Elevation range: 30 – 325 feet. | No Potential. The Study Area does not contain coastal bluff scrub, coastal scrub, or grassland habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |
| alpine marsh violet <i>Viola palustris</i> | Rank 2 | Coastal scrub, bogs and fens; located in swampy and shrubby places in coastal scrub or bog habitat. Elevation range: 0 – 490 feet. Blooms: March – August. | No Potential. The Study Area does not contain coastal scrub or coastal bog habitat necessary to support this species. | Not Present. No further actions are recommended for this species. |

Table B-2. Potential for Special-status Wildlife Species to Occur in the Study Area. List compiled from California Department of Fish and Game (CDFG) Natural Diversity Database (CNDDDB) (May 2012), and U.S. Fish and Wildlife Service (USFWS) Species Lists (May 2012) of the Dutchman's Knoll, Fort Bragg, Inglenook, Mathison Peak, Mendocino, and Noyo Hill USGS 7.5' quadrangles, and a review of other CDFG lists and publications (Jennings and Hayes 1994, Zeiner et al. 1990).

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA |
|---|----------------------|--|--|
| Mammals | | | |
| <i>Antrozous pallidus</i> pallid bat | SSC | Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites. | Unlikely. Suitable roosting sites are not present in Study Area, although this species may occasionally forage over the Study Area. |
| <i>Aplodontia rufa nigra</i> Point Arena mountain beaver | FE, SSC | Live in underground burrow systems with openings under vegetation, often on steep north-facing slopes or in gullies. The burrows are found in moist areas with well-drained soil. | No potential. The Study Area is outside of known range of this species. |
| <i>Arborimus pomo</i> Sonoma tree vole | SSC | Occurs in old-growth and other forests, mainly Douglas-fir, redwood, and montane hardwood-conifer habitats. Feeds only on conifer leaves, almost exclusively on Douglas-fir. | High Potential. Suitable habitat is present within the Study Area, and it is within the known range of this species. |
| <i>Corynorhinus townsendii</i> <i>townsendii</i> Townsend's big-eared bat | SSC, WBWG High | Primarily found in rural settings in a wide variety of habitats including oak woodlands and mixed coniferous-deciduous forest. Day roosts highly associated with caves and mines. Very sensitive to human disturbance. | Unlikely. Suitable roosting sites are not present, although this species may occasionally forage over the Study Area. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA |
|--|--------------------------|---|---|
| <i>Eumetopias jubatus</i> steller [northern] sea lion | FT | Breeds on Año Nuevo, San Miguel and Farallon islands, Point Saint George, and Sugarloaf. Hauls-out on islands and rocks. Needs haul-out and breeding sites with unrestricted access to water, near aquatic food supply and with no human disturbance. | No potential. The Study Area does not contain any coastal or marine habitat. |
| <i>Martes pennanti pacifica</i> Pacific fisher | FC, SSC | Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Use cavities, snags, logs and rocky areas for cover and denning. Need large areas of mature, dense forest. | Unlikely. Although the Study Area contains suitable habitat elements, it is not within the known current range of the species. |
| <i>Myotis thysanodes</i> fringed myotis | WBWG High Priority | Associated with a wide variety of habitats including mixed coniferous-deciduous forest and redwood/sequoia groves. Buildings, mines and large snags are important day and night roosts. | Moderate potential. Mature trees and snags that support cavities or exfoliating bark may provide roosting habitat. This species may occasionally forage over the Study Area. |
| <i>Myotis volans</i> long-legged myotis | WBWG High Priority | Generally associated with woodlands and forested habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings. | Unlikely. Suitable roosting sites are not present, although this species may occasionally forage over the Study Area. |
| <i>Phoca vitulina richardsi</i> Pacific harbor seal | MMPA | Occurs in marine and estuarine environments the length of California. Breeds on islands; hauls out on mainland sites. | No potential. The Study Area does not contain any coastal or marine habitat. |
| <i>Zalophus californianus</i> California sea lion | MMPA | Occurs in marine and estuarine environments from Vancouver Island, British Columbia to the southern tip of Baja California. Breeds on offshore islands from the Channel Islands southward. Hauls out on mainland sites. | No potential. The Study Area does not contain any coastal or marine habitat. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA |
|--|---------|---|---|
| Birds | | | |
| <i>Accipiter gentilis</i> northern goshawk | SC, SSC | Year-round resident within and on the edges of mixed and coniferous forests. Usually occurs in mature, old-growth forests. Hunts medium-sized birds. | Unlikely. The Study Area is located to the west of this species' Mendocino County distribution as per a recent monograph in Shuford and Gardali (2008). |
| <i>Agelaius tricolor</i> tricolored blackbird | SSC | Resident, though wanders during the non-breeding season. Highly colonial when breeding. Usually nests over or near freshwater in dense cattails, tules, or thickets of willow, blackberry, wild rose or other tall herbs. | No Potential. The Study Area does not contain any typical nesting habitat, and is located outside of this species' limited breeding distribution in Mendocino County per a recent monograph in Shuford and Gardali (2008). |
| <i>Aquila chrysaetos</i> golden eagle | CFP | Found in rolling foothill and mountain areas, sage-juniper flats, and dessert. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large, often isolated trees. | Unlikely. The Study Area contains a dense, coniferous forest canopy not suitable for foraging. May rarely occur in the vicinity during dispersal or other movements. |
| <i>Asio flammeus</i> short-eared owl | SSC | Resident and winter visitor. Found in open, treeless areas (e.g. marshes, grasslands) with elevated sites for foraging perches and dense vegetation for roosting and nesting. | No Potential. The Study Area does not contain suitable open habitat for this species, which is not known to breed in Mendocino County per a recent monograph in Shuford and Gardali (2008). |
| <i>Asio otus</i> long-eared owl | SSC | Largely resident. Nests in a variety of woodland habitats, including coniferous, oak and riparian. Requires adjacent open land (e.g. grasslands, meadows) for foraging, and the presence of old nests of other birds for nesting. | Unlikely. The Study Area is forested, and there is very limited open habitat in the vicinity. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA |
|--|---------|---|--|
| <i>Athene cunicularia</i> burrowing owl | SSC | Occurs in open grasslands and shrublands with sparse vegetation. Roosts and nests in mammal burrows, typically those of ground squirrels. Preys upon insects and small vertebrates. | No Potential. The Study Area contains no habitat suitable for this species, and is outside of its range per a recent monograph in Shuford and Gardali (2008). |
| <i>Brachyramphus marmoratus</i> marbled murrelet | FT, SE | Occurs in coastal marine habitats for much of the year. Breeds in old-growth conifer stands (e.g. redwood, Douglas fir) containing platform-like branches, along the coast. | Unlikely. The Study Area lacks stands of old-growth redwood and Douglas fir that provide typical breeding habitat. There are no CNDDDB breeding occurrences within ten miles of the Study Area (CDFW 2013). May fly over the area to more inland breeding sites, if such sites exist. |
| <i>Buteo regalis</i> ferruginous hawk | BCC | Winter visitor. Found in open habitats including grasslands, sagebrush flats, desert scrub and low foothills surrounding valleys. | No Potential. The Study Area contains no habitat typical of this species. |
| <i>Chaetura vauxi</i> Vaux's swift | SSC | Summer resident, primarily in forested areas. Nests in tree cavities, favoring those with a large vertical extent. Also uses chimneys and similar manmade substrates. | Moderate Potential. The Study Area is forested, and this species breeds throughout Mendocino County according to a recent monograph in Shuford and Gardali (2008). |
| <i>Charadrius alexandrinus nivosus</i> western snowy plover | FT, SSC | Resident and winter visitor. Found on sandy beaches, salt pond levees and shores of large alkali lakes. Need sandy gravelly or friable soils for nesting. | No Potential. The Study Area does not contain beach, levee, or lake shore habitat necessary to support this species. |
| <i>Circus cyaneus</i> northern harrier | SSC | Resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests in dense vegetation on the ground, typically near water. | Unlikely. Although this species breeds in coastal Mendocino County (Shuford and Gardali 2008), the Study Area is forested and does not contain suitable open habitat. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA |
|---|-------------|---|---|
| <i>Contopus cooperi</i> olive-sided flycatcher | SSC | Summer resident. Breeds in montane coniferous forests, as well as mixed forests along the coast. Often associated with edge habitats. | Moderate Potential. The Study Area contains coniferous forest, with some edge areas. |
| <i>Dendroica petechia</i> yellow warbler | SSC | Summer resident. Nests in riparian stands of willows, cottonwoods, aspens, sycamores, and alders. Also nests in montane shrubbery in open coniferous forests. Occurs widely during migration. | Unlikely. The Study Area does not contain any riparian habitat and provides no breeding habitat for this species. May occur occasionally during migration. |
| <i>Diomedea albatrus</i> short-tailed albatross | FE, SSC | Pelagic; comes to land only when nesting. Nests on remote Pacific islands. Rare in the eastern Pacific. | No potential. This species is entirely marine within the coastal California region. |
| <i>Elanus leucurus</i> white-tailed kite | CFP | Resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Preys on small diurnal mammals and other vertebrates. | No Potential. The Study Area does not contain open grassland, prairie, or marsh habitat necessary to support this species. |
| <i>Falco peregrinus anatum</i> American peregrine falcon | FD, SE, CFP | Resident and winter visitor. Typically found near water, including rivers, lakes, wetlands and the ocean. Requires protected cliffs, ledges or anthropogenic structures for nesting. Forages widely, feeding on a variety of avian prey, mostly waterbirds. | Unlikely. The Study Area does not contain cliffs or anthropogenic structures typically used for nesting. May occasionally forage over the site. |
| <i>Fratercula cirrhata</i> tufted puffin | SSC | Pelagic and coastal marine. Nests along the coast on islands, islets, or (rarely) isolated mainland cliffs. Require sod or earth into which the birds can burrow. Forages at sea, primarily for fish. | No potential. The Study Area does not contain coastal marine habitat. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA |
|--|---------------------|---|---|
| <i>Gavia immer</i> common loon | SSC | Winter visitor, found in estuarine and subtidal marine habitats along the coast. Also occurs on large inland water bodies. | No potential. The Study Area does not contain suitable aquatic habitat for this species. |
| <i>Haliaeetus leucocephalus</i> bald eagle | FD, SE, CFP, BCC | Primary a winter visitor, with limited breeding in the region. Requires large bodies of water, or free-flowing rivers with abundant fish adjacent snags or other perches. Nests in large, old-growth, or dominant live tree with open branchwork. | Unlikely. The Study Area does not contain large bodies of water and thus provides no typical habitat or foraging resources for this species. May occasionally fly over the area. |
| <i>Histrionicus histrionicus</i> harlequin duck | SSC | Winter visitor to marine waters along the coast; breeds inland along streams in the northern Sierra Nevada. | No Potential. The Study Area does not contain coastal marine habitat. |
| <i>Lanius ludovicianus</i> loggerhead shrike | SSC | Resident in open habitats with scattered shrubs, trees, posts, etc. from which to forage for large insects and small vertebrates. Nests are well-concealed above ground in densely-foliaged shrub or tree. | No Potential. The Study Area does not contain open areas, and is outside of its limited Mendocino County breeding range per a recent monograph in Shuford and Gardali (2008). |
| <i>Melanerpes lewis</i> Lewis's woodpecker | BCC | Winter visitor, occurring in oak savannahs and various open woodland habitats. Often associated with recently-burned areas. | Unlikely. The Study Area does not contain open woodland or oak woodland habitat necessary to support this species. |
| <i>Numenius americanus</i> long-billed curlew | BCC | Winter visitor. Winters in large coastal estuaries, upland herbaceous areas, and croplands. Breeds in northeastern California in wet meadow habitat. | No Potential. The Study Area does not contain suitable wetland, mudflat or grassland habitat for this species. |
| <i>Oceanodroma homochroa</i> ashy storm petrel | SSC | Pelagic and coastal marine. Breeds on the Farallon Islands off of the San Francisco/Marin Coast. | No Potential. The Study Area does not contain pelagic or coastal marine habitat. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA |
|--|----------------|---|--|
| <i>Pelecanus occidentalis californicus</i> California brown pelican | FE, SE, CFP | Winter/non-breeding visitor to estuarine, marine subtidal, and marine pelagic waters along the coast. Nests on offshore islands of southern California. | No Potential. The Study Area does not contain coastal marine habitat. |
| <i>Progne subis</i> purple martin | SSC | Summer resident. In northwestern California, typically breeds in coniferous forest and woodlands. Nest in tree cavities, usually high off the ground, and in the cavities of human-made structures (e.g. bridges, utility poles). | Moderate Potential. The Study Area contains coniferous forest with tree cavities suitable for nesting, and there is a documented breeding occurrence within four miles (CDFW 2013). |
| <i>Riparia riparia</i> bank swallow | ST | Summer resident in lowland habitats in western California. Nests in areas with vertical cliffs and banks with fine-textured or sandy soils in which to burrow, typically riparian areas or coastal cliffs. | No potential. The Study Area does not contain suitable nesting habitat and is outside of this species' known breeding range in the state. |
| <i>Selasphorus rufus</i> rufous hummingbird | BCC | Summer resident in northwestern California. Breeds in a wide variety of habitats that provide nectar-producing flowers. Occurs widely throughout the state during migration. | Unlikely. The Study Area is south of this species' limited California breeding range. May occur occasionally during migration. |
| <i>Selasphorus sasin</i> Allen's hummingbird | BCC | Summer resident along the California coast. Breeds in a wide variety of forest and woodland habitats that provide nectar-producing flowers, including parks and gardens. Migration generally limited to the coastal zone. | Moderate Potential. The Study Area includes nectar plants and provides suitable breeding habitat for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA |
|---|---------|---|---|
| <i>Strix occidentalis caurina</i> northern spotted owl | FT, SSC | Resident. Typically occurs in large patches of old-growth coniferous forest. Prefers dense, structurally complex canopies with large trees for foraging and roosting. Nests on horizontal substrates in dense canopy, e.g. large cavities and broken tree tops. | Unlikely. Coniferous forest within the Study Area lacks the structurally-complex, old-growth characters typically favored by this species. Per CDFG's Spotted Owl Viewer, the nearest documented breeding occurrences are located approximately 1.2 miles east of the Study Area. May occasionally forage in the area, but breeding is unlikely. |
| <i>Synthliborampus hypoleucus</i> Xantus's murrelet | ST | Pelagic and coastal marine. Breeds on offshore islands of southern California. Strays to northern California at sea during the non-breeding season. | No Potential. The Study Area does not contain coastal marine habitat. |
| Reptiles and Amphibians | | | |
| <i>Actinemys marmorata</i> Pacific pond turtle | SSC | Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter. | No potential. The Study Area does not contain aquatic habitat necessary to support this species. |
| <i>Ascaphus truei</i> tailed frog | SSC | Occurs from Mendocino County northward in cold permanent streams, usually in forested areas of high precipitation. Primarily aquatic. | No potential. Although there are several documented occurrences within five miles (CDFW 2013), the Study Area does not contain any stream habitat. |
| <i>Rana aurora draytonii</i> northern red-legged frog | SSC | Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive emergent and/or riparian vegetation. Documented to disperse through upland habitats after rains. | Unlikely. The Study Area does not contain any suitable aquatic habitat for this species. No documented occurrences are known from within five miles of the Study Area. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA |
|--|--------------|--|---|
| <i>Rana boylei</i> foothill yellow-legged frog | SSC | Found in or near rocky streams in a variety of habitats. Feed on both aquatic and terrestrial invertebrates. | No potential. The Study Area does not contain stream habitat necessary to support this species. |
| <i>Rhyacotriton variegatus</i> southern torrent salamander | SSC | Cold, permanent seeps and small streams with rocky substrate. | No potential. Although there is a documented occurrence in Hare Creek located to the southwest (CDFW 2013), the Study Area does not contain any stream or suitable seep habitat. |
| Fishes | | | |
| <i>Eucyclogobius newberryi</i> tidewater goby | FE, SSC | Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels. | No Potential. The Study Area does not contain any aquatic habitat necessary to support this species. |
| <i>Oncorhynchus tshawytscha</i> chinook salmon - CA Coast ESU | FT, RP, NMFS | Anadromous, spending most of its life cycle in the ocean, but spawning in coastal rivers and creeks. The California Coast ESU includes all naturally spawned populations from rivers and streams south of the Klamath River (exclusive) to the Russian River (inclusive). Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. | No Potential. The Study Area does not contain any aquatic habitat necessary to support this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN STUDY AREA |
|---|---|--|---|
| <i>Oncorhynchus mykiss</i> steelhead - Northern CA ESU | FT, NMFS, SSC | Anadromous, spending most of its life cycle in the ocean, but spawning in coastal rivers and creeks. The federal designation refers populations occurring below impassable barriers in coastal basins from Redwood Creek to, and including, the Gualala River. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean. | No Potential. The Study Area does not contain any aquatic habitat necessary to support this species. |
| Invertebrates | | | |
| <i>Danaus plexippus</i> monarch butterfly | None (winter roosts monitored by CDFG) | Winter roost sites located in wind-protected tree groves (typically eucalyptus, Monterey pine or Monterey cypress), with nectar and water sources nearby. Individual butterflies occur widely. | Unlikely. The Study Area is forested, containing no typical tree grove habitat. Individual monarchs may occasionally pass through the Study Area. |
| <i>Lycaledes argyrognomon lotis</i> lotis blue butterfly | FE | Known from sphagnum-willow bogs in association with Bishop pine, pygmy forests and similar habitats. Harlequin lotus (<i>Hosackia gracilis</i>) is the suspected host plant. | Unlikely. Although the Study Area contains pygmy forest and Bishop pine forest, sphagnum-willow bog habitat or harlequin lotus are not present. Individual lotis blues may occasionally pass through the Study Area. |
| <i>Speyeria zerene behrensii</i> Behren's silverspot butterfly | FE | Inhabits coastal terrace prairie habitat. Host plant is dog violet (<i>Viola adunca</i>). | No Potential. The Study Area does not contain coastal terrace prairie habitat or dog violets. |

*** Key to status codes:**

| | |
|---------|--|
| FE | Federal Endangered |
| FT | Federal Threatened |
| FC | Federal Candidate |
| FD | Federal De-listed |
| BCC | USFWS Birds of Conservation Concern |
| SE | State Endangered |
| SD | State Delisted |
| ST | State Threatened |
| SR | State Rare |
| SSC | CDFG Species of Special Concern |
| CFP | CDFG Fully Protected Animal |
| WBWG | Western Bat Working Group High or Medium Priority species |
| Rank 1A | CNPS Rank 1A: Plants presumed extinct in California |
| Rank 1B | CNPS Rank 1B: Plants rare, threatened or endangered in California and elsewhere |
| Rank 2 | CNPS List 2: Plants rare, threatened, or endangered in California, but more common elsewhere |
| Rank 3 | CNPS List 3: Plants about which CNPS needs more information (a review list) |
| Rank 4 | CNPS Rank 4: Plants of limited distribution (a watch list) |

Potential to Occur:

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Results and Recommendations:

Present. Species was observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

Not Present. Species is assumed to not be present due to a lack of key habitat components.

Not Observed. Species was not observed during surveys.

Appendix C

Representative Photographs of the Study Area



Top: Northern Bishop pine forest located on the western edge of the Project Site, exterior view of overstory (view: east).

Bottom: Northern Bishop pine forest on the southern edge of the Project Site, interior view of understory (view: north).

Photographs taken July 10, 2012





Top: Tall pygmy forest in the northwestern portion of the Project Site, interior view of overstory (view: southwest).

Bottom: Transitional pygmy forest in the northern portion of the Project Site, interior view of middlestory (view: west).

Photographs taken July 10, 2012





Top: Extreme pygmy forest in eastern portion of the Project Site, interior view of overstory and understory (view: west).

Bottom: Forested wetland (extreme pygmy forest), interior view with patchy understory (view: southwest).

Photographs taken July 10, 2012





Top: Seasonal wetland depression with California sedge in foreground and wetland edge in background (view: north).

Bottom: Bolander's pine (*Pinus contorta* ssp. *bolanderi*) in extreme pygmy forest, CNPS Rank 1B.

Photographs taken July 10, 2012





Top: Coast lily (*Lilium maritimum*) on edge of Bishop pine forest , CNPS Rank 1B.

Bottom: California sedge (*Carex californica*) in seasonal wetland depression, CNPS Rank 1B.

Photographs taken July 10, 2012



Appendix D

Vegetation Plot Data Collected within the Study Area

Table D-1. Summary of vegetation plot data for Bolander’s pine, pygmy cypress, and California sedge counts across each biological community

| Biological Community | Plot Size | | Biological Community Area | | Aggregate Sample Area ¹ | | Bolander’s pine | | Pygmy cypress | | California sedge | |
|---------------------------------|--------------|-------------|---------------------------|---------|------------------------------------|------|-----------------|------------|---------------|--------------|------------------|------------|
| | Tree (50’ r) | Herb (30’r) | Acres | Sq. Ft. | Tree | Herb | Plot AVG | Stand AVG | Plot AVG | Stand AVG | Plot AVG | Stand AVG |
| Bishop Pine Forest (n=5) | 7,850 | 2,826 | 8.43 | 367,211 | 47 | 130 | 1 | 47 | 7 | 327 | 0 | 0 |
| Tall Pygmy Forest (n=4) | 7,850 | 2,826 | 4.51 | 196,456 | 25 | 70 | 4 | 100 | 31 | 776 | 0 | 0 |
| Transitional Pygmy Forest (n=4) | 7,850 | 2,826 | 3.79 | 165,092 | 21 | 58 | 7 | 147 | 16 | 336 | 2 | 117 |
| Extreme Pygmy Forest (n=4) | 7,850 | 2,826 | 2.63 | 114,563 | 15 | 41 | 34 | 496 | 41 | 598 | 13 | 527 |
| Estimated Total | | | | | | | | 790 | | 2,038 | | 644 |

¹Aggregated sample area is number of tree (50’ r) and herb (30’r) plots needed to fill the remainder of the total biological community area, used to interpolated average stem counts across the entire biological community

Appendix E

Preliminary Jurisdiction Determination of Waters of the U.S. (WRA 2012)

Preliminary Jurisdiction Determination of Waters of the U.S.

Portion of Jackson State Demonstration Forest
Fort Bragg, Mendocino County, California

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EXECUTIVE SUMMARY

This report presents the results of a wetland delineation conducted within a parcel currently owned by the State of California and managed by Jackson State Demonstration Forest (Study Area) near Fort Bragg, Mendocino County, California. The Study Area is located in portion of Jackson State Demonstration Forest owned by California Department of Forestry and Fire. WRA, Inc. conducted the delineation on May 11 and July 10, 2012 to assess the presence of "Waters of the United States" including potential wetlands and non-wetland waters subject to federal jurisdiction under Section 404 of the Clean Water Act. In addition, this delineation identifies potential "Waters of the State," which is identical to the delineation of potential wetlands and non-wetland waters, but also includes the extent of non-wetland riparian habitat.

A total of 2.85 acres of wetlands and no non-wetland waters that may be considered jurisdictional under Section 404 of the Clean Water Act were delineated in the Study Area (Appendix A). The wetland areas include a two seasonal wetland depressions and extreme pygmy forest wetland. These areas are dominated by hydrophytic vegetation with facultative (FAC), facultative wetland (FACW), and obligate wetland (OBL) classified plants. They also contain hydric soil indicators and wetland hydrology indicators.

Wetland features delineated within the Study Area (2.85 acre) are potentially jurisdictional under both state and federal regulations.

1.0 INTRODUCTION

WRA, Inc. (WRA) prepared this report on behalf of the Mendocino Solid Waste Authority and City of Fort Bragg to present a delineation of “Waters of the United States,” including wetlands, as defined in 33 Code of Federal Regulations (CFR) Part 328.3, potentially present in a 20.7-acre section of Jackson State Demonstration Forest (Study Area).

WRA conducted a routine wetland delineation of “Waters of the United States” and “Waters of the State” on in the Study Area on May 11 and July 10, 2012. These surveys focused on documenting the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. Wetland boundaries were mapped based on transitions in topography, surface hydrology, and/or vegetation. WRA performed the Study Area delineation to assess the presence of potential wetlands and non-wetland waters subject to federal jurisdiction under Section 404 of the Clean Water Act. In addition, these surveys assessed the presence of all habitat subject to state jurisdiction (i.e., “Waters of the State”) under the Porter-Cologne Water Quality Control Act.

1.1 Study Area Location

The Study Area is an approximately 20.7-acre portion of Jackson State Demonstration Forest (JSDF) bounded to the south by California Highway 20, and contiguous open forested habitat to the north, east, and west, with rural residential units to the east and west. It is located approximately three miles southeast of downtown Fort Bragg. This section of JSDF contains a gravel helipad owned and operated by Calfire, as well as relatively undisturbed closed-cone coniferous forest.

1.2 Regulatory Background

1.2.1 Section 404 of the Clean Water Act

Section 404 of the Clean Water Act (CWA) gives the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers regulatory and permitting authority regarding discharge of dredged or fill material into “navigable waters of the United States”. Section 502(7) of the Clean Water Act defines “navigable waters” as “Waters of the United States, including territorial seas.” Section 328 of Chapter 33 in the Code of Federal Regulations defines the term “Waters of the United States” as it applies to the jurisdictional limits of the authority of the Corps under the Clean Water Act. In summary, the regulatory definition of “Waters of the U.S.” in 33 CFR Section 328.3 includes (1) waters used in interstate or foreign commerce; (2) interstate waters and wetlands; (3) other waters such as intrastate lakes, rivers, streams, and wetlands, the use, degradation, or destruction of which could affect interstate or foreign commerce; (4) impoundments of waters that otherwise meet the definition of “waters of the U.S.”; (5) tributaries to the above waters; (6) territorial seas; and (7) wetlands adjacent to any of the above waters.

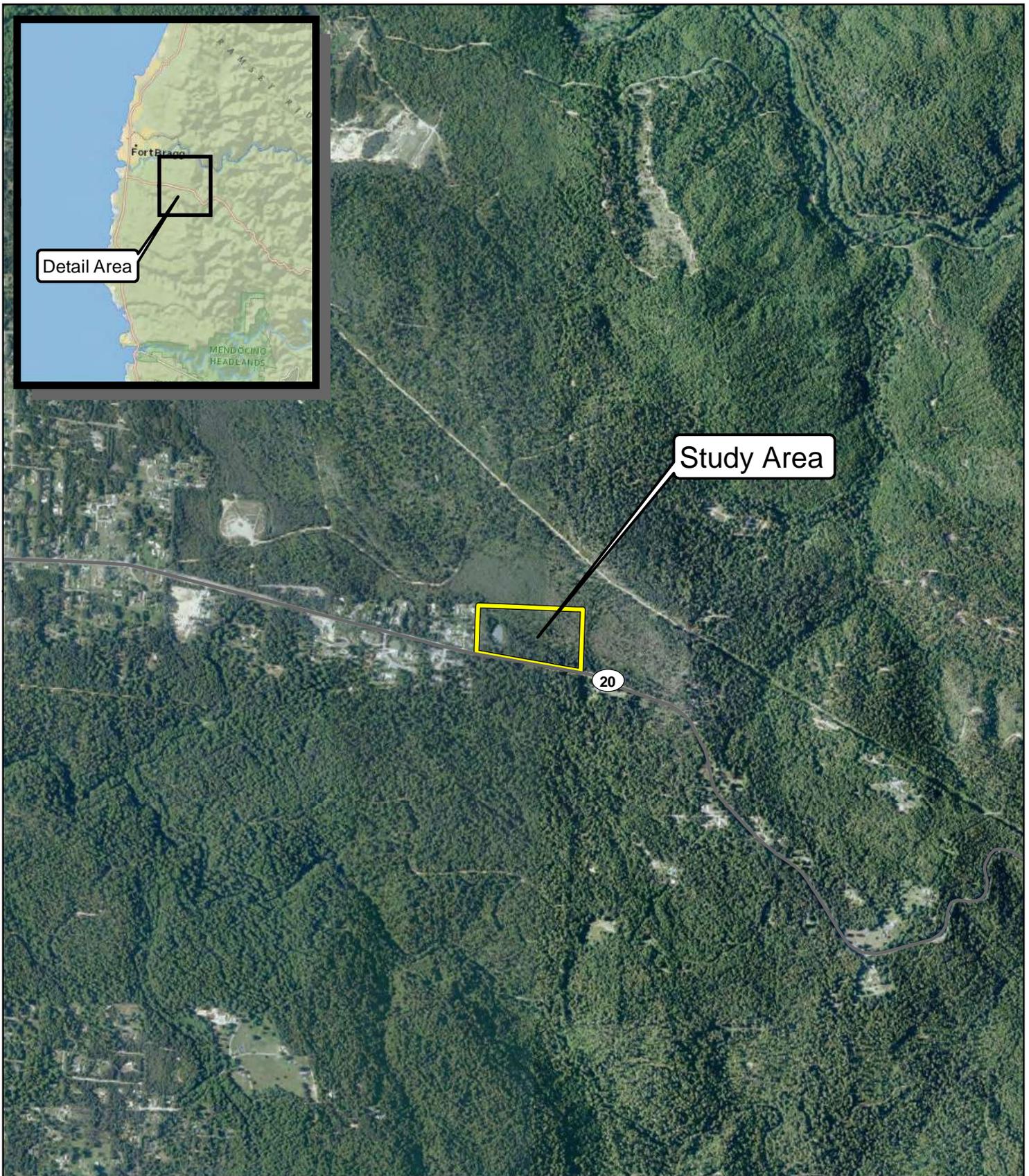


Figure 1. Study Area Location



Mendocino County, California

Map Date: October 2012
 Map By: Chris Zumwalt
 Base Source: ESRI World Imagery

In the Corps Rivers and Harbors regulations (33 CFR Part 329.4), the term “navigable waters of the U.S.” is defined to include those waters that are subject to the ebb and flow of the tide, and/or presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

In 2006, the Supreme Court addressed the jurisdictional scope of Section 404 of the Clean Water Act in *Rapanos v. U.S.* and in *Carabell v. U.S.* (collectively known as "Rapanos"). The decision provides two analytical standards for assessing whether water bodies that are not traditional navigable waters (TNWs), including wetlands adjacent to those non-TNWs, are subject to CWA jurisdiction: (1) if the water body is relatively permanent, or if the water body is a wetland that directly abuts (e.g., the wetland is not separated from the tributary by uplands, a berm, dike, or similar feature) a relatively permanent water (RPW), or (2) if a water body, in combination with wetlands adjacent to that water body, has a significant nexus with TNWs.

When assessing whether a water body qualifies as a TNW, relevant considerations include whether:

- A Corps district has determined that the water body is a navigable waters of the U.S. pursuant to 33 CFR Section 329.14;
- The water body qualifies as a navigable water of the U.S. under any of the tests set forth in 33 CFR Section 329;
- A federal court has determined that the water body is navigable-in-fact under federal law for any purpose; or
- The water body is navigable-in-fact under the standards that have been used by the federal courts.

As a result of the Rapanos decision, the EPA and Corps have issued guidance describing jurisdiction over the following categories of water bodies:

- Traditional navigable waters (TNWs);
- Wetlands adjacent to TNWs;
- Non-navigable tributaries of TNWs that are relatively permanent (i.e., tributaries that typically flow year-round or have continuous flow at least seasonally); and
- Wetlands that directly abut such tributaries.

Additionally, the EPA and Corps will assert jurisdiction over waterbodies that are not a RPW if that water body is evaluated (on the basis of a fact-specific analysis) to possess a significant nexus with a TNW. The classes of water body that are subject to EPA and Corps jurisdiction only if such a significant nexus is demonstrated are:

- Non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally;
- Wetlands adjacent to such tributaries; and
- Wetlands adjacent to, but that do not directly abut a relatively permanent, non-navigable tributary.

The limits of Corps jurisdiction under Section 404 as given in 33 CFR Section 328.4 are as follows: (a) *Territorial seas*: three nautical miles in a seaward direction from the baseline; (b) *Tidal waters of the U.S.*: high tide line or to the limit of adjacent non-tidal waters; (c) *Non-tidal waters of the U.S.*: ordinary high water mark or to the limit of adjacent wetlands; and (d) *Wetlands*: to the limit of the wetland.

1.2.2 *Section 10 of the Rivers and Harbors Act*

The Corps of Engineers also has jurisdiction over “navigable waters” under Section 10 of the Rivers and Harbors Act of 1899. Section 10 of this Act applies to tidal areas below Mean High Water (MHW) and includes tidal areas currently subject to tidal influence, as well as historical tidal areas behind levees that both historically and presently reside at or below MHW. “Navigable waters of the U.S.”, as defined in 33 CFR Part 329, are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. The act prohibits any unauthorized action that obstructs the “navigable capacity of any waters of the United States.” These actions can include building of structures; excavation, fill; alterations and modifications to navigable waters (33 USC 403). A determination of navigability, once made, applies laterally over the entire surface of the waterbody and is not extinguished by later actions or events which impede or destroy navigable capacity. The upper limit of navigable water is at the point along its length where the character of the river changes from navigable to non-navigable, such as at a major fall or rapids. Since the upper limit of navigability of waterways under Section 10 jurisdiction is sometimes difficult to discern, determinations of navigability under Section 10 are often made by the Corps and kept on file, independent of submitted permit applications or delineations.

1.2.3 *Water Quality Control Board*

The Dickey Water Pollution Act of 1949 and Porter-Cologne Act of 1969 established the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCB) in the State of California. The SWRCB and RWQCB regulate activities in waters of the State which include “Waters of the U.S.” “Waters of the State” are defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.”

The RWQCB regulates discharges of fill and dredged material that require a Section 404 permit from the Corps under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act through the State Water Quality Certification Program. State Water Quality Certification is necessary for projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact “Waters of the State.” In order for a Section 404 permit to be valid, Section 401 of the Clean Water Act requires a Water Quality Certification or waiver to be obtained. The Water Quality Certification (or waiver) is issued if the RWQCB assesses that permitted activities will not violate water quality standards individually or cumulatively over the term of the action. Water Quality Certification must be consistent with the requirements of the Federal Clean Water Act, the California Environmental Quality Act, the California Endangered Species Act, and the Porter-Cologne Act.

If a proposed project or portion of a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to “Waters of the State,” the RWQCB has the option to regulate the dredge and fill activity under its state authority in the

form of Waste Discharge Requirements or Certification of Waste Discharge Requirements. In these cases a Water Quality Certification is not necessary under Section 401 of the Clean Water Act because federal jurisdiction does not apply.

2.0 SUMMARY OF POTENTIAL JURISDICTIONAL AREAS

Appendix A depicts sample point locations in the Study Area and the location of potential jurisdictional areas. Appendix B includes the sample point data collected by WRA during field investigations. Wetland features mapped within the Study Area are summarized in Table 1 and shown in Appendix A. Upon completion of the delineation, 2.85 acres of federal jurisdictional wetlands, and no non-wetland waters, were delineated in the Study Area.

Potentially jurisdictional areas, as identified in this report, were those areas that possessed three wetland parameters (i.e., hydrology, soil, and vegetation).

Table 1. Summary of Potential Section 404 Jurisdictional Areas in the Study Area

| Wetland Type | Cowardin Wetland Classification (1979) | Potential Jurisdictional Area |
|-----------------------------|--|-------------------------------|
| Seasonal wetland depression | PEMC | 0.22 acre |
| Forest wetland | PFO4 | 2.63 acres |
| TOTAL | | 2.85 acres |

There is 2.85 acres of potentially jurisdictional wetlands present in the Study Area. These areas are low-lying, depressional, or broad swale areas dominated by hydrophytic vegetation and containing hydric soils and wetland hydrology indicators. Additionally, the wetlands located within the Study Area (2.85 acres, Table 1) are considered waters of the State.

3.0 METHODS

Prior to conducting field surveys, WRA reviewed reference materials, including the *Soil Survey of Mendocino County, Western Part* (USDA 2005), the Fort Bragg USGS 7.5' quadrangle (1960), and recent aerial photos of the site.

WRA evaluated indicators of wetlands and non-wetland waters in the Study Area on May 11 and July 10, 2012. Wetland boundaries were mapped based on subtle shifts in topography, the evidence of extended inundation and/or saturation, and/or change in vegetation. Methods used in this study to delineate jurisdictional wetlands and other waters are based on the *U.S. Army Corps of Engineers Wetlands Delineation Manual* ("Corps Manual"; Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, Version 2.0* ("WMVC Supplement"; Corps 2010). The routine method for wetland delineation described in the Corps Manual was used to identify areas potentially subject to Corps Section 404 jurisdiction within the Study Area. WRA generated a general description of the Study Area, including plant communities present,

topography, and land use during delineation visits. Methods for evaluating the presence of wetlands and non-wetland waters employed during the site visit are described in detail below.

3.1 Potential Section 404 Waters of the U.S.

3.1.1 Wetlands

The Study Area was evaluated for the presence or absence of indicators of the three wetland parameters described in the Corps Manual (Environmental Laboratory 1987) and WMVC Supplement (Corps 2010).

33 CFR Section 328.3 defines wetlands as:

"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

EPA, 40 CFR 230.3 and CE, 33 CFR 328.3

The three parameters used to delineate wetlands are the presence of: (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soils. According to the Corps Manual, for areas not considered "problem areas" or "atypical situations":

"...[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland delineation."

Data on vegetation, hydrology, and soils collected at sample points during the delineation site visit was reported on WMVC Supplement data forms. If field personnel delineated an area as a potential jurisdictional wetland, they located its boundaries using Global Positioning System (GPS) equipment and mapped the area on a topographic map. Field personnel used indicators described in the WMVC Supplement to make wetland assessments at each sample point in the Study Area. Wetland indicators are summarized below.

Vegetation

Field personnel assigned plant species identified within the Study Area a wetland status according to the Corps list of plant species that occur in wetlands (Lichvar and Kartesz 2009). This wetland classification system is based on the expected frequency of occurrence in wetlands as follows:

| | | | |
|------|---------------------|----------------------------------|----------------|
| OBL | Obligate Wetland | Always found in wetlands | >99% frequency |
| FACW | Facultative Wetland | Usually found in wetlands | 67-99% |
| FAC | Facultative | Equal in wetland or non-wetlands | 34-66% |
| FACU | Facultative Upland | Usually found in non-wetlands | 1-33% |
| NL | Not Listed | An upland plant | <1% |

WRA assessed the presence of hydrophytic vegetation based on indicator tests described in the WMVC Supplement. The WMVC Supplement requires that a four-step process be conducted to identify whether hydrophytic vegetation is present. The procedure first requires the delineator to apply a rapid test for hydrophytic vegetation (Indicator 1; Rapid Test) described in the manual. The delineator visually assesses the dominant species across all strata at the sample location. If all dominant species contain a FACW or OBL status, then the vegetation is considered hydrophytic at the sample location.

If the sample point fails Indicator 1, then the delineator applies the “50/20 rule” (Indicator 2; Dominance Test) described in the manual. To apply the “50/20 rule”, dominant species are chosen independently from each stratum of the community. Dominant species are identified for each vegetation stratum from a sampling plot of an appropriate size surrounding the sample point. Dominant species are the most abundant species that individually or collectively account for more than 50 percent of the total vegetative cover in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total cover. If greater than 50 percent of the dominant species has an OBL, FACW, or FAC status, ignoring + and - qualifiers, the sample point meets the hydrophytic vegetation criterion.

If the sample point fails Indicator 1 and Indicator 2 and both hydric soils and wetland hydrology are not present, then the sample point does not meet the hydrophytic vegetation criterion, unless the site is a problematic wetland situation. However, if the sample point fails Indicator 2 but hydric soils and wetland hydrology are both present, the delineator must apply Indicator 3.

Indicator 3 is known as the Prevalence Index (PI). The prevalence index is a weighted average of the wetland indicator status for all plant species within the sampling plot. Each indicator status is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5). Indicator 3 requires the delineator to estimate the percent cover of each species in every stratum of the community and sum the cover estimates for any species that is present in more than one stratum. The delineator must then organize species into groups according to their wetland indicator status and calculate the Prevalence Index using the following formula, where A equals total percent cover:

$$PI = \frac{A_{OBL} + 2A_{FACW} + 3A_{FAC} + 4A_{FACU} + 5A_{UPL}}{A_{OBL} + A_{FACW} + A_{FAC} + A_{FACU} + A_{UPL}}$$

The Prevalence Index will yield a number between 1 and 5. If the Prevalence Index is equal to or less than 3, the sample point meets the hydrophytic vegetation criterion. However, if the community fails Indicator 2, the delineator must proceed to Indicator 3.

Indicator 4 is known as Morphological Adaptations. If more than 50 percent of the individuals of a FACU species have morphological adaptations for life in wetlands, then that species is considered to be a hydrophyte and its indicator status should be reassigned to FAC. If such observations are made, the delineator must recalculate Indicators 1 and 2 using a FAC indicator status for this species. The sample point meets the hydrophytic vegetation criterion if either test is satisfied.

Soils

The Natural Resource Conservation Service (NRCS) defines a hydric soil as follows:

“A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.”

Federal Register July 13, 1994,
U.S. Department of Agriculture, NRCS

Soils formed over long periods of time under wetland (anaerobic) conditions often possess characteristics that indicate they meet the definition of hydric soils. Hydric soils can have a hydrogen sulfide (rotten egg) odor, low chroma matrix color (generally designated 0, 1, or 2, used to identify them as hydric), presence of redox concentrations, gleyed or depleted matrix, or high organic matter content.

Specific indicators that can be used to assess whether a soil is hydric for the purposes of wetland delineation are provided in the NRCS *Field Indicators of Hydric Soils in the U.S.* (USDA 2010). The WMVC Supplement provides a list of 19 of these hydric soil indicators which are known to occur in the WMVC region. Field personnel collected and described soil samples according to the methodology provided in the WMVC Supplement to assess if hydric soil indicators were present (i.e., the soil samples met one or more of the 19 hydric soil indicators described in the WMVC Supplement). Field personnel assessed soil chroma and values using a standard Munsell soil color chart (Gretag Macbeth 2000).

Hydrology

The Corps jurisdictional wetland hydrology criterion is satisfied if an area is inundated or saturated for a period sufficient to create anoxic soil conditions during the growing season (a minimum of 14 consecutive days in the WMVC region). Evidence of wetland hydrology can include primary indicators, such as visible inundation or saturation, drift deposits, oxidized root channels, and salt crusts, or secondary indicators such as the FAC-neutral test, presence of a shallow aquitard, or crayfish burrows. The WMVC Supplement contains 19 primary hydrology indicators and 9 secondary hydrology indicators. Only one primary indicator is required to meet the wetland hydrology criterion. However, if secondary indicators are used, at least two secondary indicators must be present to conclude that an area has wetland hydrology.

Field personnel used presence or absence of the primary or secondary indicators described in the WMVC Supplement to assess whether sample points within the Study Area met the wetland hydrology criterion.

3.1.2 Non-wetland Waters

This study also evaluated the presence of non-wetland waters of the U.S. potentially subject to Corps Section 404 jurisdiction. Other areas, besides wetlands, subject to Corps jurisdiction include lakes, rivers, and streams (including intermittent streams), in addition to areas below the

HTL in areas subject to tidal influence. Jurisdiction in non-tidal areas extends to the ordinary high water mark (OHWM) defined as:

“...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”

Federal Register Vol. 51, No. 219,
Part 328.3 (d). November 13, 1986

Identification of OHWM followed the Corps Regulatory Guidance Letter No. 05-05, *Guidance on Ordinary High Water Mark Identification* (Corps 2005). The High Tide Line (HTL) for the Study Area was calculated in areas of tidal influence based on data from the National Oceanic and Atmospheric Administration (NOAA 2005) for the Port Chicago tide station, located just north of the Study Area.

3.1.3 Waters of the State

The SWRCB and RWQCB have not established a formal wetland definition nor have they developed a wetland delineation protocol; however, these agencies generally adhere to the same delineation protocol set forth by the Corps (Environmental Laboratory 1987; Corps 2008). Therefore, the methods used to identify potential “Waters of the State” were the same as those described above for potential Section 404 jurisdiction. However, if present, WRA also identified the extent of non-wetland riparian habitat since the San Francisco RWQCB has taken jurisdiction over such areas during the 401 water quality certification process. Non-wetland riparian habitat consists of stream-dependent vegetation immediately adjacent to watercourses that generally lack wetland hydrology or hydric soils. If non-wetland riparian habitat is observed, the boundary of the area is identified by the edge of dripline.

3.2 Areas Outside of Section 404 Jurisdiction

Some areas that meet the technical criteria for wetlands or non-wetland waters may not be jurisdictional under the Clean Water Act. Included in this category are some man-induced wetlands, which are areas that have developed at least some characteristics of naturally occurring wetlands due to either intentional or incidental human activities. Examples of man-induced wetlands may include, but are not limited to, irrigated wetlands, impoundments, drainage ditches excavated in uplands, wetlands resulting from filling of formerly deep water habitats, dredged material disposal areas, and depressions within construction areas.

In addition, some isolated wetlands and waters may also be considered outside of Corps jurisdiction as a result of the Supreme Court's decision in *Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers* (531 U.S. 159 (2001)). Isolated wetlands and waters are those areas that do not have a surface or groundwater connection to, and are not adjacent to a navigable “Waters of the U.S.,” and do not otherwise exhibit an interstate commerce connection. WRA evaluated the Study Area to assess if any wetland or other waters areas observed are not subject to Section 404 jurisdiction.

4.0 STUDY AREA DESCRIPTION

The Study Area is a 20.7-acre section of JSDF approximately three miles southeast of downtown Fort Bragg, Mendocino County. The Study Area is dominated by relatively undisturbed closed-cone coniferous forest, with a compacted gravel helipad and adjacent invasive shrubs. Detailed information on the vegetation, topography, soils, climate, and hydrology of the Study Area is provided below.

4.1 Vegetation

The vegetative composition of the Study Area is composed of two forest types, Bishop pine forest and pygmy cypress forest, as well as a narrow band of non-native scrub surrounding the gravel helipad. The scrub is dominated by French broom (*Genista monspessulana*, NL) and Scotch broom (*Cytisus scoparius*, NL).

The pygmy cypress forest is composed of three morpho-types: tall pygmy cypress forest, transitional pygmy cypress forest, and extreme pygmy cypress forest. The three morpho-types were separated based on the height and density of trees. The overstory of pygmy cypress forests in the Study Area is composed of native closed-cone conifer species such as Bishop pine (*Pinus muricata*, NL), pygmy cypress (*Hesperocyparis pygmaea*, NL), and Bolander's pine (*Pinus contorta* ssp. *bolanderi*, FAC). The understory is composed of dense thickets of Pacific rhododendron (*Rhododendron macrophyllum*, NL), evergreen huckleberry (*Vaccinium ovatum*, FACU), wax myrtle (*Morella californica*, FACW), Labrador tea (*Rhododendron columbianum*, OBL), glossy-leaf manzanita (*Arctostaphylos nummularia* ssp. *nummularia*, NL), and salal (*Gaultheria shallon*, FACU). The herbaceous layer is depauperate, but composed of sporadic individuals of bear grass (*Xerophyllum tenax*, NL), bracken fern (*Pteridium aquilinum*, FACU), and western sword fern (*Polystichum munitum*, FACU).

The Bishop pine forest is dominated by Bishop pine trees, with occasional individuals of pygmy cypress, coast redwood (*Sequoia sempervirens*, NL), western hemlock (*Tsuga heterophylla*, FACU), Douglas fir (*Pseudotsuga menziesii*, FACU), and Bolander's pine. The middle story contains sporadic thickets of tanoak (*Notholithocarpus densiflorus*, NL), giant chinquapin (*Chrysolepis chrysophylla*, NL), and Pacific rhododendron (*Rhododendron macrophyllum*, NL). The lower understory contains a similar species composition and density as the pygmy cypress forest.

4.2 Topography and Soils

The Study Area is situated on a marine terrace north of Covington Gulch and south of the Noyo River. As such the topography in the northern, eastern, and central portions is relatively flat. Elevations range from approximately 400 to 430 feet above sea level. The Study Area generally slopes from the northeast to southwest, with few, virtually indistinct micro-topographic shifts.

The *Soil Survey of Mendocino County, Western Part* (USDA 2005) indicates that the Study Area contains two native soil types containing two soil series each, the Shinglemill-Gibney complex, and the Blacklock and Aborigine soils. Individual soil series are described below and illustrated in Figure 2.

Shinglemill loam, 2 to 15 percent slopes: This series consists of very deep loam soils formed in marine sediments of mixed rock type located on marine terraces and coastal hills at elevations ranging from 200 to 750 feet. These soils are considered hydric, and are poorly drained with slow to medium runoff, and slow permeability. Native vegetation associated with these soils includes coastal coniferous forest including Bishop pine, pygmy cypress, evergreen huckleberry, glossy-leaf manzanita, Pacific rhododendron, Labrador tea, and bear grass (USDA 2005).

A representative pedon of this series contains an O-horizon of duff typically from pine needles, manzanita and rhododendron leaves, and twigs from 2 to 0 inches depth. This is underlain by an E-horizon of very strongly acid (pH 4.5) very pale brown (10YR 7/4) and grayish brown (10YR 5/2) moist loam from approximately 0 to 3 inches depth. This is underlain by a B-horizon of very strongly acid (pH 4.6) yellowish brown (10YR 5/4, 5/6) moist loam to clay with prominent white (10YR 8/1, 8/2) mottles from approximately 3 to 63 inches depth (USDA 2005).

Gibney loam, 2 to 15 percent slopes: This series consists of very deep loam soils formed in marine sediments of mixed rock type located on marine terraces at elevations ranging from 200 to 750 feet. These soils are not considered hydric, and are somewhat poorly drained with slow runoff, and slow permeability. Native vegetation associated with these soils includes coastal coniferous forest including Bishop pine, pygmy cypress, evergreen huckleberry, glossy-leaf manzanita, and bear grass (USDA 2005).

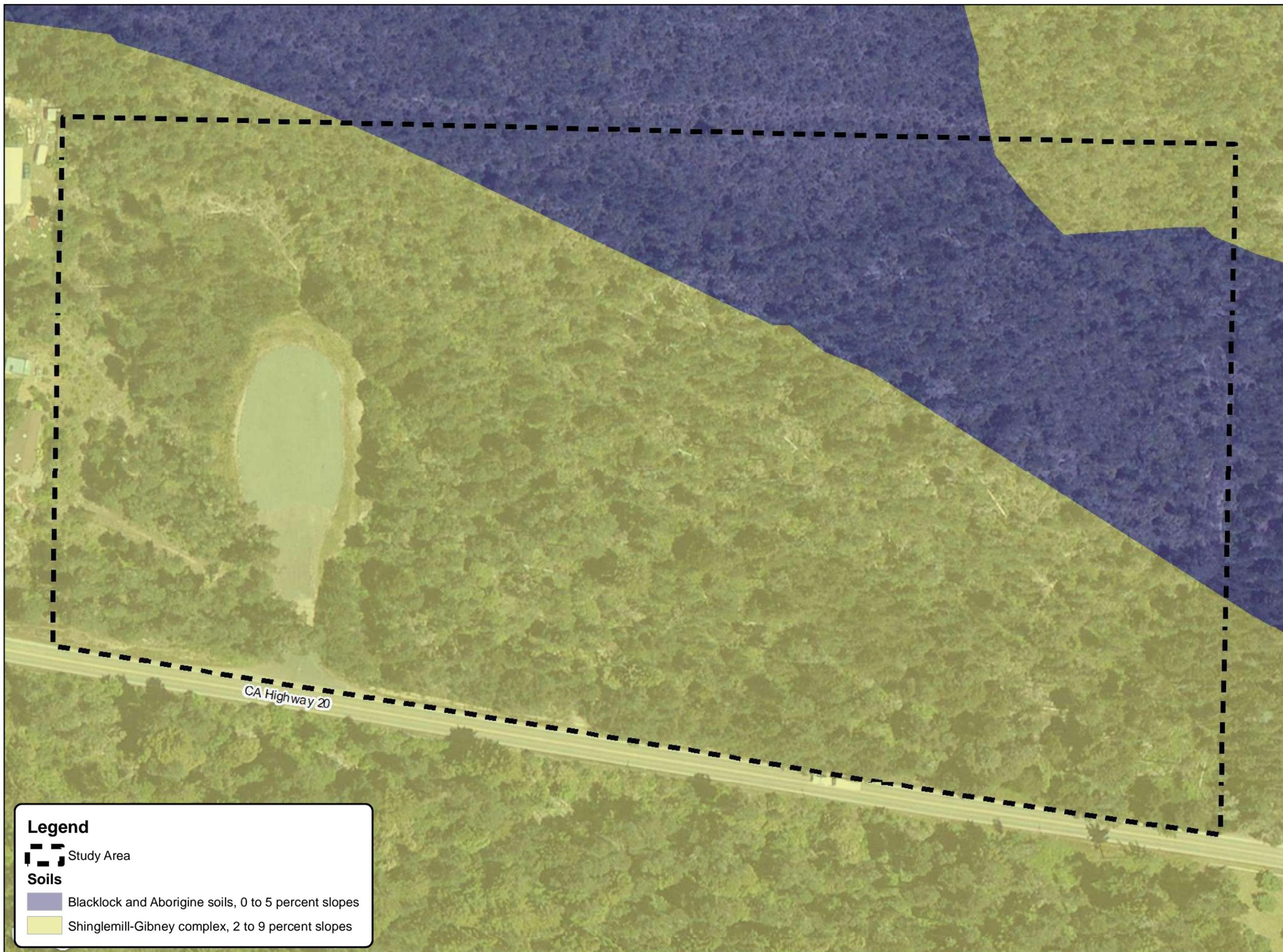
A representative pedon of this series contains an O-horizon of duff typically from pine needles, manzanita and rhododendron leaves, and twigs from 3 to 0 inches depth. This is underlain by an A-horizon of very moderately acid (pH 5.6) yellowish (10YR 5/4) when moist loam from approximately 0 to 9 inches depth. This is underlain by a B-horizon of very strongly acid (pH 4.5) to extremely acid (pH 4.2) yellowish brown (10YR 5/4, 5/6) when moist clay loam to clay to light brownish clay (2.5Y 6/2) when moist sandy clay loam with distinct to prominent strong brown (7.5YR 5/6) mottles from approximately 9 to 63 inches depth (USDA 2005).

Blacklock fine sandy loam, 0 to 7 percent slopes: This series consists of shallow sandy loam soils formed in sandy marine sediments located on marine terraces at elevations ranging from 25 to 650 feet. These soils are considered hydric, and are very poorly drained with slow to medium runoff, and moderate permeability. Native vegetation associated with these soils includes Bishop pine, pygmy cypress, western hemlock, evergreen huckleberry, glossy-leaf manzanita, Pacific rhododendron, salal, Labrador tea, and bear grass (USDA 2005).

A representative pedon of this series consists of an O-horizon of duff from pine needles and manzanita leaves and twigs from 1 to 0 inches depth. This is underlain by an A-horizon of very strongly acid (pH 4.6) dark gray (10YR 4/1) when moist fine sandy loam to gray (10YR 6/1) when moist loamy fine sand from approximately 0 to 9 inches depth. This is underlain by an E-horizon of very strongly acid (pH 4.5) white (N 8/0) to gray (10YR 6/1) when dry loamy fine sand from approximately 9 to 13 inches depth. This is underlain by a B-horizon of very strongly acid (pH 4.6) dark reddish gray (5YR 4/2) when dry mucky loam from approximately 13 to 15 inches depth. This is underlain by a cemented B-horizon of medium acid (pH 5.2) yellowish brown (10YR 5/6) when dry strongly cemented sands to very pale brown (10YR 7/4) when dry strongly cemented sands from approximately 15 to 52 inches depth. This is underlain by a C-horizon of medium acid (pH 5.2) light olive brown (2.5Y 5/6) when dry fractured sandstone (USDA 2005).

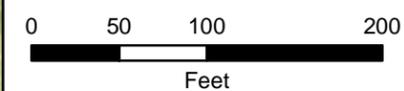
Mendocino County,
California

Figure 2.
Study Area Soils



Legend

-  Study Area
- Soils**
-  Blacklock and Aborigine soils, 0 to 5 percent slopes
-  Shinglemill-Gibney complex, 2 to 9 percent slopes



Map Date: October 2012
Map By: Chris Zumwalt
Base Source: Bing Maps

Aborigine sandy loam, 0 to 5 percent slopes: This series consists of very deep sandy loam soils formed from marine or lacustrine sediments on marine terraces at elevations ranging from 250 to 800 feet. These soils are considered hydric, and are very poorly drained with very slow to slow runoff, and very slow permeability. Native vegetation associated with these soils includes Bishop pine, pygmy cypress, western hemlock, evergreen huckleberry, glossy-leaf manzanita, Pacific rhododendron, salal, Labrador tea, and bear grass (USDA 2005).

A representative pedon of this series consists of an O-horizon of duff from cypress and pine needles from 3 to 0 inches depth. This is underlain by an E-horizon of extremely acid (pH 4.4) to light brownish gray (10YR 6/2) when moist sandy loam to strongly acid (pH 5.5) pale brown (10YR 6/3) when moist loam from approximately 0 to 16 inches depth. This is underlain by B-horizon extremely acid (pH 4.2) light gray (10YR 7/1, 6/1) when moist clay and sandy clay from approximately 16 to 64 inches depth (USDA 2005).

4.3 Climate and Hydrology

The Study Area is located in the coastal fog belt of Mendocino County. Average annual precipitation for Fort Bragg, located approximately three aerial miles northwest, is 41.25 inches, with the majority falling as rain and fog drip in the winter months (December through March). The mean daily low and high temperatures in degrees Fahrenheit range from 39.5 in December to 66.4 in August/September (USDA 2012).

The Study Area experiences substantial rainfall events, and evidence of surface ponding, a perched water table, and/or saturated substrates for extended periods (14 days or greater) are present sporadically within the Study Area, particularly in the eastern portion. Areas composed of Bishop pine forest (*Pinus muricata*) and tall pygmy cypress forest (*Hesperocyparis pygmaea*) appear to permeate somewhat rapidly, with lower portions in transitional and extreme pygmy cypress forest in the eastern portion experiencing extended saturation and inundation.

5.0 RESULTS

WRA recorded vegetation, soils, and hydrology data collected during the delineation site visits on standard Corps WMVC Region data forms (Appendix B). Potential Section 404 and Porter-Cologne jurisdictional areas are described in the following sections. Appendix A and Appendix B present the locations of sample points and potential jurisdictional features, and data collected during the site visit. Appendix C provides a list of plant species observed during the site visit. Appendix D contains photos of representative portions of the Study Area.

5.1 Potential Section 404 Waters of the U.S.

5.1.1 Wetlands

WRA delineated two seasonal wetland depressions and one forest wetland totaling 2.85 acres (Appendix A). One seasonal wetland depression is located in a low spot in the southeast portion of the Study Area, while the second seasonal wetland depression is located in the northwest portion. The forest wetland is analogous to the extreme pygmy cypress forest located in the eastern and northern portions of the Study Area (Appendix A).

Absolute cover of vegetation in the seasonal wetland depression in the southeast portion of the Study Area is approximately ten percent with very little shrub and tree cover, while the vegetation cover in the northwest seasonal wetland depression is predominantly shrubs and herbs. Herbaceous vegetation is dominated by the hydrophytes, slough sedge (*Carex obnupta*, OBL) and California sedge (*C. californica*, FACW). Dominant shrubs in the northwest portion include Labrador tea and wax myrtle. The soils, when moist, are dark yellowish brown (10YR 4/4), dark grayish brown (10YR 4/2), and brown (7.5YR 4/4) sandy silts and silty clays in the upper pedon and very dark brown (10YR 2/2) clay loams in the lower pedon, with redox iron in the middle portion of the pedon, meeting the Redox Dark Surface (F6). A cemented layer is present at approximately 14 inches depth. The soils sampled are darker and contain higher concentrations of iron redox than detailed in the soil survey (USDA 2005). Extended inundation and saturation is evident from surface soil cracks, a sparsely vegetation concave surface, and oxidation on living roots, as well as passing the FAC-neutral test and the presence of a shallow aquitard, meeting the wetland hydrology indicators B6, B8, C3, D3, and D5 (Corps 2010).

The forest wetland is located in the eastern and northern portions of the Study Area, and is connected to a larger contiguous forest wetland habitat that continues beyond the Study Area boundary. The vegetation is dominated by perennial hydrophytes including Bolander's pine, Labrador tea, wax myrtle, California sedge, and coast lily (*Lilium maritimum*, FACW). The soils, when moist, are light brownish gray (10YR 6/2) and brown clay sandy loams in the upper pedon, underlain by yellowish brown (10YR 5/6) clay sandy loam with iron redox in the lower pedon, meeting Sandy Redox (S5). A cemented layer is present at approximately eight to ten inches depth. The soils sampled are similar to those detailed in soil survey (USDA 2005). Extended inundation and saturation is evident from oxidation on living root channels, water-stained leaves, and presence of a shallow aquitard, meeting the wetland hydrology indicators C3, B9, and D3 (Corps 2010).

5.1.2 Non-wetland Waters

The Study Area does not contain non-wetland waters.

5.1.3 Waters of the State

The wetlands summarized in Section 5.1.1 are potentially jurisdictional under Section 401 of the CWA, and are therefore considered Waters of the State.

6.0 POTENTIAL CORPS AND RWQCB JURISDICTION

The Study Area contains 2.85 acres of wetlands and no non-wetland waters that may be considered jurisdictional under Section 404 of the Clean Water Act. All of the wetlands observed were evaluated as jurisdictional, and therefore are also Waters of the State. The wetland areas were either seasonal or perennial dominated by hydrophytic vegetation with FAC, FACW, and OBL classified plants, contained hydric soil, and exhibited hydrologic conditions sufficient to support wetlands.

The conclusion of this delineation is based on conditions observed at the time of the field surveys conducted on May 11 and July 10, 2012.

7.0 REFERENCES

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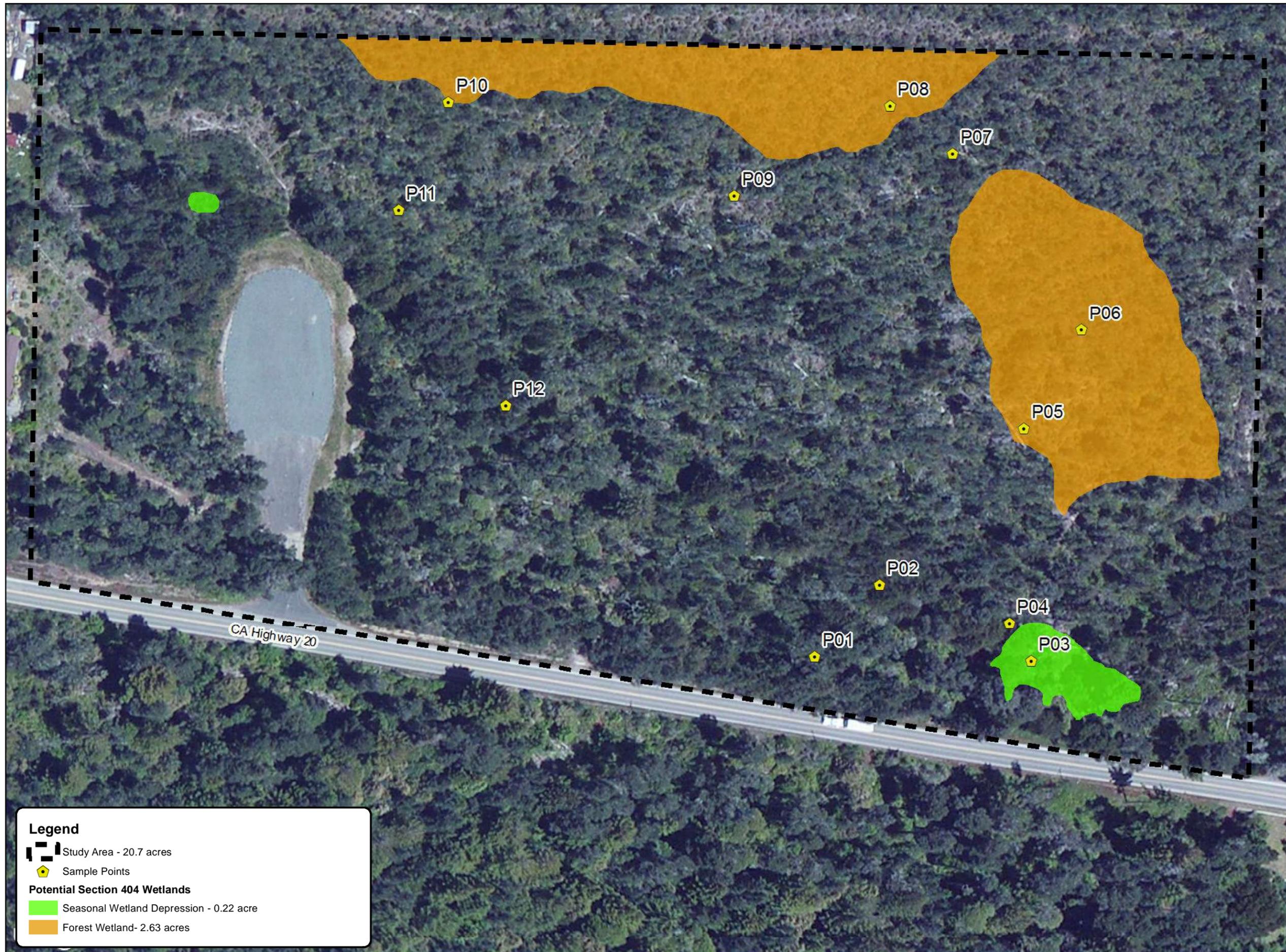
U.S. Geological Survey (USGS). 1960 (Photorevised 1978). Fort Bragg quadrangle. 7.5-minute topographic map.

Appendix A

Preliminary Section 404 Jurisdictional Map

Mendocino County,
California

Appendix A.
Preliminary Section 404
Jurisdictional Map

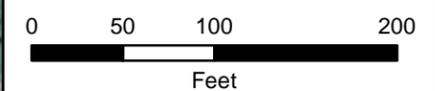


Legend

-  Study Area - 20.7 acres
-  Sample Points

Potential Section 404 Wetlands

-  Seasonal Wetland Depression - 0.22 acre
-  Forest Wetland- 2.63 acres



Map Date: October 2012
Map By: Chris Zumwalt
Base Source: Bing Maps

Appendix B

WMVC Delineation Data Sheets

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P01

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Trieger Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) flat Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Shinglemill-Gibney complex, 2-9% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Remarks: The sample point is within a pygmy cypress dominated area (tall pygmy) of closed-cone coniferous forest. The sample point does not contain a dominance/prevalence of hydrophytic vegetation, hydric soils, or wetland hydrology. | |

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | |
|--|------------------|-------------------|------------------|--|
| 1. <u>Hesperocyparis pygmaea</u> | <u>70</u> | <u>yes</u> | <u>NL</u> | Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>0</u> (A) Total number of dominant species across all strata? <u>5</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B) |
| 2. <u>Pinus muricata</u> | <u>25</u> | <u>yes</u> | <u>NL</u> | |
| 3. <u>Sequoia sempervirens</u> | <u>5</u> | <u>no</u> | <u>NL</u> | |
| 4. <u>Chrysolepis chrysophylla</u> | <u>5</u> | <u>no</u> | <u>NL</u> | |
| Tree Stratum Total Cover: | | <u>105</u> | | Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | |
| 1. <u>Vaccinium ovatum</u> | <u>40</u> | <u>yes</u> | <u>FACU</u> | |
| 2. <u>Gaultheria shallon</u> | <u>30</u> | <u>yes</u> | <u>FACU</u> | |
| 3. <u>Rhododendron macrophyllum</u> | <u>5</u> | <u>no</u> | <u>NL</u> | |
| 4. <u>Morella californica</u> | <u>5</u> | <u>no</u> | <u>FACW</u> | |
| Sapling/Shrub Stratum Total Cover: | | <u>80</u> | | |
| HERB STRATUM Plot Size: <u>10' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 1. <u>Pteridium aquilinum</u> | <u>10</u> | <u>yes</u> | <u>FACU</u> | |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Herb Stratum Total Cover: | | <u>10</u> | | |
| WOODY VINES Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 1. _____ | | | | |
| 2. _____ | | | | |
| Woody Vines Total Cover: | | | | |
| % Bare ground in herb stratum <u>90</u> % cover of biotic crust <u>N/A</u> | | | | |

Remarks: The sample point does not contain a dominance or prevalence of hydrophytic vegetation.

SOIL

Sampling Point P01

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|---|-------------------|------------------|---------------|---------|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ¹ | | |
| 5-0 | N/A | | | | | | duff | |
| 0-4 | 7.5YR 5/2 | 100 | | | | | loam | |
| 4+ | 7.5YR 5/2 | 100 | | | | | cemented loam | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|--|
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA1) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan
 Depth (inches): 4

Hydric Soil Present ? Yes No

Remarks: The sample point does not contain hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Stunted or Stressed Plants (D1)(LRR AA) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9)(NW coast)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6)(LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface water present? Yes No Depth (inches): _____
 Water table present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present ? Yes No

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point does not contain wetland hydrology.

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P02

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Trieger Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) very slightly convex Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Shinglemill-Gibney complex, 2-9% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Remarks: The sample point is within a pygmy cypress dominated area (tall pygmy) of closed-cone coniferous forest. The sample point does not contain a dominance/prevalence of hydrophytic vegetation, hydric soils, or wetland hydrology. | |

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | |
|---|------------------|-------------------|------------------|--|
| 1. <u>Hesperocyparis pygmaea</u> | <u>60</u> | <u>yes</u> | <u>NL</u> | Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>0</u> (A) Total number of dominant species across all strata? <u>2</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B) |
| 2. <u>Pinus contorta bolanderi</u> | <u>15</u> | <u>no</u> | <u>FAC</u> | |
| 3. <u>Pinus muricata</u> | <u>5</u> | <u>no</u> | <u>NL</u> | |
| 4. _____ | | | | |
| Tree Stratum Total Cover: | | <u>80</u> | | |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | |
| 1. <u>Vaccinium ovatum</u> | <u>60</u> | <u>yes</u> | <u>FACU</u> | Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. <u>Gaultheria shallon</u> | <u>15</u> | <u>no</u> | <u>FACU</u> | |
| 3. <u>Rhododendron columbianum</u> | <u>5</u> | <u>no</u> | <u>OBL</u> | |
| 4. _____ | | | | |
| Sapling/Shrub Stratum Total Cover: | | <u>80</u> | | |
| HERB STRATUM Plot Size: <u>10' r</u> | Absolute % cover | Dominant Species? | Indicator Status | |
| 1. _____ | | | | Hydrophytic Vegetation Indicators <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Herb Stratum Total Cover: | | | | |
| WOODY VINES Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | |
| 1. _____ | | | | Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 2. _____ | | | | |
| Woody Vines Total Cover: | | | | |
| % Bare ground in herb stratum <u>100</u> % cover of biotic crust <u>N/A</u> | | | | |

Remarks: The sample point does not contain a dominance or prevalence of hydrophytic vegetation.

SOIL

Sampling Point P02

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|---|-------------------|------------------|-------------|---------|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ¹ | | |
| 1-0 | N/A | | | | | | duff | |
| 0-1 | 10YR 4/4 | 100 | | | | | sandy silt | |
| 1-6 | 7.5YR 5/2 | 95 | | | | | loamy clay | |
| 6-16 | 10YR 2/2 | 100 | | | | | clayey loam | |
| 16+ | 10YR 5/2 | 100 | | | | | cemented | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A
 Depth (inches): _____

Hydric Soil Present ? Yes No

Remarks: The sample point does not contain hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except NW coast)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1)(LRR AA)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9)(NW coast)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6)(LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface water present? Yes No Depth (inches): _____
 Water table present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present ? Yes No

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point does not contain wetland hydrology.

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P03

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Triege Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) broadly, slightly concave Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Shinglemill-Gibney complex, 2-9% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|--|
| Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |

Remarks: The sample point is within a pygmy cypress dominated area (tall pygmy) of closed-cone coniferous forest. It is located within a slight depression with downed woody debris, substantial bare ground, and stunted, sparse vegetation. The sample point contains a dominance of hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on slight change in topography, increase in upland vegetation, and changes in soil surface characteristics.

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Dominance Test Worksheet | |
|---|------------------|-------------------|------------------|---|--------------------|
| 1. <u><i>Pinus contorta bolanderi</i></u> | <u>15</u> | <u>yes</u> | <u>FAC</u> | Number of Dominant Species that are OBL, FACW, or FAC? <u>5</u> | <u>(A)</u> |
| 2. <u><i>Hesperocyparis pygmaea</i></u> | <u>5</u> | <u>yes</u> | <u>NL</u> | Total number of dominant species across all strata? <u>8</u> | <u>(B)</u> |
| 3. _____ | | | | % of dominant species that are OBL, FACW, or FAC? <u>62.5</u> | <u>(A/B)</u> |
| 4. _____ | | | | | |
| Tree Stratum Total Cover: <u>20</u> | | | | | |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Prevalence Index Worksheet | |
| 1. <u><i>Vaccinium ovatum</i></u> | <u>5</u> | <u>yes</u> | <u>FACU</u> | Total % cover of: _____ | Multiply by: _____ |
| 2. <u><i>Rhododendron columbianum</i></u> | <u>3</u> | <u>yes</u> | <u>OBL</u> | OBL species _____ x1 _____ | |
| 3. <u><i>Pinus contorta bolanderi</i></u> | <u>3</u> | <u>yes</u> | <u>FAC</u> | FACW species _____ x2 _____ | |
| 4. <u><i>Hesperocyparis pygmaea</i></u> | <u>3</u> | <u>yes</u> | <u>NL</u> | FAC species _____ x3 _____ | |
| Sapling/Shrub Stratum Total Cover: <u>14</u> | | | | FACU species _____ x4 _____ | |
| | | | | UPL species _____ x5 _____ | |
| | | | | Column Totals _____ (A) _____ (B) | |
| | | | | Prevalence Index = B/A = _____ | |
| HERB STRATUM Plot Size: <u>10' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators | |
| 1. <u><i>Carex obnupta</i></u> | <u>15</u> | <u>yes</u> | <u>OBL</u> | <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation | |
| 2. <u><i>Carex californica</i></u> | <u>10</u> | <u>yes</u> | <u>FACW</u> | <input checked="" type="checkbox"/> 2 - Dominance Test is >50% | |
| 3. _____ | | | | <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ | |
| 4. _____ | | | | <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) | |
| 5. _____ | | | | <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ | |
| 6. _____ | | | | <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| Herb Stratum Total Cover: <u>25</u> | | | | | |
| WOODY VINES Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 1. _____ | | | | | |
| 2. _____ | | | | | |
| Woody Vines Total Cover: _____ | | | | | |
| % Bare ground in herb stratum <u>75</u> | | | | | |
| % cover of biotic crust <u>N/A</u> | | | | | |

Remarks: The sample point is dominated by hydrophytic vegetation.

SOIL

Sampling Point P03

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|---|-------------------|------------------|-------------|---------------|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ¹ | | |
| 0-1 | 10YR 4/4 | 100 | | | | | sandy silt | |
| 1-9 | 7.5YR 5/2 | 50 | | | | | silty clay | |
| | 10YR 4/2 | 50 | 7.5YR 5/8 | 5 | C | RC | silty clay | redox present |
| 9-14 | 10YR 2/2 | 100 | 7.5YR 5/8 | 5 | C | M | clayey loam | redox present |
| | | | 7.5YR 4/6 | 2 | C | M | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A
 Depth (inches): _____

Hydric Soil Present ? Yes No

Remarks: The sample point contains hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except NW coast)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1)(LRR AA)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9)(NW coast)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6)(LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface water present? Yes No Depth (inches): _____
 Water table present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present ? Yes No

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point contains wetland hydrology.

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P04

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Trieger Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) flat Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Shinglemill-Gibney complex, 2-9% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
|---|---|

Remarks: The sample point is within a pygmy cypress dominated area (tall pygmy) of closed-cone coniferous forest. The sample point is a paired upland point with wetland point P03.

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | |
|---|------------------|------------------------------------|------------------|--|
| 1. <u><i>Pinus contorta bolanderi</i></u> | <u>30</u> | <u>yes</u> | <u>FAC</u> | Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>2</u> (A) Total number of dominant species across all strata? <u>7</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>28.5</u> (A/B) |
| 2. <u><i>Hesperocyparis pygmaea</i></u> | <u>15</u> | <u>yes</u> | <u>NL</u> | |
| 3. <u><i>Pinus muricata</i></u> | <u>5</u> | <u>no</u> | <u>NL</u> | |
| 4. _____ | | | | |
| Tree Stratum Total Cover: | | <u>50</u> | | |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | |
| 1. <u><i>Vaccinium ovatum</i></u> | <u>35</u> | <u>yes</u> | <u>FACU</u> | Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. <u><i>Gaultheria shallon</i></u> | <u>20</u> | <u>yes</u> | <u>FACU</u> | |
| 3. <u><i>Rhododendron macrophyllum</i></u> | <u>15</u> | <u>yes</u> | <u>NL</u> | |
| 4. <u><i>Notholithocarpus densiflorus</i></u> | <u>5</u> | <u>no</u> | <u>NL</u> | |
| Sapling/Shrub Stratum Total Cover: | | <u>75</u> | | |
| HERB STRATUM Plot Size: <u>10' r</u> | Absolute % cover | Dominant Species? | Indicator Status | |
| 1. <u><i>Carex californica</i></u> | <u>10</u> | <u>yes</u> | <u>FACW</u> | Hydrophytic Vegetation Indicators <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. <u><i>Pteridium aquilinum</i></u> | <u>5</u> | <u>yes</u> | <u>FACU</u> | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Herb Stratum Total Cover: | | <u>15</u> | | |
| WOODY VINES Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | |
| 1. _____ | | | | Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 2. _____ | | | | |
| Woody Vines Total Cover: | | _____ | | |
| % Bare ground in herb stratum <u>85</u> | | % cover of biotic crust <u>N/A</u> | | |

Remarks: The sample point does not contain a dominance of hydrophytic vegetation.

SOIL

Sampling Point P04

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|---|-------------------|------------------|------------|---------|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ¹ | | |
| 2-0 | N/A | | | | | | duff | |
| 0-4 | 10YR 4/3 | 100 | | | | | sandy silt | |
| 4-12 | 7.5YR 5/4 | 60 | | | | | sandy silt | |
| | 10YR 4/3 | 40 | | | | | sandy silt | |
| 12-16 | 10YR 3/3 | 100 | 7.5YR 5/8 | 2 | C | M | sandy silt | |
| | | | 7.5YR 4/6 | 1 | C | M | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A
 Depth (inches): _____

Hydric Soil Present ? Yes No

Remarks: The sample point does not contain hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except NW coast)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1)(LRR AA)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9)(NW coast)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6)(LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface water present? Yes No Depth (inches): _____
 Water table present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present ? Yes No

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point does not contain wetland hydrology.

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P05

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Trieger Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) relatively flat Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Shinglemill-Gibney complex, 2-9% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>Remarks: The sample point is located on the edge of a Bolander pine dominated area (extreme pygmy) and pygmy cypress dominated area (tall pygmy) of closed-cone coniferous forest. The sample point is located on the edge of forest wetland. Hydric soils and wetland hydrology are present, though strong hydrophytic vegetation is lacking. Due to evidence of hydric soils and wetland hydrology, this sample point is included as an edge point in forest wetland.</p> | |

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Dominance Test Worksheet | |
|---|------------------|-----------------------------------|------------------|--|-----------------|
| 1. <u><i>Pinus contorta bolanderi</i></u> | <u>25</u> | <u>yes</u> | <u>FAC</u> | Number of Dominant Species that are OBL, FACW, or FAC? | <u>2</u> (A) |
| 2. <u><i>Pinus muricata</i></u> | <u>10</u> | <u>yes</u> | <u>NL</u> | Total number of dominant species across all strata? | <u>8</u> (B) |
| 3. <u><i>Hesperocyparis pygmaea</i></u> | <u>2</u> | <u>no</u> | <u>NL</u> | % of dominant species that are OBL, FACW, or FAC? | <u>25</u> (A/B) |
| 4. _____ | | | | | |
| Tree Stratum Total Cover: | <u>37</u> | | | | |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Prevalence Index Worksheet | |
| 1. <u><i>Vaccinium ovatum</i></u> | <u>20</u> | <u>yes</u> | <u>FACU</u> | Total % cover of: | Multiply by: |
| 2. <u><i>Rhododendron macrophyllum</i></u> | <u>20</u> | <u>yes</u> | <u>NL</u> | OBL species <u>0</u> x1 | <u>0</u> |
| 3. <u><i>Gaultheria shallon</i></u> | <u>15</u> | <u>yes</u> | <u>FACU</u> | FACW species <u>3</u> x2 | <u>6</u> |
| 4. _____ | | | | FAC species <u>25</u> x3 | <u>75</u> |
| | | | | FACU species <u>40</u> x4 | <u>160</u> |
| Sapling/Shrub Stratum Total Cover: | <u>55</u> | | | UPL species <u>37</u> x5 | <u>185</u> |
| | | | | Column Totals <u>105</u> (A) | <u>426</u> (B) |
| | | | | Prevalence Index = B/A = | <u>4.05</u> |
| HERB STRATUM Plot Size: <u>10' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators | |
| 1. <u><i>Pteridium aquilinum</i></u> | <u>5</u> | <u>yes</u> | <u>FACU</u> | <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) | |
| 2. <u><i>Xerophyllum tenax</i></u> | <u>5</u> | <u>yes</u> | <u>NL</u> | | |
| 3. <u><i>Carex californica</i></u> | <u>3</u> | <u>yes</u> | <u>FACW</u> | | |
| 4. _____ | | | | | |
| 5. _____ | | | | | |
| 6. _____ | | | | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| Herb Stratum Total Cover: | <u>13</u> | | | | |
| WOODY VINES Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present ? | |
| 1. _____ | | | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| 2. _____ | | | | | |
| Woody Vines Total Cover: | | | | | |
| % Bare ground in herb stratum <u>90</u> | | % cover of biotic crust <u>20</u> | | | |

Remarks: The sample point does not contain a dominance of hydrophytic vegetation.

SOIL

Sampling Point P05

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|---|-------------------|------------------|-----------------|---------|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ¹ | | |
| 0-7 | 10YR 6/2 | 100 | | | | | loamy fine sand | |
| 7+ | 10YR 6/2 | 100 | | | | | cemented | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

| | | |
|---|--|---|
| <p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p><input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> | <p><input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)</p> | <p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)</p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.</p> |
|---|--|---|

| | |
|---|--|
| <p>Restrictive Layer (if present): Type: <u>hardpan</u> Depth (inches): <u>7</u></p> | <p>Hydric Soil Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> |
|---|--|

Remarks: The sample point contains hydric soils.

HYDROLOGY

| | | |
|---|---|--|
| <p>Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)</p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> | <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)(LRR AA) <input type="checkbox"/> Other (Explain in Remarks)</p> | <p>Secondary Indicators (2 or more required)</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves (B9)(NW coast) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)(LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)</p> |
|---|---|--|

| | |
|--|--|
| <p>Field Observations:</p> <p>Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)</p> | <p>Wetland Hydrology Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> |
|--|--|

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point contains wetland hydrology. Lichen cover on soil surface.

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P06

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Trierger Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) relatively flat Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Blacklock-Aborigine soils, 0-2% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
|---|---|

Remarks: The sample point is located in a Bolander pine - pygmy cypress dominated area (extreme pygmy) of closed-cone coniferous forest. The sample point contains a dominance of hydrophytic vegetation, hydric soils, and wetland hydrology. Boundary based on slight change in topography, increase in upland vegetation, and changes in soil surface characteristics.

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Dominance Test Worksheet | |
|---|------------------|------------------------------------|------------------|--|-------------------|
| 1. <u>Hesperocyparis pygmaea</u> | <u>30</u> | <u>yes</u> | <u>NL</u> | Number of Dominant Species that are OBL, FACW, or FAC? | <u>4</u> (A) |
| 2. <u>Pinus contorta bolanderi</u> | <u>10</u> | <u>yes</u> | <u>FAC</u> | Total number of dominant species across all strata? | <u>7</u> (B) |
| 3. _____ | | | | % of dominant species that are OBL, FACW, or FAC? | <u>57.1</u> (A/B) |
| 4. _____ | | | | | |
| Tree Stratum Total Cover: | <u>40</u> | | | | |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Prevalence Index Worksheet | |
| 1. <u>Rhododendron columbianum</u> | <u>30</u> | <u>yes</u> | <u>OBL</u> | Total % cover of: | Multiply by: |
| 2. <u>Vaccinium ovatum</u> | <u>10</u> | <u>yes</u> | <u>FACU</u> | OBL species _____ x1 _____ | |
| 3. <u>Gaultheria shallon</u> | <u>10</u> | <u>yes</u> | <u>FACU</u> | FACW species _____ x2 _____ | |
| 4. <u>Morella californica</u> | <u>5</u> | <u>no</u> | <u>FACW</u> | FAC species _____ x3 _____ | |
| | | | | FACU species _____ x4 _____ | |
| | | | | UPL species _____ x5 _____ | |
| Sapling/Shrub Stratum Total Cover: | <u>55</u> | | | Column Totals _____ (A) _____ (B) | |
| | | | | Prevalence Index = B/A = _____ | |
| HERB STRATUM Plot Size: <u>10' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators | |
| 1. <u>Carex californica</u> | <u>2</u> | <u>yes</u> | <u>FACW</u> | <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation | |
| 2. <u>Lilium maritimum</u> | <u>1</u> | <u>yes</u> | <u>FACW</u> | <input checked="" type="checkbox"/> 2 - Dominance Test is >50% | |
| 3. _____ | | | | <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ | |
| 4. _____ | | | | <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) | |
| 5. _____ | | | | <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ | |
| 6. _____ | | | | <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| Herb Stratum Total Cover: | <u>3</u> | | | | |
| WOODY VINES Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present ? | |
| 1. _____ | | | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 2. _____ | | | | | |
| Woody Vines Total Cover: | | | | | |
| % Bare ground in herb stratum <u>99</u> | | % cover of biotic crust <u>N/A</u> | | | |

Remarks: The sample point contains a dominance of hydrophytic vegetation.

SOIL

Sampling Point P06

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|----|-------------------|------------------|-----------------|---------------|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ¹ | | |
| 1-0 | N/A | | | | | | duff | |
| 0-6 | 10YR 6/2 | 90 | | | | | clay sandy loam | |
| | 7.5YR 4/3 | 10 | | | | | clay sandy loam | |
| 6-8 | 10YR 5/6 | 100 | 7.5YR 4/6 | 10 | C | M | clay sandy loam | redox present |
| 8+ | 10YR 5/6 | 100 | | | | | cemented | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan
 Depth (inches): 8

Hydric Soil Present ? Yes No

Remarks: The sample point contains hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except NW coast)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1)(LRR AA)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9)(NW coast)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6)(LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface water present? Yes No Depth (inches): _____
 Water table present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present ? Yes No

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point contains wetland hydrology.

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P07

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Trieger Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) relatively flat Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Blacklock-Aborigine soils, 0-2% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Remarks: The sample point is located in Bishop pine and pygmy cypress dominated area (transitional pygmy) of closed-cone coniferous forest. The sample point does not contain hydrophytic vegetation or wetland hydrology; however, depleted hydric soils are present. | |

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Dominance Test Worksheet | |
|---|------------------|------------------------------------|------------------|--|--------------------|
| 1. <u><i>Pinus muricata</i></u> | 30 | yes | NL | Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) | |
| 2. <u><i>Hesperocyparis pygmaea</i></u> | 20 | yes | NL | Total number of dominant species across all strata? <u>5</u> (B) | |
| 3. <u><i>Pinus contorta bolanderi</i></u> | 10 | no | FAC | % of dominant species that are OBL, FACW, or FAC? <u>20</u> (A/B) | |
| 4. _____ | | | | | |
| Tree Stratum Total Cover: | 60 | | | | |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Prevalence Index Worksheet | |
| 1. <u><i>Vaccinium ovatum</i></u> | 40 | yes | FACU | Total % cover of: _____ | Multiply by: _____ |
| 2. <u><i>Gaultheria shallon</i></u> | 20 | yes | FACU | OBL species _____ x1 _____ | |
| 3. <u><i>Rhododendron macrophyllum</i></u> | 15 | no | NL | FACW species _____ x2 _____ | |
| 4. <u><i>Rhododendron columbianum</i></u> | 5 | no | OBL | FAC species _____ x3 _____ | |
| | | | | FACU species _____ x4 _____ | |
| | | | | UPL species _____ x5 _____ | |
| Sapling/Shrub Stratum Total Cover: | 80 | | | Column Totals _____ (A) _____ (B) | |
| | | | | Prevalence Index = B/A = _____ | |
| HERB STRATUM Plot Size: <u>10' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators | |
| 1. <u><i>Carex californica</i></u> | <1 | yes | FACW | <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation | |
| 2. _____ | | | | <input type="checkbox"/> 2 - Dominance Test is >50% | |
| 3. _____ | | | | <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ | |
| 4. _____ | | | | <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) | |
| 5. _____ | | | | <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ | |
| 6. _____ | | | | <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| Herb Stratum Total Cover: | <1 | | | | |
| WOODY VINES Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present ? | |
| 1. _____ | | | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| 2. _____ | | | | | |
| Woody Vines Total Cover: | | | | | |
| % Bare ground in herb stratum <u>99</u> | | % cover of biotic crust <u>N/A</u> | | | |

Remarks: The sample point does not contain a dominance of hydrophytic vegetation.

SOIL

Sampling Point P07

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|----|-------------------|------------------|------------|---------------|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ¹ | | |
| 2-0 | N/A | | | | | | duff | |
| 0-8 | 10YR 4/2 | 100 | 10YR 4/6 | 10 | C | M | sandy loam | redox present |
| 8-16 | 2.5Y 5/4 | 100 | | | | | sandy loam | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A
 Depth (inches): _____

Hydric Soil Present ? Yes No

Remarks: The sample point contains hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except NW coast)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1)(LRR AA)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9)(NW coast)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6)(LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface water present? Yes No Depth (inches): _____
 Water table present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present ? Yes No

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point does not contain wetland hydrology.

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P08

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Trieger Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) relatively flat Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Blacklock-Aborigine soils, 0-2% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
|---|---|

Remarks: The sample point is located on the edge of Bolander pine and pygmy cypress dominated area (transitional pygmy and extreme pygmy) on closed-cone coniferous forest. The sample point is located near the edge of forest wetland. Hydric soils and wetland hydrology are present, though strong hydrophytic vegetation is lacking. Due to evidence of hydric soils and wetland hydrology, this sample point is included as an edge point in forest wetland.

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | |
|---|------------------|-------------------|------------------|--|
| 1. <u><i>Pinus contorta bolanderi</i></u> | <u>35</u> | <u>yes</u> | <u>FAC</u> | Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>3</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>33.3</u> (A/B) |
| 2. <u><i>Hesperocyparis pygmaea</i></u> | <u>15</u> | <u>yes</u> | <u>NL</u> | |
| 3. <u><i>Pinus muricata</i></u> | <u>1</u> | <u>no</u> | <u>NL</u> | |
| 4. _____ | | | | |
| Tree Stratum Total Cover: | | <u>51</u> | | |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | |
| 1. <u><i>Vaccinium ovatum</i></u> | <u>60</u> | <u>yes</u> | <u>FACU</u> | Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species <u>0</u> x1 <u>0</u> FACW species <u>0</u> x2 <u>0</u> FAC species <u>35</u> x3 <u>105</u> FACU species <u>70</u> x4 <u>280</u> UPL species <u>26</u> x5 <u>130</u> Column Totals <u>131</u> (A) <u>515</u> (B) Prevalence Index = B/A = _____ |
| 2. <u><i>Gaultheria shallon</i></u> | <u>10</u> | <u>no</u> | <u>FACU</u> | |
| 3. <u><i>Rhododendron macrophyllum</i></u> | <u>10</u> | <u>no</u> | <u>NL</u> | |
| 4. _____ | | | | |
| Sapling/Shrub Stratum Total Cover: | | <u>80</u> | | |
| HERB STRATUM Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | |
| 1. _____ | | | | Hydrophytic Vegetation Indicators <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Herb Stratum Total Cover: | | | | |
| WOODY VINES Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | |
| 1. _____ | | | | Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 2. _____ | | | | |
| Woody Vines Total Cover: | | | | |
| % Bare ground in herb stratum <u>100</u> % cover of biotic crust <u>N/A</u> | | | | |

Remarks: The sample point does not contain a dominance of hydrophytic vegetation.

SOIL

Sampling Point P08

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|---|-------------------|------------------|-----------------|---------|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ¹ | | |
| 0-2 | 7.5YR 6/2 | 100 | | | | | fine sandy loam | |
| 2-6 | 7.5YR 6/2 | 100 | 10YR 4/6 | 2 | C | M | fine sandy loam | |
| 6+ | 7.5YR 6/2 | | | | | | cemented | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 6

Hydric Soil Present ? Yes No

Remarks: The sample point contains hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except NW coast)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1)(LRR AA)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9)(NW coast)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6)(LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface water present? Yes No Depth (inches): _____

Water table present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present ? Yes No

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point contains wetland hydrology.

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P09

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Trieger Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) relatively flat Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Blacklock-Aborigine soils, 0-2% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Remarks: The sample point is located in a Bishop pine dominated area (transitional pygmy) of closed-cone coniferous forest. The sample point does not contain hydrophytic vegetation or wetland hydrology; however, depleted hydric soils are present. | |

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Dominance Test Worksheet | |
|---|------------------|------------------------------------|------------------|--|--------------------|
| 1. <u><i>Pinus muricata</i></u> | 30 | yes | NL | Number of Dominant Species that are OBL, FACW, or FAC? <u>0</u> (A) | |
| 2. <u><i>Hesperocyparis pygmaea</i></u> | 10 | yes | NL | Total number of dominant species across all strata? <u>5</u> (B) | |
| 3. <u><i>Pinus contorta bolanderi</i></u> | 5 | no | FAC | % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B) | |
| 4. _____ | | | | | |
| Tree Stratum Total Cover: | 45 | | | | |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Prevalence Index Worksheet | |
| 1. <u><i>Gaultheria shallon</i></u> | 30 | yes | FACU | Total % cover of: _____ | Multiply by: _____ |
| 2. <u><i>Rhododendron macrophyllum</i></u> | 25 | yes | NL | OBL species _____ x1 _____ | |
| 3. <u><i>Vaccinium ovatum</i></u> | 10 | no | FACU | FACW species _____ x2 _____ | |
| 4. <u><i>Arctostaphylos nummularia nummularia</i></u> | 5 | no | NL | FAC species _____ x3 _____ | |
| | | | | FACU species _____ x4 _____ | |
| | | | | UPL species _____ x5 _____ | |
| Sapling/Shrub Stratum Total Cover: | 70 | | | Column Totals _____ (A) _____ (B) | |
| | | | | Prevalence Index = B/A = _____ | |
| HERB STRATUM Plot Size: <u>10' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators | |
| 1. <u><i>Xerophyllum tenax</i></u> | 5 | yes | NL | <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation | |
| 2. _____ | | | | <input type="checkbox"/> 2 - Dominance Test is >50% | |
| 3. _____ | | | | <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ | |
| 4. _____ | | | | <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) | |
| 5. _____ | | | | <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ | |
| 6. _____ | | | | <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| Herb Stratum Total Cover: | 5 | | | | |
| WOODY VINES Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present ? | |
| 1. _____ | | | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| 2. _____ | | | | | |
| Woody Vines Total Cover: | | | | | |
| % Bare ground in herb stratum <u>95</u> | | % cover of biotic crust <u>N/A</u> | | | |

Remarks: The sample point does not contain a dominance of hydrophytic vegetation.

SOIL

Sampling Point P09

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|---|-------------------|------------------|-----------------|---------|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ¹ | | |
| 2-0 | N/A | | | | | | duff | |
| 0-6 | 10YR 6/2 | 100 | | | | | fine sandy loam | |
| 6+ | 10YR 6/2 | 100 | | | | | cemented | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan
 Depth (inches): 6

Hydric Soil Present ? Yes No

Remarks: The sample point contains hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except NW coast)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1)(LRR AA)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9)(NW coast)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6)(LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface water present? Yes No Depth (inches): _____
 Water table present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present ? Yes No

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point does not contain wetland hydrology.

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P10

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Trieger Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) relatively flat Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Blacklock-Aborigine soils, 0-2% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
|---|---|

Remarks: The sample point is located on edge of pygmy cypress and Bolander pine dominated area between extremely stunted (extreme pygmy) and moderately stunted trees (transitional pygmy) of closed-cone coniferous forest. The sample point is located on the edge of forest wetland. Hydric soils and wetland hydrology are present, though strong hydrophytic vegetation is lacking. Due to evidence of hydric soils and wetland hydrology, this sample point is included as an edge point in forest wetland.

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Dominance Test Worksheet | |
|--|------------------|------------------------------------|------------------|--|----------------|
| 1. <u>Hesperocyparis pygmaea</u> | 20 | yes | NL | Number of Dominant Species that are OBL, FACW, or FAC? | 2 (A) |
| 2. <u>Pinus contorta bolanderi</u> | 10 | yes | FAC | Total number of dominant species across all strata? | 6 (B) |
| 3. <u>Pinus muricata</u> | 5 | no | NL | % of dominant species that are OBL, FACW, or FAC? | 33.3 (A/B) |
| 4. _____ | | | | | |
| Tree Stratum Total Cover: | 35 | | | | |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Prevalence Index Worksheet | |
| 1. <u>Vaccinium ovatum</u> | 50 | yes | FACU | Total % cover of: | Multiply by: |
| 2. <u>Gaultheria shallon</u> | 20 | yes | FACU | OBL species <u>0</u> x1 | <u>0</u> |
| 3. <u>Rhododendron macrophyllum</u> | 15 | no | NL | FACW species <u>3</u> x2 | <u>6</u> |
| 4. <u>Arctostaphylos nummularia nummularia</u> | 5 | no | NL | FAC species <u>10</u> x3 | <u>30</u> |
| | | | | FACU species <u>70</u> x4 | <u>280</u> |
| Sapling/Shrub Stratum Total Cover: | 90 | | | UPL species <u>48</u> x5 | <u>240</u> |
| | | | | Column Totals <u>131</u> (A) | <u>556</u> (B) |
| | | | | Prevalence Index = B/A = | <u>4.24</u> |
| HERB STRATUM Plot Size: <u>10' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators | |
| 1. <u>Xerophyllum tenax</u> | 3 | yes | NL | <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) | |
| 2. <u>Carex californica</u> | 2 | yes | FACW | | |
| 3. _____ | | | | | |
| 4. _____ | | | | | |
| 5. _____ | | | | | |
| 6. _____ | | | | | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| Herb Stratum Total Cover: | 5 | | | | |
| WOODY VINES Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | | |
| 1. _____ | | | | | |
| 2. _____ | | | | | |
| Woody Vines Total Cover: | | | | | |
| % Bare ground in herb stratum <u>95</u> | | % cover of biotic crust <u>N/A</u> | | Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |

Remarks: The sample point does not contain a dominance of hydrophytic vegetation.

SOIL

Sampling Point P10

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | |
|---|---------------|-----|----------------|---|-------------------|---------|-----------------|
| Depth (inches) | Matrix | | Redox Features | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | | |
| 2-0 | N/A | | | | | | duff |
| 0-4 | 10YR 5/2 | 100 | | | | | fine sandy loam |
| 4-8 | 10YR 6/2 | 100 | | | | | fine sandy loam |
| 8+ | 10YR 6/2 | 100 | | | | | cemented |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

| | |
|--|---|
| <p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input checked="" type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> | <p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (explain in remarks)</p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.</p> |
|--|---|

| | |
|---|--|
| <p>Restrictive Layer (if present):</p> <p>Type: <u>hardpan</u></p> <p>Depth (inches): <u>6</u></p> | <p>Hydric Soil Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> |
|---|--|

Remarks: The sample point contains hydric soils.

HYDROLOGY

| | |
|--|---|
| <p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (any one indicator is sufficient)</p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9) (except NW coast)</p> <p><input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)(LRR AA)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> | <p>Secondary Indicators (2 or more required)</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves (B9)(NW coast)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input checked="" type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> <p><input type="checkbox"/> Raised Ant Mounds (D6)(LRR A)</p> <p><input type="checkbox"/> Frost-Heave Hummocks (D7)</p> |
|--|---|

| | |
|---|--|
| <p>Field Observations:</p> <p>Surface water present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____</p> <p>Water table present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)</p> | <p>Wetland Hydrology Present ? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> |
|---|--|

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point contains wetland hydrology.

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P11

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Trieger Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) relatively flat Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Shinglemill-Gibney complex, 2-9% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Remarks: The sample point is located in Bishop pine dominated area of closed-cone coniferous forest. The sample point does not contain hydrophytic vegetation or wetland hydrology; however, depleted hydric soils are present. | |

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | |
|---|------------------------------------|-------------------|------------------|--|
| 1. <u><i>Pinus muricata</i></u> | <u>25</u> | <u>yes</u> | <u>NL</u> | Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC? <u>1</u> (A) Total number of dominant species across all strata? <u>5</u> (B) % of dominant species that are OBL, FACW, or FAC? <u>20</u> (A/B) |
| 2. <u><i>Pinus contorta bolanderi</i></u> | <u>15</u> | <u>yes</u> | <u>FAC</u> | |
| 3. <u><i>Hesperocyparis pygmaea</i></u> | <u>5</u> | <u>no</u> | <u>NL</u> | |
| 4. _____ | | | | |
| Tree Stratum Total Cover: | <u>45</u> | | | Prevalence Index Worksheet Total % cover of: _____ Multiply by: _____ OBL species _____ x1 _____ FACW species _____ x2 _____ FAC species _____ x3 _____ FACU species _____ x4 _____ UPL species _____ x5 _____ Column Totals _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | | | | |
| 1. <u><i>Vaccinium ovatum</i></u> | <u>40</u> | <u>yes</u> | <u>FACU</u> | |
| 2. <u><i>Gaultheria shallon</i></u> | <u>20</u> | <u>yes</u> | <u>FACU</u> | |
| 3. <u><i>Rhododendron macrophyllum</i></u> | <u>10</u> | <u>no</u> | <u>NL</u> | |
| 4. <u><i>Arctostaphylos nummularia nummularia</i></u> | <u>5</u> | <u>no</u> | <u>NL</u> | |
| Sapling/Shrub Stratum Total Cover: | <u>75</u> | | | |
| HERB STRATUM Plot Size: <u>10' r</u> | | | | |
| 1. <u><i>Xerophyllum tenax</i></u> | <u>5</u> | <u>yes</u> | <u>NL</u> | Hydrophytic Vegetation Indicators <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| Herb Stratum Total Cover: | <u>5</u> | | | |
| WOODY VINES Plot Size: <u>N/A</u> | | | | |
| 1. _____ | | | | |
| 2. _____ | | | | |
| Woody Vines Total Cover: | | | | |
| % Bare ground in herb stratum <u>95</u> | % cover of biotic crust <u>N/A</u> | | | Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

Remarks: The sample point does not contain a dominance of hydrophytic vegetation.

SOIL

Sampling Point P11

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|---|-------------------|------------------|-----------------|---------|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ¹ | | |
| 1-0 | N/A | | | | | | duff | |
| 0-2 | 10YR 6/2 | 100 | | | | | fine sandy loam | |
| 2-6 | 10YR 5/6 | 50 | | | | | fine sandy loam | |
| | 10YR 6/2 | 50 | | | | | fine sandy loam | |
| 6-10 | 10YR 5/6 | 100 | | | | | fine sandy loam | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): _____

Hydric Soil Present ? Yes No

Remarks: The sample point contains hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except NW coast)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1)(LRR AA)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9)(NW coast)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6)(LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface water present? Yes No Depth (inches): _____

Water table present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present ? Yes No

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point does not contain wetland hydrology.

Wetland Determination Data Form - Western Mountains, Valleys and Coast Region

Project/Site Fort Bragg Transfer Site City Fort Bragg County Mendocino Sampling Date 7/10/2012

Applicant/Owner Mendocino County Solid Waste Authority State CA Sampling Point P12

Investigator(s) Matt Richmond, Aaron Arthur, Morgan Trieger Section, Township, Range T18N, R8W, sec16

Landform (hillslope, terrace, etc.) terrace Local Relief (concave, convex, none) relatively flat Slope(%) 2

Subregion(LRR) LRR A (Coastal Redwood Belt) Lat: 39.41 Long: -123.75 Datum: WGS 84

Soil Map Unit Name Shinglemill-Gibney complex, 2-9% slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? Yes No (If no, explain in remarks)

Are any of the following significantly disturbed? Vegetation Soil Hydrology Are "Normal Circumstances" present? Yes No

Are any of the following naturally problematic? Vegetation Soil Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

| | |
|---|---|
| Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Remarks: The sample point is located in a linear depression within a Bishop pine dominated area of closed-cone coniferous forest. The sample point does not contain hydrophytic vegetation or wetland hydrology; however, depleted hydric soils are present. | |

VEGETATION (use scientific names)

| TREE STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Dominance Test Worksheet | |
|---|------------------|------------------------------------|------------------|---|--------------------|
| 1. <u><i>Pinus muricata</i></u> | <u>60</u> | <u>yes</u> | <u>NL</u> | Number of Dominant Species that are OBL, FACW, or FAC? <u>0</u> (A) | |
| 2. <u><i>Hesperocyparis pygmaea</i></u> | <u>15</u> | <u>yes</u> | <u>NL</u> | Total number of dominant species across all strata? <u>4</u> (B) | |
| 3. _____ | | | | % of dominant species that are OBL, FACW, or FAC? <u>0</u> (A/B) | |
| 4. _____ | | | | | |
| Tree Stratum Total Cover: | <u>75</u> | | | | |
| SAPLING/SHRUB STRATUM Plot Size: <u>30' r</u> | Absolute % cover | Dominant Species? | Indicator Status | Prevalence Index Worksheet | |
| 1. <u><i>Vaccinium ovatum</i></u> | <u>30</u> | <u>yes</u> | <u>FACU</u> | Total % cover of: _____ | Multiply by: _____ |
| 2. <u><i>Gaultheria shallon</i></u> | <u>30</u> | <u>yes</u> | <u>FACU</u> | OBL species _____ x1 _____ | |
| 3. <u><i>Morella californica</i></u> | <u>5</u> | <u>no</u> | <u>FACW</u> | FACW species _____ x2 _____ | |
| 4. <u><i>Rhododendron macrophyllum</i></u> | <u>1</u> | <u>no</u> | <u>NL</u> | FAC species _____ x3 _____ | |
| | | | | FACU species _____ x4 _____ | |
| | | | | UPL species _____ x5 _____ | |
| Sapling/Shrub Stratum Total Cover: | <u>66</u> | | | Column Totals _____ (A) _____ (B) | |
| | | | | Prevalence Index = B/A = _____ | |
| HERB STRATUM Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators | |
| 1. _____ | | | | <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation | |
| 2. _____ | | | | <input type="checkbox"/> 2 - Dominance Test is >50% | |
| 3. _____ | | | | <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 ¹ | |
| 4. _____ | | | | <input type="checkbox"/> 4 - Morphological adaptations ¹ (provide supporting data in remarks) | |
| 5. _____ | | | | <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ | |
| 6. _____ | | | | <input type="checkbox"/> Problematic hydrophytic vegetation ¹ (explain) | |
| 7. _____ | | | | | |
| 8. _____ | | | | | |
| Herb Stratum Total Cover: | | | | | |
| WOODY VINES Plot Size: <u>N/A</u> | Absolute % cover | Dominant Species? | Indicator Status | | |
| 1. _____ | | | | | |
| 2. _____ | | | | | |
| Woody Vines Total Cover: | | | | | |
| % Bare ground in herb stratum <u>100</u> | | % cover of biotic crust <u>N/A</u> | | Hydrophytic Vegetation Present ? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |

Remarks: The sample point does not contain a dominance of hydrophytic vegetation.

SOIL

Sampling Point P12

| Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|---|-------------------|------------------|-----------------|---------|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ¹ | | |
| 4-0 | N/A | | | | | | duff | |
| 0-6 | 10YR 6/2 | 100 | | | | | fine sandy loam | |
| 6+ | 10YR 6/2 | 100 | | | | | cemented | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan
 Depth (inches): 6

Hydric Soil Present ? Yes No

Remarks: The sample point contains hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except NW coast)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1)(LRR AA)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9)(NW coast)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6)(LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface water present? Yes No Depth (inches): _____
 Water table present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present ? Yes No

Describe recorded data (stream gauge, monitoring well, aerial photos, etc.) if available.

Remarks: The sample point does not contain wetland hydrology.

Appendix C

Plant Species Observed in the Study Area

Table C-1. Plant species observed in the Study Area, May 11 and July 10, 2012

| Family | Scientific name | Common name | Life form | Origin | Invasive Status ¹ | Rare Status ² | Wetland indicator ³ |
|------------------|--|-----------------------|---------------------|------------|------------------------------|--------------------------|--------------------------------|
| Apiaceae | <i>Daucus carota</i> | wild carrot | perennial forb | non-native | assessed | N/A | FACU |
| Aquifoliaceae | <i>Ilex aquifolium</i> | English holly | evergreen tree | non-native | moderate | N/A | NL |
| Asteraceae | <i>Baccharis pilularis</i> | coyote brush | evergreen shrub | native | N/A | N/A | NL |
| Asteraceae | <i>Bellis perennis</i> | English lawn daisy | perennial forb | non-native | assessed | N/A | NL |
| Asteraceae | <i>Carduus pycnocephalus</i> | Italian thistle | annual forb | non-native | moderate | N/A | NL |
| Asteraceae | <i>Cirsium vulgare</i> | bull thistle | perennial forb | non-native | moderate | N/A | FACU |
| Asteraceae | <i>Leontodon saxatilis</i> | hawkbit | annual forb | non-native | N/A | N/A | FACU |
| Asteraceae | <i>Senecio jacobaea</i> | tansy ragwort | perennial forb | non-native | limited | N/A | FACU |
| Asteraceae | <i>Sonchus oleraceus</i> | common sow thistle | annual forb | non-native | N/A | N/A | NL |
| Brassicaceae | <i>Cardamine oligosperma</i> | Idaho bittercress | annual forb | native | N/A | N/A | NL |
| Brassicaceae | <i>Raphanus sativus</i> | cultivated radish | perennial forb | non-native | limited | N/A | NL |
| Caprifoliaceae | <i>Lonicera hispidula</i> | pink honeysuckle | evergreen shrub | native | N/A | N/A | FACU |
| Cupressaceae | <i>Hesperocyparis pygmaea</i> | pygmy cypress | evergreen tree | native | N/A | Rank 1B | NL |
| Cupressaceae | <i>Sequoia sempervirens</i> | coast redwood | evergreen tree | native | N/A | N/A | NL |
| Cyperaceae | <i>Carex californica</i> | California sedge | perennial graminoid | native | N/A | Rank 2 | FACW |
| Cyperaceae | <i>Carex obnupta</i> | slough sedge | perennial graminoid | native | N/A | N/A | OBL |
| Dennstaedtiaceae | <i>Pteridium aquilinum</i> | bracken fern | perennial fern | native | N/A | N/A | FACU |
| Dryopteridaceae | <i>Polystichum munitum</i> | western sword fern | perennial fern | native | N/A | N/A | FACU |
| Ericaceae | <i>Arctostaphylos columbiana</i> | hairy manzanita | evergreen shrub | native | N/A | N/A | NL |
| Ericaceae | <i>Arctostaphylos nummularia</i> ssp. <i>nummularia</i> | glossy-leaf manzanita | evergreen shrub | native | N/A | N/A | NL |
| Ericaceae | <i>Gaultheria shallon</i> | salal | evergreen shrub | native | N/A | N/A | FACU |
| Ericaceae | <i>Rhododendron columbianum</i> | western Labrador tea | evergreen shrub | native | N/A | N/A | OBL |
| Ericaceae | <i>Rhododendron macrophyllum</i> | California rose bay | evergreen shrub | native | N/A | N/A | NL |
| Ericaceae | <i>Vaccinium ovatum</i> | evergreen huckleberry | evergreen shrub | native | N/A | N/A | FACU |
| Ericaceae | <i>Vaccinium parvifolium</i> | red huckleberry | evergreen shrub | native | N/A | N/A | FACU |
| Fabaceae | <i>Acacia dealbata</i> | silver wattle | evergreen tree | non-native | moderate | N/A | NL |
| Fabaceae | <i>Cytisus scoparius</i> | Scotch broom | evergreen shrub | non-native | high | N/A | NL |
| Fabaceae | <i>Genista monspessulana</i> | French broom | evergreen shrub | non-native | high | N/A | NL |
| Fabaceae | <i>Hosackia rosea</i> | tree lotus | perennial forb | native | N/A | N/A | FACU |

| Family | Scientific name | Common name | Life form | Origin | Invasive Status ¹ | Rare Status ² | Wetland indicator ³ |
|----------------|--|-------------------------|---------------------|------------|------------------------------|--------------------------|--------------------------------|
| Fabaceae | <i>Lotus corniculatus</i> | bird's-foot trefoil | perennial forb | non-native | assessed | N/A | FAC |
| Fabaceae | <i>Lupinus bicolor</i> | miniature lupine | annual forb | native | N/A | N/A | NL |
| Fabaceae | <i>Trifolium dubium</i> | shamrock clover | annual forb | non-native | N/A | N/A | FACU |
| Fabaceae | <i>Trifolium repens</i> | white clover | perennial forb | non-native | N/A | N/A | FAC |
| Fabaceae | <i>Trifolium striatum</i> | knotted clover | annual forb | non-native | N/A | N/A | NL |
| Fabaceae | <i>Trifolium subterraneum</i> | subterranean clover | annual forb | non-native | N/A | N/A | NL |
| Fabaceae | <i>Vicia sativa ssp. nigra</i> | garden vetch | annual forb | non-native | N/A | N/A | UPL |
| Fagaceae | <i>Chrysolepis chrysophylla</i> | giant chinquapin | evergreen tree | native | N/A | N/A | NL |
| Fagaceae | <i>Notholithocarpus densiflorus</i> | tanoak | evergreen tree | native | N/A | N/A | NL |
| Geraniaceae | <i>Geranium dissectum</i> | cutleaf geranium | annual forb | non-native | moderate | N/A | NL |
| Hydrangeaceae | <i>Whipplea modesta</i> | modesty | evergreen vine | native | N/A | N/A | NL |
| Iridaceae | <i>Iris douglasiana</i> | Douglas' iris | perennial forb | native | N/A | N/A | NL |
| Juncaceae | <i>Juncus effusus ssp. pacificus</i> | Pacific rush | perennial graminoid | native | N/A | N/A | FACW |
| Juncaceae | <i>Juncus patens</i> | common rush | perennial graminoid | native | N/A | N/A | FACW |
| Juncaceae | <i>Luzula comosa</i> | Pacific woodrush | perennial graminoid | native | N/A | N/A | FAC |
| Juncaceae | <i>Luzula parviflora</i> | small-flowered woodrush | perennial graminoid | native | N/A | N/A | FAC |
| Lamiaceae | <i>Stachys rigida var. quercetorum</i> | rough hedgenettle | perennial forb | native | N/A | N/A | FACW |
| Liliaceae | <i>Lilium maritimum</i> | coast lily | perennial forb | native | N/A | Rank 1B | FACW |
| Melanthiaceae | <i>Trillium ovatum</i> | Pacific trillium | perennial forb | native | N/A | N/A | FACU |
| Melanthiaceae | <i>Xerophyllum tenax</i> | common beargrass | perennial forb | native | N/A | N/A | NL |
| Moraceae | <i>Morella californica</i> | California wax myrtle | evergreen shrub | native | N/A | N/A | FACW |
| Papaveraceae | <i>Eschscholzia californica</i> | California poppy | perennial forb | native | N/A | N/A | NL |
| Pinaceae | <i>Pinus contorta ssp. bolanderi</i> | Bolander's pine | evergreen tree | native | N/A | Rank 1B | FAC |
| Pinaceae | <i>Pinus muricata</i> | bishop pine | evergreen tree | native | N/A | N/A | NL |
| Pinaceae | <i>Pseudotsuga menziesii</i> | Douglas fir | evergreen tree | native | N/A | N/A | FACU |
| Pinaceae | <i>Tsuga heterophylla</i> | western hemlock | evergreen tree | native | N/A | N/A | FACU |
| Plantaginaceae | <i>Plantago lanceolata</i> | English plantain | perennial forb | non-native | limited | N/A | FACU |
| Poaceae | <i>Agrostis exarata</i> | spike bentgrass | perennial graminoid | native | N/A | N/A | FACW |
| Poaceae | <i>Anthoxanthum odoratum</i> | sweet vernal grass | perennial graminoid | non-native | moderate | N/A | FACU |

| Family | Scientific name | Common name | Life form | Origin | Invasive Status ¹ | Rare Status ² | Wetland indicator ³ |
|--------------|-------------------------------|------------------------|---------------------|------------|------------------------------|--------------------------|--------------------------------|
| Poaceae | <i>Briza maxima</i> | rattlesnake grass | annual graminoid | non-native | limited | N/A | NL |
| Poaceae | <i>Bromus carinatus</i> | California brome | perennial graminoid | native | N/A | N/A | NL |
| Poaceae | <i>Bromus diandrus</i> | ripgut brome | annual graminoid | non-native | moderate | N/A | NL |
| Poaceae | <i>Bromus hordeaceus</i> | soft chess | annual graminoid | non-native | limited | N/A | FACU |
| Poaceae | <i>Bromus laevipes</i> | Chinook brome | perennial graminoid | native | N/A | N/A | NL |
| Poaceae | <i>Cortaderia jubata</i> | pampas grass | perennial graminoid | non-native | high | N/A | FACU |
| Poaceae | <i>Danthonia californica</i> | California oatgrass | perennial graminoid | native | N/A | N/A | FAC |
| Poaceae | <i>Festuca arundinacea</i> | tall fescue | perennial graminoid | non-native | moderate | N/A | FAC |
| Poaceae | <i>Festuca idahoensis</i> | Idaho fescue | perennial graminoid | native | N/A | N/A | NL |
| Poaceae | <i>Festuca myuros</i> | rattail sixweeks grass | perennial graminoid | non-native | moderate | N/A | FACU |
| Poaceae | <i>Festuca rubra</i> | red fescue | perennial graminoid | native | N/A | N/A | FAC |
| Poaceae | <i>Holcus lanatus</i> | common velvet grass | perennial graminoid | non-native | moderate | N/A | FAC |
| Poaceae | <i>Hordeum brachyantherum</i> | meadow barley | perennial graminoid | native | N/A | N/A | FACW |
| Poaceae | <i>Triticum aestivum</i> | bread wheat | annual graminoid | non-native | N/A | N/A | NL |
| Polygonaceae | <i>Rumex acetosella</i> | common sheep sorrel | perennial forb | non-native | moderate | N/A | FACU |
| Rhamnaceae | <i>Frangula californica</i> | California coffeeberry | evergreen shrub | native | N/A | N/A | NL |
| Rosaceae | <i>Cotoneaster pannosus</i> | silverleaf cotoneaster | evergreen shrub | non-native | moderate | N/A | NL |
| Rosaceae | <i>Rubus ursinus</i> | California blackberry | evergreen shrub | native | N/A | N/A | FACU |
| Violaceae | <i>Viola sempervirens</i> | evergreen violet | perennial forb | native | N/A | N/A | NL |

▪ All species identified using the *Jepson Manual* (Hickman 1993) and *Jepson Manual II: Vascular Plants of California* (Baldwin et al. 2012)

▪ Nomenclature follows *Jepson Manual II: Vascular Plants of California* (Baldwin et al. 2012)

¹Invasive Status: California Invasive Plant Inventory (Cal-IPC 2006)

²Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2012)

³Wetland Status: National List of Plant Species that Occur in Wetlands, California (Lichvar and Kartesz 2009)

Appendix D

Representative Photographs of the Study Area



Top: Representative upland: Bishop pine forest understory (view: east).

Bottom: Representative upland: Bishop pine forest understory (view: north).



Photographs taken July 10, 2012



Top: Forested wetland (extreme pygmy cypress forest), interior view with patchy understory (view: southwest).

Bottom: Forested wetland (extreme pygmy cypress forest), interior view with patchy understory (view: west).

Photographs taken July 10, 2012





Top: Seasonal wetland depression with California sedge in foreground and wetland edge in background (view: north).

Bottom: Seasonal wetland depression with slough sedge in foreground and wetland edge in background (view: west).

Photographs taken July 10, 2012





Top: Sandy loam soils with substantial and evident iron redoximorphic features on the matrix.

Bottom: Surface soil cracks from seasonal wetland depression.

Photographs taken July 10, 2012



Appendix E

Preliminary Geotechnical and Engineering Evaluation

June 7, 2012

7423.01

Mendocino Solid Waste Management Authority
101 W. Church Street, No. 9
Ukiah, California 95482

Attention: Mr. Michael E. Sweeney, General Manager

Subject: Preliminary Geotechnical and Engineering Evaluation
Proposed Solid Waste Transfer Station
30075 Highway 20, Fort Bragg, California
Assessor's Parcel Number (APN) 019-150-05

Dear Mr. Sweeney:

In accordance with your April 12, 2012, Agreement For Professional Services, we are pleased to present this Summary Letter Report regarding Preliminary Geotechnical and Engineering Feasibility for solid waste transfer station development on the subject parcel (see attached Figure 1 for project location).

As contracted, we have performed the following tasks:

Task I – Field Exploration and Percolation Testing

- This task included subsurface exploration of the site at three to five locations using hand auger equipment to depths of no more than 10 feet; performing percolation testing in one to two hand auger borings to measure the rate of water infiltration into the subsurface soils; and obtaining soil samples from the borings for select laboratory testing.

Task II – Laboratory Testing

This task included performing the following tests on select soil samples at a minimum:

- Two hydrometer tests to determine the grain size percentages of subsurface soils for onsite septic system suitability evaluation.
- Two moisture content and dry density determinations to check for soil index properties such as bearing strength.

Task III – Analysis and Report

- This task consisted of 1) reviewing the RFP-presented data as outlined below, 2) reviewing other documents, data, and studies pertinent to the site selected by LACO, 3) analyzing the field and office data and performing preliminary

engineering analyses, and 4) presenting the City and County, as represented by the Mendocino Solid Waste Management Authority (MSWMA), with a preliminary geotechnical and engineering evaluation report summarizing the following:

- A. Geotechnical suitability of the site for construction of the proposed transfer station building and paved access driveways, including any conditions which would create unusual costs or obstacles to typical transfer station design.
- B. Suitability of the site for onsite sewage disposal, either for a small system serving only sanitary facilities for site employees, or a larger system that could receive other flows.
- C. Suitability of the site for an onsite water well to supply facility's water usage.
- D. Identification of engineering considerations that may be discovered in the completion of items A through C above, that may constitute significant obstacles to cost-effective development of a transfer station on the site.

This evaluation did not include subsurface investigation for design purposes nor does it include an assessment of possible hazardous or toxic materials, or corrosion potential at the site. LACO's assumptions/exclusions also included:

- LACO would provide one 8-hour day of field work using two LACO staff engineers/geologists.
- No permits were needed to perform the work.
- Permission to access the site was provided by Client to LACO.
- LACO services would result in a preliminary report evaluating suitability of the proposed development, and would not be suitable for project design purposes.
- Design-level evaluation services were not included in LACO's current Scope of Services. LACO would be pleased to provide a scope and fee estimate for these additional services upon request, as needed.

Pursuant to special legislation (AB 384), we understand the State of California has offered a land swap that would give the County of Mendocino and City of Fort Bragg ownership of the eastern-most 17 acres of the part of Jackson Demonstration State Forest (JDSF) north of Highway 20 at this location (hereinafter, "site"); however, it should be noted that the site will not include approximately 5 acres at the western end, which is partly developed as a helipad and will remain under the JDSF ownership.

We further understand that if the site is selected for development of a solid waste transfer station, an engineered site design will be prepared. However, for purposes of this preliminary evaluation, the currently preferred development layout has been presented on the attached Site Map, Figure 2 (based on the Conceptual Site Plan, dated February 6, 2012, provided to us by the MSWMA. As required by the MSWMA, this layout is the basis for determining the feasibility of 1) building and driveway construction, 2) an onsite sewage disposal system, and 3) a groundwater well. In addition, we understand the design of the transfer station building is undetermined, but an approximate description would be a metal building on a concrete slab of 10,000 square feet, potentially with a subway for top-loading transfer trailers. The capacity of the transfer station will be 200 tons per day, and the maximum customer count would be 200 per day. Figure 2 also shows new access driveways on the site, which will need to handle the weight of loaded and offloaded transfer trailers.

A comprehensive Environmental Impact Report (EIR) was prepared in 2005 for the Mendocino Parks and Recreation District golf course project on 600 acres adjoining the site to the north. This EIR included several studies that are relevant to the site, including:

- EIR Section 4.1: Geology, Soils, and Seismicity
- EIR Section 4.2: Hydrology and Water Quality
- EIR Appendix 1-2: Onsite Sewage Disposal Feasibility Study, etc.
- EIR Appendix 4.2-1: Aquifer Testing and Groundwater Modeling, etc.
- EIR Appendix 4.4-1: Phase I Environmental Site Assessment, etc.

These studies were provided to us by the MSWMA, and were reviewed as part of our work for this evaluation; Section 4.1 formed the basis for the geologic setting section of this Report.

Additionally, the Mendocino County Environmental Health Division had records for onsite sewage disposal systems for several residences west of the site along Highway 20, including:

- 30700 Highway 20, APN 19-680-01
- 30500 Highway 20, APN 19-680-07
- 30650 Highway 20, APN 19-680-02

The relevant pages from these files were provided to us by the MSWMA, and were reviewed as part of our work for this evaluation.

The results of our evaluation (study) are summarized below.

FIELD EXPLORATION AND LABORATORY/PERCOLATION TESTING

Our Certified Engineering Geologist and Staff Geologist performed a brief site reconnaissance on February 20, 2012, during our proposal preparation phase of the project. On April 27, 2012, we performed two exploratory test borings using hand auger equipment to supplement the two shallow hand auger borings we had performed during our February 20 site visit. Test borings were installed by our Certified Engineering Geologist, Staff Geologist, and/or Field Engineer to a maximum depth of refusal (with the equipment used) and/or up to 10.1 feet below the ground surface (bgs). Test borings were located across the site and in the near vicinity of the proposed buildings to provide a representative cross-sectional view of subsurface conditions. The locations of the borings (labeled SE-1 through SE-4) are shown on Figure 2. Percolation testing was also performed in boring SE-4; infiltration measurements were made in two distinctly different soil profiles: silty/clayey sand 48 inches bgs, and poorly graded sand at 80 inches bgs.

The test borings were logged in the field in general accordance with the American Society for Testing and Materials (ASTM) D2488 Visual-Manual Procedure. Soil Boring Logs depicting the materials encountered beneath the site are presented in Attachment 1. Attachment 1 also presents the results of our percolation measurements.

Select soil samples were delivered to the LACO materials testing laboratory for pertinent testing of their physical and engineering properties. Tests performed included:

- Hydrometer (Mendocino County Environmental Health Procedure)
- Natural moisture content (ASTM D2216)
- Density of soils in-place (ASTM D2937)
- Atterberg Limits (ASTM D4318)

Laboratory Test Results are summarized in Attachment 2.

SITE AND GEOLOGIC SETTING

The site is characterized by relatively flat (2% to 5% slopes) to gently sloping (5% to 9% slopes) terrain. Elevations at the site range from a low of approximately 400 feet above mean sea level (msl) on the western portion to a high of approximately 430 feet msl at the northeast corner. Surface drainage on the site generally ranges from northwest to southwest. The undeveloped site is predominantly covered by a very dense mixed forest with the only clearings consisting of a turnout off Highway 20, and jeep trails along a portion of the north and east site perimeters.

The basement rock in the project area is coastal belt Franciscan complex, composed primarily of greywacke sandstone with shale lenses. Unconformably overlying the Franciscan complex are quaternary marine terrace deposits, including the older Lower Caspar Orchard deposits, which underlain the project site. These marine deposits typically consist of yellowish to light gray, moderately sorted, poorly consolidated, silty to clayey sand with occasional lenses of coarser sand and/or gravel. These soil types were generally encountered in our subsurface exploration (test borings) drilled at the site (see Attachment 1).

FINDINGS

Based on the results of this evaluation, it is feasible to develop this site as conceptually planned. Our preliminary evaluation found no identifiable geologic hazards that would preclude use of the site for the proposed development. The main potential geologic hazard identified at the site is from future strong earthquake ground shaking. Our evaluation further indicates that the site soils are conducive to onsite sewage disposal, both for a small system serving only sanitary facilities for site employees, or a larger system that could receive other flows, and to installation of an onsite water well to supply the facility's water usage. Specific findings for geotechnical suitability, onsite sewage disposal suitability, and onsite groundwater well suitability of the site are presented in the following sections.

Geotechnical Suitability

No active faults are known to extend through the site. Since surface fault rupture generally follows the trace of pre-existing active faults, the risk of future surface rupture at this site is considered to be low to non-existent. The intensity of ground shaking from future earthquakes will depend on several factors, including the distance from the site to the earthquake focus, the magnitude and duration of the earthquake, and the response of the underlying soil or bedrock. The nearest known active fault is the San Andreas fault (Shelter Cove section) located approximately 8 miles southwest of the site. Past seismic history suggests that moderate to strong shaking is possible from earthquakes on this and other active faults in the region.

During severe vibration from earthquakes, liquefaction can occur in saturated, loose, cohesionless sands. The soils encountered at depth in our test borings drilled at the site are not considered to be liquefiable during strong ground shaking due to their density. It is possible that some isolated, thin lenses of loose, saturated sands near the ground may liquefy during severe ground shaking; however, we judge that on the basis of the relatively thin lenses loose sand encountered, settlement from this liquefaction (should it occur) will be tolerable (i.e., no significant detrimental settlement) for a structure designed to current building code standards.

The site is relatively level and gently sloping, and landslide hazards to the planned structures are considered to be low. The nearest slope having a gradient of 25 percent or greater is approximately 200 feet to the southwest of the site.

The surface and near-surface soils encountered in our test borings at the site are primarily medium dense to dense sands (some of which are cemented) generally located below a surficial, highly organic topsoil and "duff" layer of up to about 12 inches-thick. However, a thin (approximately 6 inches-thick) zone of sandy clay/sandy silt was encountered in boring SE-3 at a depth of about 21 inches bgs. Based on our laboratory Atterberg Limits testing (see Attachment 2), we judge that this clay/silt soil has a high to very high expansion potential (i.e., is subject to large volume changes -- shrink or swell-- with changes in moisture content). Therefore, the geologic/geotechnical concerns at this site are as follows: the existence of a relatively thin (1-foot or less thick at the locations of our test borings) layer of organic material; the existence of expansive soils; the control of surface and subsurface drainage; and the potential for strong seismic ground shaking and related liquefaction from future moderate to major earthquakes in the region.

Organic laden topsoil is unsuitable for support of structures, including pavements and should be removed from planned structure areas prior to construction. The organic topsoil thicknesses are anticipated to be generally less than about 12 inches thick across the site, although they will likely increase in thickness within low lying areas. The high to very high expansion potential of the near-surface clay layer encountered in boring SE-3 (see Figure 2) at the site will require special consideration. However, because this clay layer is relatively thin (approximately 6 inches thick), and was encountered below the surface soils and only in one of the four borings located across the site, we judge that it should not be a significant obstacle to cost-effective development of the transfer station. Proper design and construction of foundations, concrete slabs-on-grade, and asphalt concrete pavements in order to decrease the potential for damage to these structural elements due to heave (swelling) can easily include maintaining the clays wet optimum moisture content where they will support foundations, concrete slabs, and asphalt concrete pavements, until covered with permanent construction. However, depending on the final design grades, the slabs and pavements may experience differential heave and/or cracking near their edges adjacent to landscaping if clay subgrade soils are exposed to seasonal variations in moisture content. Moisture barriers are a common mitigation measure to effectively reduce this risk.

Onsite Sewage Disposal Suitability

Based on our preliminary evaluation, it appears that the site soils in the area of boring SE-4 (see Figure 2) will allow the design and construction of a relatively conventional onsite sewage disposal system (leachfield area). Shallow, perched groundwater, and/or the presence of cemented soils currently leads us to conclude that onsite sewage disposal in the areas of borings SE-1 through SE-3 would be both technically challenging and costly.

Soils in the area of boring SE-4 fell into the Soil Percolation Suitability Zone 1 (Coarse) and 2B (Acceptable) based on hydrometer testing (see Attachment 2). This area of the site appears to represent approximately 3-acres, assuming similar soil profiles exist north of boring SE-4. The measured percolation rate (see Attachment 2) for the Zone 1 soil was 1.14 minutes per inch, while the Zone 2B soil percolation rate was 13.7 minutes per inch.

Groundwater was encountered at a depth of approximately 10 feet below the groundwater table in the area of boring SE-4. However, in the upslope borings SE-2 and SE-3, we encountered shallow, perched, groundwater at depths of from approximately 2- to 5-feet bgs. This perched groundwater appears to be the result of the dense, partially-cemented (relatively low permeability) nature of the near-surface soils, and the time of year that exploration was performed, i.e., during the winter rain season and following relatively prolonged seasonal rainfall.

Actual design of an onsite sewage disposal system should be based on additional percolation testing in the area of boring SE-4 to confirm the limits of a suitable leachfield area. Due to the possible seasonal presence of shallow groundwater upslope of boring SE-4, we recommend that a sub-drain be installed just upslope of the onsite sewage disposal system to reduce the risk of perched groundwater moving in the downslope direction and entering into the leachfield. We currently anticipate that the sub-drain will be from 3- to 6-feet deep, and will consist of perforated pipe, drain rock, and filter fabric installed within a 12-inch-wide trench with a 12-inch-thick compacted soil cap. Actual details of the sub-drain system should be based on additional subsurface exploration to confirm the limits of perched groundwater after the final location and size of the system is determined. Because of the possible presence of groundwater within the upper 10 feet of the ground surface, we further recommend the installation of monitoring wells for winter groundwater measurements prior to the final sewage disposal system design and construction.

Onsite Groundwater Well Suitability

As part of the above referenced EIR process, an aquifer testing and groundwater modeling study was performed for a proposed Mendocino Coast Regional Park and Golf Course project adjacent to, and north of, the site. This study (prepared by Lawrence & Associates and dated March 7, 2005), included installation of a pumping well and observation well. The holes for the wells were drilled with a CME-55 truck-mounted hollow-stem auger rig, using 7-5/8-inch (outside diameter) augers to a maximum depth of 91 feet bgs, at which point bedrock was encountered. The pumping well (PW-5) and observation well (OB-6) were located approximately 1,800-lineal-feet north of the site, and within the same geologic unit (Lower Caspar Orchard marine terrace sediments) underlying the site. Pertinent data obtained from actual aquifer test data from PW-5 and OB-6 included a measured groundwater elevation approximately 20 feet bgs and a long-term yield of 4 to 5 gallons per minute (gpm) for a 2-inch diameter well with 40 feet of well screen. Assuming the bedrock elevation recorded by the Lawrence & Associates study is similar to the elevation at the site, a groundwater well installed within the terrace sediments would be no more than 60 feet deep if installed in the easterly portion of the site. Following State and County requirements for a 50-foot seal, this would leave only 10 feet of sediments for the screened interval. We recommend you consider requesting a variance to allow a 25-foot seal to increase the thickness of formation exposed to the well screen.

On the basis of the information recorded by Lawrence & Associates, a groundwater well screened 25- to 60-feet bgs within the terrace sediments at the site will likely provide at least 2 gpm, which we understand is sufficient water for a proposed transfer station facility. We suggest that the project water supply be initially designed using an onsite water well pumping rate of 2 gpm with final design based on specific onsite pumping well installation and testing. At a minimum, the well should be located at least 100 feet from the leachfield, and at the easterly end of the site (where the terrace sediments are likely thicker and the higher elevation will facilitate gravity feed of water to the transfer station facility).

LIMITATIONS

Conclusions and recommendations contained in this Report are based on our field observations and percolation tests; data from published geologic/geotechnical literature and maps; a conceptual plan for proposed site development; laboratory testing of limited soil samples; and our experience in the project vicinity. Hence, the conclusions and recommendations presented herein should be considered preliminary. It is possible that site surface and subsurface conditions could vary from those described in this preliminary evaluation Report. It is imperative that more detailed investigation be conducted for the proposed development at this site to adequately characterize the site and soil conditions prior to preparation of final construction plans. The geotechnical criteria for final design and construction of

proposed foundations, slabs, and pavements should be determined by a site-specific geotechnical investigation, including subsurface exploration, laboratory testing, and engineering analysis. The final septic system design criteria should be confirmed by additional soil profiling, hydrometer tests and wet-weather percolation testing in the identified leachfield and required leachfield expansion areas. Initial leachfield sizing can be based on the calculated wastewater flows of the facility and the preliminary percolation test results presented herein.

Our firm has prepared this Report for the exclusive use of the Mendocino Solid Waste Management Authority (Client) in substantial accordance with the generally accepted geotechnical engineering practice as it exists in the site area at the time of our study. No warranty is expressed or implied. The preliminary conclusions and recommendations provided in this Report are based on the assumption that a geotechnical investigation and subsequent program of tests and observations will be conducted by our firm during the final design and construction phases of the project in order to for us to evaluate compliance with our recommendations. If we are not retained for these services, our Client must assume LACO's responsibility for potential claims that may arise during or after construction.

We trust this Letter Report provides you with the information that you require at this time. If you have questions or need additional information, please contact us at (707) 462-0222.

Respectfully submitted,
LACO Associates


Richard E. Yahn, P.E.
G.E. 913, Exp. 3/31/14



REY:tmc

LIST OF FIGURES AND ATTACHMENTS

- | | |
|---------------|--------------------------------|
| Figure 1: | Location Map |
| Figure 2: | Site Map with Boring Locations |
| Attachment 1: | Soil Boring Logs |
| Attachment 2: | Field and Laboratory Test Data |

Appendix F

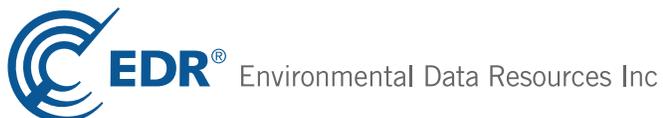
EDR Report

Potential Central Coast Transfer Station

30075 Highway 20
Fort Bragg, CA 95437

Inquiry Number: 3925512.2s
April 28, 2014

The EDR Radius Map™ Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

30075 HIGHWAY 20
FORT BRAGG, CA 95437

COORDINATES

Latitude (North): 39.4136000 - 39° 24' 48.96"
Longitude (West): 123.7621000 - 123° 45' 43.56"
Universal Transverse Mercator: Zone 10
UTM X (Meters): 434392.2
UTM Y (Meters): 4362744.0
Elevation: 373 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 39123-D7 FORT BRAGG, CA
Most Recent Revision: 1978

East Map: 39123-D6 NOYO HILL, CA
Most Recent Revision: 1991

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year: 2012
Source: USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List

EXECUTIVE SUMMARY

Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls
LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR..... EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

State and tribal leaking storage tank lists

LUST..... Geotracker's Leaking Underground Fuel Tank Report
SLIC..... Statewide SLIC Cases

EXECUTIVE SUMMARY

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup Program Properties
INDIAN VCP..... Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI..... Open Dump Inventory
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
WMUDS/SWAT..... Waste Management Unit Database
SWRCY..... Recycler Database
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
HIST Cal-Sites..... Historical Calsites Database
SCH..... School Property Evaluation Program
Toxic Pits..... Toxic Pits Cleanup Act Sites
CDL..... Clandestine Drug Labs
US HIST CDL..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

CA FID UST..... Facility Inventory Database
HIST UST..... Hazardous Substance Storage Container Database
SWEEPS UST..... SWEEPS UST Listing

Local Land Records

LIENS 2..... CERCLA Lien Information
LIENS..... Environmental Liens Listing
DEED..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
CHMIRS..... California Hazardous Material Incident Report System

EXECUTIVE SUMMARY

LDS..... Land Disposal Sites Listing
MCS..... Military Cleanup Sites Listing
SPILLS 90..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR..... RCRA - Non Generators
DOT OPS..... Incident and Accident Data
DOD..... Department of Defense Sites
FUDS..... Formerly Used Defense Sites
CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
UMTRA..... Uranium Mill Tailings Sites
US MINES..... Mines Master Index File
TRIS..... Toxic Chemical Release Inventory System
TSCA..... Toxic Substances Control Act
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing
SSTS..... Section 7 Tracking Systems
ICIS..... Integrated Compliance Information System
PADS..... PCB Activity Database System
MLTS..... Material Licensing Tracking System
RADINFO..... Radiation Information Database
FINDS..... Facility Index System/Facility Registry System
RAATS..... RCRA Administrative Action Tracking System
RMP..... Risk Management Plans
CA BOND EXP. PLAN..... Bond Expenditure Plan
NPDES..... NPDES Permits Listing
UIC..... UIC Listing
Cortese..... "Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE..... Hazardous Waste & Substance Site List
CUPA Listings..... CUPA Resources List
Notify 65..... Proposition 65 Records
DRYCLEANERS..... Cleaner Facilities
WIP..... Well Investigation Program Case List
ENF..... Enforcement Action Listing
HAZNET..... Facility and Manifest Data
EMI..... Emissions Inventory Data
INDIAN RESERV..... Indian Reservations
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing
2020 COR ACTION..... 2020 Corrective Action Program List
LEAD SMELTERS..... Lead Smelter Sites
US AIRS..... Aerometric Information Retrieval System Facility Subsystem
WDS..... Waste Discharge System
PRP..... Potentially Responsible Parties
MWMP..... Medical Waste Management Program Listing
COAL ASH DOE..... Steam-Electric Plant Operation Data
HWT..... Registered Hazardous Waste Transporter Database
HWP..... EnviroStor Permitted Facilities Listing
US FIN ASSUR..... Financial Assurance Information
Financial Assurance..... Financial Assurance Information Listing
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER..... PCB Transformer Registration Database
PROC..... Certified Processors Database

EXECUTIVE SUMMARY

EPA WATCH LIST..... EPA WATCH LIST

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants
EDR US Hist Cleaners..... EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List
RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal CERCLIS list

CERCLIS: The Comprehensive Environmental Response, Compensation and Liability Information System contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the CERCLIS list, as provided by EDR, and dated 10/25/2013 has revealed that there is 1 CERCLIS site within approximately 0.5 miles of the target property.

| <u>Equal/Higher Elevation</u> | <u>Address</u> | <u>Direction / Distance</u> | <u>Map ID</u> | <u>Page</u> |
|--------------------------------|-------------------------|-----------------------------|---------------|-------------|
| PARLIN FORK/CA DEPT OF FORESTR | 11M E. OF FORT BRAGG ON | E 1/4 - 1/2 (0.324 mi.) | 2 | 8 |

EXECUTIVE SUMMARY

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there is 1 EDR US Hist Auto Stat site within approximately 0.25 miles of the target property.

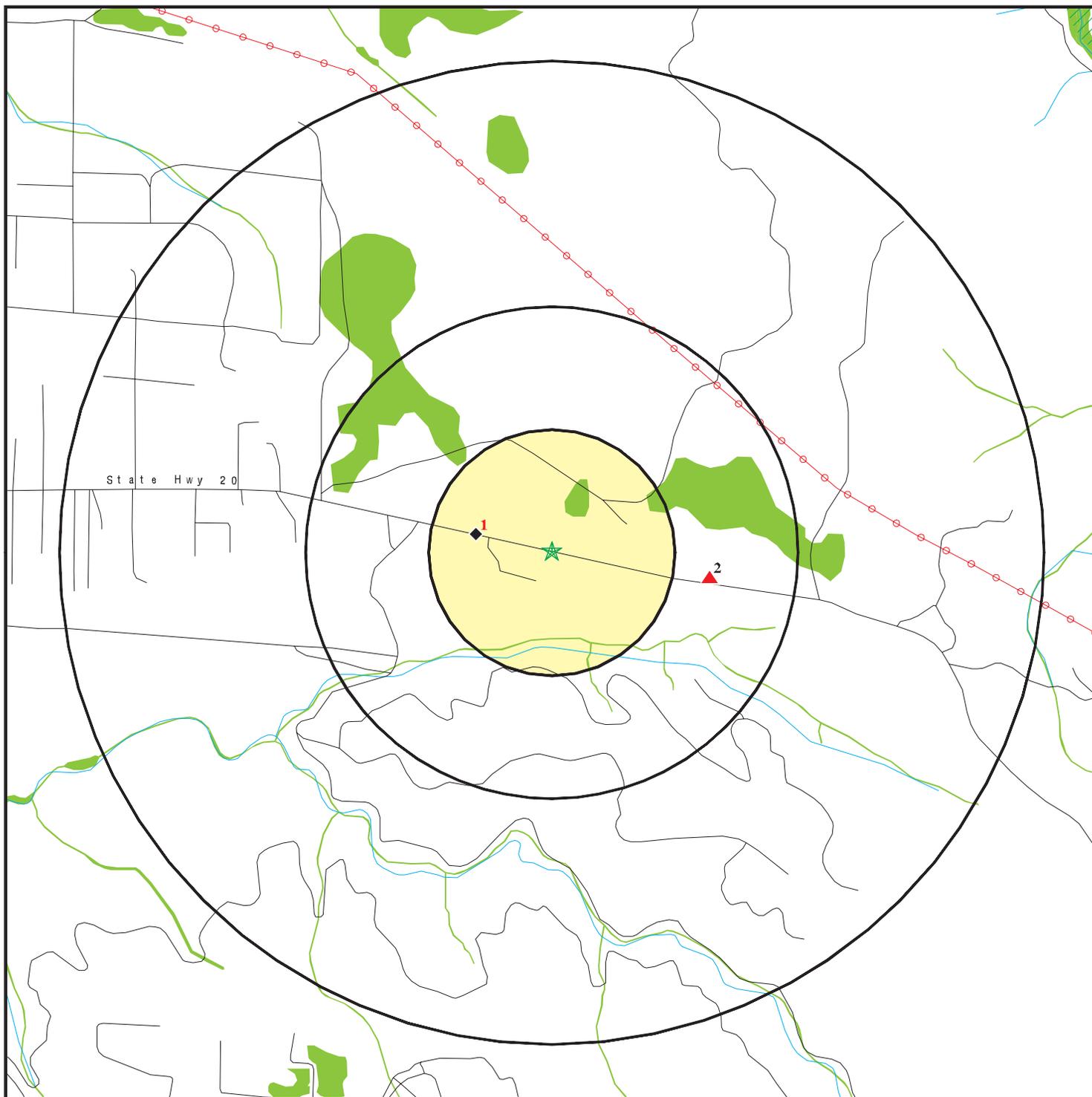
| <u>Lower Elevation</u> | <u>Address</u> | <u>Direction / Distance</u> | <u>Map ID</u> | <u>Page</u> |
|------------------------|------------------|-----------------------------|---------------|-------------|
| Not reported | 30520 HIGHWAY 20 | WNW 1/8 - 1/4 (0.159 mi.) | 1 | 8 |

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 20 records.

| <u>Site Name</u> | <u>Database(s)</u> |
|------------------------------------|-----------------------|
| CDF PARLIN FORK CONS. CAM | HIST CORTESE, WDS |
| MENDOCINO CO CASPAR SWDS | HIST CORTESE |
| SAVINGS BANK OF MENDOCINO | HIST CORTESE |
| FORT BRAGG OIL COMPANY | HIST CORTESE |
| PINE BEACH INN/STAR CROSS ENTERPRI | SWEEPS UST |
| LP BIG RIVER WWDS | WMUDS/SWAT, Notify 65 |
| GLASS BEACH | CERC-NFRAP |
| PARKS ESTATES PROP-GUN CLUB | CERC-NFRAP |
| PACIFIC BELL | RCRA-SQG, FINDS |
| PACIFIC BELL | RCRA NonGen / NLR |
| MENDOCINO COAST DISTRICT HOSPITAL | FINDS |
| BED ROCK, INC. | US MINES |
| KEN MCCUTCHAN | US MINES |
| NORTHERN AGGREGATES, INC. | US MINES |
| GRANITE CONSTRUCTION CO | US MINES |
| PARLIN FORK CONSERVATION CAMP, CDF | ENVIROSTOR |
| UNION OIL | ENVIROSTOR |
| SHELL OIL | ENVIROSTOR |
| STANDARD OIL | ENVIROSTOR |
| REDWOOD WRECKERS & SALVAGE | ENVIROSTOR |

OVERVIEW MAP - 3925512.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

- Indian Reservations BIA
- ▲ Power transmission lines
- ▲ Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

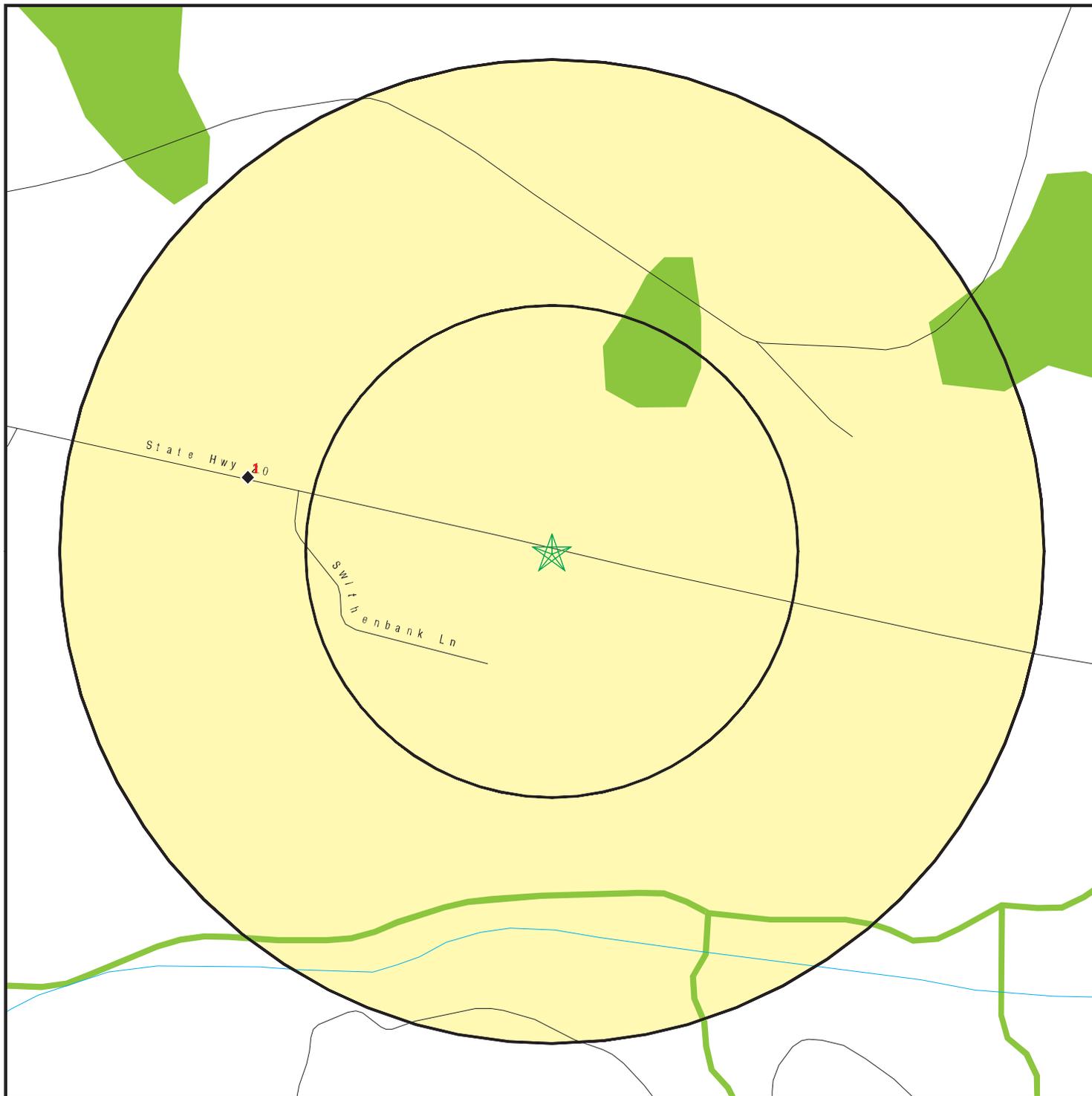


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Potential Central Coast Transfer Station
 ADDRESS: 30075 Highway 20
 Fort Bragg CA 95437
 LAT/LONG: 39.4136 / 123.7621

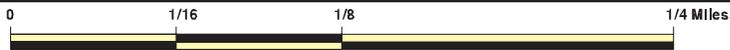
CLIENT: GHD Inc.
 CONTACT: Anna Gower
 INQUIRY #: 3925512.2s
 DATE: April 28, 2014 8:15 pm

DETAIL MAP - 3925512.2s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

- ▨ Indian Reservations BIA
- ⚡ Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- ▨ Areas of Concern



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Potential Central Coast Transfer Station
 ADDRESS: 30075 Highway 20
 Fort Bragg CA 95437
 LAT/LONG: 39.4136 / 123.7621

CLIENT: GHD Inc.
 CONTACT: Anna Gower
 INQUIRY #: 3925512.2s
 DATE: April 28, 2014 8:18 pm

MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|--|-------------------------------|--------------------|-------|-----------|-----------|---------|-----|------------------|
| STANDARD ENVIRONMENTAL RECORDS | | | | | | | | |
| <i>Federal NPL site list</i> | | | | | | | | |
| NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| Proposed NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| NPL LIENS | TP | | NR | NR | NR | NR | NR | 0 |
| <i>Federal Delisted NPL site list</i> | | | | | | | | |
| Delisted NPL | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| <i>Federal CERCLIS list</i> | | | | | | | | |
| CERCLIS | 0.500 | | 0 | 0 | 1 | NR | NR | 1 |
| FEDERAL FACILITY | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| <i>Federal CERCLIS NFRAP site List</i> | | | | | | | | |
| CERC-NFRAP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| <i>Federal RCRA CORRACTS facilities list</i> | | | | | | | | |
| CORRACTS | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| <i>Federal RCRA non-CORRACTS TSD facilities list</i> | | | | | | | | |
| RCRA-TSDF | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| <i>Federal RCRA generators list</i> | | | | | | | | |
| RCRA-LQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| RCRA-SQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| RCRA-CESQG | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| <i>Federal institutional controls / engineering controls registries</i> | | | | | | | | |
| US ENG CONTROLS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US INST CONTROL | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| LUCIS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| <i>Federal ERNS list</i> | | | | | | | | |
| ERNS | TP | | NR | NR | NR | NR | NR | 0 |
| <i>State- and tribal - equivalent NPL RESPONSE</i> | | | | | | | | |
| RESPONSE | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| <i>State- and tribal - equivalent CERCLIS ENVIROSTOR</i> | | | | | | | | |
| ENVIROSTOR | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| <i>State and tribal landfill and/or solid waste disposal site lists</i> | | | | | | | | |
| SWF/LF | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| <i>State and tribal leaking storage tank lists</i> | | | | | | | | |
| LUST | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |

MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|---|-------------------------|-----------------|-------|-----------|-----------|---------|-----|---------------|
| SLIC | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| INDIAN LUST | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| State and tribal registered storage tank lists | | | | | | | | |
| UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| AST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| INDIAN UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| FEMA UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| State and tribal voluntary cleanup sites | | | | | | | | |
| VCP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| INDIAN VCP | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| ADDITIONAL ENVIRONMENTAL RECORDS | | | | | | | | |
| Local Brownfield lists | | | | | | | | |
| US BROWNFIELDS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| Local Lists of Landfill / Solid Waste Disposal Sites | | | | | | | | |
| ODI | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| DEBRIS REGION 9 | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| WMUDS/SWAT | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| SWRCY | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| HAULERS | TP | | NR | NR | NR | NR | NR | 0 |
| INDIAN ODI | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| Local Lists of Hazardous waste / Contaminated Sites | | | | | | | | |
| US CDL | TP | | NR | NR | NR | NR | NR | 0 |
| HIST Cal-Sites | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| SCH | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| Toxic Pits | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| CDL | TP | | NR | NR | NR | NR | NR | 0 |
| US HIST CDL | TP | | NR | NR | NR | NR | NR | 0 |
| Local Lists of Registered Storage Tanks | | | | | | | | |
| CA FID UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| HIST UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| SWEEPS UST | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| Local Land Records | | | | | | | | |
| LIENS 2 | TP | | NR | NR | NR | NR | NR | 0 |
| LIENS | TP | | NR | NR | NR | NR | NR | 0 |
| DEED | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| Records of Emergency Release Reports | | | | | | | | |
| HMIRS | TP | | NR | NR | NR | NR | NR | 0 |
| CHMIRS | TP | | NR | NR | NR | NR | NR | 0 |
| LDS | TP | | NR | NR | NR | NR | NR | 0 |

MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|------------------------------------|-------------------------|-----------------|-------|-----------|-----------|---------|-----|---------------|
| MCS | TP | | NR | NR | NR | NR | NR | 0 |
| SPILLS 90 | TP | | NR | NR | NR | NR | NR | 0 |
| Other Ascertainable Records | | | | | | | | |
| RCRA NonGen / NLR | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| DOT OPS | TP | | NR | NR | NR | NR | NR | 0 |
| DOD | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| FUDS | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| CONSENT | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| ROD | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| UMTRA | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| US MINES | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| TRIS | TP | | NR | NR | NR | NR | NR | 0 |
| TSCA | TP | | NR | NR | NR | NR | NR | 0 |
| FTTS | TP | | NR | NR | NR | NR | NR | 0 |
| HIST FTTS | TP | | NR | NR | NR | NR | NR | 0 |
| SSTS | TP | | NR | NR | NR | NR | NR | 0 |
| ICIS | TP | | NR | NR | NR | NR | NR | 0 |
| PADS | TP | | NR | NR | NR | NR | NR | 0 |
| MLTS | TP | | NR | NR | NR | NR | NR | 0 |
| RADINFO | TP | | NR | NR | NR | NR | NR | 0 |
| FINDS | TP | | NR | NR | NR | NR | NR | 0 |
| RAATS | TP | | NR | NR | NR | NR | NR | 0 |
| RMP | TP | | NR | NR | NR | NR | NR | 0 |
| CA BOND EXP. PLAN | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| NPDES | TP | | NR | NR | NR | NR | NR | 0 |
| UIC | TP | | NR | NR | NR | NR | NR | 0 |
| Cortese | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| HIST CORTESE | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| CUPA Listings | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| Notify 65 | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| DRYCLEANERS | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| WIP | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| ENF | TP | | NR | NR | NR | NR | NR | 0 |
| HAZNET | TP | | NR | NR | NR | NR | NR | 0 |
| EMI | TP | | NR | NR | NR | NR | NR | 0 |
| INDIAN RESERV | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| SCRD DRYCLEANERS | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| 2020 COR ACTION | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| LEAD SMELTERS | TP | | NR | NR | NR | NR | NR | 0 |
| US AIRS | TP | | NR | NR | NR | NR | NR | 0 |
| WDS | TP | | NR | NR | NR | NR | NR | 0 |
| PRP | TP | | NR | NR | NR | NR | NR | 0 |
| MWMP | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| COAL ASH DOE | TP | | NR | NR | NR | NR | NR | 0 |
| HWT | 0.250 | | 0 | 0 | NR | NR | NR | 0 |
| HWP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| US FIN ASSUR | TP | | NR | NR | NR | NR | NR | 0 |
| Financial Assurance | TP | | NR | NR | NR | NR | NR | 0 |
| COAL ASH EPA | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| PCB TRANSFORMER | TP | | NR | NR | NR | NR | NR | 0 |

MAP FINDINGS SUMMARY

| Database | Search Distance (Miles) | Target Property | < 1/8 | 1/8 - 1/4 | 1/4 - 1/2 | 1/2 - 1 | > 1 | Total Plotted |
|----------------|-------------------------|-----------------|-------|-----------|-----------|---------|-----|---------------|
| PROC | 0.500 | | 0 | 0 | 0 | NR | NR | 0 |
| EPA WATCH LIST | TP | | NR | NR | NR | NR | NR | 0 |

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

| | | | | | | | | |
|-----------------------|-------|--|---|---|----|----|----|---|
| EDR MGP | 1.000 | | 0 | 0 | 0 | 0 | NR | 0 |
| EDR US Hist Auto Stat | 0.250 | | 0 | 1 | NR | NR | NR | 1 |
| EDR US Hist Cleaners | 0.250 | | 0 | 0 | NR | NR | NR | 0 |

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

| | | | | | | | | |
|----------|----|--|----|----|----|----|----|---|
| RGA LF | TP | | NR | NR | NR | NR | NR | 0 |
| RGA LUST | TP | | NR | NR | NR | NR | NR | 0 |

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

1
WNW
1/8-1/4
0.159 mi.
839 ft.

30520 HIGHWAY 20
FORT BRAGG, CA 95437

EDR US Hist Auto Stat 1015408095
N/A

Relative:
Lower
Actual:
363 ft.

EDR Historical Auto Stations:

- Name: JOHN MEDLENS AUTO REPAIR
Year: 2001
Address: 30520 HIGHWAY 20
- Name: JOHN MEDLENS AUTO REPAIR
Year: 2002
Address: 30520 HIGHWAY 20
- Name: JOHN MEDLENS AUTO REPAIR
Year: 2003
Address: 30520 HIGHWAY 20
- Name: JOHN MEDLENS AUTO REPAIR
Year: 2005
Address: 30520 HIGHWAY 20
- Name: JOHN MEDLENS AUTO REPAIR
Year: 2006
Address: 30520 HIGHWAY 20
- Name: JOHN MEDLENS AUTO REPAIR
Year: 2007
Address: 30520 HIGHWAY 20
- Name: JOHN MEDLENS AUTO REPAIR
Year: 2008
Address: 30520 HIGHWAY 20
- Name: JOHN MEDLENS AUTO REPAIR
Year: 2009
Address: 30520 HIGHWAY 20

2
East
1/4-1/2
0.324 mi.
1713 ft.

PARLIN FORK/CA DEPT OF FORESTRY
11M E. OF FORT BRAGG ON HWY 20
FORT BRAGG, CA 95437

CERCLIS 1000707602
CAD983645193

Relative:
Higher
Actual:
406 ft.

CERCLIS:

- Site ID: 0904538
- EPA ID: CAD983645193
- Facility County: MENDOCINO
- Short Name: PARLIN FORK/CA DEPT OF FO
- Congressional District: 01
- IFMS ID: Not reported
- SMSA Number: Not reported
- USGC Hydro Unit: 18010108
- Federal Facility: Not a Federal Facility
- DMNSN Number: 0.00000
- Site Orphan Flag: N
- RCRA ID: Not reported
- USGS Quadrangle: Not reported
- Site Init By Prog: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PARLIN FORK/CA DEPT OF FORESTRY (Continued)

1000707602

NFRAP Flag: Not reported
Parent ID: Not reported
RST Code: Not reported
EPA Region: 09
Classification: Not reported
Site Settings Code: Not reported
NPL Status: Not on the NPL
DMNSN Unit Code: Not reported
RBRAC Code: Not reported
RResp Fed Agency Code: Not reported
Non NPL Status: Site Reassessment Start Needed
Non NPL Status Date: 07/24/06
Site Fips Code: 06045
CC Concurrence Date: / /
CC Concurrence FY: Not reported
Alias EPA ID: Not reported
Site FUDS Flag: Not reported

CERCLIS Site Contact Name(s):

Contact ID: 13003854.00000
Contact Name: Leslie Ramirez
Contact Tel: (415) 972-3978
Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

Contact ID: 13003858.00000
Contact Name: Sharon Murray
Contact Tel: (415) 972-4250
Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

Contact ID: 13004003.00000
Contact Name: Carl Brickner
Contact Tel: Not reported
Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

CERCLIS Site Alias Name(s):

Alias ID: 101
Alias Name: PARLIN FORK CONSERVATION CAMP
Alias Address: Not reported
FORT BRAGG, CA
Alias Comments: Not reported
Site Description: Not reported

CERCLIS Assessment History:

Action Code: 001
Action: DISCOVERY
Date Started: / /
Date Completed: 06/22/92
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PARLIN FORK/CA DEPT OF FORESTRY (Continued)

1000707602

Action Code: 001
Action: PRELIMINARY ASSESSMENT
Date Started: / /
Date Completed: 09/01/94
Priority Level: Higher priority for further assessment
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: SITE INSPECTION
Date Started: 12/10/93
Date Completed: 10/09/96
Priority Level: Higher priority for further assessment
Operable Unit: SITEWIDE
Primary Responsibility: State, Fund Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Count: 20 records.

ORPHAN SUMMARY

| City | EDR ID | Site Name | Site Address | Zip | Database(s) |
|------------------|------------|------------------------------------|--------------------------------|-------|-----------------------|
| FORT BRAGG | S106930705 | PINE BEACH INN/STAR CROSS ENTERPRI | HIGHWAY 1 | 95437 | SWEEPS UST |
| FORT BRAGG | S103341520 | CDF PARLIN FORK CONS. CAM | HWY 20 E. 10 MI FM FORT B | 95437 | HIST CORTESE, WDS |
| FORT BRAGG | S100453843 | PARLIN FORK CONSERVATION CAMP, CDF | 2300 HIGHWAY 20 | 95437 | ENVIROSTOR |
| FORT BRAGG | S105023782 | MENDOCINO CO CASPAR SWDS | COUNTY RD 409 | 95437 | HIST CORTESE |
| FORT BRAGG | 1000251693 | PACIFIC BELL | 9 MI E/O FORT BRAGG | 95437 | RCRA-SQG, FINDS |
| FORT BRAGG | 1003878564 | GLASS BEACH | END OF ELM ST | 95437 | CERC-NFRAP |
| FORT BRAGG | S103661826 | SAVINGS BANK OF MENDOCINO | 490 FRANKLIN | 95437 | HIST CORTESE |
| FORT BRAGG | S101481189 | UNION OIL | FRANKLIN | 95437 | ENVIROSTOR |
| FORT BRAGG | S101481188 | SHELL OIL | FRANKLIN | 95437 | ENVIROSTOR |
| FORT BRAGG | S100181647 | STANDARD OIL | FRANKLIN | 95437 | ENVIROSTOR |
| FORT BRAGG | S101481182 | REDWOOD WRECKERS & SALVAGE | GEORGES LANE | 95437 | ENVIROSTOR |
| FORT BRAGG | 1004654690 | PARKS ESTATES PROP-GUN CLUB | N OF FT BRAGG & E OF HWY 1 | 95437 | CERC-NFRAP |
| FORT BRAGG | S105023785 | FORT BRAGG OIL COMPANY | 18770 ONE | 95437 | HIST CORTESE |
| FORT BRAGG | 1000251692 | PACIFIC BELL | S/W SIDE WESTERN RAILROAD | 95437 | RCRA NonGen / NLR |
| FORT BRAGG | 1014673956 | MENDOCINO COAST DISTRICT HOSPITAL | UNKNOWN | | FINDS |
| FORT BRAGG CA | S101612113 | LP BIG RIVER WWDS | HIGHWAY 20 15MI. E. FORT BRAGG | 95437 | WMUDS/SWAT, Notify 65 |
| MENDOCINO COUNTY | M300006780 | BED ROCK, INC. | BALD HILLS QUARRY | | US MINES |
| MENDOCINO COUNTY | M300006781 | KEN MCCUTCHAN | BLUE RIDGE ROCK PRODUCTS | | US MINES |
| MENDOCINO COUNTY | M300006779 | NORTHERN AGGREGATES, INC. | HARRIS QUARRY | | US MINES |
| MENDOCINO COUNTY | M300003108 | GRANITE CONSTRUCTION CO | SHUSTER QUARRY | | US MINES |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

| | |
|---|--|
| Date of Government Version: 10/25/2013 | Source: EPA |
| Date Data Arrived at EDR: 11/11/2013 | Telephone: N/A |
| Date Made Active in Reports: 01/28/2014 | Last EDR Contact: 04/08/2014 |
| Number of Days to Update: 78 | Next Scheduled EDR Contact: 07/21/2014 |
| | Data Release Frequency: Quarterly |

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

| | |
|---|--|
| Date of Government Version: 10/25/2013 | Source: EPA |
| Date Data Arrived at EDR: 11/11/2013 | Telephone: N/A |
| Date Made Active in Reports: 01/28/2014 | Last EDR Contact: 04/08/2014 |
| Number of Days to Update: 78 | Next Scheduled EDR Contact: 07/21/2014 |
| | Data Release Frequency: Quarterly |

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

| | |
|---|---|
| Date of Government Version: 10/15/1991 | Source: EPA |
| Date Data Arrived at EDR: 02/02/1994 | Telephone: 202-564-4267 |
| Date Made Active in Reports: 03/30/1994 | Last EDR Contact: 08/15/2011 |
| Number of Days to Update: 56 | Next Scheduled EDR Contact: 11/28/2011 |
| | Data Release Frequency: No Update Planned |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

| | |
|---|--|
| Date of Government Version: 10/25/2013 | Source: EPA |
| Date Data Arrived at EDR: 11/11/2013 | Telephone: N/A |
| Date Made Active in Reports: 01/28/2014 | Last EDR Contact: 04/08/2014 |
| Number of Days to Update: 78 | Next Scheduled EDR Contact: 07/21/2014 |
| | Data Release Frequency: Quarterly |

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

| | |
|---|--|
| Date of Government Version: 10/25/2013 | Source: EPA |
| Date Data Arrived at EDR: 11/11/2013 | Telephone: 703-412-9810 |
| Date Made Active in Reports: 02/13/2014 | Last EDR Contact: 02/28/2014 |
| Number of Days to Update: 94 | Next Scheduled EDR Contact: 06/09/2014 |
| | Data Release Frequency: Quarterly |

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

| | |
|---|---|
| Date of Government Version: 05/31/2013 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 07/08/2013 | Telephone: 703-603-8704 |
| Date Made Active in Reports: 12/06/2013 | Last EDR Contact: 04/11/2014 |
| Number of Days to Update: 151 | Next Scheduled EDR Contact: 07/21/2014 |
| | Data Release Frequency: Varies |

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

| | |
|---|--|
| Date of Government Version: 10/25/2013 | Source: EPA |
| Date Data Arrived at EDR: 11/11/2013 | Telephone: 703-412-9810 |
| Date Made Active in Reports: 02/13/2014 | Last EDR Contact: 02/28/2014 |
| Number of Days to Update: 94 | Next Scheduled EDR Contact: 06/09/2014 |
| | Data Release Frequency: Quarterly |

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

| | |
|---|---|
| Date of Government Version: 12/17/2013 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 01/14/2014 | Telephone: 703-603-0695 |
| Date Made Active in Reports: 01/28/2014 | Last EDR Contact: 03/10/2014 |
| Number of Days to Update: 14 | Next Scheduled EDR Contact: 06/23/2014 |
| | Data Release Frequency: Varies |

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

| | |
|---|---|
| Date of Government Version: 12/17/2013 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 01/14/2014 | Telephone: 703-603-0695 |
| Date Made Active in Reports: 01/28/2014 | Last EDR Contact: 03/10/2014 |
| Number of Days to Update: 14 | Next Scheduled EDR Contact: 06/23/2014 |
| | Data Release Frequency: Varies |

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

| | |
|---|--|
| Date of Government Version: 02/26/2014 | Source: Department of the Navy |
| Date Data Arrived at EDR: 02/28/2014 | Telephone: 843-820-7326 |
| Date Made Active in Reports: 04/24/2014 | Last EDR Contact: 02/14/2014 |
| Number of Days to Update: 55 | Next Scheduled EDR Contact: 06/02/2014 |
| | Data Release Frequency: Varies |

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

| | |
|---|---|
| Date of Government Version: 09/30/2013 | Source: National Response Center, United States Coast Guard |
| Date Data Arrived at EDR: 10/01/2013 | Telephone: 202-267-2180 |
| Date Made Active in Reports: 12/06/2013 | Last EDR Contact: 04/04/2014 |
| Number of Days to Update: 66 | Next Scheduled EDR Contact: 07/14/2014 |
| | Data Release Frequency: Annually |

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

| | |
|---|--|
| Date of Government Version: 03/12/2014 | Source: Department of Toxic Substances Control |
| Date Data Arrived at EDR: 03/13/2014 | Telephone: 916-323-3400 |
| Date Made Active in Reports: 04/10/2014 | Last EDR Contact: 03/13/2014 |
| Number of Days to Update: 28 | Next Scheduled EDR Contact: 05/19/2014 |
| | Data Release Frequency: Quarterly |

State- and tribal - equivalent CERCLIS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

| | |
|---|--|
| Date of Government Version: 03/12/2014 | Source: Department of Toxic Substances Control |
| Date Data Arrived at EDR: 03/13/2014 | Telephone: 916-323-3400 |
| Date Made Active in Reports: 04/10/2014 | Last EDR Contact: 03/13/2014 |
| Number of Days to Update: 28 | Next Scheduled EDR Contact: 05/19/2014 |
| | Data Release Frequency: Quarterly |

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

| | |
|---|--|
| Date of Government Version: 02/14/2014 | Source: Department of Resources Recycling and Recovery |
| Date Data Arrived at EDR: 02/18/2014 | Telephone: 916-341-6320 |
| Date Made Active in Reports: 03/18/2014 | Last EDR Contact: 02/18/2014 |
| Number of Days to Update: 28 | Next Scheduled EDR Contact: 06/02/2014 |
| | Data Release Frequency: Quarterly |

State and tribal leaking storage tank lists

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

| | |
|---|--|
| Date of Government Version: 03/01/2001 | Source: California Regional Water Quality Control Board San Diego Region (9) |
| Date Data Arrived at EDR: 04/23/2001 | Telephone: 858-637-5595 |
| Date Made Active in Reports: 05/21/2001 | Last EDR Contact: 09/26/2011 |
| Number of Days to Update: 28 | Next Scheduled EDR Contact: 01/09/2012 |
| | Data Release Frequency: No Update Planned |

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

| | |
|---|--|
| Date of Government Version: 02/14/2005 | Source: California Regional Water Quality Control Board Santa Ana Region (8) |
| Date Data Arrived at EDR: 02/15/2005 | Telephone: 909-782-4496 |
| Date Made Active in Reports: 03/28/2005 | Last EDR Contact: 08/15/2011 |
| Number of Days to Update: 41 | Next Scheduled EDR Contact: 11/28/2011 |
| | Data Release Frequency: Varies |

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

| | |
|---|---|
| Date of Government Version: 02/26/2004 | Source: California Regional Water Quality Control Board Colorado River Basin Region (7) |
| Date Data Arrived at EDR: 02/26/2004 | Telephone: 760-776-8943 |
| Date Made Active in Reports: 03/24/2004 | Last EDR Contact: 08/01/2011 |
| Number of Days to Update: 27 | Next Scheduled EDR Contact: 11/14/2011 |
| | Data Release Frequency: No Update Planned |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

| | |
|---|---|
| Date of Government Version: 06/07/2005 | Source: California Regional Water Quality Control Board Victorville Branch Office (6) |
| Date Data Arrived at EDR: 06/07/2005 | Telephone: 760-241-7365 |
| Date Made Active in Reports: 06/29/2005 | Last EDR Contact: 09/12/2011 |
| Number of Days to Update: 22 | Next Scheduled EDR Contact: 12/26/2011 |
| | Data Release Frequency: No Update Planned |

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

| | |
|---|---|
| Date of Government Version: 09/09/2003 | Source: California Regional Water Quality Control Board Lahontan Region (6) |
| Date Data Arrived at EDR: 09/10/2003 | Telephone: 530-542-5572 |
| Date Made Active in Reports: 10/07/2003 | Last EDR Contact: 09/12/2011 |
| Number of Days to Update: 27 | Next Scheduled EDR Contact: 12/26/2011 |
| | Data Release Frequency: No Update Planned |

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

| | |
|---|---|
| Date of Government Version: 07/01/2008 | Source: California Regional Water Quality Control Board Central Valley Region (5) |
| Date Data Arrived at EDR: 07/22/2008 | Telephone: 916-464-4834 |
| Date Made Active in Reports: 07/31/2008 | Last EDR Contact: 07/01/2011 |
| Number of Days to Update: 9 | Next Scheduled EDR Contact: 10/17/2011 |
| | Data Release Frequency: No Update Planned |

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

| | |
|---|--|
| Date of Government Version: 09/07/2004 | Source: California Regional Water Quality Control Board Los Angeles Region (4) |
| Date Data Arrived at EDR: 09/07/2004 | Telephone: 213-576-6710 |
| Date Made Active in Reports: 10/12/2004 | Last EDR Contact: 09/06/2011 |
| Number of Days to Update: 35 | Next Scheduled EDR Contact: 12/19/2011 |
| | Data Release Frequency: No Update Planned |

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

| | |
|---|--|
| Date of Government Version: 05/19/2003 | Source: California Regional Water Quality Control Board Central Coast Region (3) |
| Date Data Arrived at EDR: 05/19/2003 | Telephone: 805-542-4786 |
| Date Made Active in Reports: 06/02/2003 | Last EDR Contact: 07/18/2011 |
| Number of Days to Update: 14 | Next Scheduled EDR Contact: 10/31/2011 |
| | Data Release Frequency: No Update Planned |

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

| | |
|---|--|
| Date of Government Version: 09/30/2004 | Source: California Regional Water Quality Control Board San Francisco Bay Region (2) |
| Date Data Arrived at EDR: 10/20/2004 | Telephone: 510-622-2433 |
| Date Made Active in Reports: 11/19/2004 | Last EDR Contact: 09/19/2011 |
| Number of Days to Update: 30 | Next Scheduled EDR Contact: 01/02/2012 |
| | Data Release Frequency: Quarterly |

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 03/17/2014
Date Data Arrived at EDR: 03/19/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 36

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/16/2014
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 02/20/2014
Date Data Arrived at EDR: 02/21/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 62

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 02/21/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/26/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/22/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

| | |
|---|--|
| Date of Government Version: 02/13/2014 | Source: EPA, Region 5 |
| Date Data Arrived at EDR: 02/14/2014 | Telephone: 312-886-7439 |
| Date Made Active in Reports: 02/24/2014 | Last EDR Contact: 04/28/2014 |
| Number of Days to Update: 10 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: Varies |

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

| | |
|---|--|
| Date of Government Version: 11/06/2013 | Source: EPA Region 10 |
| Date Data Arrived at EDR: 11/07/2013 | Telephone: 206-553-2857 |
| Date Made Active in Reports: 12/06/2013 | Last EDR Contact: 04/28/2014 |
| Number of Days to Update: 29 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: Quarterly |

State and tribal registered storage tank lists

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

| | |
|---|--|
| Date of Government Version: 03/17/2014 | Source: SWRCB |
| Date Data Arrived at EDR: 03/19/2014 | Telephone: 916-341-5851 |
| Date Made Active in Reports: 04/25/2014 | Last EDR Contact: 03/19/2014 |
| Number of Days to Update: 37 | Next Scheduled EDR Contact: 06/30/2014 |
| | Data Release Frequency: Semi-Annually |

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

| | |
|---|--|
| Date of Government Version: 08/01/2009 | Source: California Environmental Protection Agency |
| Date Data Arrived at EDR: 09/10/2009 | Telephone: 916-327-5092 |
| Date Made Active in Reports: 10/01/2009 | Last EDR Contact: 04/07/2014 |
| Number of Days to Update: 21 | Next Scheduled EDR Contact: 07/21/2014 |
| | Data Release Frequency: Quarterly |

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

| | |
|---|--|
| Date of Government Version: 02/01/2013 | Source: EPA, Region 1 |
| Date Data Arrived at EDR: 05/01/2013 | Telephone: 617-918-1313 |
| Date Made Active in Reports: 01/27/2014 | Last EDR Contact: 01/30/2014 |
| Number of Days to Update: 271 | Next Scheduled EDR Contact: 05/12/2014 |
| | Data Release Frequency: Varies |

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

| | |
|---|--|
| Date of Government Version: 11/21/2013 | Source: EPA Region 4 |
| Date Data Arrived at EDR: 11/26/2013 | Telephone: 404-562-9424 |
| Date Made Active in Reports: 02/24/2014 | Last EDR Contact: 04/22/2014 |
| Number of Days to Update: 90 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: Semi-Annually |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

| | |
|---|--|
| Date of Government Version: 02/13/2014 | Source: EPA Region 5 |
| Date Data Arrived at EDR: 02/14/2014 | Telephone: 312-886-6136 |
| Date Made Active in Reports: 02/24/2014 | Last EDR Contact: 04/28/2014 |
| Number of Days to Update: 10 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: Varies |

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

| | |
|---|--|
| Date of Government Version: 01/29/2014 | Source: EPA Region 6 |
| Date Data Arrived at EDR: 01/29/2014 | Telephone: 214-665-7591 |
| Date Made Active in Reports: 03/12/2014 | Last EDR Contact: 01/27/2014 |
| Number of Days to Update: 42 | Next Scheduled EDR Contact: 05/12/2014 |
| | Data Release Frequency: Semi-Annually |

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

| | |
|---|--|
| Date of Government Version: 02/20/2014 | Source: EPA Region 7 |
| Date Data Arrived at EDR: 02/21/2014 | Telephone: 913-551-7003 |
| Date Made Active in Reports: 04/24/2014 | Last EDR Contact: 04/28/2014 |
| Number of Days to Update: 62 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: Varies |

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

| | |
|---|--|
| Date of Government Version: 07/29/2013 | Source: EPA Region 8 |
| Date Data Arrived at EDR: 08/01/2013 | Telephone: 303-312-6137 |
| Date Made Active in Reports: 11/01/2013 | Last EDR Contact: 04/28/2014 |
| Number of Days to Update: 92 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: Quarterly |

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

| | |
|---|--|
| Date of Government Version: 07/29/2013 | Source: EPA Region 9 |
| Date Data Arrived at EDR: 07/30/2013 | Telephone: 415-972-3368 |
| Date Made Active in Reports: 12/06/2013 | Last EDR Contact: 04/28/2014 |
| Number of Days to Update: 129 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: Quarterly |

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

| | |
|---|--|
| Date of Government Version: 02/05/2013 | Source: EPA Region 10 |
| Date Data Arrived at EDR: 02/06/2013 | Telephone: 206-553-2857 |
| Date Made Active in Reports: 04/12/2013 | Last EDR Contact: 04/28/2014 |
| Number of Days to Update: 65 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: Quarterly |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

| | |
|---|--|
| Date of Government Version: 01/01/2010 | Source: FEMA |
| Date Data Arrived at EDR: 02/16/2010 | Telephone: 202-646-5797 |
| Date Made Active in Reports: 04/12/2010 | Last EDR Contact: 04/15/2014 |
| Number of Days to Update: 55 | Next Scheduled EDR Contact: 07/28/2014 |
| | Data Release Frequency: Varies |

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

| | |
|---|--|
| Date of Government Version: 09/17/2013 | Source: EPA, Region 1 |
| Date Data Arrived at EDR: 10/01/2013 | Telephone: 617-918-1102 |
| Date Made Active in Reports: 12/06/2013 | Last EDR Contact: 04/01/2014 |
| Number of Days to Update: 66 | Next Scheduled EDR Contact: 07/14/2014 |
| | Data Release Frequency: Varies |

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

| | |
|---|--|
| Date of Government Version: 03/20/2008 | Source: EPA, Region 7 |
| Date Data Arrived at EDR: 04/22/2008 | Telephone: 913-551-7365 |
| Date Made Active in Reports: 05/19/2008 | Last EDR Contact: 04/20/2009 |
| Number of Days to Update: 27 | Next Scheduled EDR Contact: 07/20/2009 |
| | Data Release Frequency: Varies |

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

| | |
|---|--|
| Date of Government Version: 03/12/2014 | Source: Department of Toxic Substances Control |
| Date Data Arrived at EDR: 03/13/2014 | Telephone: 916-323-3400 |
| Date Made Active in Reports: 04/10/2014 | Last EDR Contact: 03/13/2014 |
| Number of Days to Update: 28 | Next Scheduled EDR Contact: 05/19/2014 |
| | Data Release Frequency: Quarterly |

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

| | |
|---|---|
| Date of Government Version: 03/20/2014 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 03/20/2014 | Telephone: 202-566-2777 |
| Date Made Active in Reports: 04/09/2014 | Last EDR Contact: 03/20/2014 |
| Number of Days to Update: 20 | Next Scheduled EDR Contact: 07/07/2014 |
| | Data Release Frequency: Semi-Annually |

Local Lists of Landfill / Solid Waste Disposal Sites

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

| | |
|---|---|
| Date of Government Version: 06/30/1985 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 08/09/2004 | Telephone: 800-424-9346 |
| Date Made Active in Reports: 09/17/2004 | Last EDR Contact: 06/09/2004 |
| Number of Days to Update: 39 | Next Scheduled EDR Contact: N/A |
| | Data Release Frequency: No Update Planned |

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

| | |
|---|---|
| Date of Government Version: 01/12/2009 | Source: EPA, Region 9 |
| Date Data Arrived at EDR: 05/07/2009 | Telephone: 415-947-4219 |
| Date Made Active in Reports: 09/21/2009 | Last EDR Contact: 04/28/2014 |
| Number of Days to Update: 137 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: No Update Planned |

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

| | |
|---|---|
| Date of Government Version: 04/01/2000 | Source: State Water Resources Control Board |
| Date Data Arrived at EDR: 04/10/2000 | Telephone: 916-227-4448 |
| Date Made Active in Reports: 05/10/2000 | Last EDR Contact: 02/10/2014 |
| Number of Days to Update: 30 | Next Scheduled EDR Contact: 05/26/2014 |
| | Data Release Frequency: No Update Planned |

SWRCY: Recycler Database

A listing of recycling facilities in California.

| | |
|---|--|
| Date of Government Version: 03/17/2014 | Source: Department of Conservation |
| Date Data Arrived at EDR: 03/18/2014 | Telephone: 916-323-3836 |
| Date Made Active in Reports: 04/24/2014 | Last EDR Contact: 03/18/2014 |
| Number of Days to Update: 37 | Next Scheduled EDR Contact: 06/30/2014 |
| | Data Release Frequency: Quarterly |

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

| | |
|---|---|
| Date of Government Version: 02/18/2014 | Source: Integrated Waste Management Board |
| Date Data Arrived at EDR: 02/20/2014 | Telephone: 916-341-6422 |
| Date Made Active in Reports: 03/27/2014 | Last EDR Contact: 02/14/2014 |
| Number of Days to Update: 35 | Next Scheduled EDR Contact: 06/02/2014 |
| | Data Release Frequency: Varies |

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

| | |
|---|---|
| Date of Government Version: 12/31/1998 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 12/03/2007 | Telephone: 703-308-8245 |
| Date Made Active in Reports: 01/24/2008 | Last EDR Contact: 11/04/2013 |
| Number of Days to Update: 52 | Next Scheduled EDR Contact: 02/17/2014 |
| | Data Release Frequency: Varies |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

| | |
|---|---|
| Date of Government Version: 12/04/2013 | Source: Drug Enforcement Administration |
| Date Data Arrived at EDR: 12/10/2013 | Telephone: 202-307-1000 |
| Date Made Active in Reports: 02/13/2014 | Last EDR Contact: 03/04/2014 |
| Number of Days to Update: 65 | Next Scheduled EDR Contact: 06/16/2014 |
| | Data Release Frequency: Quarterly |

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

| | |
|---|---|
| Date of Government Version: 08/08/2005 | Source: Department of Toxic Substance Control |
| Date Data Arrived at EDR: 08/03/2006 | Telephone: 916-323-3400 |
| Date Made Active in Reports: 08/24/2006 | Last EDR Contact: 02/23/2009 |
| Number of Days to Update: 21 | Next Scheduled EDR Contact: 05/25/2009 |
| | Data Release Frequency: No Update Planned |

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

| | |
|---|--|
| Date of Government Version: 03/12/2014 | Source: Department of Toxic Substances Control |
| Date Data Arrived at EDR: 03/13/2014 | Telephone: 916-323-3400 |
| Date Made Active in Reports: 04/10/2014 | Last EDR Contact: 03/13/2014 |
| Number of Days to Update: 28 | Next Scheduled EDR Contact: 05/19/2014 |
| | Data Release Frequency: Quarterly |

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

| | |
|---|---|
| Date of Government Version: 07/01/1995 | Source: State Water Resources Control Board |
| Date Data Arrived at EDR: 08/30/1995 | Telephone: 916-227-4364 |
| Date Made Active in Reports: 09/26/1995 | Last EDR Contact: 01/26/2009 |
| Number of Days to Update: 27 | Next Scheduled EDR Contact: 04/27/2009 |
| | Data Release Frequency: No Update Planned |

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

| | |
|---|--|
| Date of Government Version: 12/31/2013 | Source: Department of Toxic Substances Control |
| Date Data Arrived at EDR: 02/28/2014 | Telephone: 916-255-6504 |
| Date Made Active in Reports: 03/20/2014 | Last EDR Contact: 04/10/2014 |
| Number of Days to Update: 20 | Next Scheduled EDR Contact: 07/28/2014 |
| | Data Release Frequency: Varies |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

| | |
|---|---|
| Date of Government Version: 09/01/2007 | Source: Drug Enforcement Administration |
| Date Data Arrived at EDR: 11/19/2008 | Telephone: 202-307-1000 |
| Date Made Active in Reports: 03/30/2009 | Last EDR Contact: 03/04/2014 |
| Number of Days to Update: 131 | Next Scheduled EDR Contact: 06/16/2014 |
| | Data Release Frequency: No Update Planned |

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

| | |
|---|--|
| Date of Government Version: 10/31/1994 | Source: California Environmental Protection Agency |
| Date Data Arrived at EDR: 09/05/1995 | Telephone: 916-341-5851 |
| Date Made Active in Reports: 09/29/1995 | Last EDR Contact: 12/28/1998 |
| Number of Days to Update: 24 | Next Scheduled EDR Contact: N/A |
| | Data Release Frequency: No Update Planned |

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

| | |
|---|--|
| Date of Government Version: 09/23/2009 | Source: Department of Public Health |
| Date Data Arrived at EDR: 09/23/2009 | Telephone: 707-463-4466 |
| Date Made Active in Reports: 10/01/2009 | Last EDR Contact: 03/03/2014 |
| Number of Days to Update: 8 | Next Scheduled EDR Contact: 06/16/2014 |
| | Data Release Frequency: Annually |

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

| | |
|---|---|
| Date of Government Version: 10/15/1990 | Source: State Water Resources Control Board |
| Date Data Arrived at EDR: 01/25/1991 | Telephone: 916-341-5851 |
| Date Made Active in Reports: 02/12/1991 | Last EDR Contact: 07/26/2001 |
| Number of Days to Update: 18 | Next Scheduled EDR Contact: N/A |
| | Data Release Frequency: No Update Planned |

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

| | |
|---|---|
| Date of Government Version: 06/01/1994 | Source: State Water Resources Control Board |
| Date Data Arrived at EDR: 07/07/2005 | Telephone: N/A |
| Date Made Active in Reports: 08/11/2005 | Last EDR Contact: 06/03/2005 |
| Number of Days to Update: 35 | Next Scheduled EDR Contact: N/A |
| | Data Release Frequency: No Update Planned |

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 01/17/2014
Date Data Arrived at EDR: 01/21/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/10/2014
Date Data Arrived at EDR: 03/11/2014
Date Made Active in Reports: 04/10/2014
Number of Days to Update: 30

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/03/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 52

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/01/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 10/14/2013
Date Data Arrived at EDR: 10/30/2013
Date Made Active in Reports: 12/03/2013
Number of Days to Update: 34

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 03/17/2014
Date Data Arrived at EDR: 03/19/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 36

Source: State Water Quality Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

| | |
|---|---|
| Date of Government Version: 03/17/2014 | Source: State Water Resources Control Board |
| Date Data Arrived at EDR: 03/19/2014 | Telephone: 866-480-1028 |
| Date Made Active in Reports: 04/25/2014 | Last EDR Contact: 03/19/2014 |
| Number of Days to Update: 37 | Next Scheduled EDR Contact: 06/30/2014 |
| | Data Release Frequency: Quarterly |

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

| | |
|---|---|
| Date of Government Version: 06/06/2012 | Source: FirstSearch |
| Date Data Arrived at EDR: 01/03/2013 | Telephone: N/A |
| Date Made Active in Reports: 02/22/2013 | Last EDR Contact: 01/03/2013 |
| Number of Days to Update: 50 | Next Scheduled EDR Contact: N/A |
| | Data Release Frequency: No Update Planned |

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

| | |
|---|---|
| Date of Government Version: 03/11/2014 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 03/13/2014 | Telephone: (415) 495-8895 |
| Date Made Active in Reports: 04/09/2014 | Last EDR Contact: 03/13/2014 |
| Number of Days to Update: 27 | Next Scheduled EDR Contact: 07/14/2014 |
| | Data Release Frequency: Varies |

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

| | |
|---|---|
| Date of Government Version: 07/31/2012 | Source: Department of Transportation, Office of Pipeline Safety |
| Date Data Arrived at EDR: 08/07/2012 | Telephone: 202-366-4595 |
| Date Made Active in Reports: 09/18/2012 | Last EDR Contact: 02/06/2014 |
| Number of Days to Update: 42 | Next Scheduled EDR Contact: 05/19/2014 |
| | Data Release Frequency: Varies |

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

| | |
|---|--|
| Date of Government Version: 12/31/2005 | Source: USGS |
| Date Data Arrived at EDR: 11/10/2006 | Telephone: 888-275-8747 |
| Date Made Active in Reports: 01/11/2007 | Last EDR Contact: 04/18/2014 |
| Number of Days to Update: 62 | Next Scheduled EDR Contact: 07/28/2014 |
| | Data Release Frequency: Semi-Annually |

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 55

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/27/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/25/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 09/05/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 28

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/05/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/26/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/28/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/28/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/09/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2013
Date Data Arrived at EDR: 07/17/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 107

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/09/2014
Date Data Arrived at EDR: 01/10/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/09/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/18/2013
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/14/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

| | |
|---|---|
| Date of Government Version: 04/17/1995 | Source: EPA |
| Date Data Arrived at EDR: 07/03/1995 | Telephone: 202-564-4104 |
| Date Made Active in Reports: 08/07/1995 | Last EDR Contact: 06/02/2008 |
| Number of Days to Update: 35 | Next Scheduled EDR Contact: 09/01/2008 |
| | Data Release Frequency: No Update Planned |

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

| | |
|---|---|
| Date of Government Version: 11/01/2013 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 12/12/2013 | Telephone: 202-564-8600 |
| Date Made Active in Reports: 02/13/2014 | Last EDR Contact: 04/28/2014 |
| Number of Days to Update: 63 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: Varies |

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

| | |
|---|--|
| Date of Government Version: 12/31/2011 | Source: EPA/NTIS |
| Date Data Arrived at EDR: 02/26/2013 | Telephone: 800-424-9346 |
| Date Made Active in Reports: 04/19/2013 | Last EDR Contact: 02/28/2014 |
| Number of Days to Update: 52 | Next Scheduled EDR Contact: 06/09/2014 |
| | Data Release Frequency: Biennially |

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

| | |
|---|---|
| Date of Government Version: 01/01/1989 | Source: Department of Health Services |
| Date Data Arrived at EDR: 07/27/1994 | Telephone: 916-255-2118 |
| Date Made Active in Reports: 08/02/1994 | Last EDR Contact: 05/31/1994 |
| Number of Days to Update: 6 | Next Scheduled EDR Contact: N/A |
| | Data Release Frequency: No Update Planned |

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

| | |
|---|---|
| Date of Government Version: 02/17/2014 | Source: State Water Resources Control Board |
| Date Data Arrived at EDR: 02/18/2014 | Telephone: 916-445-9379 |
| Date Made Active in Reports: 03/27/2014 | Last EDR Contact: 02/18/2014 |
| Number of Days to Update: 37 | Next Scheduled EDR Contact: 06/02/2014 |
| | Data Release Frequency: Quarterly |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

| | |
|---|--|
| Date of Government Version: 01/15/2014 | Source: Department of Conservation |
| Date Data Arrived at EDR: 03/18/2014 | Telephone: 916-445-2408 |
| Date Made Active in Reports: 04/24/2014 | Last EDR Contact: 03/18/2014 |
| Number of Days to Update: 37 | Next Scheduled EDR Contact: 06/30/2014 |
| | Data Release Frequency: Varies |

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

| | |
|---|---|
| Date of Government Version: 12/30/2013 | Source: CAL EPA/Office of Emergency Information |
| Date Data Arrived at EDR: 12/31/2013 | Telephone: 916-323-3400 |
| Date Made Active in Reports: 02/11/2014 | Last EDR Contact: 04/01/2014 |
| Number of Days to Update: 42 | Next Scheduled EDR Contact: 07/14/2014 |
| | Data Release Frequency: Quarterly |

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CAL SITES]. This listing is no longer updated by the state agency.

| | |
|---|--|
| Date of Government Version: 04/01/2001 | Source: Department of Toxic Substances Control |
| Date Data Arrived at EDR: 01/22/2009 | Telephone: 916-323-3400 |
| Date Made Active in Reports: 04/08/2009 | Last EDR Contact: 01/22/2009 |
| Number of Days to Update: 76 | Next Scheduled EDR Contact: N/A |
| | Data Release Frequency: No Update Planned |

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

| | |
|---|---|
| Date of Government Version: 10/21/1993 | Source: State Water Resources Control Board |
| Date Data Arrived at EDR: 11/01/1993 | Telephone: 916-445-3846 |
| Date Made Active in Reports: 11/19/1993 | Last EDR Contact: 04/07/2014 |
| Number of Days to Update: 18 | Next Scheduled EDR Contact: 07/07/2014 |
| | Data Release Frequency: No Update Planned |

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

| | |
|---|---|
| Date of Government Version: 09/10/2013 | Source: Department of Toxic Substance Control |
| Date Data Arrived at EDR: 09/11/2013 | Telephone: 916-327-4498 |
| Date Made Active in Reports: 10/16/2013 | Last EDR Contact: 03/10/2014 |
| Number of Days to Update: 35 | Next Scheduled EDR Contact: 06/23/2014 |
| | Data Release Frequency: Annually |

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

| | |
|---|---|
| Date of Government Version: 07/03/2009 | Source: Los Angeles Water Quality Control Board |
| Date Data Arrived at EDR: 07/21/2009 | Telephone: 213-576-6726 |
| Date Made Active in Reports: 08/03/2009 | Last EDR Contact: 03/31/2014 |
| Number of Days to Update: 13 | Next Scheduled EDR Contact: 07/14/2014 |
| | Data Release Frequency: Varies |

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

| | |
|---|---|
| Date of Government Version: 02/25/2014 | Source: State Water Resources Control Board |
| Date Data Arrived at EDR: 02/27/2014 | Telephone: 916-445-9379 |
| Date Made Active in Reports: 03/18/2014 | Last EDR Contact: 04/28/2014 |
| Number of Days to Update: 19 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: Varies |

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

| | |
|---|--|
| Date of Government Version: 12/31/2012 | Source: California Environmental Protection Agency |
| Date Data Arrived at EDR: 07/16/2013 | Telephone: 916-255-1136 |
| Date Made Active in Reports: 08/26/2013 | Last EDR Contact: 04/18/2014 |
| Number of Days to Update: 41 | Next Scheduled EDR Contact: 07/28/2014 |
| | Data Release Frequency: Annually |

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

| | |
|---|--|
| Date of Government Version: 12/31/2010 | Source: California Air Resources Board |
| Date Data Arrived at EDR: 06/25/2013 | Telephone: 916-322-2990 |
| Date Made Active in Reports: 08/22/2013 | Last EDR Contact: 03/25/2014 |
| Number of Days to Update: 58 | Next Scheduled EDR Contact: 07/07/2014 |
| | Data Release Frequency: Varies |

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

| | |
|---|--|
| Date of Government Version: 12/31/2005 | Source: USGS |
| Date Data Arrived at EDR: 12/08/2006 | Telephone: 202-208-3710 |
| Date Made Active in Reports: 01/11/2007 | Last EDR Contact: 04/18/2014 |
| Number of Days to Update: 34 | Next Scheduled EDR Contact: 07/28/2014 |
| | Data Release Frequency: Semi-Annually |

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

| | |
|---|---|
| Date of Government Version: 03/07/2011 | Source: Environmental Protection Agency |
| Date Data Arrived at EDR: 03/09/2011 | Telephone: 615-532-8599 |
| Date Made Active in Reports: 05/02/2011 | Last EDR Contact: 04/21/2014 |
| Number of Days to Update: 54 | Next Scheduled EDR Contact: 08/04/2014 |
| | Data Release Frequency: Varies |

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/04/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 07/03/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 72

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 04/04/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: N/A

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 02/21/2014
Date Data Arrived at EDR: 03/12/2014
Date Made Active in Reports: 04/14/2014
Number of Days to Update: 33

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/14/2014
Date Data Arrived at EDR: 04/15/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 9

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/15/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/25/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/25/2014
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/14/2014
Date Data Arrived at EDR: 02/18/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 28

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 01/28/2014
Date Data Arrived at EDR: 01/30/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 12

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 03/17/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/18/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 08/13/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/22/2014
Date Data Arrived at EDR: 01/23/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 19

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/22/2014
Date Data Arrived at EDR: 01/23/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 20

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa Facility List

Date of Government Version: 12/05/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 24

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 20

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 04/10/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing

Cupa Facility Listing

Date of Government Version: 09/30/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 11/26/2013
Number of Days to Update: 56

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 12/05/2013
Date Data Arrived at EDR: 12/05/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 53

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 21

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 02/05/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa Facility list

Date of Government Version: 01/09/2013
Date Data Arrived at EDR: 01/10/2013
Date Made Active in Reports: 02/25/2013
Number of Days to Update: 46

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 11/04/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 02/20/2014
Date Data Arrived at EDR: 02/21/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 27

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 02/04/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 28

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 04/14/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 01/27/2014
Date Data Arrived at EDR: 01/28/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 14

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

INYO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 02/25/2014
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 21

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/25/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 33

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/21/2014
Next Scheduled EDR Contact: 08/04/2014
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

| | |
|---|--|
| Date of Government Version: 12/06/2013 | Source: Department of Public Works |
| Date Data Arrived at EDR: 01/28/2014 | Telephone: 626-458-3517 |
| Date Made Active in Reports: 03/17/2014 | Last EDR Contact: 04/02/2014 |
| Number of Days to Update: 48 | Next Scheduled EDR Contact: 07/28/2014 |
| | Data Release Frequency: Semi-Annually |

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

| | |
|---|--|
| Date of Government Version: 01/20/2014 | Source: La County Department of Public Works |
| Date Data Arrived at EDR: 01/21/2014 | Telephone: 818-458-5185 |
| Date Made Active in Reports: 02/11/2014 | Last EDR Contact: 04/22/2014 |
| Number of Days to Update: 21 | Next Scheduled EDR Contact: 08/04/2014 |
| | Data Release Frequency: Varies |

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

| | |
|---|---|
| Date of Government Version: 03/05/2009 | Source: Engineering & Construction Division |
| Date Data Arrived at EDR: 03/10/2009 | Telephone: 213-473-7869 |
| Date Made Active in Reports: 04/08/2009 | Last EDR Contact: 04/17/2014 |
| Number of Days to Update: 29 | Next Scheduled EDR Contact: 08/04/2014 |
| | Data Release Frequency: Varies |

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

| | |
|---|--|
| Date of Government Version: 01/07/2014 | Source: Community Health Services |
| Date Data Arrived at EDR: 02/25/2014 | Telephone: 323-890-7806 |
| Date Made Active in Reports: 03/25/2014 | Last EDR Contact: 04/17/2014 |
| Number of Days to Update: 28 | Next Scheduled EDR Contact: 08/04/2014 |
| | Data Release Frequency: Annually |

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

| | |
|---|--|
| Date of Government Version: 02/10/2014 | Source: City of El Segundo Fire Department |
| Date Data Arrived at EDR: 02/12/2014 | Telephone: 310-524-2236 |
| Date Made Active in Reports: 03/17/2014 | Last EDR Contact: 04/21/2014 |
| Number of Days to Update: 33 | Next Scheduled EDR Contact: 08/04/2014 |
| | Data Release Frequency: Semi-Annually |

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

| | |
|---|--|
| Date of Government Version: 02/25/2014 | Source: City of Long Beach Fire Department |
| Date Data Arrived at EDR: 02/27/2014 | Telephone: 562-570-2563 |
| Date Made Active in Reports: 04/14/2014 | Last EDR Contact: 04/28/2014 |
| Number of Days to Update: 46 | Next Scheduled EDR Contact: 08/11/2014 |
| | Data Release Frequency: Annually |

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

| | |
|---|--|
| Date of Government Version: 07/15/2013 | Source: City of Torrance Fire Department |
| Date Data Arrived at EDR: 07/18/2013 | Telephone: 310-618-2973 |
| Date Made Active in Reports: 08/20/2013 | Last EDR Contact: 04/14/2014 |
| Number of Days to Update: 33 | Next Scheduled EDR Contact: 07/28/2014 |
| | Data Release Frequency: Semi-Annually |

MADERA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/09/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 02/20/2014
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 01/03/2014
Date Data Arrived at EDR: 01/09/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 34

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 04/07/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 03/10/2014
Date Data Arrived at EDR: 03/11/2014
Date Made Active in Reports: 04/10/2014
Number of Days to Update: 30

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List

CUPA Facility List

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/04/2014
Date Made Active in Reports: 04/01/2014
Number of Days to Update: 28

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 03/18/2014
Date Data Arrived at EDR: 03/20/2014
Date Made Active in Reports: 04/25/2014
Number of Days to Update: 36

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

NAPA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/06/2014
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 11/06/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 12/04/2013
Number of Days to Update: 27

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 02/01/2014
Date Data Arrived at EDR: 02/12/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 33

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/13/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 33

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/01/2014
Date Data Arrived at EDR: 02/12/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 34

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

PLACER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/10/2014
Date Data Arrived at EDR: 03/11/2014
Date Made Active in Reports: 04/10/2014
Number of Days to Update: 30

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/15/2014
Date Data Arrived at EDR: 04/17/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 7

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/02/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Quarterly

Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 01/14/2014
Date Data Arrived at EDR: 01/15/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 28

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 01/09/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 33

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/04/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 01/09/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 33

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/04/2014
Next Scheduled EDR Contact: 07/21/2014
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/18/2014
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 04/25/2014
Number of Days to Update: 35

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2013
Date Data Arrived at EDR: 11/19/2013
Date Made Active in Reports: 12/31/2013
Number of Days to Update: 42

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 12/18/2013
Date Data Arrived at EDR: 12/19/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 20

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 04/07/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/26/2014
Date Made Active in Reports: 03/26/2014
Number of Days to Update: 28

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 01/13/2014
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 28

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/17/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List

Cupa facility list

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/04/2014
Date Data Arrived at EDR: 03/06/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 14

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 02/07/2014
Date Data Arrived at EDR: 02/11/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 34

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List

CUPA facility listing.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 33

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 03/17/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SOLANO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/18/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 21

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/19/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 20

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List

Cupa Facility list

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/02/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 40

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/03/2014
Date Data Arrived at EDR: 01/03/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 39

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/31/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 12/10/2013
Date Data Arrived at EDR: 12/11/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 24

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/27/2014
Date Data Arrived at EDR: 01/28/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 48

Source: Division of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

VENTURA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

| | |
|---|--|
| Date of Government Version: 01/28/2014 | Source: Ventura County Environmental Health Division |
| Date Data Arrived at EDR: 02/25/2014 | Telephone: 805-654-2813 |
| Date Made Active in Reports: 03/20/2014 | Last EDR Contact: 02/18/2014 |
| Number of Days to Update: 23 | Next Scheduled EDR Contact: 06/02/2014 |
| | Data Release Frequency: Quarterly |

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

| | |
|---|--|
| Date of Government Version: 12/01/2011 | Source: Environmental Health Division |
| Date Data Arrived at EDR: 12/01/2011 | Telephone: 805-654-2813 |
| Date Made Active in Reports: 01/19/2012 | Last EDR Contact: 04/04/2014 |
| Number of Days to Update: 49 | Next Scheduled EDR Contact: 07/21/2014 |
| | Data Release Frequency: Annually |

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

| | |
|---|--|
| Date of Government Version: 05/29/2008 | Source: Environmental Health Division |
| Date Data Arrived at EDR: 06/24/2008 | Telephone: 805-654-2813 |
| Date Made Active in Reports: 07/31/2008 | Last EDR Contact: 02/17/2014 |
| Number of Days to Update: 37 | Next Scheduled EDR Contact: 06/02/2014 |
| | Data Release Frequency: Quarterly |

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

| | |
|---|---|
| Date of Government Version: 10/02/2013 | Source: Ventura County Resource Management Agency |
| Date Data Arrived at EDR: 10/30/2013 | Telephone: 805-654-2813 |
| Date Made Active in Reports: 11/27/2013 | Last EDR Contact: 03/21/2014 |
| Number of Days to Update: 28 | Next Scheduled EDR Contact: 05/12/2014 |
| | Data Release Frequency: Quarterly |

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

| | |
|---|--|
| Date of Government Version: 11/26/2013 | Source: Environmental Health Division |
| Date Data Arrived at EDR: 12/18/2013 | Telephone: 805-654-2813 |
| Date Made Active in Reports: 01/08/2014 | Last EDR Contact: 03/17/2014 |
| Number of Days to Update: 21 | Next Scheduled EDR Contact: 06/30/2014 |
| | Data Release Frequency: Quarterly |

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

| | |
|---|--|
| Date of Government Version: 12/18/2013 | Source: Yolo County Department of Health |
| Date Data Arrived at EDR: 12/24/2013 | Telephone: 530-666-8646 |
| Date Made Active in Reports: 01/08/2014 | Last EDR Contact: 03/24/2014 |
| Number of Days to Update: 15 | Next Scheduled EDR Contact: 07/07/2014 |
| | Data Release Frequency: Annually |

YUBA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 02/11/2014
Date Data Arrived at EDR: 02/13/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 32

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 12/06/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/21/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/07/2014
Date Made Active in Reports: 03/31/2014
Number of Days to Update: 52

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 03/12/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/21/2014
Next Scheduled EDR Contact: 08/04/2014
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/05/2013
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2012

Date Data Arrived at EDR: 08/09/2013

Date Made Active in Reports: 09/27/2013

Number of Days to Update: 49

Source: Department of Natural Resources

Telephone: N/A

Last EDR Contact: 03/17/2014

Next Scheduled EDR Contact: 06/30/2014

Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data

Source: Rextag Strategies Corp.

Telephone: (281) 769-2247

U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities

Source: Department of Social Services

Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

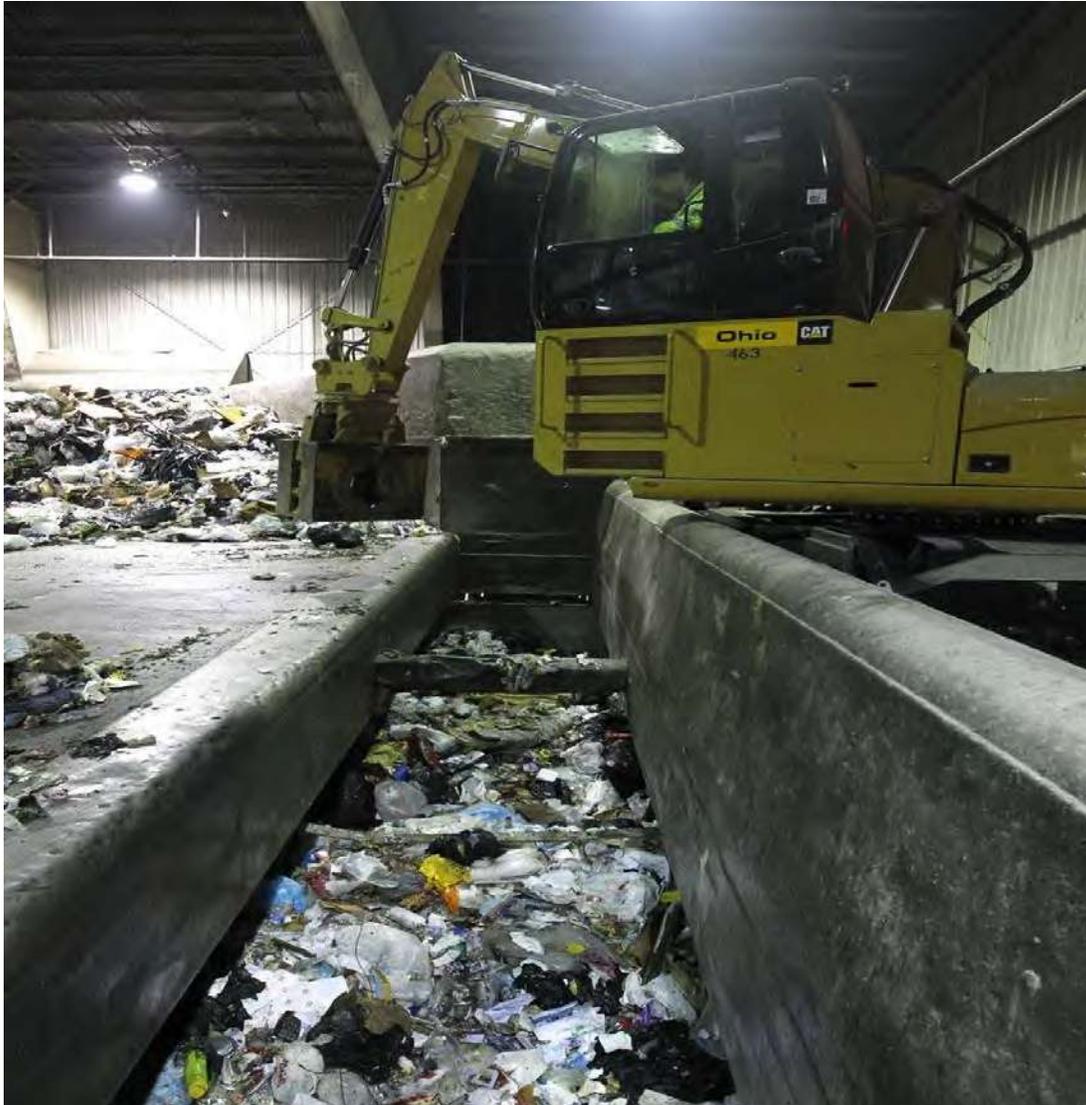
GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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Appendix G

Hydrological Study



Mendocino Solid Waste Management Authority

Coast Central Transfer Station Surface Water Hydrologic Study

September 2014

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1. Introduction

The Mendocino Solid Waste Management Authority (MSWMA) is proposing to construct and operate a commercial transfer station facility to serve the central coast area. The facility, known as the Central Coast Transfer Station (CCTS), will serve self-haul and commercial customers in the watershed which consists of the City of Fort Bragg and the surrounding unincorporated area referred to as Mendocino County Solid Waste Refuse Collection Area #2.

Solid waste disposal in the central coast region of Mendocino County has been a joint responsibility of the County of Mendocino and City of Fort Bragg for more than 40 years. When the jointly-owned Caspar Landfill closed in 1992, the site was converted to a self-haul transfer station.

Empire Waste Management, the franchised collector for the City of Fort Bragg and the surrounding unincorporated area, introduced its “WMS” or “pod” system for medium-distance waste transfer, which uses specialized collection trucks with detachable pod bodies for compacted waste. The pods are removed from the collection trucks at Empire’s Fort Bragg yard and loaded three-at-time on a flatbed semi-trailer to be hauled 37 miles to the Willits Transfer Station, where they are dumped and reloaded for transfer to the Potrero Hills Landfill in Suisun.

The inefficiency and expense of this disposal system led to a decision in 2006 to identify a site for construction of a commercial transfer station that would receive the entire wastestream and ship it directly to a destination landfill. In 2011, staff evaluated six semi-final sites, which were then narrowed down to two finalist sites, the Jackson Demonstration State Forest (JDSF) property on State Route 20 (project site) and the existing Caspar Landfill property. In June, 2013, the Mendocino County Board of Supervisors and Fort Bragg City Council designated the JDSF property on SR 20 as the preferred site.

This report summarizes the surface water hydrology study performed for the proposed project site. The intent of this hydrologic analysis is to assess the potential effects on surface water hydraulics at the site by the proposed development of the transfer station. Figure 1 (See Appendix A) is a Vicinity Map identifying the location of the project site.

2. Project Description

2.1 Project Location

The project site lies within the Jackson Demonstration State Forest (JDSF) at 30075 State Route (SR) 20, which is a portion of Assessor’s Parcel Number (APN) 019-150-05. The proposed project site is located in unincorporated Mendocino County approximately 3.5 miles southeast of downtown Fort Bragg.

2.2 Proposed Transfer Station

The proposed CCTS facility would include a solid waste transfer building (with loading bay and unloading and waste areas), an outdoor recycling drop-off area, two scales and office (scalehouse), paved driveways, parking areas for the public and transfer trailers, two stormwater detention areas,

a septic tank with leachfield, and perimeter fencing. The site plan is shown in Figure 2 (see Appendix A). A single gate on SR 20 would accommodate all vehicle entry and exit. Vehicles would pull up at the scalehouse for inspection, weighing or volume measurement, and paying charges. The Transfer Building would be approximately 30,000 square feet and fully enclosed. Enclosure would reduce or prevent off-site noise, odors, and dust. In addition, the design would be compatible with installation of control measures such as negative-pressure ventilation with biofiltered exhaust, automated roll-up doors, and/or doorway air curtains.

All solid waste would be deposited inside the transfer building, along with green waste (leaves, brush, landscape trimmings, and unfinished wood). These materials would be loaded into transfer trailers using a method to be determined by the operator, such as a grapple crane. When a transfer trailer is fully loaded, it would be driven directly to a destination landfill to be specified under the operator's contract. Solid waste would typically be removed within 24 hours; however, it is possible that in some situations, such as weekends/holidays, waste could remain for up to 48 hours. Among the fully-permitted regional landfills that might receive the solid waste are Potrero Hills in Suisun City, Redwood in Novato, Sonoma Central in Petaluma, Anderson in Anderson, Ostrum Road in Wheatland, Lake County in Clearlake, Recology Hay Road in Vacaville, and Keller Canyon in Pittsburg. Green waste would be hauled to Cold Creek Compost in Potter Valley or another fully-permitted compost facility. Transfer vehicles leaving the facility would proceed east on SR 20.

The recycling drop-off area would duplicate the drop-off services presently provided at the Caspar self-haul transfer station. Cans, bottles, cardboard, paper and mixed plastics would be collected together in debris boxes (see outdoor recycling area in Figure 2). Scrap metal, appliances and concrete rubble would be received in paved bunkers or debris boxes. Used motor oil and used antifreeze would be collected in secure tanks with secondary containment (see outdoor recycling area in Figure 2). Other recyclable household hazardous waste items, including electronics, fluorescent lights, and batteries, would be collected in secure containment areas. All other hazardous wastes would be prohibited at the facility and customers would be referred to the periodic HazMobile household and small business hazardous waste mobile collection system.

A total of approximately 4.7 acres is assumed to be disturbed for the purposes of evaluation and analysis in this report, approximately 3.7 acres within the project footprint, and 0.96 acre for a 10-foot construction buffer.

3. Site Description

3.1 Topography and Soils

The proposed project site was evaluated by LACO and Associates (LACO) in June 2012 to determine soil characteristics and drainage features. The site was determined to be characterized by relatively flat (2 to 5% slopes) to gently sloping (5 to 9% slopes) terrain. Elevations at the site range from a low of approximately 400 feet above mean sea level (msl) on the western portion to a high of approximately 430 feet msl at the northeast corner. Surface drainage of the site is predominately split into two drainage areas (see Figure 3, Appendix A). Drainage Area 1, which is approximately 7.3 acres in size, drains to the north west. Drainage Area 2 drains to the south and is approximately 9.3 acres in size. The undeveloped site is predominately covered by a very dense mixed forest with the only clearings consisting of a turnout off Highway 20, and jeep trails along a portion of the north and east perimeters.

The basement rock in the project area is coastal belt Franciscan complex, composed primarily of greywacke sandstone with shale lenses. Unconformably overlying the Franciscan complex are quaternary marine terrace deposits, including the older Lower Caspar Orchard deposits, which underlie the project site. These marine deposits typically consist of yellowish to light grey, moderately sorted, poorly consolidated, silty to clayey sand with occasional lenses or coarser sand and/or gravel. These soil types were generally encountered during the subsurface exploration (test borings) drilled at the site.

The surface and near-surface soils encountered at the site were determined to be primarily medium dense to dense sands (some of which are cemented) generally located below a surficial, highly organic topsoil and “duff” layer of up to about 12 inches in depth. LACO determined the geologic/geotechnical concerns at the project site consisted of: the existence of a relatively thin (1-foot or less) layer of organic material; the existence of expansive soils; the control of surface and subsurface drainage; and the potential for strong seismic ground shaking and related liquefaction from future moderate to major earthquakes in the region.

3.2 Surface and Groundwater

Groundwater was encountered during the site investigation performed by LACO to be on average 10 feet below the ground surface (bgs). In the upslope areas, shallow perched groundwater was encountered at depths ranging from approximately 2 to 5 feet bgs.

According to Caltrans engineer, Scott Lee, the portion of stormwater that collects on the project site and drains to SR 20 is conveyed by a drainage channel that runs parallel to SR 20 in both a easterly and westerly orientation. Stormwater that flows west along the road is discharged by a 12-inch culvert located at approximately mile marker 2.7, which is about 1,600 feet from the project site. Stormwater that flows east along SR 20 is routed to an 18-inch culvert located at approximately mile marker 4.1, which is approximately 2,600 feet to the east.

3.3 Site Vegetation

The project site is located within a bishop pine forest (predominant) and a pygmy forest which lies on the oldest and highest of five wave-cut terraces that rise from the Mendocino County coast. In this complex "ecological staircase," each terrace is approximately 100,000 years older than the one below.

4. Regulatory Setting

Hydrology-related issues are regulated at the federal, State, and local levels. For the project site, most regulation of hydrology-related issues will be conducted by local and state agencies. Relevant federal regulations are administered by the State.

4.1 Federal Regulations

Water-quality standards for drinking water are established and regulated by the Federal Safe Drinking Water Act of 1986 and Chapter 15, Title 22 of the California Code of Regulations. These documents establish Maximum Contaminant Levels that apply to many types of compounds. The levels are subject to revision, and additional compounds can be added. California Department of

Health Services Drinking Water Program is responsible for implementation of the federal Safe Drinking Water Act, as well as California statutes and regulations related to drinking water.

The Federal Environmental Protection Agency (USEPA) has granted the State of California primary responsibility for administering and enforcing the provisions of the Federal Clean Water Act (CWA) and the National Pollution Discharge Elimination System (NPDES). NPDES is the primary Federal program regulating both point- and non-point-source discharges to waters of the U.S. California has adopted water-quality standards as required by Section 303 of the CWA.

Section 404 of the CWA regulates placement of clean fill materials into the waters of the U.S., and is administered by the Army Corps of Engineers (USACE). Under the CWA, the state must issue or waive Section 401 Water Quality Certifications for a project to be permitted under Section 404. Water Quality Certifications require the evaluation of water-quality impacts associated with placement of fill into waters of the U.S.

4.2 State Regulations

Porter-Cologne Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act) established the California State Water Resources Control Board (SWRCB) which oversees nine regional areas, each with its Regional Water Quality Control Board. The SWRCB is the primary State agency responsible for protecting water quality, for surface water and to some degree for groundwater.

The Porter-Cologne Act authorizes the SWRCB to draft State policies regarding water quality and to issue Waste Discharge Requirements for various types of discharges to State waters. The Porter-Cologne Act requires the SWRCB or RWQCB to adopt Basin Plans for the protection of water quality. The North Coast RWQCB, which has jurisdiction over the project area, adopted its most recent amendments to the Basin Plan in 2001.

In addition to regional and federal regulatory guidelines presented above, the California Department of Transportation (Caltrans) and Mendocino County have developed guidelines concerning surface hydrology for the consistent and equivalent studies of drainage and flood control facilities within Mendocino County.

Given the proposed development of the transfer station, the following guidance documents were reviewed and considered in this hydrologic analysis:

1. Mendocino County Road and Development Standards;
2. Caltrans Highway Design Manual;
3. California Stormwater Quality Association Handbook; and
4. Erosion and Sediment Control Field Manual by RWQCB.

These guidelines were used as the basis for the hydrologic analysis further discussed in this report.

5. Hydrologic Analysis

The intent of the hydrologic analysis is to evaluate the size and type of stormwater controls necessary for the proposed CCTS facility.

5.1 Drainage Areas

Based on a site visit by GHD in April 2014, survey information of the site, and review of previous site studies the project area was delineated in to two discrete drainages (see Figure 3, Appendix A). The northerly drainage basin, Basin 1, is approximately 7.7 acres in size and is assumed to drain predominately to the northwest. Basin 2, the southerly drainage basin, is approximately 9.3 acres in size and is assumed to flow to the south. For this analysis, it is assumed that all the rain water collected in both Basin 1 and 2 will need to be managed by appropriate conveyance channels and detention basins. It is recognized that the boundary between the two drainage areas may not represent actual field conditions but for hydrologic modelling purposes is considered to be appropriate.

5.2 Hydrologic Model

The Santa Barbara Unit Hydrograph (SBUH) Method was used for the hydrology analyses. The SBUHM method, like the Soil Conservation Service Urban Hydrograph (SCSUH) method (developed by the Soil Conservation Service (SCS), which is now the USDA Natural Resources Conservation Service (NRCS)), is based on the curve number (CN) approach.

The SCSUH method works by converting the incremental runoff depths (precipitation excess) for a given basin and design storm hydrographs of equal time base according to basin time of concentration and adds them to form the runoff hydrograph. The SBUH method, on the other hand, converts the incremental runoff depths into instantaneous hydrographs which are then routed through a modelled reservoir with a time delay equal to the basin time of concentration.

The SBUH method was developed by the Santa Barbara County Flood Control and California Water Conservation District. The SBUH method directly computes a runoff hydrograph without going through an intermediate process (unit hydrograph) as the SCSUH method does.

The SBUH method is an accepted hydrologic model that incorporates the predominant characteristics of basins including vegetation, soils, topography and type of development. Because the drainage areas included in the model are relatively small and the characteristics relatively homogeneous, the SBUH method is considered an appropriate numerical model for this analysis. Allowances were made to account for the impact of soils and vegetative characteristics including relative absorption rates. Similarly, model parameters were adjusted to reflect the topography and density of development (e.g., impervious versus pervious areas) within the project site.

In order to analyse the stormwater discharge quantities for the various design storm events, the project area was divided into two sub-basins, each representative of a discrete small watershed (see Figure 3, Appendix A) with properties that include a mix of pervious and impervious surfaces and dimensions that limit the potential for overland flow to become channelized. It is recognized that these sub basins are not delineated as discrete watersheds. From a hydrologic perspective, the project component that impacts the hydrology of the site is the addition of impervious surfaces. Input parameters used in the SBUH Method are presented in Appendix C.

For this analysis, the 2, 10, 25, 50, and 100-year/24-hour design storms were used to generate peak flow rates for the two drainage basins. Small design storm events (e.g., 2-year/24-hour) were also considered in this analysis, in part to determine the size and discharge requirements of the detention basins. Precipitation data is presented in Appendix B and input parameters used in the SBUH Method area presented in Appendix C.

5.3 Slope Conveyance Method

Anticipated maximum channel water surface elevations and velocities resulting from each storm event analysed (2, 10, 25, 50, 100 year/24 hour), were calculated for each basin to determine the hydraulic characteristics.

The Slope Conveyance Method was used to simulate a broad range of flows through a representative channel of assumed dimension, slope, and roughness. The corresponding velocities at each flow rate were calculated, and the relationship between flow rate and channel velocity was determined by fitting a line of best fit to the data. Anticipated maximum channel velocities for each basin were determined by inputting the calculated peak flow rates predicted from the SBUH method, for each storm event.

The representative channel selected for this simulation was assumed to be trapezoidal in shape with a 2-foot wide bottom and side slopes at 2H:1V. The channel material was assumed to be silty sand, with moderate vegetative growth on the bottom and banks of the channel. A Manning's roughness coefficient of 0.030 was selected for these conditions with an assumed channel slope of one percent. Appendix F presents the calculations for the channel analyses, which were performed to estimate water surface elevations and velocities.

5.3.1 Bioswales

Stormwater conveyance channels for the transfer station will be bioswales. A bioswale is a shallow depression created in the earth to accept and convey stormwater runoff. It uses natural means, including vegetation and soil, to treat stormwater by filtering out contaminants being conveyed in the water. Bioswales lined with grass or other vegetation require channel velocities below 5 fps, in order to prevent vegetation growth and detrimental scouring of the channel. The practice of removing stormwater pollutants is generally known as a "best management practice," or BMP, which could be a requirement of the U.S. Environmental Protection Agency and the California Department of Environmental Protection.

5.4 Curve Number (CN) Determination

The USDA Natural Resources Conservation Service (NRCS) has established "curve numbers" to represent runoff characteristics. The curve numbers were established from empirical analyses of runoff from small catchments and hill slope sites monitored by USDA. This information was subsequently used in development of a hydrologic model that is widely used to estimate runoff flows and characteristics for watersheds. The major factors that determine curve numbers (CN) are the hydrologic soil group (HSG), cover type, treatment, hydrologic condition, and antecedent runoff condition. Another factor considered is whether impervious areas outlet directly to the drainage system (connected) or whether the flow spreads over pervious areas before entering the drainage system (unconnected).

When a drainage area has more than one land use or cover type, a common approach is to develop a composite curve number to be used in the analysis. By using a weighted method it is possible to develop a composite curve number that is representative of the different land uses or cover types. When using this approach, the analysis does not take into account the location of the specific land uses, but sees the drainage area as a uniform land use represented by the composite curve number. For the hydrologic analyses presented in this report, a composite curve number was developed for pervious areas using a weighted average for cover type (e.g., woodland versus

forest). Appendix C shows the input parameters used in the hydrology modelling, including the type of cover material selected and associated percentages based on drainage area.

5.5 Detention Basins

Detention basins are a common BMP for managing stormwater runoff. They are used to temporarily detain sediment-laden stormwater under quiescent conditions, allowing sediment to settle out before the runoff is released.

Detention basins, when properly designed and maintained, trap a significant amount of the sediment that flows into them. However, traditional basins do not remove all inflowing sediment. Therefore, they should be used in conjunction with erosion control practices (i.e., temporary seeding, mulching, diversion dikes, etc.) to reduce the amount of sediment flowing into the basin. According to the California Stormwater Quality Association (CASQA, 2003):

“When designing a sediment basin, designers should evaluate the site constraints that could affect the efficiency of the basin. Some of these constraints include: the relationship between basin capacity, anticipated sediment load, and freeboard, available footprint for the basin, maintenance frequency and access, and hydraulic capacity and efficiency of the outlet structure. Sediment basins should be designed to maximize sediment removal and to consider sediment load retained by the basin as it affects basin performance.”

The CASQA sets the following general considerations and requirements for detention basin design and siting as:

1. Basins shall be located: 1) by excavating a suitable area or where a low embankment can be constructed across a swale, 2) where post-construction (permanent) detention basins will be constructed, 3) where failure would not cause loss of life or property damage, 4) where the basins can be maintained on a year-round basis to provide access for maintenance, including sediment removal and sediment stockpiling in a protected area, and to maintain the basin to provide the required capacity.
2. Proper hydraulic design of the outlet is critical to achieving the desired performance of the basin. The outlet should be designed to drain the basin within 24 to 96 hours (also referred to as “drawdown time”). The 24-hour limit is specified to provide adequate settling time; the 96-hour limit is specified to mitigate vector control concerns.
3. Confirmation of the basin performance can be evaluated by routing the design storm through the basin based on the basin volume (stage-storage curve) and the outlet design (stage-discharge curve based on the orifice configuration or equivalent outlet design).
4. Sediment basins, regardless of size and storage volume, shall include features to accommodate overflow or bypass flows that exceed the design storm event.
5. The total depth of the sediment basin should include the depth required for sediment storage, depth required for settling zone and freeboard of at least 1-foot or as regulated by local flood control agency for a flood event.
6. The basin alignment should be designed such that the length of the basin is more than twice the width of the basin.
7. Construct an emergency spillway to accommodate flows not carried by the principal spillway. Spillway shall consist of an open channel over undisturbed material or constructed of non-erodible riprap.

8. Spillway control section, which is a level portion of the spillway channel at the highest elevation in the channel, shall be a minimum of 20 feet in length.
9. A forebay, constructed upstream of the basin may be provided to remove debris and larger particles.
10. Basin inlets shall be located to maximize travel distance to the drain outlet.
11. Rock or vegetation shall be used to protect the basin inlet and slopes against erosion.
12. The outflow from the basins shall be provided with outlet protection to prevent erosion and scouring of the embankment and channel.

5.5.1 Detention Basin Analysis

The Erosion and Sediment Control Field Manual (*Field Manual*) published by the RWQCB outlines the preliminary steps in determining the required volume of a sediment basin given increases in peak runoff rates (RWQCB, 2002). The Field Manual recommends the use of the Rational Method (Equation 1) for determining the required volume of a sediment basin:

$$Q = CiA \quad \text{Equation 1}$$

Where:

- Q = Peak basin influent flow rate (cfs);
- C = Runoff coefficient (unitless);
- i = Peak rainfall intensity for the 10-year/6-hour rain event (in/hr);
and
- A = Area draining into the sediment basin (acres).

The underlying assumption of the Rational Method is that a steady, uniform rainfall rate will produce maximum runoff when all parts of a watershed are contributing to the point of concentration outflow, a condition that is met after the time of concentration t_c has elapsed.

The roughness coefficients were determined from the Caltrans Highway Design Manual for undeveloped and developed areas using Figures 819.2A and 819.2B, respectively. For undeveloped areas, the roughness coefficient was determined from Table 1 below.

Table 1. Runoff Coefficients for Undeveloped Areas

| Type | Description | C value |
|-------------------|---|---------|
| Rough | Relatively flat land with average slopes of 0 to 5% | 0.14 |
| Soil Infiltration | Slow to take up water, clay or shallow loam soils of low infiltration capacity, imperfectly or poorly drained | 0.12 |
| Vegetal Cover | Good to excellent about 90% of the drainage area in good grassland, woodland or equivalent cover. | 0.06 |

| Type | Description | C value |
|----------------------------|--|---------|
| Surface Drainage | Low; well defined system of small drainage ways; no ponds or marshes | 0.1 |
| Undeveloped C Value | | 0.42 |

The roughness coefficient for developed areas was assumed to be 0.95, for pavement and roofs. To determine a roughness coefficient for post-development, a weighted average was used to determine a composite roughness coefficient. Table 2 shows the amount of area for undeveloped and developed areas and the corresponding composite roughness coefficients used for this analysis.

Table 2. Composite Roughness Coefficients

| Type | Basin 1 | | Basin 2 | |
|-----------------------|-----------------|------------------|-----------------|------------------|
| | Pre-Development | Post-Development | Pre-Development | Post-Development |
| Undeveloped Area (ac) | 7.7 | 5.6 | 9.3 | 7.7 |
| Developed Area (ac) | 0 | 2.1 | 0 | 1.6 |
| Composite C | 0.42 | 0.56 | 0.42 | 0.51 |

5.5.2 Time of Concentration

Time of concentration (t_c) is defined as the time required, with uniform rain, for 100 percent of a tract of land to contribute to the direct runoff at the outlet (Viessman, 1995). Runoff is assumed to reach maximum when the rainfall intensity lasts as long as t_c . The time of concentration for each basin was found by using the Kiprich equation (Equation 2):

$$t_c = 0.0078L^{0.77} S^{-0.385} \quad \text{Equation 2}$$

Where:

- t_c = Time of concentration (min.)
- L = Length of channel from headwater to outlet (ft.)
- S = Average watershed slope (ft/ft)

5.5.3 Detention Basin Sizing

The runoff coefficient is assumed constant during a storm event. The California Stormwater BMP Handbook references using the 10-year design storm Intensity Duration Frequency (IDF) curve and the time of concentration from each individual basin to determine the rate of rainfall for each basin. Once the flow is calculated using the above equation, the surface area of the pond can be determined using Equation 3 and assuming a minimum 2-foot depth:

$$A = (1.2 * Q) / V_s \quad \text{Equation 3}$$

Where:

- A = Minimum surface area for trapping soil particles of a certain size (ft²);
- Q = Peak runoff rate calculated from Equation #1 above (cfs);
- V_s = Settling velocity of design particles (ft/sec); and
- 1.2 = Factor of safety recommended by USEPA to account for the reduction in basin efficiency caused due to turbulence and other non-ideal conditions.

The design particle size should be the smallest soil grain size determined by wet sieve analysis, or the fine silt sized (0.0004 in) particle, and the V_s used should be 100 percent of the calculated settling velocity.

The sizing basin method is dependent on the outlet structure design or the total basin length with an appropriate outlet. For this analysis, the outlet structure is assumed to control the flow duration in the basin. Therefore, the basin length should be a minimum of twice the basin width; the depth should not be less than 3 feet nor greater than 5 feet for safety reasons and for maximum efficiency (2 feet of sediment storage, 2 feet of capacity).

The settling velocities of the particles are summarized in the following table:

Table 3. Settling Velocities for various Particles Sizes (CRWQCA, 2002)

| Particle Size (mm) | Particle Description | Settling Velocity (ft/sec) |
|--------------------|----------------------|----------------------------|
| 0.5 | Coarse sand | 0.19 |
| 0.2 | Medium sand | 0.067 |
| 0.1 | Fine sand | 0.023 |
| 0.05 | Coarse silt | 0.0062 |
| 0.02 | Medium silt | 0.00096 |
| 0.01 | Fine silt | 0.00024 |
| 0.005 | Clay | 0.00006 |

In order to calculate an estimated sediment pond volume, a particle size of 0.02 mm was selected for the project area as a representative particle size for the soil types within the project area. The potential particle sizes presented for each soil type vary not only across the surface of the basins, but also in the vertical stratum of the soil layers.

To determine the geometry of the detention basin the following assumptions were applied:

1. Detention basin is trapezoidal in shape;
2. Side slopes of 2:1 (horizontal: vertical);
3. Maximum water height less than 5 feet;
4. Basin length is twice the width; and
5. Minimum freeboard of 1-foot.

It should be noted, the detention basin analysis presented in this report does not consider the outlet structure or the other drainage features (e.g., emergency spill way) that would be necessary for a

detention basin. While this level of study is beyond the detail and scope of this analysis, the final design of the project will include these components.

5.5.4 Hydrologic Soil Groups

Infiltration rates of soils vary widely and are affected by subsurface permeability as well as surface intake rates. Soils are classified into Hydrologic Soil Groups (HSG's) to indicate the minimum rate of infiltration obtained for bare soil after prolonged wetting. The HSG's, which are classified as A, B, C, and D, are one element used in determining runoff curve numbers. The infiltration rate is assumed to be the rate at which water enters the soil at the soil surface and is controlled by surface conditions. HSG also indicates the rate at which water moves through the soil column, known as the transmission rate. This rate is considered to be controlled by the soil profile.

The soils within the project vicinity have been determined to be predominately characterized by hydrologic soil group D. The Soil Conservation Service defines HSG D as:

“Group D - Soils in this group have a high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted. Group D soils typically have a greater than 40 percent clay, less than 50 percent sand, and have clayey textures. In some areas, they also have high shrink-swell potential. All soils with a depth to a water impermeable layer less than 20 inches and all soils with a water table within 24 inches of the surface are in this group, although some may have a dual classification if they can be adequately drained.”

Most urban areas are only partially covered by impervious surfaces; therefore the soil remains an important factor in runoff estimates. Urbanization has a greater effect on runoff in watersheds with soils having high infiltration rates (sand and gravels) than in watersheds predominately of silts and clays, which generally have low infiltration rates (USDA TR-55, 1986).

5.6 Soil Hydrologic Conditions and Ground Cover

5.6.1 Ground Cover

In addition to the general HSG classification, subcategories are established to reflect ground cover characteristics within each basin. Two types of ground cover were noted to be predominate within the study area: Woods/Grass and Forest. All non-urban areas considered were judged to be in “Good Condition.” With respect to SCS guidelines ground cover classified as “Good” indicates it is protected from grazing and litter, and brush adequately covers the soil.

Some applications of the SCS hydrologic model include allowances to adjust the selected Curve Numbers to reflect the dampening effect of high quality vegetative cover. In completing this analysis the published Curve Numbers were not adjusted as this would tend to decrease the estimated runoff from the site.

Appendix C shows the input parameters for the hydrologic calculations, including values pertaining to soil characteristics, overland or channel flow, and times of concentration applied to the basins.

5.7 Manning's N Values

The Manning's equation was applied to calculate flow, velocities and capacities for hydraulic channels. The Manning's N value used for the channel conveyance analyses is 0.030, which is considered representative of moderate vegetation in the channels.

5.8 Rainfall Data

Table 1 shows the amount of precipitation used in the 2, 10, 25, 50 and 100-year/24-hour design storm events. Appendix B presents the precipitation data for a range of design storm events for the project site. The data represented historic precipitation records from the NOAA Fort Bragg weather station.

Table 4. Design Storm Precipitation

| Design Storm | Precipitation (inches) |
|------------------|------------------------|
| 2-year/24-hour | 3.75 |
| 10-year/24-hour | 5.65 |
| 25-year/24-hour | 6.69 |
| 50-year/24-hour | 7.43 |
| 100-year/24-hour | 8.14 |

It should be noted that the precipitation from the 10-year/24-hour storm event used for the detention basin analysis (Rational Method) was 3.1 (in/hr). This was taken from the Intensity Frequency Duration curve for Fort Bragg area assuming a time of concentration of five minutes.

6. Hydrology Results

6.1 Overland Flow Analysis

The SBUH method was used to predict stormwater runoff volumes and peak flow rates for the 2, 10, 25, 50, and 100-year/24-hour design storms for pre and post development scenarios. Appendix E shows a comparison of the calculated stormwater discharges (hydrographs) for each of the design storms under existing site conditions (pre-development), and after development (post-development) has been established.

The hydrology results show that pre-development conditions produce the least amount of stormwater runoff as compared to the post-development scenario, which is expected due to the increase in impermeable area in the post-development scenario. Table 5 and 6 show the results for the two drainage areas for pre and post development scenarios, respectively. Table 7 shows the percent increase in flowrates as a result of development.

Table 5. Pre-Development Flowrates

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|---------|----------------|-----------------|-----------------|-----------------|------------------|
| Basin 1 | 3.8 | 8.3 | 10.9 | 12.8 | 14.7 |
| Basin 2 | 4.6 | 10.0 | 13.2 | 15.5 | 17.8 |

Table 6. Post-Development Flowrates

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|---------|----------------|-----------------|-----------------|-----------------|------------------|
| Basin 1 | 5.2 | 9.7 | 12.4 | 14.3 | 16.1 |
| Basin 2 | 5.5 | 11.0 | 14.1 | 16.4 | 18.7 |

Table 7. Percent Increase in Flowrates after Post-Development

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|---------|----------------|-----------------|-----------------|-----------------|------------------|
| Basin 1 | 25.9% | 14.6% | 11.6% | 10.0% | 8.8% |
| Basin 2 | 15.7% | 8.3% | 6.4% | 5.5% | 4.9% |

As can be seen from the above tables, post-development conditions produce more runoff than pre-development conditions due to the increase in impermeable area. The percent difference between pre and post-development conditions decreases as the duration of the design storm events increase.

6.2 Channel Analysis Results

Based on the Slope Conveyance method, water surface depths in the representative channel were predicted to be less than 1-foot. The increase in the quantity of runoff corresponds to an increase in the flow of water through channels and swales during storm events. See Appendix E for a summary of the water surface calculations.

Channel velocities were calculated to be less than 3 feet per second (fps) under all storm conditions analysed. Although the assumed channel geometry does not reflect the entire reach of the swales and channels that shall be used on the site, it does provide a rough approximation of the typical cross sectional area associated with flow conditions. Appendix E also presents a summary of the channel velocity calculations.

6.3 Detention Basin Analysis

Two detention basins were evaluated for this analysis, assuming that all the stormwater collected in each of the drainage areas would be managed by an associated detention basin. Table 8 shows the results of the analysis, with peak flowrates and required volumes of each detention basin.

Table 8. Detention Basin Design Flowrates and Required Volumes

| Basin | Rainfall Intensity (in/hr) | Runoff Coefficient | Area (acres) | Q ₁₀ (cfs) | Area of Basin (ft ²) | Volume of Basin (ac-ft) |
|---------|----------------------------|--------------------|--------------|-----------------------|----------------------------------|-------------------------|
| Basin 1 | 3.10 | 0.56 | 7.7 | 13.5 | 16,845 | 0.77 |
| Basin 2 | 3.10 | 0.51 | 9.3 | 14.7 | 18,422 | 0.85 |

The largest storage volume required is for Detention Basin 2, with 0.85 acre-feet. Based on the assumptions presented in Section 5.5.3 of this Report, the required area for Basin 2 is approximately 50 by 129 feet. Basin 1 requires a smaller volume of 0.77 acre-feet, but for this analysis is assumed to be the same size of Basin 2.

7. Conclusions

The purpose of this study was to determine the hydrologic characteristics associated with the proposed transfer station project. For the purpose of this hydrologic analysis, two conditions of the project (pre and post-development) were analysed with the intent to address current regulatory guidelines associated with surface water management. The methodologies discussed in this Hydrologic Study follow acceptable standards intended to comply with local, state, and federal guidelines. The parameters used may have to be altered during a subsequent design phase and as the project evolves to accommodate current site conditions.

The results from the hydrologic analyses conducted demonstrate that the proposed transfer station project would increase the stormwater runoff rate or volume as compared to pre-development conditions. However, a properly designed detention basin and outlet structure would mitigate this increase in runoff by discharging stormwater at the pre-development flowrates to the existing drainages. Detention basins are an effective means for managing and treating stormwater and are a necessary BMP to facilitate NPDES compliance.

It should be noted that the hydrologic analysis presented in this report assumes that the proposed detention basins will collect all of the rainwater from its associated drainage area. This is a conservative assumption given that a potentially large portion of the rainwater will naturally sheet flow through the forest and off the site, not contributing to the required storage volume for the detention basins.

8. References

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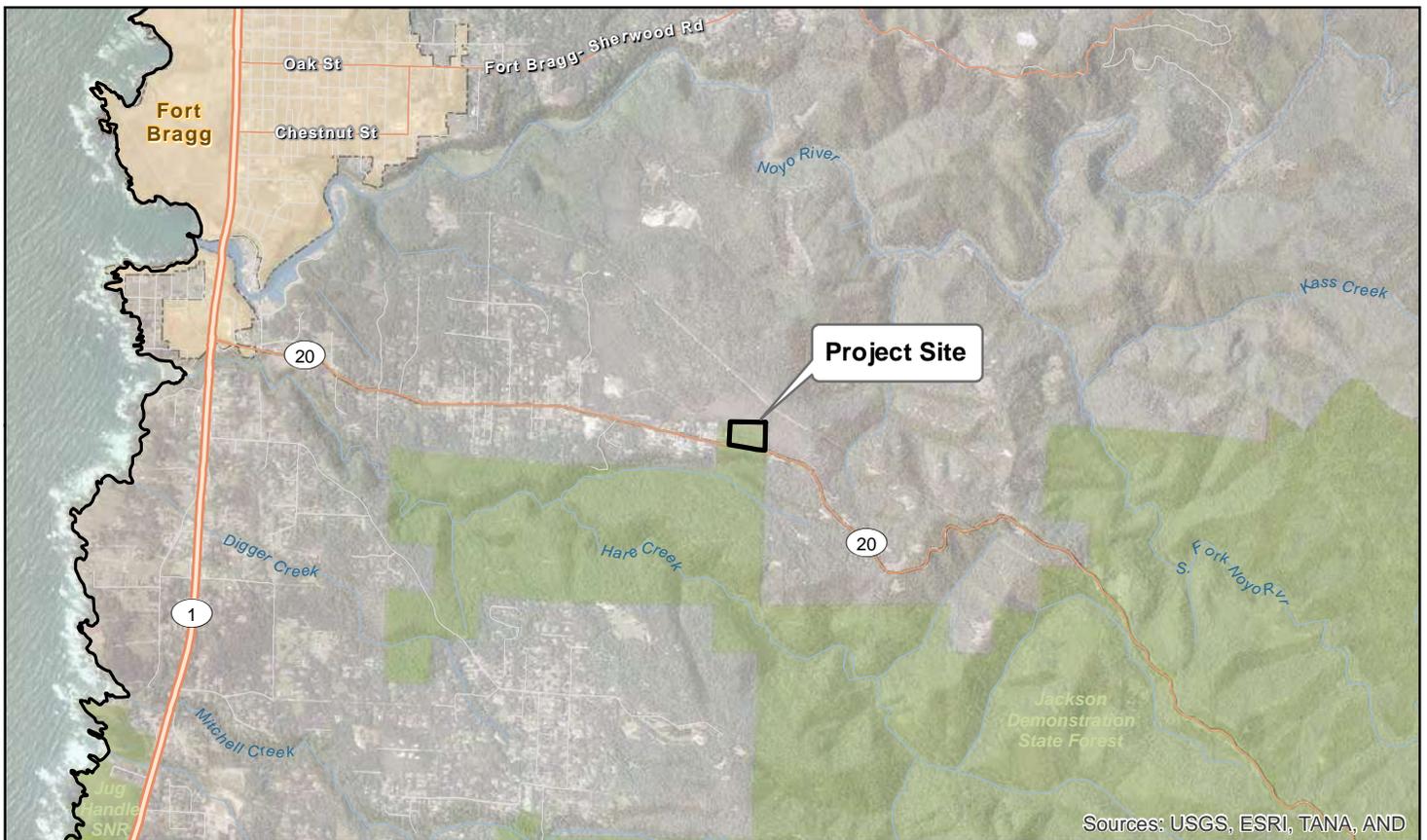
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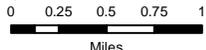
Appendices

Appendix A – Location Maps and Figures



-  Project Site
-  Major Highways
-  City Limits
-  Highways
-  Parks/Open Space
-  Major Roads
-  Rivers/Streams

Paper Size 8.5" x 11" (ANSI A)



Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983

Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

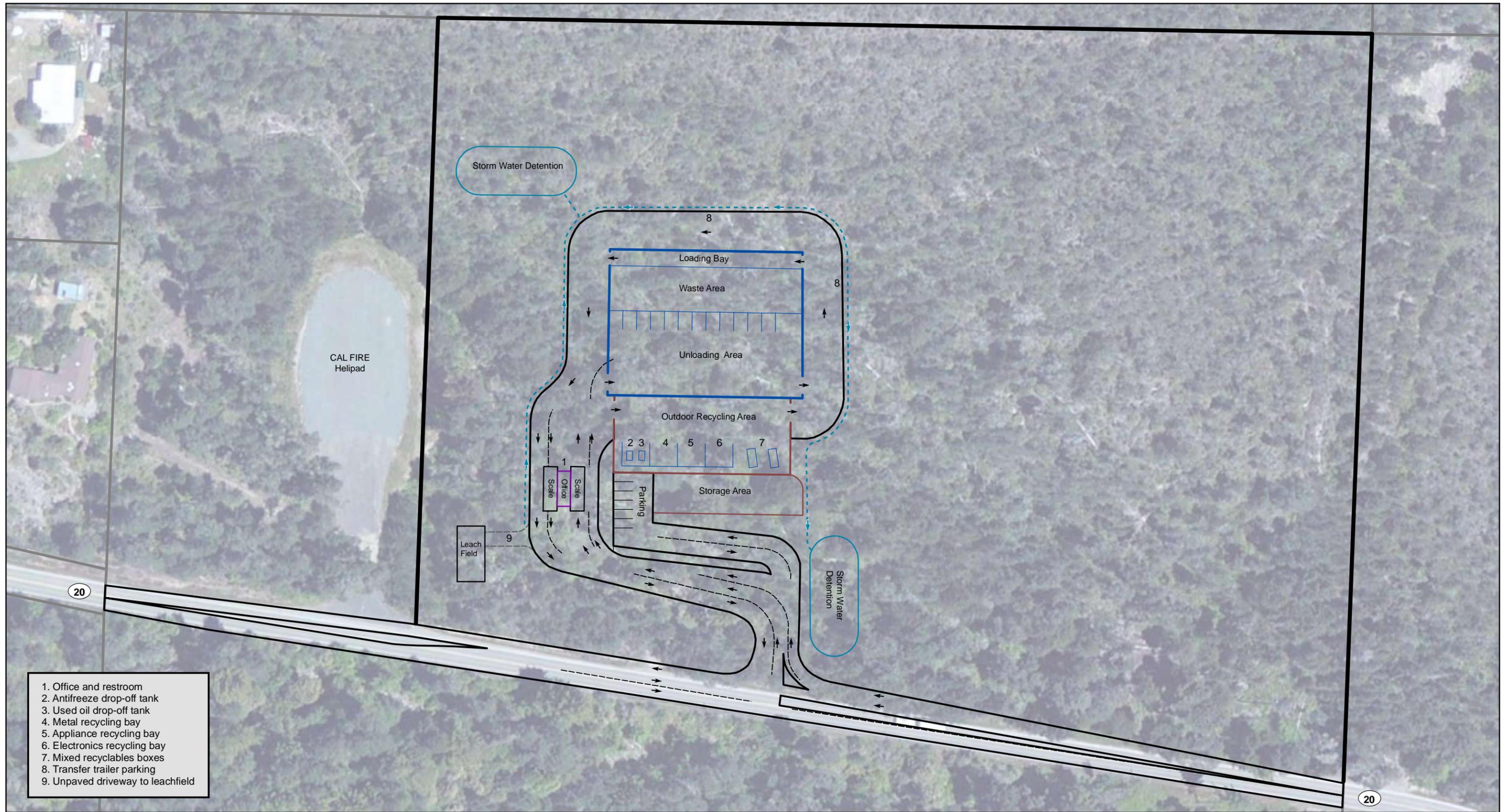


Mendocino Solid Waste Management Authority
Central Coast Transfer Station EIR

Job Number | 8411065
Revision | A
Date | 07 Jul 2014

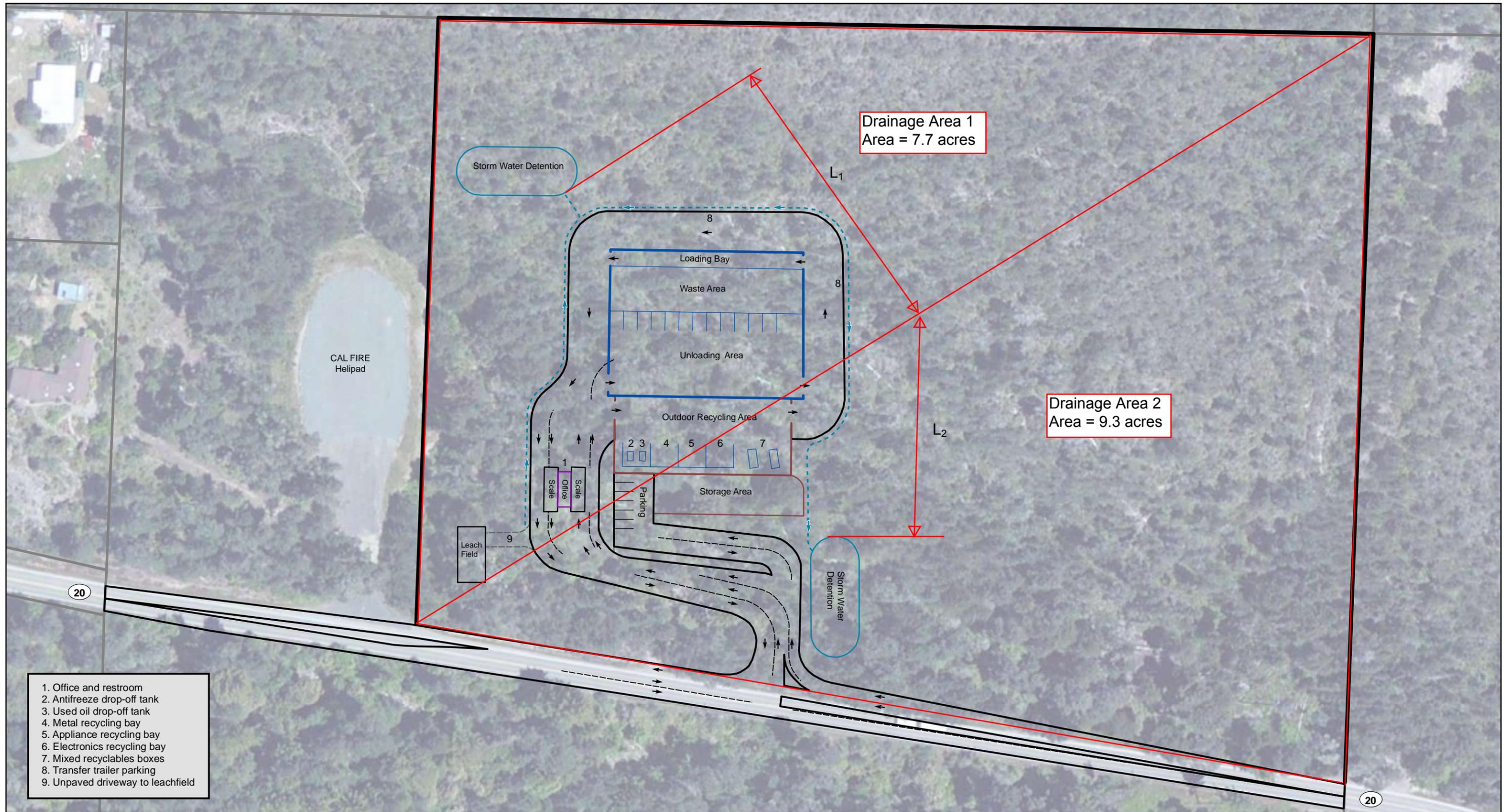
Vicinity Map and Project Location

Figure 1

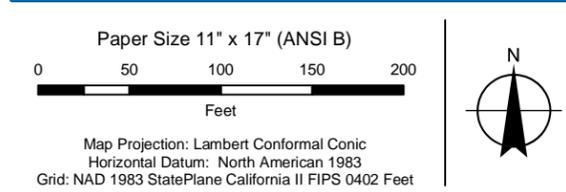


1. Office and restroom
2. Antifreeze drop-off tank
3. Used oil drop-off tank
4. Metal recycling bay
5. Appliance recycling bay
6. Electronics recycling bay
7. Mixed recyclables boxes
8. Transfer trailer parking
9. Unpaved driveway to leachfield

| | | | | | | |
|---|--|---|---|--|--|---|
| <p>Paper Size 11" x 17" (ANSI B)</p> <p>0 50 100 150 200 Feet</p> <p>Map Projection: Lambert Conformal Conic Horizontal Datum: North American 1983 Grid: NAD 1983 StatePlane California II FIPS 0402 Feet</p> | | <p> 17 Acre Portion of APN 019-150-05</p> <p> Parcels</p> | <p> Bio-swale</p> <p> Direction of Travel</p> | | <p>Mendocino Solid Waste Management Authority Central Coast Transfer Station EIR</p> | <p>Job Number \| 8411065 Revision \| A Date \| 30 Jul 2014</p> |
| <p>Site Plan</p> | | | | | <p>Figure 2</p> | |



- 1. Office and restroom
- 2. Antifreeze drop-off tank
- 3. Used oil drop-off tank
- 4. Metal recycling bay
- 5. Appliance recycling bay
- 6. Electronics recycling bay
- 7. Mixed recyclables boxes
- 8. Transfer trailer parking
- 9. Unpaved driveway to leachfield



Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
 Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

- 17 Acre Portion of APN 019-150-05
- Parcels
- Bio-swale
- Direction of Travel



Mendocino Solid Waste Management Authority
 Surface Water Hydrologic Study

Job Number | 8411065
 Revision | A
 Date | 30 Jul 2014

Drainage Areas

Figure 3

G:\0016201 MendocinoSolidWasteMgmtAuthority\8411065 MSWMA TransferStationEIR\08-GIS\Maps\Figures\F2_SitePlan.mxd
 © 2012. While every care has been taken to prepare this map, GHD (and DATA CUSTODIAN) make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.
 Data source: Data Custodian, Data Set Name/Title, Version/Date. Created by:jrousseau

Appendix B – Precipitation Data



- General Info
 - Homepage
 - Current Projects
 - FAQ
 - Glossary

- Precipitation Frequency (PF)
 - PF Data Server
 - PF in GIS Format
 - PF Maps
 - Temporal Distr.
 - Time Series Data
 - PFDS Perform.
 - PF Documents

- Probable Maximum Precipitation (PMP)
 - PMP Documents

- Miscellaneous
 - Publications
 - AEP Storm Analysis Record
 - Precipitation

- Contact Us
 - Inquiries
 - List-server



NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES: CA

DATA DESCRIPTION

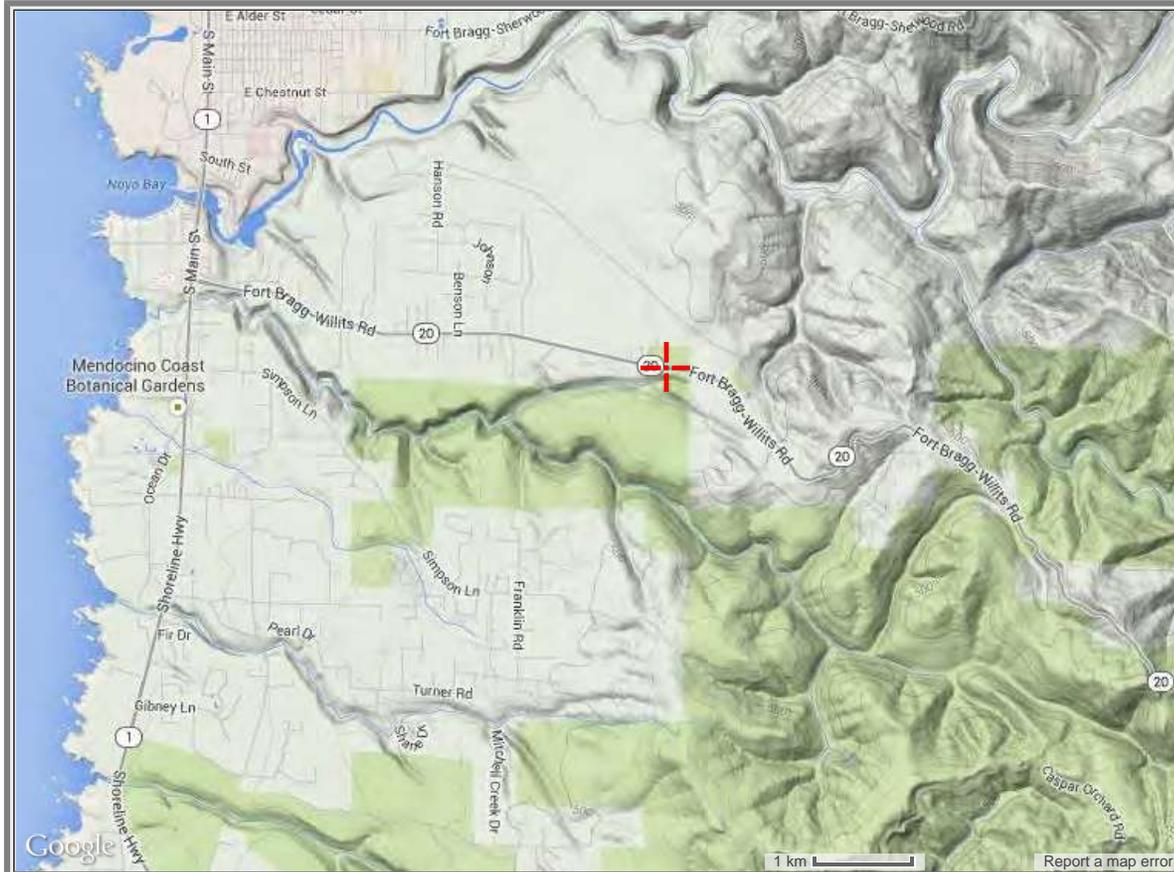
Data type: precipitation depth Units: english Time series type: partial duration

SELECT LOCATION

1. Manually:

- a) Enter location (decimal degrees, use "-" for S and W): latitude: longitude:
- b) Select station ([click here for a list of stations used in frequency analysis for CA](#)): select station

2. Use map:



- a) Select location (move crosshair or double click)
- b) Click on station icon (show stations on map)

LOCATION INFORMATION:
 Name: Fort Bragg, California, US*
 Latitude: 39.4126°
 Longitude: -123.7548°
 Elevation: 408 ft*

* source: Google Maps

POINT PRECIPITATION FREQUENCY (PF) ESTIMATES

WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 6, Version 2

PF tabular

PF graphical

Supplementary information

 Print Page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)¹

| Duration | Average recurrence interval (years) | | | | | | | | | |
|----------|-------------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-----------------------|
| | 1 | 2 | 5 | 10 | 25 | 50 | 100 | 200 | 500 | 1000 |
| 5-min | 0.136 (0.120 0.155) | 0.198 (0.175 0.225) | 0.274 (0.242 0.314) | 0.334 (0.292 0.387) | 0.411 (0.345 0.496) | 0.468 (0.382 0.578) | 0.523 (0.415 0.666) | 0.578 (0.443 0.761) | 0.648 (0.473 0.897) | 0.700 (0.491 1.01) |
| 10-min | 0.194 (0.172 0.221) | 0.283 (0.251 0.323) | 0.393 (0.347 0.451) | 0.479 (0.418 0.554) | 0.590 (0.494 0.711) | 0.671 (0.548 0.829) | 0.750 (0.595 0.955) | 0.828 (0.635 1.09) | 0.929 (0.678 1.29) | 1.00 (0.703 1.45) |
| 15-min | 0.235 (0.208 0.268) | 0.342 (0.303 0.391) | 0.476 (0.420 0.545) | 0.579 (0.506 0.670) | 0.713 (0.598 0.859) | 0.811 (0.663 1.00) | 0.907 (0.719 1.15) | 1.00 (0.768 1.32) | 1.12 (0.820 1.56) | 1.21 (0.850 1.75) |
| 30-min | 0.322 (0.286 0.367) | 0.470 (0.416 0.536) | 0.653 (0.576 0.748) | 0.795 (0.694 0.919) | 0.978 (0.820 1.18) | 1.11 (0.909 1.38) | 1.24 (0.987 1.58) | 1.37 (1.05 1.81) | 1.54 (1.13 2.13) | 1.67 (1.17 2.40) |
| 60-min | 0.456 (0.404 0.519) | 0.664 (0.587 0.758) | 0.922 (0.813 1.06) | 1.12 (0.981 1.30) | 1.38 (1.16 1.67) | 1.57 (1.29 1.94) | 1.76 (1.39 2.24) | 1.94 (1.49 2.56) | 2.18 (1.59 3.02) | 2.35 (1.65 3.39) |
| 2-hr | 0.705 (0.624 0.803) | 0.939 (0.831 1.07) | 1.24 (1.09 1.42) | 1.48 (1.29 1.71) | 1.80 (1.51 2.17) | 2.04 (1.67 2.53) | 2.29 (1.81 2.91) | 2.53 (1.94 3.33) | 2.86 (2.09 3.96) | 3.11 (2.18 4.48) |
| 3-hr | 0.921 (0.816 1.05) | 1.19 (1.05 1.36) | 1.54 (1.36 1.76) | 1.82 (1.59 2.11) | 2.20 (1.84 2.65) | 2.49 (2.03 3.07) | 2.78 (2.20 3.54) | 3.07 (2.36 4.05) | 3.47 (2.53 4.81) | 3.78 (2.65 5.45) |
| 6-hr | 1.40 (1.24 1.59) | 1.75 (1.55 2.00) | 2.21 (1.95 2.54) | 2.58 (2.26 2.99) | 3.08 (2.58 3.71) | 3.46 (2.83 4.28) | 3.84 (3.05 4.89) | 4.23 (3.25 5.58) | 4.76 (3.47 6.59) | 5.17 (3.62 7.45) |
| 12-hr | 2.02 (1.79 2.30) | 2.59 (2.29 2.96) | 3.30 (2.91 3.78) | 3.85 (3.36 4.46) | 4.56 (3.82 5.50) | 5.08 (4.15 6.28) | 5.59 (4.43 7.12) | 6.09 (4.67 8.02) | 6.74 (4.92 9.33) | 7.23 (5.06 10.4) |
| 24-hr | 2.85 (2.56 3.24) | 3.75 (3.36 4.26) | 4.83 (4.32 5.51) | 5.65 (5.02 6.50) | 6.69 (5.75 7.94) | 7.43 (6.26 9.00) | 8.14 (6.70 10.1) | 8.82 (7.06 11.2) | 9.69 (7.45 12.9) | 10.3 (7.68 14.2) |
| 2-day | 3.81 (3.43 4.33) | 4.87 (4.37 5.54) | 6.18 (5.53 7.04) | 7.18 (6.38 8.25) | 8.47 (7.28 10.0) | 9.40 (7.92 11.4) | 10.3 (8.48 12.8) | 11.2 (8.96 14.3) | 12.3 (9.49 16.4) | 13.2 (9.81 18.1) |
| 3-day | 4.53 (4.07 5.15) | 5.70 (5.11 6.48) | 7.15 (6.40 8.15) | 8.28 (7.35 9.51) | 9.75 (8.38 11.6) | 10.8 (9.12 13.1) | 11.9 (9.78 14.7) | 12.9 (10.4 16.5) | 14.3 (11.0 19.0) | 15.3 (11.4 21.0) |
| 4-day | 5.15 (4.62 5.84) | 6.42 (5.76 7.30) | 8.01 (7.17 9.13) | 9.26 (8.22 10.6) | 10.9 (9.36 12.9) | 12.1 (10.2 14.6) | 13.3 (10.9 16.5) | 14.5 (11.6 18.4) | 16.0 (12.3 21.2) | 17.1 (12.8 23.5) |
| 7-day | 6.49 (5.84 7.38) | 8.07 (7.24 9.18) | 10.0 (8.98 11.4) | 11.6 (10.3 13.3) | 13.6 (11.7 16.1) | 15.0 (12.7 18.2) | 16.5 (13.6 20.4) | 17.9 (14.3 22.8) | 19.8 (15.2 26.2) | 21.2 (15.8 29.1) |
| 10-day | 7.55 (6.78 8.57) | 9.40 (8.43 10.7) | 11.7 (10.5 13.3) | 13.5 (12.0 15.5) | 15.8 (13.6 18.7) | 17.5 (14.7 21.1) | 19.1 (15.7 23.7) | 20.7 (16.6 26.4) | 22.8 (17.6 30.3) | 24.4 (18.1 33.5) |
| 20-day | 10.2 (9.18 11.6) | 12.8 (11.5 14.6) | 16.0 (14.3 18.3) | 18.5 (16.4 21.2) | 21.6 (18.6 25.6) | 23.8 (20.1 28.8) | 26.0 (21.4 32.2) | 28.1 (22.5 35.8) | 30.8 (23.7 40.8) | 32.7 (24.3 44.9) |
| 30-day | 12.5 (11.3 14.2) | 15.8 (14.2 18.0) | 19.8 (17.8 22.6) | 22.9 (20.3 26.3) | 26.7 (22.9 31.7) | 29.4 (24.8 35.6) | 32.0 (26.3 39.6) | 34.5 (27.6 43.9) | 37.6 (28.9 49.9) | 39.9 (29.7 54.7) |
| 45-day | 15.7 (14.1 17.9) | 20.0 (17.9 22.7) | 25.1 (22.5 28.6) | 28.9 (25.7 33.2) | 33.6 (28.9 39.9) | 36.9 (31.1 44.7) | 40.1 (33.0 49.7) | 43.0 (34.5 54.8) | 46.8 (36.0 62.0) | 49.4 (36.8 67.8) |
| 60-day | 18.6 (16.7 21.1) | 23.7 (21.2 26.9) | 29.7 (26.6 33.9) | 34.2 (30.4 39.3) | 39.7 (34.1 47.1) | 43.5 (36.7 52.7) | 47.1 (38.8 58.4) | 50.5 (40.4 64.3) | 54.7 (42.0 72.5) | 57.6 (42.9 79.1) |

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

Estimates from the table in csv format: precipitation frequency estimates

Main Link Categories:

[Home](#) | [OHD](#)

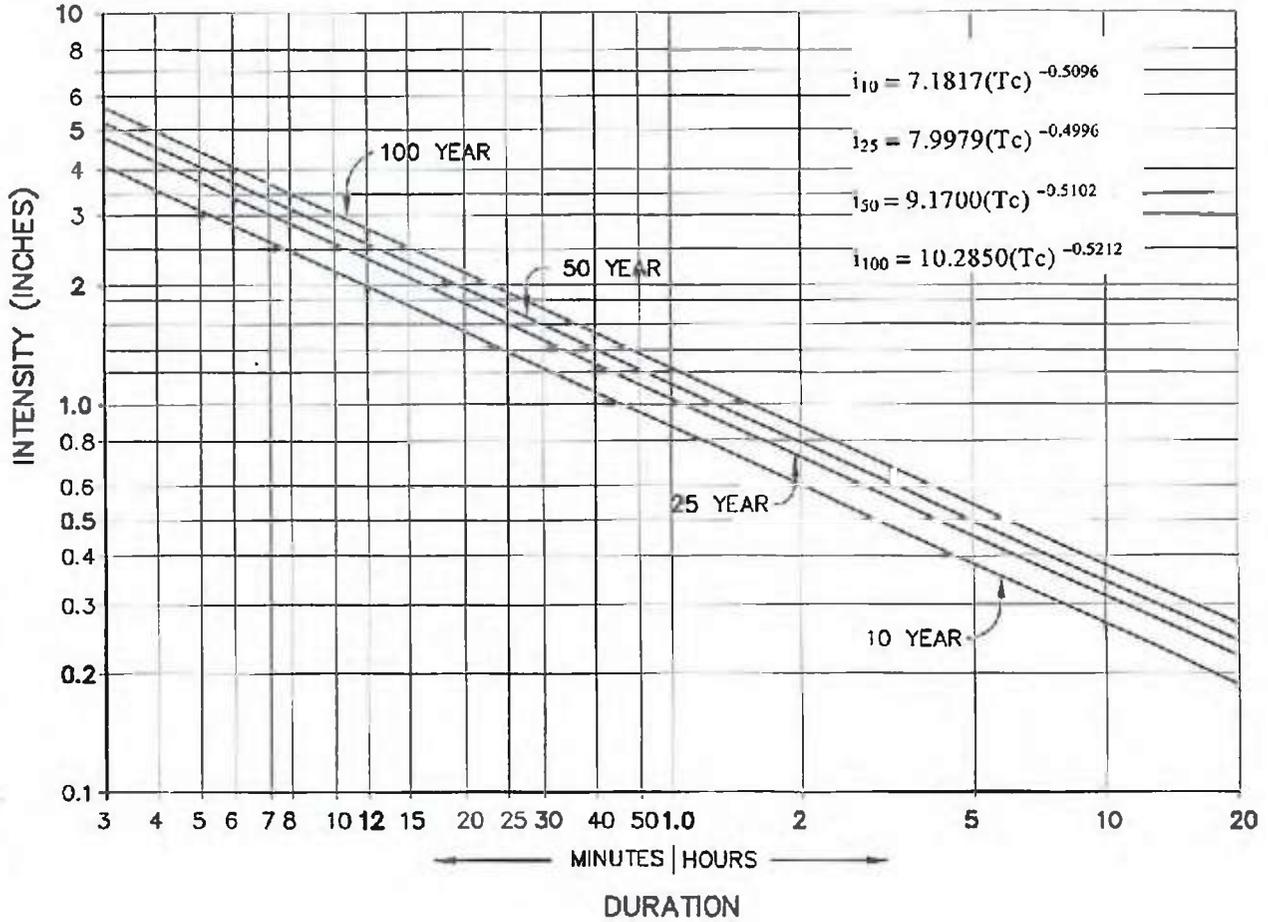
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National Weather Service
Office of Hydrologic Development
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Appendix C – Modeling Input Parameters

INTENSITY-DURATION-FREQUENCY CHART



| STATION DATA | |
|----------------|-----------|
| LONGITUDE: | 123.807 |
| LATITUDE: | 39.446 |
| ALTITUDE: | 80 |
| YEARS OF DATA: | 1940-1985 |



INTENSITY/DURATION/FREQUENCY CHART FORT BRAGG

MENDOT
STD. NO.
D11D

Figure 819.2A
Runoff Coefficients for Undeveloped Areas
Watershed Types

| | Extreme | High | Normal | Low |
|--------------------------|--|---|---|---|
| Relief | .28 -.35 Steep, rugged terrain with average slopes above 30% | .20 -.28 Hilly, with average slopes of 10 to 30% | .14 -.20 Rolling, with average slopes of 5 to 10% | .08 -.14 Relatively flat land, with average slopes of 0 to 5% |
| Soil Infiltration | .12 -.16 No effective soil cover, either rock or thin soil mantle of negligible infiltration capacity | .08 -.12 Slow to take up water, clay or shallow loam soils of low infiltration capacity, imperfectly or poorly drained | .06 -.08 Normal; well drained light or medium textured soils, sandy loams, silt and silt loams | .04 -.06 High; deep sand or other soil that takes up water readily, very light well drained soils |
| Vegetal Cover | .12 -.16 No effective plant cover, bare or very sparse cover | .08 -.12 Poor to fair; clean cultivation crops, or poor natural cover, less than 20% of drainage area over good cover | .06 -.08 Fair to good; about 50% of area in good grassland or woodland, not more than 50% of area in cultivated crops | .04 -.06 Good to excellent; about 90% of drainage area in good grassland, woodland or equivalent cover |
| Surface Storage | .10 -.12 Negligible surface depression few and shallow; drainageways steep and small, no marshes | .08 -.10 Low; well defined system of small drainageways; no ponds or marshes | .06 -.08 Normal; considerable surface depression storage; lakes and pond marshes | .04 -.06 High; surface storage, high; drainage system not sharply defined; large flood plain storage or large number of ponds or marshes |
| Given | An undeveloped watershed consisting of; 1) rolling terrain with average slopes of 5%, 2) clay type soils, 3) good grassland area, and 4) normal surface depressions. | | Solution: Relief 0.14 Soil Infiltration 0.08 Vegetal Cover 0.04 Surface Storage <u>0.06</u> C= 0.32 | |
| Find | The runoff coefficient, C, for the above watershed. | | | |

Table 819.2B

Runoff Coefficients for Developed Areas

| Type of Drainage Area | Runoff Coefficient |
|---------------------------|--------------------|
| Business: | |
| Downtown areas | 0.70 - 0.95 |
| Neighborhood areas | 0.50 - 0.70 |
| Residential: | |
| Single-family areas | 0.30 - 0.50 |
| Multi-units, detached | 0.40 - 0.60 |
| Multi-units, attached | 0.60 - 0.75 |
| Suburban | 0.25 - 0.40 |
| Apartment dwelling areas | 0.50 - 0.70 |
| Industrial: | |
| Light areas | 0.50 - 0.80 |
| Heavy areas | 0.60 - 0.90 |
| Parks, cemeteries: | 0.10 - 0.25 |
| Playgrounds: | 0.20 - 0.40 |
| Railroad yard areas: | 0.20 - 0.40 |
| Unimproved areas: | 0.10 - 0.30 |
| Lawns: | |
| Sandy soil, flat, 2% | 0.05 - 0.10 |
| Sandy soil, average, 2-7% | 0.10 - 0.15 |
| Sandy soil, steep, 7% | 0.15 - 0.20 |
| Heavy soil, flat, 2% | 0.13 - 0.17 |
| Heavy soil, average, 2-7% | 0.18 - 0.25 |
| Heavy soil, steep, 7% | 0.25 - 0.35 |
| Streets: | |
| Asphaltic | 0.70 - 0.95 |
| Concrete | 0.80 - 0.95 |
| Brick | 0.70 - 0.85 |
| Drives and walks | 0.75 - 0.85 |
| Roofs: | 0.75 - 0.95 |

The Regional Flood-Frequency equations are applicable only to sites within the flood-frequency regions for which they were derived and on streams with virtually natural flows. For example, the equations are not generally applicable to small basins on the floor of the Sacramento and San Joaquin Valleys as the annual peak data which are the basis for the regression analysis were obtained principally in the adjacent mountain and foothill areas. Likewise, the equations are not directly applicable to streams in urban areas affected substantially by urban development. In urban areas the equations may be used to estimate peak discharge values under natural conditions and then by use of the techniques described in the publication or HDS No. 2, adjust the discharge values to compensate for urbanization. Further limitations on the use of USGS Regional Flood-Frequency equations are:

| Region | Drainage Area (A) mi ² | Mean Annual Precip (P) in. | Altitude Index (H) 1000 ft. |
|---|--------------------------------------|-------------------------------|--------------------------------|
| ⁽¹⁾ North Coast | 0.2-3000 | 19-104 | 0.2-5.7 |
| Northeast | 0.2-25 | all | all |
| Sierra | 0.2-9000 | 7-85 | 0.1-9.7 |
| Central Coast | 0.2-4000 | 8-52 | 0.1-2.4 |
| South Coast | 0.2-600 | 7-40 | all |
| ⁽²⁾ South Lahontan- Colorado Desert | 0.2-90 | all | all |

Notes: Values shown in table have not been converted to metric system.

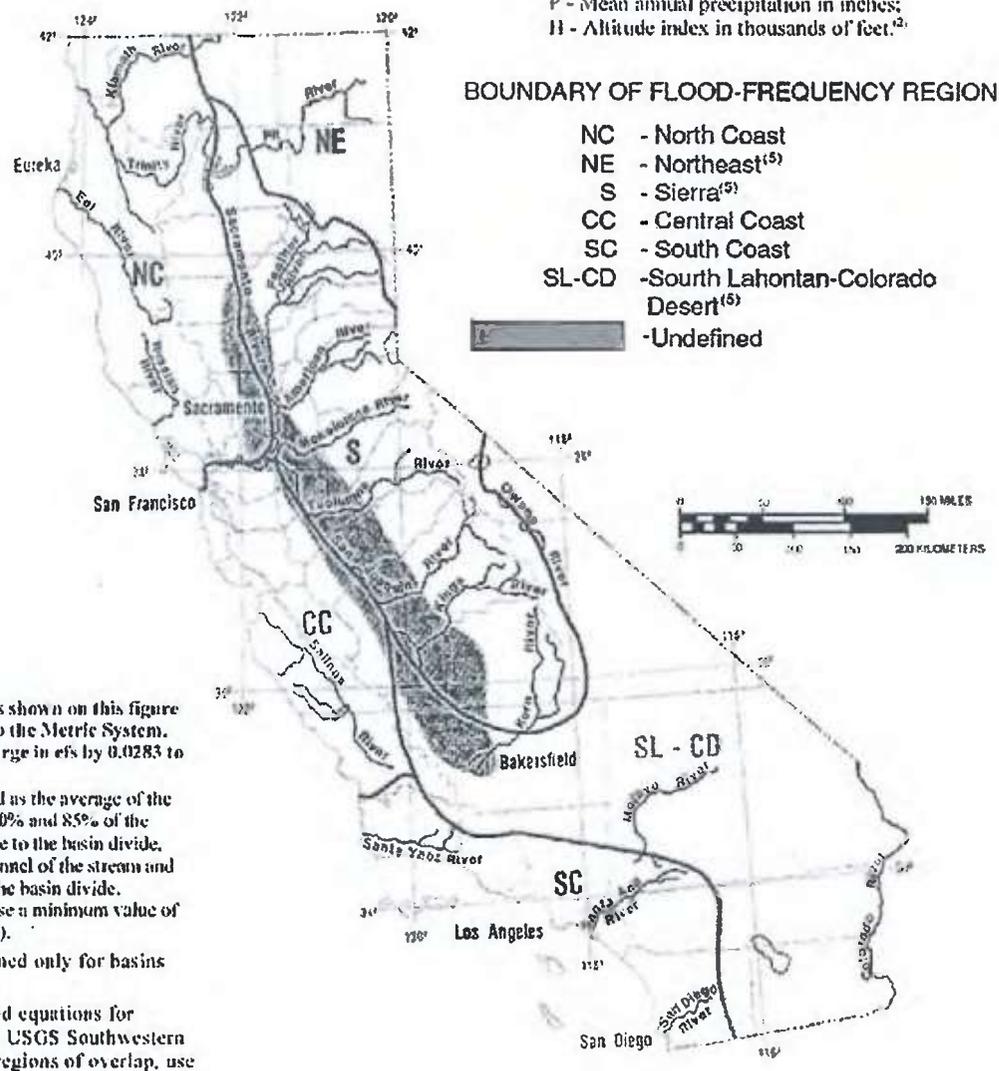
- (1) In the North Coast region, use a minimum value of 1 for altitude index (H)
- (2) Use upper limit of 25 square miles

A method for directly estimating design discharges for some gaged and ungaged streams is also provided in HDS No. 2. The method is applicable to streams on or nearby those for which study data are available.

Figure 819.2C
Regional Flood-Frequency Equations ⁽¹⁾

| | | | | | | | | | | | | | |
|---|-------|-------------------|-------------------|---------------------------------------|------------------|---------|-------------------|--|--------------------|------------------|---------|-------------------|-------------------|
| NORTH COAST REGION⁽⁵⁾ | | | | NORTHEAST REGION⁽⁵⁾ | | | | SOUTH LAHONTAN-COLORADO DESERT REGION⁽⁵⁾ | | | | | |
| Q ₂ | =3.52 | A ^{0.90} | p ^{0.89} | H ^{-0.47} | Q ₂ | =22 | A ^{0.40} | | | Q ₂ | =7.3 | A ^{0.30} | |
| Q ₅ | =5.04 | A ^{0.89} | p ^{0.91} | H ^{-0.36} | Q ₅ | =46 | A ^{0.45} | | | Q ₅ | =53.0 | A ^{0.44} | |
| Q ₁₀ | =6.21 | A ^{0.88} | p ^{0.93} | H ^{-0.27} | Q ₁₀ | =61 | A ^{0.48} | | | Q ₁₀ | =150 | A ^{0.53} | |
| Q ₂₅ | =7.64 | A ^{0.87} | p ^{0.94} | H ^{-0.17} | Q ₂₅ | =84 | A ^{0.54} | | | Q ₂₅ | =410.0 | A ^{0.63} | |
| Q ₅₀ | =8.57 | A ^{0.87} | p ^{0.96} | H ^{-0.08} | Q ₅₀ | =103 | A ^{0.57} | | | Q ₅₀ | =700.0 | A ^{0.68} | |
| Q ₁₀₀ | =9.23 | A ^{0.87} | p ^{0.97} | | Q ₁₀₀ | =125 | A ^{0.50} | | | Q ₁₀₀ | =1080.0 | A ^{0.71} | |
| SIERRA REGION | | | | CENTRAL COAST REGION | | | | SOUTH COAST REGION | | | | | |
| Q ₂ | =0.24 | A ^{0.88} | p ^{1.58} | H ^{0.80} | Q ₂ | =0.0061 | A ^{0.92} | p ^{2.54} | H ^{-1.10} | Q ₂ | =0.14 | A ^{0.72} | p ^{1.62} |
| Q ₅ | =1.20 | A ^{0.82} | p ^{1.37} | H ^{-0.61} | Q ₅ | =0.118 | A ^{0.91} | p ^{1.95} | H ^{-0.79} | Q ₅ | =0.40 | A ^{0.77} | p ^{1.69} |
| Q ₁₀ | =2.63 | A ^{0.80} | p ^{1.25} | H ^{-0.54} | Q ₁₀ | =0.583 | A ^{0.90} | p ^{1.61} | H ^{-0.64} | Q ₁₀ | =0.63 | A ^{0.79} | p ^{1.75} |
| Q ₂₅ | =6.55 | A ^{0.79} | p ^{1.12} | H ^{-0.52} | Q ₂₅ | =2.91 | A ^{0.89} | p ^{1.25} | H ^{-0.50} | Q ₂₅ | =1.10 | A ^{0.81} | p ^{1.81} |
| Q ₅₀ | =10.4 | A ^{0.78} | p ^{1.06} | H ^{-0.38} | Q ₅₀ | =8.20 | A ^{0.89} | p ^{1.03} | H ^{-0.41} | Q ₅₀ | =1.50 | A ^{0.82} | p ^{1.85} |
| Q ₁₀₀ | =15.7 | A ^{0.77} | p ^{1.02} | H ^{-0.43} | Q ₁₀₀ | =19.7 | A ^{0.88} | p ^{0.84} | H ^{-0.33} | Q ₁₀₀ | =1.95 | A ^{0.83} | p ^{1.87} |

Q - Peak discharge in CFS, subscript indicates recurrence interval, in years;
 A - Drainage area in square miles;
 P - Mean annual precipitation in inches;
 H - Altitude index in thousands of feet.⁽²⁾



BOUNDARY OF FLOOD-FREQUENCY REGION

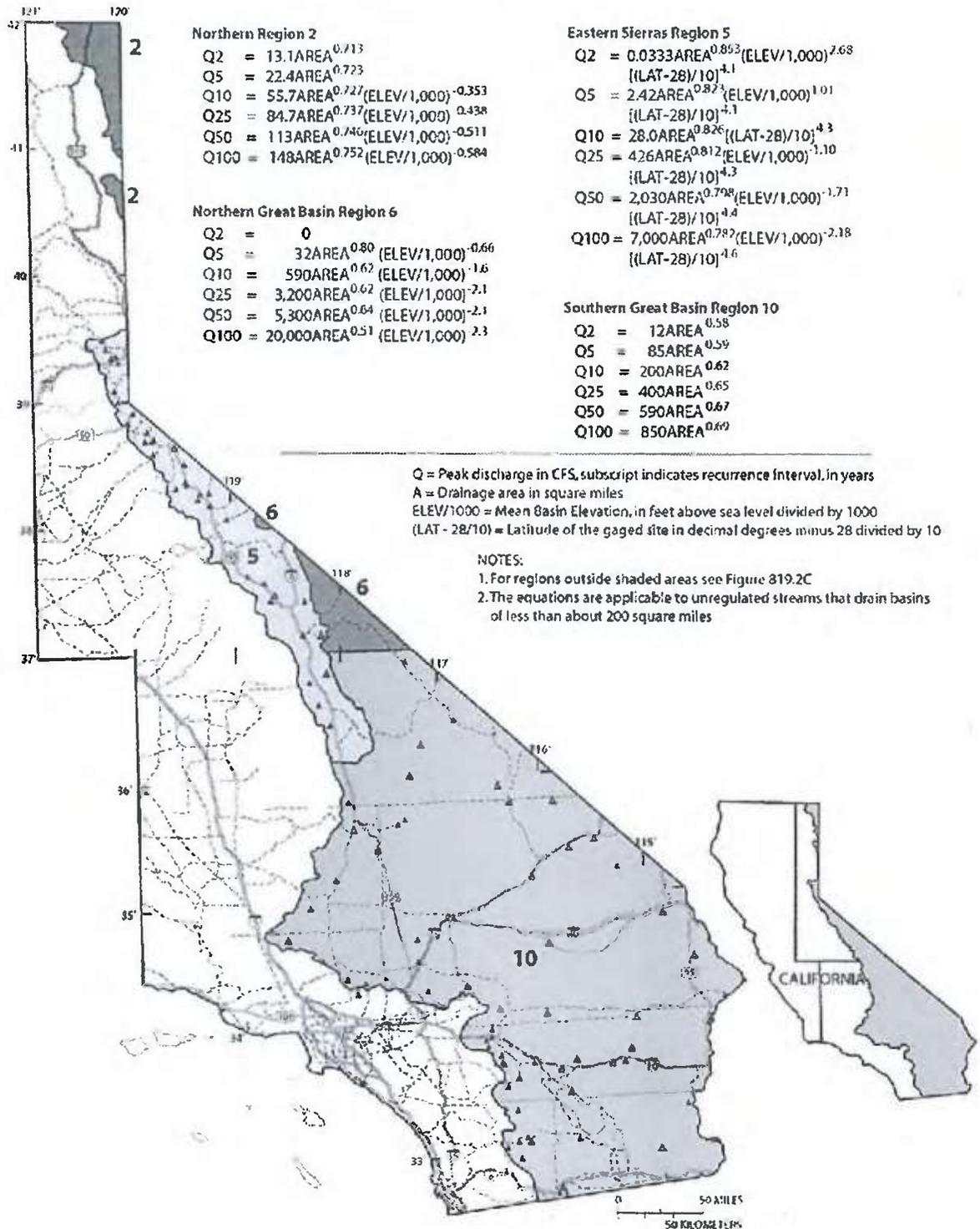
- NC - North Coast
- NE - Northeast⁽⁵⁾
- S - Sierra⁽⁵⁾
- CC - Central Coast
- SC - South Coast
- SL-CD - South Lahontan-Colorado Desert⁽⁵⁾
- Undefined

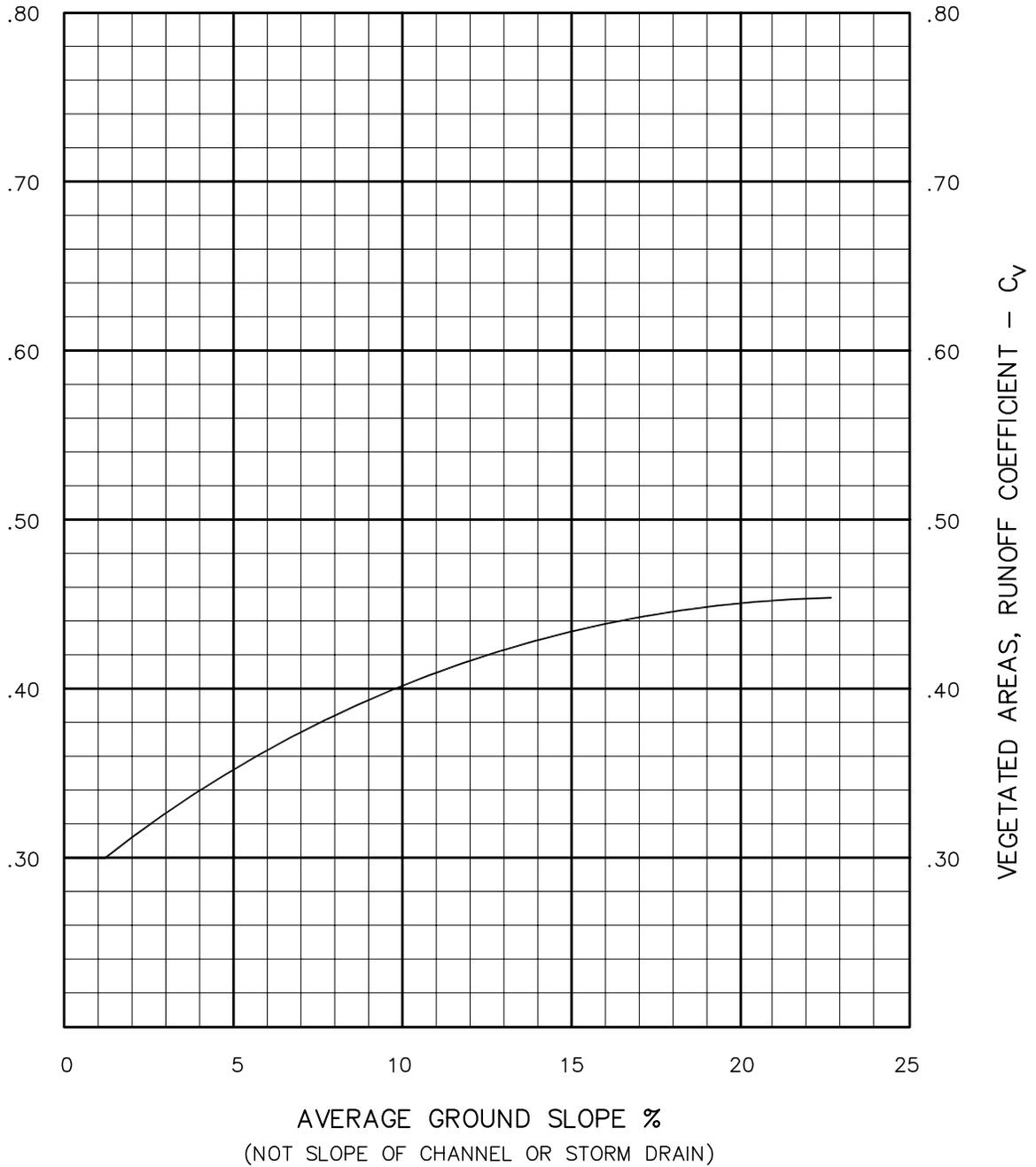
- NOTES:**
- (1) Equations and parameters shown on this figure have not been converted to the Metric System. Multiply calculated discharge in cfs by 0.0283 to obtain discharge in m³/s.
 - (2) Altitude index, H, is defined as the average of the elevations at the locations 10% and 85% of the distance from the project site to the basin divide, measure along the main channel of the stream and the overland travel path to the basin divide.
 - (3) In the North Coast region use a minimum value of 1.0 for the altitude index (H).
 - (4) These Equations are defined only for basins of 65 km² or less in area.
 - (5) See Figure 819.2D revised equations for California regions within USGS Southwestern United States Study. In regions of overlap, use equations from Figure 819.2D.

Figure 819.2D

Regional Flood Frequency Equations for California Regions within USGS
Southwestern United States Study*

*USGS Open File Report 93-419 (1994)





RUNOFF COEFFICIENTS FOR RATIONAL FORMULA, VEGETATED AREAS

MENDOT
STD. NO.
D12

Table 2-2a Runoff curve numbers for urban areas ^{1/}

| Cover description | Average percent impervious area ^{2/} | Curve numbers for hydrologic soil group | | | |
|--|--|--|----|----|----|
| | | A | B | C | D |
| Fully developed urban areas (vegetation established) | | | | | |
| Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/} : | | | | | |
| Poor condition (grass cover < 50%) | | 68 | 79 | 86 | 89 |
| Fair condition (grass cover 50% to 75%) | | 49 | 69 | 79 | 84 |
| Good condition (grass cover > 75%) | | 39 | 61 | 74 | 80 |
| Impervious areas: | | | | | |
| Paved parking lots, roofs, driveways, etc. (excluding right-of-way) | | 98 | 98 | 98 | 98 |
| Streets and roads: | | | | | |
| Paved; curbs and storm sewers (excluding right-of-way) | | 98 | 98 | 98 | 98 |
| Paved; open ditches (including right-of-way) | | 83 | 89 | 92 | 93 |
| Gravel (including right-of-way) | | 76 | 85 | 89 | 91 |
| Dirt (including right-of-way) | | 72 | 82 | 87 | 89 |
| Western desert urban areas: | | | | | |
| Natural desert landscaping (pervious areas only) ^{4/} | | 63 | 77 | 85 | 88 |
| Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders) | | 96 | 96 | 96 | 96 |
| Urban districts: | | | | | |
| Commercial and business | 85 | 89 | 92 | 94 | 95 |
| Industrial | 72 | 81 | 88 | 91 | 93 |
| Residential districts by average lot size: | | | | | |
| 1/8 acre or less (town houses) | 65 | 77 | 85 | 90 | 92 |
| 1/4 acre | 38 | 61 | 75 | 83 | 87 |
| 1/3 acre | 30 | 57 | 72 | 81 | 86 |
| 1/2 acre | 25 | 54 | 70 | 80 | 85 |
| 1 acre | 20 | 51 | 68 | 79 | 84 |
| 2 acres | 12 | 46 | 65 | 77 | 82 |

Developing urban areas

Newly graded areas
(pervious areas only, no vegetation) ^{5/}

| | | | | |
|--|----|----|----|----|
| | 77 | 86 | 91 | 94 |
|--|----|----|----|----|

Idle lands (CN's are determined using cover types
similar to those in table 2-2c).

¹ Average runoff condition, and $I_a = 0.2S$.

² The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

³ CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

⁴ Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

⁵ Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2b Runoff curve numbers for cultivated agricultural lands ^{1/}

| Cover description | | | Curve numbers for hydrologic soil group | | | |
|--|----------------------------|------------------------------------|---|----|----|----|
| Cover type | Treatment ^{2/} | Hydrologic condition ^{3/} | A | B | C | D |
| Fallow | Bare soil | — | 77 | 86 | 91 | 94 |
| | Crop residue cover (CR) | Poor | 76 | 85 | 90 | 93 |
| | | Good | 74 | 83 | 88 | 90 |
| Row crops | Straight row (SR) | Poor | 72 | 81 | 88 | 91 |
| | | Good | 67 | 78 | 85 | 89 |
| | SR + CR | Poor | 71 | 80 | 87 | 90 |
| | | Good | 64 | 75 | 82 | 85 |
| | Contoured (C) | Poor | 70 | 79 | 84 | 88 |
| | | Good | 65 | 75 | 82 | 86 |
| | C + CR | Poor | 69 | 78 | 83 | 87 |
| | | Good | 64 | 74 | 81 | 85 |
| | Contoured & terraced (C&T) | Poor | 66 | 74 | 80 | 82 |
| | | Good | 62 | 71 | 78 | 81 |
| C&T+ CR | Poor | 65 | 73 | 79 | 81 | |
| | Good | 61 | 70 | 77 | 80 | |
| Small grain | SR | Poor | 65 | 76 | 84 | 88 |
| | | Good | 63 | 75 | 83 | 87 |
| | SR + CR | Poor | 64 | 75 | 83 | 86 |
| | | Good | 60 | 72 | 80 | 84 |
| | C | Poor | 63 | 74 | 82 | 85 |
| | | Good | 61 | 73 | 81 | 84 |
| | C + CR | Poor | 62 | 73 | 81 | 84 |
| | | Good | 60 | 72 | 80 | 83 |
| | C&T | Poor | 61 | 72 | 79 | 82 |
| | | Good | 59 | 70 | 78 | 81 |
| C&T+ CR | Poor | 60 | 71 | 78 | 81 | |
| | Good | 58 | 69 | 77 | 80 | |
| Close-seeded or broadcast legumes or rotation meadow | SR | Poor | 66 | 77 | 85 | 89 |
| | | Good | 58 | 72 | 81 | 85 |
| | C | Poor | 64 | 75 | 83 | 85 |
| | | Good | 55 | 69 | 78 | 83 |
| | C&T | Poor | 63 | 73 | 80 | 83 |
| | | Good | 51 | 67 | 76 | 80 |

¹ Average runoff condition, and $I_a=0.2S$

² Crop residue cover applies only if residue is on at least 5% of the surface throughout the year.

³ Hydraulic condition is based on combination factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes, (d) percent of residue cover on the land surface (good $\geq 20\%$), and (e) degree of surface roughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

Table 2-2c Runoff curve numbers for other agricultural lands ^{1/}

| Cover description | Hydrologic condition | Curve numbers for hydrologic soil group | | | |
|--|----------------------|---|----|----|----|
| | | A | B | C | D |
| Pasture, grassland, or range—continuous forage for grazing. ^{2/} | Poor | 68 | 79 | 86 | 89 |
| | Fair | 49 | 69 | 79 | 84 |
| | Good | 39 | 61 | 74 | 80 |
| Meadow—continuous grass, protected from grazing and generally mowed for hay. | — | 30 | 58 | 71 | 78 |
| Brush—brush-weed-grass mixture with brush the major element. ^{3/} | Poor | 48 | 67 | 77 | 83 |
| | Fair | 35 | 56 | 70 | 77 |
| | Good | 30 ^{4/} | 48 | 65 | 73 |
| Woods—grass combination (orchard or tree farm). ^{5/} | Poor | 57 | 73 | 82 | 86 |
| | Fair | 43 | 65 | 76 | 82 |
| | Good | 32 | 58 | 72 | 79 |
| Woods. ^{6/} | Poor | 45 | 66 | 77 | 83 |
| | Fair | 36 | 60 | 73 | 79 |
| | Good | 30 ^{4/} | 55 | 70 | 77 |
| Farmsteads—buildings, lanes, driveways, and surrounding lots. | — | 59 | 74 | 82 | 86 |

¹ Average runoff condition, and $I_a = 0.2S$.

² **Poor:** <50% ground cover or heavily grazed with no mulch.

Fair: 50 to 75% ground cover and not heavily grazed.

Good: > 75% ground cover and lightly or only occasionally grazed.

³ **Poor:** <50% ground cover.

Fair: 50 to 75% ground cover.

Good: >75% ground cover.

⁴ Actual curve number is less than 30; use CN = 30 for runoff computations.

⁵ CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

⁶ **Poor:** Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

Fair: Woods are grazed but not burned, and some forest litter covers the soil.

Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

Table 2-2d Runoff curve numbers for arid and semiarid rangelands ^{1/}

| Cover description | | Curve numbers for hydrologic soil group | | | |
|--|------------------------------------|---|----|----|----|
| Cover type | Hydrologic condition ^{2/} | A ^{3/} | B | C | D |
| Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element. | Poor | | 80 | 87 | 93 |
| | Fair | | 71 | 81 | 89 |
| | Good | | 62 | 74 | 85 |
| Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush. | Poor | | 66 | 74 | 79 |
| | Fair | | 48 | 57 | 63 |
| | Good | | 30 | 41 | 48 |
| Pinyon-juniper—pinyon, juniper, or both; grass understory. | Poor | | 75 | 85 | 89 |
| | Fair | | 58 | 73 | 80 |
| | Good | | 41 | 61 | 71 |
| Sagebrush with grass understory. | Poor | | 67 | 80 | 85 |
| | Fair | | 51 | 63 | 70 |
| | Good | | 35 | 47 | 55 |
| Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus. | Poor | 63 | 77 | 85 | 88 |
| | Fair | 55 | 72 | 81 | 86 |
| | Good | 49 | 68 | 79 | 84 |

¹ Average runoff condition, and $I_a = 0.2S$. For range in humid regions, use table 2-2c.

² Poor: <30% ground cover (litter, grass, and brush overstory).

Fair: 30 to 70% ground cover.

Good: > 70% ground cover.

³ Curve numbers for group A have been developed only for desert shrub.

Appendix D – Modeling Results

General Calculations

Subbasin 1

| | | |
|--|---------|-----------------|
| Total Area (measured from PDF) | 33.59 | in ² |
| Scale (Measured Map Scale) | 100.00 | feet/inches |
| Total Area (using map scale) | 335,900 | ft ² |
| Total Area | 7.71 | acres |
| Drainage Length (Measured from PDF) | 3.81 | inches |
| Drainage Length | 381.00 | feet |
| Proposed Impervious Area (Measured from PDF) | 8.25 | in ² |
| Proposed Impervious Area (using map scale) | 82500 | ft ² |
| Proposed Impervious Area | 1.89 | acres |
| Pervious Area When Developed | 5.82 | acres |

Subbasin 2

| | | |
|--|-----------|-----------------|
| Total Area (measured from PDF) | 40.63 | in ² |
| Scale (Measured Map Scale) | 100.00 | feet/inches |
| Total Area (using map scale) | 406300.00 | ft ² |
| Total Area | 9.33 | acres |
| Drainage Length (Measured from PDF) | 3 | inches |
| Drainage Length | 300.00 | feet |
| Proposed Impervious Area (Measured from PDF) | 5.26 | in ² |
| Proposed Impervious Area (using map scale) | 52600.00 | ft ² |
| Proposed Impervious Area | 1.21 | acres |
| Pervious Area When Developed | 8.12 | acres |

Total Property Area 17.0 acres

Client: Mendocino Solid Waste Management Authority Date: August 4, 2014
 Project: Central Coast Tranfer Station EIR Proj. # : 8411065
 Prepared by: BB Checked by: DS

Santa Barbara Urban Hydrograph Method

Purpose:

Determine the stormwater runoff volume required for: Pre-Development Conditions (Basin #1)

Assumptions:

1. Runoff volume is computed with the Santa Barbara Urban Hydrograph Method (SBUH)
2. 2-year/ 24-hour design storm event
3. 25-year/ 24-hour design storm event
4. 50-year/ 24-hour design storm event
5. 100-year/ 24-hour design storm event
6. Total Basin Area 7.7 acres
7. Design storm precipitation depths obtained using PF Data Server, lat39.4126 long-123.7548
8. Areas used for subbasins estimated using proposed site development plan
9. Slopes for time of concentration calculation assumed to be 6% based on LACO field study dated 6/7/2012
10. Soil assumed to be of soil group D, with an average antecedent soil moisture condition
11. Ground coverage for pervious area assumed to be woods in good condition
12. Drainage length assumed to originate from the center of the line which splits the parcel from the southwest corner to the northeast corner, and terminates at the drainage basin
13. Manning roughness coefficient assumed to be 0.6, which is the middle range for woods underbrush ($0.4 < n < 0.8$)
14. Cuve numbers determined using TR-55 Documentation

Methodology:

1. Determine the runoff volume for the design storm event using the SBUH method

References:

1. Urban Hydrology for Small Watersheds, Technical Release 55
Natural Resource Conservation Service, USDA 1986
2. Handbook of Hydrology (1993), Maidment, D.
McGraw-Hill Publishing, New York, NY
3. Open Channel Hydraulics
Chow, V.T. 1959, McGraw-Hill Book Company
4. NOAA Atlas 14, Volume 6, Version 2
http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_printpage.html

Client: Mendocino Solid Waste Management Authority
 Project: Central Coast Transfer Station EIR
 Prepared by: BB

Date: August 4, 2014
 Proj. #: 8411065
 Checked by: DS

Santa Barbara Urban Hydrograph Method

Input Variables:

Basin Number = 1 Pre-Development Conditions (Basin #1)

Total Area = 7.71 ac

Precipitation (Quantity) = 3.75 in (2-yr. 24-hr event)

Precipitation (Quantity) = 6.69 in (25-yr. 24-hr event)

Precipitation (Quantity) = 7.43 in (50-yr. 24-hr event)

Precipitation (Quantity) = 8.14 in (100-yr. 24-hr event)

Time Step = 10 min

Pervious Area:

Area = 7.71 ac

CN = 77

S = 2.99 (1000/CN)-10

0.2S = 0.60

Impervious Area:

Area = 0.0 ac

CN = 83

S = 2.05 (1000/CN)-10

0.2S = 0.41

Time of Concentration:

Drainage Length = 381 ft

Average Slope = 0.060 ft/ft

Manning's n = 0.600

T_c = 63.2 min (minimum of 5 minutes)

Routing Constant:

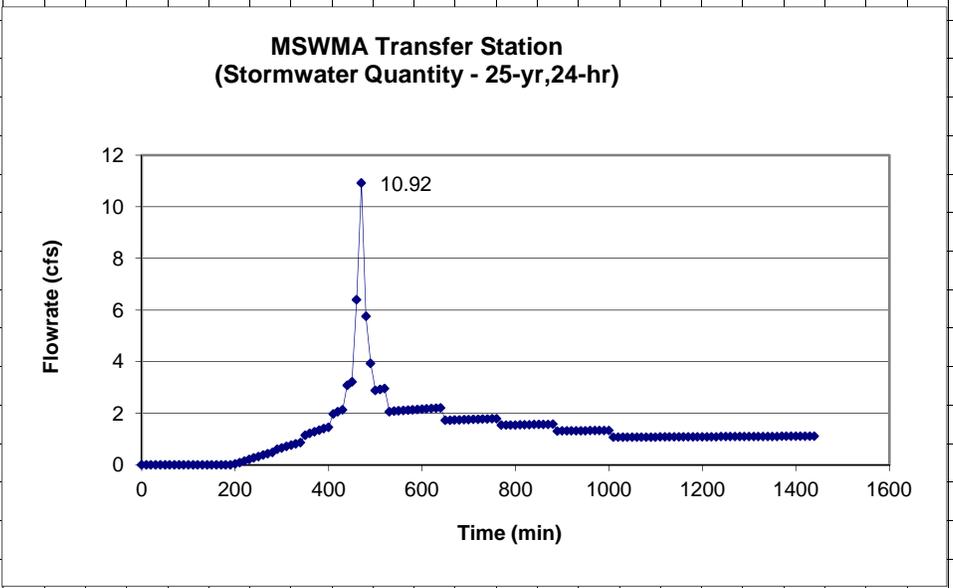
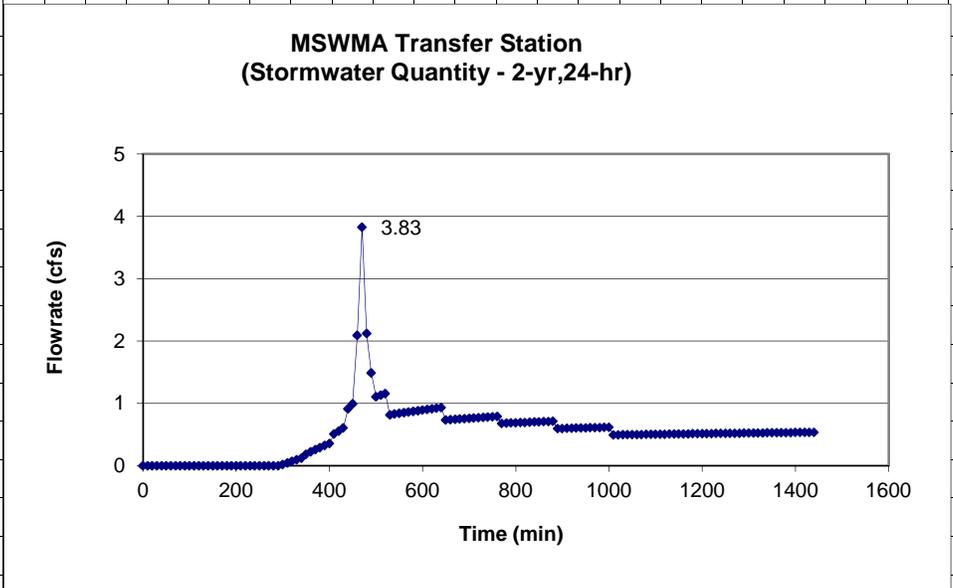
w = 0.073 dt/(2T_c+dt)

Client: Mendocino Solid Waste Management Authority
Project: Central Coast Transfer Station EIR
Prepared by: BB

Date: August 4, 2014
Proj. #: 8411065
Checked by: DS

Santa Barbara Urban Hydrograph Method

Results: Pre-Development Conditions (Basin #1)

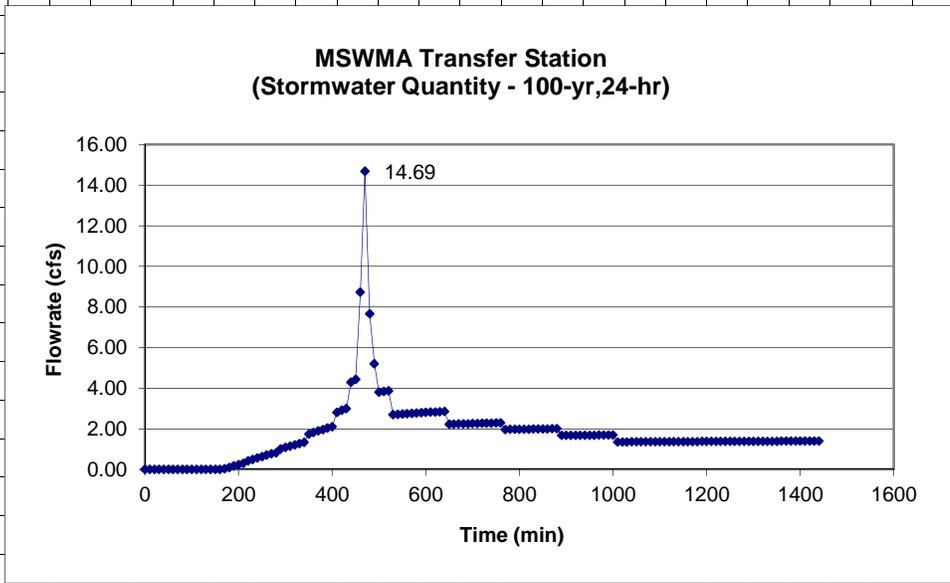
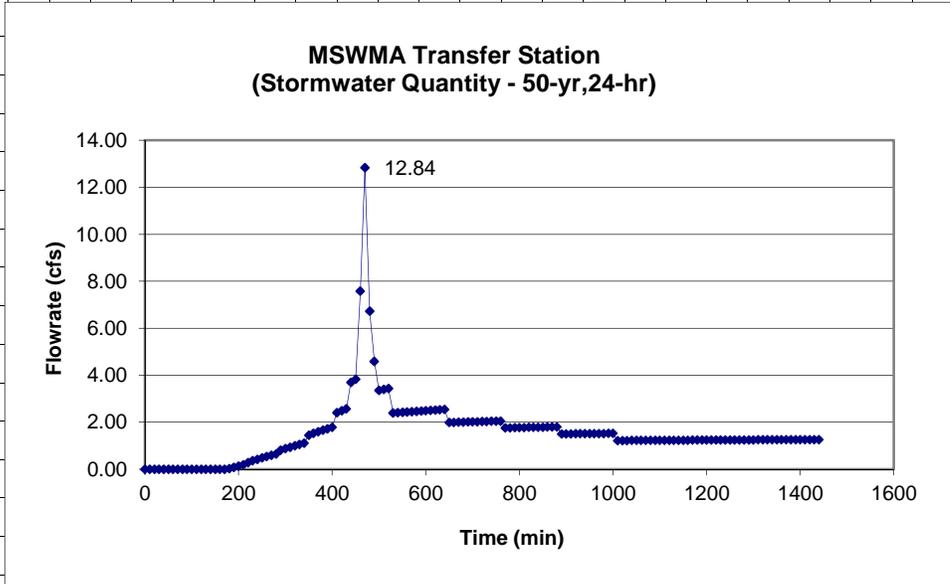


Client: Mendocino Solid Waste Management Authority
Project: Central Coast Transfer Station EIR
Prepared by: BB

Date: August 4, 2014
Proj. #: 8411065
Checked by: DS

Santa Barbara Urban Hydrograph Method

Results: Pre-Development Conditions (Basin #1)



Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|--------------------|----------------|
| Time Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 2 | 10 | 0.004 | 0.015 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 3 | 20 | 0.004 | 0.015 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 4 | 30 | 0.004 | 0.015 | 0.045 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 5 | 40 | 0.004 | 0.015 | 0.060 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 6 | 50 | 0.004 | 0.015 | 0.075 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 7 | 60 | 0.004 | 0.015 | 0.090 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 8 | 70 | 0.004 | 0.015 | 0.105 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 9 | 80 | 0.004 | 0.015 | 0.120 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 10 | 90 | 0.005 | 0.019 | 0.139 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 11 | 100 | 0.005 | 0.019 | 0.158 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 12 | 110 | 0.005 | 0.019 | 0.176 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 13 | 120 | 0.005 | 0.019 | 0.195 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 14 | 130 | 0.005 | 0.019 | 0.214 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 15 | 140 | 0.005 | 0.019 | 0.233 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 16 | 150 | 0.005 | 0.019 | 0.251 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 17 | 160 | 0.006 | 0.023 | 0.274 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 18 | 170 | 0.006 | 0.023 | 0.296 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 19 | 180 | 0.006 | 0.023 | 0.319 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 20 | 190 | 0.006 | 0.023 | 0.341 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 21 | 200 | 0.006 | 0.023 | 0.364 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 22 | 210 | 0.006 | 0.023 | 0.386 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 23 | 220 | 0.007 | 0.026 | 0.413 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 24 | 230 | 0.007 | 0.026 | 0.439 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 25 | 240 | 0.007 | 0.026 | 0.465 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 26 | 250 | 0.007 | 0.026 | 0.491 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 27 | 260 | 0.007 | 0.026 | 0.518 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 28 | 270 | 0.007 | 0.026 | 0.544 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 29 | 280 | 0.007 | 0.026 | 0.570 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 30 | 290 | 0.008 | 0.030 | 0.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.05 | 0.00 |
| 31 | 300 | 0.008 | 0.030 | 0.630 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.02 | 7.32 | 0.00 |
| 32 | 310 | 0.008 | 0.030 | 0.660 | 0.001 | 0.001 | 0.000 | 0.000 | 0.001 | 0.04 | 19.53 | 0.01 |
| 33 | 320 | 0.008 | 0.030 | 0.690 | 0.003 | 0.001 | 0.000 | 0.000 | 0.001 | 0.07 | 31.39 | 0.01 |
| 34 | 330 | 0.008 | 0.030 | 0.720 | 0.005 | 0.002 | 0.000 | 0.000 | 0.002 | 0.10 | 42.91 | 0.02 |
| 35 | 340 | 0.008 | 0.030 | 0.750 | 0.007 | 0.003 | 0.000 | 0.000 | 0.003 | 0.12 | 54.09 | 0.04 |
| 36 | 350 | 0.01 | 0.038 | 0.788 | 0.011 | 0.004 | 0.000 | 0.000 | 0.004 | 0.18 | 82.86 | 0.05 |
| 37 | 360 | 0.01 | 0.038 | 0.825 | 0.016 | 0.005 | 0.000 | 0.000 | 0.005 | 0.22 | 99.24 | 0.07 |
| 38 | 370 | 0.01 | 0.038 | 0.863 | 0.022 | 0.005 | 0.000 | 0.000 | 0.005 | 0.26 | 115.06 | 0.10 |
| 39 | 380 | 0.01 | 0.038 | 0.900 | 0.028 | 0.006 | 0.000 | 0.000 | 0.006 | 0.29 | 130.34 | 0.12 |
| 40 | 390 | 0.01 | 0.038 | 0.938 | 0.035 | 0.007 | 0.000 | 0.000 | 0.007 | 0.32 | 145.10 | 0.15 |
| 41 | 400 | 0.01 | 0.038 | 0.975 | 0.042 | 0.008 | 0.000 | 0.000 | 0.008 | 0.36 | 159.37 | 0.18 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 42 | 410 | 0.013 | 0.049 | 1.024 | 0.053 | 0.011 | 0.000 | 0.000 | 0.011 | 0.51 | 227.74 | 0.22 |
| 43 | 420 | 0.013 | 0.049 | 1.073 | 0.065 | 0.012 | 0.000 | 0.000 | 0.012 | 0.56 | 250.07 | 0.26 |
| 44 | 430 | 0.013 | 0.049 | 1.121 | 0.078 | 0.013 | 0.000 | 0.000 | 0.013 | 0.60 | 271.47 | 0.31 |
| 45 | 440 | 0.018 | 0.068 | 1.189 | 0.098 | 0.020 | 0.000 | 0.000 | 0.020 | 0.91 | 409.58 | 0.37 |
| 46 | 450 | 0.018 | 0.068 | 1.256 | 0.119 | 0.021 | 0.000 | 0.000 | 0.021 | 1.00 | 446.75 | 0.46 |
| 47 | 460 | 0.034 | 0.128 | 1.384 | 0.164 | 0.045 | 0.000 | 0.000 | 0.045 | 2.09 | 938.21 | 0.62 |
| 48 | 470 | 0.054 | 0.203 | 1.586 | 0.246 | 0.082 | 0.000 | 0.000 | 0.082 | 3.83 | 1718.33 | 0.96 |
| 49 | 480 | 0.027 | 0.101 | 1.688 | 0.291 | 0.046 | 0.000 | 0.000 | 0.046 | 2.12 | 953.10 | 1.26 |
| 50 | 490 | 0.018 | 0.068 | 1.755 | 0.323 | 0.032 | 0.000 | 0.000 | 0.032 | 1.49 | 667.07 | 1.34 |
| 51 | 500 | 0.013 | 0.049 | 1.804 | 0.347 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 496.71 | 1.33 |
| 52 | 510 | 0.013 | 0.049 | 1.853 | 0.371 | 0.024 | 0.000 | 0.000 | 0.024 | 1.13 | 508.76 | 1.30 |
| 53 | 520 | 0.013 | 0.049 | 1.901 | 0.396 | 0.025 | 0.000 | 0.000 | 0.025 | 1.16 | 520.39 | 1.28 |
| 54 | 530 | 0.009 | 0.034 | 1.935 | 0.414 | 0.018 | 0.000 | 0.000 | 0.018 | 0.82 | 366.88 | 1.24 |
| 55 | 540 | 0.009 | 0.034 | 1.969 | 0.431 | 0.018 | 0.000 | 0.000 | 0.018 | 0.83 | 372.14 | 1.18 |
| 56 | 550 | 0.009 | 0.034 | 2.003 | 0.450 | 0.018 | 0.000 | 0.000 | 0.018 | 0.84 | 377.28 | 1.13 |
| 57 | 560 | 0.009 | 0.034 | 2.036 | 0.468 | 0.018 | 0.000 | 0.000 | 0.018 | 0.85 | 382.30 | 1.08 |
| 58 | 570 | 0.009 | 0.034 | 2.070 | 0.486 | 0.018 | 0.000 | 0.000 | 0.018 | 0.86 | 387.21 | 1.05 |
| 59 | 580 | 0.009 | 0.034 | 2.104 | 0.505 | 0.019 | 0.000 | 0.000 | 0.019 | 0.87 | 392.01 | 1.02 |
| 60 | 590 | 0.009 | 0.034 | 2.138 | 0.524 | 0.019 | 0.000 | 0.000 | 0.019 | 0.88 | 396.70 | 1.00 |
| 61 | 600 | 0.009 | 0.034 | 2.171 | 0.543 | 0.019 | 0.000 | 0.000 | 0.019 | 0.89 | 401.29 | 0.99 |
| 62 | 610 | 0.009 | 0.034 | 2.205 | 0.562 | 0.019 | 0.000 | 0.000 | 0.019 | 0.90 | 405.78 | 0.97 |
| 63 | 620 | 0.009 | 0.034 | 2.239 | 0.582 | 0.020 | 0.000 | 0.000 | 0.020 | 0.91 | 410.16 | 0.96 |
| 64 | 630 | 0.009 | 0.034 | 2.273 | 0.602 | 0.020 | 0.000 | 0.000 | 0.020 | 0.92 | 414.46 | 0.96 |
| 65 | 640 | 0.009 | 0.034 | 2.306 | 0.622 | 0.020 | 0.000 | 0.000 | 0.020 | 0.93 | 418.66 | 0.95 |
| 66 | 650 | 0.007 | 0.026 | 2.333 | 0.638 | 0.016 | 0.000 | 0.000 | 0.016 | 0.73 | 328.47 | 0.94 |
| 67 | 660 | 0.007 | 0.026 | 2.359 | 0.653 | 0.016 | 0.000 | 0.000 | 0.016 | 0.74 | 330.91 | 0.91 |
| 68 | 670 | 0.007 | 0.026 | 2.385 | 0.669 | 0.016 | 0.000 | 0.000 | 0.016 | 0.74 | 333.32 | 0.88 |
| 69 | 680 | 0.007 | 0.026 | 2.411 | 0.685 | 0.016 | 0.000 | 0.000 | 0.016 | 0.75 | 335.68 | 0.86 |
| 70 | 690 | 0.007 | 0.026 | 2.438 | 0.701 | 0.016 | 0.000 | 0.000 | 0.016 | 0.75 | 338.01 | 0.85 |
| 71 | 700 | 0.007 | 0.026 | 2.464 | 0.718 | 0.016 | 0.000 | 0.000 | 0.016 | 0.76 | 340.30 | 0.83 |
| 72 | 710 | 0.007 | 0.026 | 2.490 | 0.734 | 0.016 | 0.000 | 0.000 | 0.016 | 0.76 | 342.55 | 0.82 |
| 73 | 720 | 0.007 | 0.026 | 2.516 | 0.751 | 0.016 | 0.000 | 0.000 | 0.016 | 0.77 | 344.77 | 0.81 |
| 74 | 730 | 0.007 | 0.026 | 2.543 | 0.767 | 0.017 | 0.000 | 0.000 | 0.017 | 0.77 | 346.95 | 0.81 |
| 75 | 740 | 0.007 | 0.026 | 2.569 | 0.784 | 0.017 | 0.000 | 0.000 | 0.017 | 0.78 | 349.09 | 0.80 |
| 76 | 750 | 0.007 | 0.026 | 2.595 | 0.801 | 0.017 | 0.000 | 0.000 | 0.017 | 0.78 | 351.21 | 0.80 |
| 77 | 760 | 0.007 | 0.026 | 2.621 | 0.817 | 0.017 | 0.000 | 0.000 | 0.017 | 0.79 | 353.28 | 0.80 |
| 78 | 770 | 0.006 | 0.023 | 2.644 | 0.832 | 0.015 | 0.000 | 0.000 | 0.015 | 0.68 | 304.45 | 0.79 |
| 79 | 780 | 0.006 | 0.023 | 2.666 | 0.847 | 0.015 | 0.000 | 0.000 | 0.015 | 0.68 | 305.93 | 0.77 |
| 80 | 790 | 0.006 | 0.023 | 2.689 | 0.861 | 0.015 | 0.000 | 0.000 | 0.015 | 0.68 | 307.39 | 0.76 |
| 81 | 800 | 0.006 | 0.023 | 2.711 | 0.876 | 0.015 | 0.000 | 0.000 | 0.015 | 0.69 | 308.84 | 0.75 |
| 82 | 810 | 0.006 | 0.023 | 2.734 | 0.891 | 0.015 | 0.000 | 0.000 | 0.015 | 0.69 | 310.26 | 0.74 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 83 | 820 | 0.006 | 0.023 | 2.756 | 0.906 | 0.015 | 0.000 | 0.000 | 0.015 | 0.69 | 311.67 | 0.73 |
| 84 | 830 | 0.006 | 0.023 | 2.779 | 0.921 | 0.015 | 0.000 | 0.000 | 0.015 | 0.70 | 313.06 | 0.73 |
| 85 | 840 | 0.006 | 0.023 | 2.801 | 0.936 | 0.015 | 0.000 | 0.000 | 0.015 | 0.70 | 314.43 | 0.72 |
| 86 | 850 | 0.006 | 0.023 | 2.824 | 0.951 | 0.015 | 0.000 | 0.000 | 0.015 | 0.70 | 315.78 | 0.72 |
| 87 | 860 | 0.006 | 0.023 | 2.846 | 0.966 | 0.015 | 0.000 | 0.000 | 0.015 | 0.71 | 317.11 | 0.72 |
| 88 | 870 | 0.006 | 0.023 | 2.869 | 0.981 | 0.015 | 0.000 | 0.000 | 0.015 | 0.71 | 318.43 | 0.72 |
| 89 | 880 | 0.006 | 0.023 | 2.891 | 0.996 | 0.015 | 0.000 | 0.000 | 0.015 | 0.71 | 319.73 | 0.72 |
| 90 | 890 | 0.005 | 0.019 | 2.910 | 1.009 | 0.013 | 0.000 | 0.000 | 0.013 | 0.60 | 267.43 | 0.71 |
| 91 | 900 | 0.005 | 0.019 | 2.929 | 1.022 | 0.013 | 0.000 | 0.000 | 0.013 | 0.60 | 268.31 | 0.69 |
| 92 | 910 | 0.005 | 0.019 | 2.948 | 1.035 | 0.013 | 0.000 | 0.000 | 0.013 | 0.60 | 269.18 | 0.68 |
| 93 | 920 | 0.005 | 0.019 | 2.966 | 1.048 | 0.013 | 0.000 | 0.000 | 0.013 | 0.60 | 270.05 | 0.67 |
| 94 | 930 | 0.005 | 0.019 | 2.985 | 1.061 | 0.013 | 0.000 | 0.000 | 0.013 | 0.60 | 270.90 | 0.66 |
| 95 | 940 | 0.005 | 0.019 | 3.004 | 1.074 | 0.013 | 0.000 | 0.000 | 0.013 | 0.61 | 271.75 | 0.65 |
| 96 | 950 | 0.005 | 0.019 | 3.023 | 1.087 | 0.013 | 0.000 | 0.000 | 0.013 | 0.61 | 272.58 | 0.64 |
| 97 | 960 | 0.005 | 0.019 | 3.041 | 1.100 | 0.013 | 0.000 | 0.000 | 0.013 | 0.61 | 273.41 | 0.64 |
| 98 | 970 | 0.005 | 0.019 | 3.060 | 1.113 | 0.013 | 0.000 | 0.000 | 0.013 | 0.61 | 274.23 | 0.63 |
| 99 | 980 | 0.005 | 0.019 | 3.079 | 1.126 | 0.013 | 0.000 | 0.000 | 0.013 | 0.61 | 275.04 | 0.63 |
| 100 | 990 | 0.005 | 0.019 | 3.098 | 1.139 | 0.013 | 0.000 | 0.000 | 0.013 | 0.61 | 275.85 | 0.63 |
| 101 | 1000 | 0.005 | 0.019 | 3.116 | 1.152 | 0.013 | 0.000 | 0.000 | 0.013 | 0.62 | 276.64 | 0.63 |
| 102 | 1010 | 0.004 | 0.015 | 3.131 | 1.163 | 0.011 | 0.000 | 0.000 | 0.011 | 0.49 | 221.88 | 0.62 |
| 103 | 1020 | 0.004 | 0.015 | 3.146 | 1.174 | 0.011 | 0.000 | 0.000 | 0.011 | 0.50 | 222.38 | 0.60 |
| 104 | 1030 | 0.004 | 0.015 | 3.161 | 1.184 | 0.011 | 0.000 | 0.000 | 0.011 | 0.50 | 222.88 | 0.58 |
| 105 | 1040 | 0.004 | 0.015 | 3.176 | 1.195 | 0.011 | 0.000 | 0.000 | 0.011 | 0.50 | 223.37 | 0.57 |
| 106 | 1050 | 0.004 | 0.015 | 3.191 | 1.206 | 0.011 | 0.000 | 0.000 | 0.011 | 0.50 | 223.85 | 0.56 |
| 107 | 1060 | 0.004 | 0.015 | 3.206 | 1.216 | 0.011 | 0.000 | 0.000 | 0.011 | 0.50 | 224.34 | 0.55 |
| 108 | 1070 | 0.004 | 0.015 | 3.221 | 1.227 | 0.011 | 0.000 | 0.000 | 0.011 | 0.50 | 224.82 | 0.54 |
| 109 | 1080 | 0.004 | 0.015 | 3.236 | 1.238 | 0.011 | 0.000 | 0.000 | 0.011 | 0.50 | 225.29 | 0.54 |
| 110 | 1090 | 0.004 | 0.015 | 3.251 | 1.249 | 0.011 | 0.000 | 0.000 | 0.011 | 0.50 | 225.77 | 0.53 |
| 111 | 1100 | 0.004 | 0.015 | 3.266 | 1.259 | 0.011 | 0.000 | 0.000 | 0.011 | 0.50 | 226.23 | 0.53 |
| 112 | 1110 | 0.004 | 0.015 | 3.281 | 1.270 | 0.011 | 0.000 | 0.000 | 0.011 | 0.51 | 226.70 | 0.52 |
| 113 | 1120 | 0.004 | 0.015 | 3.296 | 1.281 | 0.011 | 0.000 | 0.000 | 0.011 | 0.51 | 227.16 | 0.52 |
| 114 | 1130 | 0.004 | 0.015 | 3.311 | 1.292 | 0.011 | 0.000 | 0.000 | 0.011 | 0.51 | 227.62 | 0.52 |
| 115 | 1140 | 0.004 | 0.015 | 3.326 | 1.303 | 0.011 | 0.000 | 0.000 | 0.011 | 0.51 | 228.07 | 0.52 |
| 116 | 1150 | 0.004 | 0.015 | 3.341 | 1.314 | 0.011 | 0.000 | 0.000 | 0.011 | 0.51 | 228.52 | 0.52 |
| 117 | 1160 | 0.004 | 0.015 | 3.356 | 1.325 | 0.011 | 0.000 | 0.000 | 0.011 | 0.51 | 228.97 | 0.52 |
| 118 | 1170 | 0.004 | 0.015 | 3.371 | 1.336 | 0.011 | 0.000 | 0.000 | 0.011 | 0.51 | 229.41 | 0.51 |
| 119 | 1180 | 0.004 | 0.015 | 3.386 | 1.347 | 0.011 | 0.000 | 0.000 | 0.011 | 0.51 | 229.85 | 0.51 |
| 120 | 1190 | 0.004 | 0.015 | 3.401 | 1.358 | 0.011 | 0.000 | 0.000 | 0.011 | 0.51 | 230.29 | 0.51 |
| 121 | 1200 | 0.004 | 0.015 | 3.416 | 1.369 | 0.011 | 0.000 | 0.000 | 0.011 | 0.51 | 230.72 | 0.51 |
| 122 | 1210 | 0.004 | 0.015 | 3.431 | 1.380 | 0.011 | 0.000 | 0.000 | 0.011 | 0.52 | 231.15 | 0.51 |
| 123 | 1220 | 0.004 | 0.015 | 3.446 | 1.391 | 0.011 | 0.000 | 0.000 | 0.011 | 0.52 | 231.58 | 0.51 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 124 | 1230 | 0.004 | 0.015 | 3.461 | 1.402 | 0.011 | 0.000 | 0.000 | 0.011 | 0.52 | 232.00 | 0.51 |
| 125 | 1240 | 0.004 | 0.015 | 3.476 | 1.413 | 0.011 | 0.000 | 0.000 | 0.011 | 0.52 | 232.42 | 0.52 |
| 126 | 1250 | 0.004 | 0.015 | 3.491 | 1.424 | 0.011 | 0.000 | 0.000 | 0.011 | 0.52 | 232.84 | 0.52 |
| 127 | 1260 | 0.004 | 0.015 | 3.506 | 1.435 | 0.011 | 0.000 | 0.000 | 0.011 | 0.52 | 233.25 | 0.52 |
| 128 | 1270 | 0.004 | 0.015 | 3.521 | 1.446 | 0.011 | 0.000 | 0.000 | 0.011 | 0.52 | 233.66 | 0.52 |
| 129 | 1280 | 0.004 | 0.015 | 3.536 | 1.457 | 0.011 | 0.000 | 0.000 | 0.011 | 0.52 | 234.07 | 0.52 |
| 130 | 1290 | 0.004 | 0.015 | 3.551 | 1.469 | 0.011 | 0.000 | 0.000 | 0.011 | 0.52 | 234.47 | 0.52 |
| 131 | 1300 | 0.004 | 0.015 | 3.566 | 1.480 | 0.011 | 0.000 | 0.000 | 0.011 | 0.52 | 234.87 | 0.52 |
| 132 | 1310 | 0.004 | 0.015 | 3.581 | 1.491 | 0.011 | 0.000 | 0.000 | 0.011 | 0.52 | 235.27 | 0.52 |
| 133 | 1320 | 0.004 | 0.015 | 3.596 | 1.502 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 235.66 | 0.52 |
| 134 | 1330 | 0.004 | 0.015 | 3.611 | 1.514 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 236.06 | 0.52 |
| 135 | 1340 | 0.004 | 0.015 | 3.626 | 1.525 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 236.44 | 0.52 |
| 136 | 1350 | 0.004 | 0.015 | 3.641 | 1.536 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 236.83 | 0.52 |
| 137 | 1360 | 0.004 | 0.015 | 3.656 | 1.548 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 237.21 | 0.52 |
| 138 | 1370 | 0.004 | 0.015 | 3.671 | 1.559 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 237.59 | 0.52 |
| 139 | 1380 | 0.004 | 0.015 | 3.686 | 1.570 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 237.97 | 0.53 |
| 140 | 1390 | 0.004 | 0.015 | 3.701 | 1.582 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 238.35 | 0.53 |
| 141 | 1400 | 0.004 | 0.015 | 3.716 | 1.593 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 238.72 | 0.53 |
| 142 | 1410 | 0.004 | 0.015 | 3.731 | 1.605 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 239.09 | 0.53 |
| 143 | 1420 | 0.004 | 0.015 | 3.746 | 1.616 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 239.45 | 0.53 |
| 144 | 1430 | 0.004 | 0.015 | 3.761 | 1.627 | 0.011 | 0.000 | 0.000 | 0.011 | 0.53 | 239.82 | 0.53 |
| 145 | 1440 | 0.004 | 0.015 | 3.776 | 1.639 | 0.011 | 0.000 | 0.000 | 0.011 | 0.54 | 240.18 | 0.53 |

| | | | |
|------------------|-------------|----------------|-------------|
| Peak Flow | 3.83 | 1718.33 | 1.34 |
|------------------|-------------|----------------|-------------|

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | | Design |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|--------------------|----------------|--------|
| Time Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) | |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 2 | 10 | 0.004 | 0.027 | 0.027 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 3 | 20 | 0.004 | 0.027 | 0.054 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 4 | 30 | 0.004 | 0.027 | 0.080 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 5 | 40 | 0.004 | 0.027 | 0.107 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 6 | 50 | 0.004 | 0.027 | 0.134 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 7 | 60 | 0.004 | 0.027 | 0.161 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 8 | 70 | 0.004 | 0.027 | 0.187 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 9 | 80 | 0.004 | 0.027 | 0.214 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 10 | 90 | 0.005 | 0.033 | 0.248 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 11 | 100 | 0.005 | 0.033 | 0.281 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 12 | 110 | 0.005 | 0.033 | 0.314 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 13 | 120 | 0.005 | 0.033 | 0.348 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 14 | 130 | 0.005 | 0.033 | 0.381 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 15 | 140 | 0.005 | 0.033 | 0.415 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 16 | 150 | 0.005 | 0.033 | 0.448 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 17 | 160 | 0.006 | 0.040 | 0.488 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 18 | 170 | 0.006 | 0.040 | 0.529 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 19 | 180 | 0.006 | 0.040 | 0.569 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 20 | 190 | 0.006 | 0.040 | 0.609 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.91 | 0.00 | |
| 21 | 200 | 0.006 | 0.040 | 0.649 | 0.001 | 0.001 | 0.000 | 0.000 | 0.001 | 0.04 | 17.39 | 0.00 | |
| 22 | 210 | 0.006 | 0.040 | 0.689 | 0.003 | 0.002 | 0.000 | 0.000 | 0.002 | 0.09 | 38.85 | 0.01 | |
| 23 | 220 | 0.007 | 0.047 | 0.736 | 0.006 | 0.003 | 0.000 | 0.000 | 0.003 | 0.16 | 71.35 | 0.03 | |
| 24 | 230 | 0.007 | 0.047 | 0.783 | 0.011 | 0.005 | 0.000 | 0.000 | 0.005 | 0.22 | 98.19 | 0.05 | |
| 25 | 240 | 0.007 | 0.047 | 0.830 | 0.017 | 0.006 | 0.000 | 0.000 | 0.006 | 0.28 | 123.86 | 0.08 | |
| 26 | 250 | 0.007 | 0.047 | 0.876 | 0.024 | 0.007 | 0.000 | 0.000 | 0.007 | 0.33 | 148.43 | 0.11 | |
| 27 | 260 | 0.007 | 0.047 | 0.923 | 0.032 | 0.008 | 0.000 | 0.000 | 0.008 | 0.38 | 171.95 | 0.15 | |
| 28 | 270 | 0.007 | 0.047 | 0.970 | 0.041 | 0.009 | 0.000 | 0.000 | 0.009 | 0.43 | 194.49 | 0.19 | |
| 29 | 280 | 0.007 | 0.047 | 1.017 | 0.052 | 0.010 | 0.000 | 0.000 | 0.010 | 0.48 | 216.11 | 0.23 | |
| 30 | 290 | 0.008 | 0.054 | 1.070 | 0.065 | 0.013 | 0.000 | 0.000 | 0.013 | 0.61 | 272.32 | 0.27 | |
| 31 | 300 | 0.008 | 0.054 | 1.124 | 0.079 | 0.014 | 0.000 | 0.000 | 0.014 | 0.66 | 298.16 | 0.33 | |
| 32 | 310 | 0.008 | 0.054 | 1.177 | 0.094 | 0.015 | 0.000 | 0.000 | 0.015 | 0.72 | 322.84 | 0.38 | |
| 33 | 320 | 0.008 | 0.054 | 1.231 | 0.111 | 0.017 | 0.000 | 0.000 | 0.017 | 0.77 | 346.42 | 0.43 | |
| 34 | 330 | 0.008 | 0.054 | 1.284 | 0.128 | 0.018 | 0.000 | 0.000 | 0.018 | 0.82 | 368.98 | 0.49 | |
| 35 | 340 | 0.008 | 0.054 | 1.338 | 0.147 | 0.019 | 0.000 | 0.000 | 0.019 | 0.87 | 390.56 | 0.54 | |
| 36 | 350 | 0.01 | 0.067 | 1.405 | 0.172 | 0.025 | 0.000 | 0.000 | 0.025 | 1.15 | 517.16 | 0.61 | |
| 37 | 360 | 0.01 | 0.067 | 1.472 | 0.198 | 0.026 | 0.000 | 0.000 | 0.026 | 1.22 | 547.78 | 0.69 | |
| 38 | 370 | 0.01 | 0.067 | 1.539 | 0.226 | 0.028 | 0.000 | 0.000 | 0.028 | 1.29 | 576.83 | 0.78 | |
| 39 | 380 | 0.01 | 0.067 | 1.606 | 0.254 | 0.029 | 0.000 | 0.000 | 0.029 | 1.35 | 604.42 | 0.85 | |
| 40 | 390 | 0.01 | 0.067 | 1.673 | 0.285 | 0.030 | 0.000 | 0.000 | 0.030 | 1.41 | 630.65 | 0.93 | |
| 41 | 400 | 0.01 | 0.067 | 1.739 | 0.316 | 0.031 | 0.000 | 0.000 | 0.031 | 1.46 | 655.60 | 1.00 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | | Design |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|--------------------|----------------|--------|
| Time Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) | |
| 42 | 410 | 0.013 | 0.087 | 1.826 | 0.358 | 0.042 | 0.000 | 0.000 | 0.042 | 1.98 | 887.64 | 1.11 | |
| 43 | 420 | 0.013 | 0.087 | 1.913 | 0.402 | 0.044 | 0.000 | 0.000 | 0.044 | 2.06 | 925.37 | 1.24 | |
| 44 | 430 | 0.013 | 0.087 | 2.000 | 0.448 | 0.046 | 0.000 | 0.000 | 0.046 | 2.14 | 960.85 | 1.37 | |
| 45 | 440 | 0.018 | 0.120 | 2.121 | 0.514 | 0.066 | 0.000 | 0.000 | 0.066 | 3.09 | 1385.17 | 1.55 | |
| 46 | 450 | 0.018 | 0.120 | 2.241 | 0.583 | 0.069 | 0.000 | 0.000 | 0.069 | 3.22 | 1444.26 | 1.79 | |
| 47 | 460 | 0.034 | 0.227 | 2.469 | 0.721 | 0.137 | 0.000 | 0.000 | 0.137 | 6.40 | 2873.73 | 2.23 | |
| 48 | 470 | 0.054 | 0.361 | 2.830 | 0.955 | 0.234 | 0.000 | 0.000 | 0.234 | 10.92 | 4902.52 | 3.17 | |
| 49 | 480 | 0.027 | 0.181 | 3.011 | 1.078 | 0.123 | 0.000 | 0.000 | 0.123 | 5.76 | 2584.79 | 3.93 | |
| 50 | 490 | 0.018 | 0.120 | 3.131 | 1.163 | 0.084 | 0.000 | 0.000 | 0.084 | 3.94 | 1766.72 | 4.07 | |
| 51 | 500 | 0.013 | 0.087 | 3.218 | 1.225 | 0.062 | 0.000 | 0.000 | 0.062 | 2.89 | 1296.12 | 3.97 | |
| 52 | 510 | 0.013 | 0.087 | 3.305 | 1.287 | 0.063 | 0.000 | 0.000 | 0.063 | 2.92 | 1312.15 | 3.81 | |
| 53 | 520 | 0.013 | 0.087 | 3.392 | 1.351 | 0.063 | 0.000 | 0.000 | 0.063 | 2.96 | 1327.46 | 3.69 | |
| 54 | 530 | 0.009 | 0.060 | 3.452 | 1.395 | 0.044 | 0.000 | 0.000 | 0.044 | 2.07 | 927.62 | 3.51 | |
| 55 | 540 | 0.009 | 0.060 | 3.512 | 1.440 | 0.045 | 0.000 | 0.000 | 0.045 | 2.08 | 934.41 | 3.30 | |
| 56 | 550 | 0.009 | 0.060 | 3.572 | 1.485 | 0.045 | 0.000 | 0.000 | 0.045 | 2.10 | 941.00 | 3.12 | |
| 57 | 560 | 0.009 | 0.060 | 3.633 | 1.530 | 0.045 | 0.000 | 0.000 | 0.045 | 2.11 | 947.40 | 2.97 | |
| 58 | 570 | 0.009 | 0.060 | 3.693 | 1.575 | 0.046 | 0.000 | 0.000 | 0.046 | 2.12 | 953.60 | 2.85 | |
| 59 | 580 | 0.009 | 0.060 | 3.753 | 1.621 | 0.046 | 0.000 | 0.000 | 0.046 | 2.14 | 959.62 | 2.74 | |
| 60 | 590 | 0.009 | 0.060 | 3.813 | 1.667 | 0.046 | 0.000 | 0.000 | 0.046 | 2.15 | 965.46 | 2.66 | |
| 61 | 600 | 0.009 | 0.060 | 3.874 | 1.714 | 0.046 | 0.000 | 0.000 | 0.046 | 2.16 | 971.14 | 2.58 | |
| 62 | 610 | 0.009 | 0.060 | 3.934 | 1.760 | 0.047 | 0.000 | 0.000 | 0.047 | 2.18 | 976.65 | 2.52 | |
| 63 | 620 | 0.009 | 0.060 | 3.994 | 1.807 | 0.047 | 0.000 | 0.000 | 0.047 | 2.19 | 982.01 | 2.47 | |
| 64 | 630 | 0.009 | 0.060 | 4.054 | 1.854 | 0.047 | 0.000 | 0.000 | 0.047 | 2.20 | 987.22 | 2.43 | |
| 65 | 640 | 0.009 | 0.060 | 4.114 | 1.902 | 0.047 | 0.000 | 0.000 | 0.047 | 2.21 | 992.28 | 2.40 | |
| 66 | 650 | 0.007 | 0.047 | 4.161 | 1.939 | 0.037 | 0.000 | 0.000 | 0.037 | 1.73 | 775.18 | 2.34 | |
| 67 | 660 | 0.007 | 0.047 | 4.208 | 1.976 | 0.037 | 0.000 | 0.000 | 0.037 | 1.73 | 778.10 | 2.25 | |
| 68 | 670 | 0.007 | 0.047 | 4.255 | 2.013 | 0.037 | 0.000 | 0.000 | 0.037 | 1.74 | 780.95 | 2.17 | |
| 69 | 680 | 0.007 | 0.047 | 4.302 | 2.051 | 0.037 | 0.000 | 0.000 | 0.037 | 1.75 | 783.74 | 2.11 | |
| 70 | 690 | 0.007 | 0.047 | 4.349 | 2.088 | 0.038 | 0.000 | 0.000 | 0.038 | 1.75 | 786.48 | 2.06 | |
| 71 | 700 | 0.007 | 0.047 | 4.395 | 2.126 | 0.038 | 0.000 | 0.000 | 0.038 | 1.76 | 789.16 | 2.01 | |
| 72 | 710 | 0.007 | 0.047 | 4.442 | 2.164 | 0.038 | 0.000 | 0.000 | 0.038 | 1.76 | 791.78 | 1.98 | |
| 73 | 720 | 0.007 | 0.047 | 4.489 | 2.202 | 0.038 | 0.000 | 0.000 | 0.038 | 1.77 | 794.35 | 1.94 | |
| 74 | 730 | 0.007 | 0.047 | 4.536 | 2.240 | 0.038 | 0.000 | 0.000 | 0.038 | 1.78 | 796.87 | 1.92 | |
| 75 | 740 | 0.007 | 0.047 | 4.583 | 2.278 | 0.038 | 0.000 | 0.000 | 0.038 | 1.78 | 799.34 | 1.90 | |
| 76 | 750 | 0.007 | 0.047 | 4.629 | 2.316 | 0.038 | 0.000 | 0.000 | 0.038 | 1.79 | 801.75 | 1.88 | |
| 77 | 760 | 0.007 | 0.047 | 4.676 | 2.355 | 0.038 | 0.000 | 0.000 | 0.038 | 1.79 | 804.12 | 1.87 | |
| 78 | 770 | 0.006 | 0.040 | 4.716 | 2.388 | 0.033 | 0.000 | 0.000 | 0.033 | 1.54 | 691.10 | 1.84 | |
| 79 | 780 | 0.006 | 0.040 | 4.757 | 2.421 | 0.033 | 0.000 | 0.000 | 0.033 | 1.54 | 692.78 | 1.80 | |
| 80 | 790 | 0.006 | 0.040 | 4.797 | 2.454 | 0.033 | 0.000 | 0.000 | 0.033 | 1.55 | 694.43 | 1.76 | |
| 81 | 800 | 0.006 | 0.040 | 4.837 | 2.487 | 0.033 | 0.000 | 0.000 | 0.033 | 1.55 | 696.05 | 1.73 | |
| 82 | 810 | 0.006 | 0.040 | 4.877 | 2.520 | 0.033 | 0.000 | 0.000 | 0.033 | 1.55 | 697.64 | 1.70 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| Rainfall | | | | | Pervious | | Impervious | | | | Instant | | Design |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|--------------------|----------------|--------|
| Time Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) | |
| 83 | 820 | 0.006 | 0.040 | 4.917 | 2.554 | 0.033 | 0.000 | 0.000 | 0.033 | 1.56 | 699.21 | 1.68 | |
| 84 | 830 | 0.006 | 0.040 | 4.957 | 2.587 | 0.033 | 0.000 | 0.000 | 0.033 | 1.56 | 700.76 | 1.66 | |
| 85 | 840 | 0.006 | 0.040 | 4.997 | 2.621 | 0.034 | 0.000 | 0.000 | 0.034 | 1.56 | 702.27 | 1.65 | |
| 86 | 850 | 0.006 | 0.040 | 5.038 | 2.654 | 0.034 | 0.000 | 0.000 | 0.034 | 1.57 | 703.77 | 1.64 | |
| 87 | 860 | 0.006 | 0.040 | 5.078 | 2.688 | 0.034 | 0.000 | 0.000 | 0.034 | 1.57 | 705.24 | 1.63 | |
| 88 | 870 | 0.006 | 0.040 | 5.118 | 2.722 | 0.034 | 0.000 | 0.000 | 0.034 | 1.57 | 706.68 | 1.62 | |
| 89 | 880 | 0.006 | 0.040 | 5.158 | 2.756 | 0.034 | 0.000 | 0.000 | 0.034 | 1.58 | 708.11 | 1.61 | |
| 90 | 890 | 0.005 | 0.033 | 5.191 | 2.784 | 0.028 | 0.000 | 0.000 | 0.028 | 1.32 | 591.16 | 1.59 | |
| 91 | 900 | 0.005 | 0.033 | 5.225 | 2.812 | 0.028 | 0.000 | 0.000 | 0.028 | 1.32 | 592.12 | 1.55 | |
| 92 | 910 | 0.005 | 0.033 | 5.258 | 2.841 | 0.028 | 0.000 | 0.000 | 0.028 | 1.32 | 593.06 | 1.52 | |
| 93 | 920 | 0.005 | 0.033 | 5.292 | 2.869 | 0.028 | 0.000 | 0.000 | 0.028 | 1.32 | 594.00 | 1.49 | |
| 94 | 930 | 0.005 | 0.033 | 5.325 | 2.897 | 0.028 | 0.000 | 0.000 | 0.028 | 1.33 | 594.92 | 1.46 | |
| 95 | 940 | 0.005 | 0.033 | 5.359 | 2.926 | 0.028 | 0.000 | 0.000 | 0.028 | 1.33 | 595.83 | 1.44 | |
| 96 | 950 | 0.005 | 0.033 | 5.392 | 2.954 | 0.029 | 0.000 | 0.000 | 0.029 | 1.33 | 596.73 | 1.43 | |
| 97 | 960 | 0.005 | 0.033 | 5.426 | 2.983 | 0.029 | 0.000 | 0.000 | 0.029 | 1.33 | 597.62 | 1.41 | |
| 98 | 970 | 0.005 | 0.033 | 5.459 | 3.011 | 0.029 | 0.000 | 0.000 | 0.029 | 1.33 | 598.49 | 1.40 | |
| 99 | 980 | 0.005 | 0.033 | 5.492 | 3.040 | 0.029 | 0.000 | 0.000 | 0.029 | 1.34 | 599.36 | 1.39 | |
| 100 | 990 | 0.005 | 0.033 | 5.526 | 3.069 | 0.029 | 0.000 | 0.000 | 0.029 | 1.34 | 600.21 | 1.38 | |
| 101 | 1000 | 0.005 | 0.033 | 5.559 | 3.097 | 0.029 | 0.000 | 0.000 | 0.029 | 1.34 | 601.06 | 1.38 | |
| 102 | 1010 | 0.004 | 0.027 | 5.586 | 3.120 | 0.023 | 0.000 | 0.000 | 0.023 | 1.07 | 481.44 | 1.35 | |
| 103 | 1020 | 0.004 | 0.027 | 5.613 | 3.143 | 0.023 | 0.000 | 0.000 | 0.023 | 1.07 | 481.97 | 1.31 | |
| 104 | 1030 | 0.004 | 0.027 | 5.640 | 3.166 | 0.023 | 0.000 | 0.000 | 0.023 | 1.08 | 482.49 | 1.28 | |
| 105 | 1040 | 0.004 | 0.027 | 5.666 | 3.190 | 0.023 | 0.000 | 0.000 | 0.023 | 1.08 | 483.01 | 1.25 | |
| 106 | 1050 | 0.004 | 0.027 | 5.693 | 3.213 | 0.023 | 0.000 | 0.000 | 0.023 | 1.08 | 483.52 | 1.22 | |
| 107 | 1060 | 0.004 | 0.027 | 5.720 | 3.236 | 0.023 | 0.000 | 0.000 | 0.023 | 1.08 | 484.03 | 1.20 | |
| 108 | 1070 | 0.004 | 0.027 | 5.747 | 3.259 | 0.023 | 0.000 | 0.000 | 0.023 | 1.08 | 484.53 | 1.18 | |
| 109 | 1080 | 0.004 | 0.027 | 5.773 | 3.282 | 0.023 | 0.000 | 0.000 | 0.023 | 1.08 | 485.03 | 1.17 | |
| 110 | 1090 | 0.004 | 0.027 | 5.800 | 3.305 | 0.023 | 0.000 | 0.000 | 0.023 | 1.08 | 485.52 | 1.16 | |
| 111 | 1100 | 0.004 | 0.027 | 5.827 | 3.328 | 0.023 | 0.000 | 0.000 | 0.023 | 1.08 | 486.01 | 1.14 | |
| 112 | 1110 | 0.004 | 0.027 | 5.854 | 3.352 | 0.023 | 0.000 | 0.000 | 0.023 | 1.08 | 486.49 | 1.14 | |
| 113 | 1120 | 0.004 | 0.027 | 5.881 | 3.375 | 0.023 | 0.000 | 0.000 | 0.023 | 1.09 | 486.97 | 1.13 | |
| 114 | 1130 | 0.004 | 0.027 | 5.907 | 3.398 | 0.023 | 0.000 | 0.000 | 0.023 | 1.09 | 487.44 | 1.12 | |
| 115 | 1140 | 0.004 | 0.027 | 5.934 | 3.422 | 0.023 | 0.000 | 0.000 | 0.023 | 1.09 | 487.91 | 1.12 | |
| 116 | 1150 | 0.004 | 0.027 | 5.961 | 3.445 | 0.023 | 0.000 | 0.000 | 0.023 | 1.09 | 488.37 | 1.11 | |
| 117 | 1160 | 0.004 | 0.027 | 5.988 | 3.468 | 0.023 | 0.000 | 0.000 | 0.023 | 1.09 | 488.83 | 1.11 | |
| 118 | 1170 | 0.004 | 0.027 | 6.014 | 3.492 | 0.023 | 0.000 | 0.000 | 0.023 | 1.09 | 489.29 | 1.11 | |
| 119 | 1180 | 0.004 | 0.027 | 6.041 | 3.515 | 0.023 | 0.000 | 0.000 | 0.023 | 1.09 | 489.74 | 1.10 | |
| 120 | 1190 | 0.004 | 0.027 | 6.068 | 3.538 | 0.023 | 0.000 | 0.000 | 0.023 | 1.09 | 490.18 | 1.10 | |
| 121 | 1200 | 0.004 | 0.027 | 6.095 | 3.562 | 0.023 | 0.000 | 0.000 | 0.023 | 1.09 | 490.63 | 1.10 | |
| 122 | 1210 | 0.004 | 0.027 | 6.121 | 3.585 | 0.023 | 0.000 | 0.000 | 0.023 | 1.09 | 491.06 | 1.10 | |
| 123 | 1220 | 0.004 | 0.027 | 6.148 | 3.609 | 0.023 | 0.000 | 0.000 | 0.023 | 1.10 | 491.50 | 1.10 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) | (cfs) |
| 124 | 1230 | 0.004 | 0.027 | 6.175 | 3.632 | 0.023 | 0.000 | 0.000 | 0.023 | 1.10 | 491.93 | 1.10 | |
| 125 | 1240 | 0.004 | 0.027 | 6.202 | 3.656 | 0.024 | 0.000 | 0.000 | 0.024 | 1.10 | 492.35 | 1.10 | |
| 126 | 1250 | 0.004 | 0.027 | 6.228 | 3.679 | 0.024 | 0.000 | 0.000 | 0.024 | 1.10 | 492.78 | 1.10 | |
| 127 | 1260 | 0.004 | 0.027 | 6.255 | 3.703 | 0.024 | 0.000 | 0.000 | 0.024 | 1.10 | 493.19 | 1.10 | |
| 128 | 1270 | 0.004 | 0.027 | 6.282 | 3.726 | 0.024 | 0.000 | 0.000 | 0.024 | 1.10 | 493.61 | 1.10 | |
| 129 | 1280 | 0.004 | 0.027 | 6.309 | 3.750 | 0.024 | 0.000 | 0.000 | 0.024 | 1.10 | 494.02 | 1.10 | |
| 130 | 1290 | 0.004 | 0.027 | 6.335 | 3.774 | 0.024 | 0.000 | 0.000 | 0.024 | 1.10 | 494.42 | 1.10 | |
| 131 | 1300 | 0.004 | 0.027 | 6.362 | 3.797 | 0.024 | 0.000 | 0.000 | 0.024 | 1.10 | 494.83 | 1.10 | |
| 132 | 1310 | 0.004 | 0.027 | 6.389 | 3.821 | 0.024 | 0.000 | 0.000 | 0.024 | 1.10 | 495.23 | 1.10 | |
| 133 | 1320 | 0.004 | 0.027 | 6.416 | 3.845 | 0.024 | 0.000 | 0.000 | 0.024 | 1.10 | 495.62 | 1.10 | |
| 134 | 1330 | 0.004 | 0.027 | 6.442 | 3.868 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 496.01 | 1.10 | |
| 135 | 1340 | 0.004 | 0.027 | 6.469 | 3.892 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 496.40 | 1.10 | |
| 136 | 1350 | 0.004 | 0.027 | 6.496 | 3.916 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 496.79 | 1.10 | |
| 137 | 1360 | 0.004 | 0.027 | 6.523 | 3.939 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 497.17 | 1.10 | |
| 138 | 1370 | 0.004 | 0.027 | 6.550 | 3.963 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 497.55 | 1.10 | |
| 139 | 1380 | 0.004 | 0.027 | 6.576 | 3.987 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 497.92 | 1.10 | |
| 140 | 1390 | 0.004 | 0.027 | 6.603 | 4.011 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 498.29 | 1.11 | |
| 141 | 1400 | 0.004 | 0.027 | 6.630 | 4.035 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 498.66 | 1.11 | |
| 142 | 1410 | 0.004 | 0.027 | 6.657 | 4.058 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 499.02 | 1.11 | |
| 143 | 1420 | 0.004 | 0.027 | 6.683 | 4.082 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 499.39 | 1.11 | |
| 144 | 1430 | 0.004 | 0.027 | 6.710 | 4.106 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 499.74 | 1.11 | |
| 145 | 1440 | 0.004 | 0.027 | 6.737 | 4.130 | 0.024 | 0.000 | 0.000 | 0.024 | 1.11 | 500.10 | 1.11 | |

| | | | |
|------------------|--------------|----------------|-------------|
| Peak Flow | 10.92 | 4902.52 | 4.07 |
|------------------|--------------|----------------|-------------|

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| Time Increment | Time (min) | Rainfall | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 2 | 10 | 0.004 | 0.030 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 3 | 20 | 0.004 | 0.030 | 0.059 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 4 | 30 | 0.004 | 0.030 | 0.089 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 5 | 40 | 0.004 | 0.030 | 0.119 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 6 | 50 | 0.004 | 0.030 | 0.149 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 7 | 60 | 0.004 | 0.030 | 0.178 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 8 | 70 | 0.004 | 0.030 | 0.208 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 9 | 80 | 0.004 | 0.030 | 0.238 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 10 | 90 | 0.005 | 0.037 | 0.275 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 11 | 100 | 0.005 | 0.037 | 0.312 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 12 | 110 | 0.005 | 0.037 | 0.349 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 13 | 120 | 0.005 | 0.037 | 0.386 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 14 | 130 | 0.005 | 0.037 | 0.424 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 15 | 140 | 0.005 | 0.037 | 0.461 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 16 | 150 | 0.005 | 0.037 | 0.498 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 17 | 160 | 0.006 | 0.045 | 0.542 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 18 | 170 | 0.006 | 0.045 | 0.587 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 19 | 180 | 0.006 | 0.045 | 0.632 | 0.000 | 0.000 | 0.000 | 0.000 | 0.02 | 8.08 | 0.00 | |
| 20 | 190 | 0.006 | 0.045 | 0.676 | 0.002 | 0.002 | 0.000 | 0.000 | 0.002 | 0.08 | 34.25 | 0.01 |
| 21 | 200 | 0.006 | 0.045 | 0.721 | 0.005 | 0.003 | 0.000 | 0.000 | 0.003 | 0.13 | 60.02 | 0.02 |
| 22 | 210 | 0.006 | 0.045 | 0.765 | 0.009 | 0.004 | 0.000 | 0.000 | 0.004 | 0.19 | 84.71 | 0.04 |
| 23 | 220 | 0.007 | 0.052 | 0.817 | 0.015 | 0.006 | 0.000 | 0.000 | 0.006 | 0.29 | 128.65 | 0.07 |
| 24 | 230 | 0.007 | 0.052 | 0.869 | 0.023 | 0.008 | 0.000 | 0.000 | 0.008 | 0.35 | 159.30 | 0.11 |
| 25 | 240 | 0.007 | 0.052 | 0.921 | 0.032 | 0.009 | 0.000 | 0.000 | 0.009 | 0.42 | 188.51 | 0.15 |
| 26 | 250 | 0.007 | 0.052 | 0.973 | 0.042 | 0.010 | 0.000 | 0.000 | 0.010 | 0.48 | 216.36 | 0.19 |
| 27 | 260 | 0.007 | 0.052 | 1.025 | 0.054 | 0.012 | 0.000 | 0.000 | 0.012 | 0.54 | 242.94 | 0.24 |
| 28 | 270 | 0.007 | 0.052 | 1.077 | 0.066 | 0.013 | 0.000 | 0.000 | 0.013 | 0.60 | 268.32 | 0.29 |
| 29 | 280 | 0.007 | 0.052 | 1.129 | 0.080 | 0.014 | 0.000 | 0.000 | 0.014 | 0.65 | 292.58 | 0.34 |
| 30 | 290 | 0.008 | 0.059 | 1.189 | 0.098 | 0.017 | 0.000 | 0.000 | 0.017 | 0.81 | 362.73 | 0.40 |
| 31 | 300 | 0.008 | 0.059 | 1.248 | 0.116 | 0.019 | 0.000 | 0.000 | 0.019 | 0.87 | 391.54 | 0.46 |
| 32 | 310 | 0.008 | 0.059 | 1.308 | 0.136 | 0.020 | 0.000 | 0.000 | 0.020 | 0.93 | 418.97 | 0.53 |
| 33 | 320 | 0.008 | 0.059 | 1.367 | 0.158 | 0.021 | 0.000 | 0.000 | 0.021 | 0.99 | 445.09 | 0.59 |
| 34 | 330 | 0.008 | 0.059 | 1.427 | 0.180 | 0.022 | 0.000 | 0.000 | 0.022 | 1.05 | 470.00 | 0.65 |
| 35 | 340 | 0.008 | 0.059 | 1.486 | 0.204 | 0.024 | 0.000 | 0.000 | 0.024 | 1.10 | 493.76 | 0.71 |
| 36 | 350 | 0.01 | 0.074 | 1.560 | 0.235 | 0.031 | 0.000 | 0.000 | 0.031 | 1.45 | 648.97 | 0.80 |
| 37 | 360 | 0.01 | 0.074 | 1.635 | 0.267 | 0.033 | 0.000 | 0.000 | 0.033 | 1.52 | 682.45 | 0.90 |
| 38 | 370 | 0.01 | 0.074 | 1.709 | 0.301 | 0.034 | 0.000 | 0.000 | 0.034 | 1.59 | 714.11 | 0.99 |
| 39 | 380 | 0.01 | 0.074 | 1.783 | 0.337 | 0.036 | 0.000 | 0.000 | 0.036 | 1.66 | 744.08 | 1.09 |
| 40 | 390 | 0.01 | 0.074 | 1.858 | 0.374 | 0.037 | 0.000 | 0.000 | 0.037 | 1.72 | 772.48 | 1.17 |
| 41 | 400 | 0.01 | 0.074 | 1.932 | 0.412 | 0.038 | 0.000 | 0.000 | 0.038 | 1.78 | 799.41 | 1.26 |
| 42 | 410 | 0.013 | 0.097 | 2.028 | 0.463 | 0.051 | 0.000 | 0.000 | 0.051 | 2.40 | 1077.26 | 1.38 |
| 43 | 420 | 0.013 | 0.097 | 2.125 | 0.517 | 0.053 | 0.000 | 0.000 | 0.053 | 2.49 | 1117.70 | 1.54 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| Time Increment | Time (min) | Rainfall | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 44 | 430 | 0.013 | 0.097 | 2.222 | 0.572 | 0.055 | 0.000 | 0.000 | 0.055 | 2.57 | 1155.60 | 1.68 |
| 45 | 440 | 0.018 | 0.134 | 2.355 | 0.651 | 0.079 | 0.000 | 0.000 | 0.079 | 3.70 | 1658.33 | 1.90 |
| 46 | 450 | 0.018 | 0.134 | 2.489 | 0.733 | 0.082 | 0.000 | 0.000 | 0.082 | 3.83 | 1720.93 | 2.17 |
| 47 | 460 | 0.034 | 0.253 | 2.742 | 0.896 | 0.163 | 0.000 | 0.000 | 0.163 | 7.59 | 3404.15 | 2.69 |
| 48 | 470 | 0.054 | 0.401 | 3.143 | 1.171 | 0.275 | 0.000 | 0.000 | 0.275 | 12.84 | 5760.43 | 3.79 |
| 49 | 480 | 0.027 | 0.201 | 3.344 | 1.315 | 0.144 | 0.000 | 0.000 | 0.144 | 6.73 | 3018.79 | 4.67 |
| 50 | 490 | 0.018 | 0.134 | 3.477 | 1.414 | 0.098 | 0.000 | 0.000 | 0.098 | 4.58 | 2057.42 | 4.82 |
| 51 | 500 | 0.013 | 0.097 | 3.574 | 1.486 | 0.072 | 0.000 | 0.000 | 0.072 | 3.36 | 1506.63 | 4.69 |
| 52 | 510 | 0.013 | 0.097 | 3.670 | 1.558 | 0.073 | 0.000 | 0.000 | 0.073 | 3.39 | 1523.07 | 4.50 |
| 53 | 520 | 0.013 | 0.097 | 3.767 | 1.632 | 0.073 | 0.000 | 0.000 | 0.073 | 3.43 | 1538.74 | 4.34 |
| 54 | 530 | 0.009 | 0.067 | 3.834 | 1.683 | 0.051 | 0.000 | 0.000 | 0.051 | 2.39 | 1074.08 | 4.13 |
| 55 | 540 | 0.009 | 0.067 | 3.901 | 1.735 | 0.052 | 0.000 | 0.000 | 0.052 | 2.41 | 1081.01 | 3.88 |
| 56 | 550 | 0.009 | 0.067 | 3.968 | 1.787 | 0.052 | 0.000 | 0.000 | 0.052 | 2.42 | 1087.72 | 3.66 |
| 57 | 560 | 0.009 | 0.067 | 4.034 | 1.839 | 0.052 | 0.000 | 0.000 | 0.052 | 2.44 | 1094.23 | 3.48 |
| 58 | 570 | 0.009 | 0.067 | 4.101 | 1.892 | 0.053 | 0.000 | 0.000 | 0.053 | 2.45 | 1100.53 | 3.33 |
| 59 | 580 | 0.009 | 0.067 | 4.168 | 1.944 | 0.053 | 0.000 | 0.000 | 0.053 | 2.47 | 1106.64 | 3.20 |
| 60 | 590 | 0.009 | 0.067 | 4.235 | 1.997 | 0.053 | 0.000 | 0.000 | 0.053 | 2.48 | 1112.56 | 3.09 |
| 61 | 600 | 0.009 | 0.067 | 4.302 | 2.051 | 0.053 | 0.000 | 0.000 | 0.053 | 2.49 | 1118.31 | 3.01 |
| 62 | 610 | 0.009 | 0.067 | 4.369 | 2.105 | 0.054 | 0.000 | 0.000 | 0.054 | 2.50 | 1123.89 | 2.93 |
| 63 | 620 | 0.009 | 0.067 | 4.436 | 2.159 | 0.054 | 0.000 | 0.000 | 0.054 | 2.52 | 1129.30 | 2.87 |
| 64 | 630 | 0.009 | 0.067 | 4.503 | 2.213 | 0.054 | 0.000 | 0.000 | 0.054 | 2.53 | 1134.55 | 2.82 |
| 65 | 640 | 0.009 | 0.067 | 4.569 | 2.267 | 0.054 | 0.000 | 0.000 | 0.054 | 2.54 | 1139.66 | 2.78 |
| 66 | 650 | 0.007 | 0.052 | 4.621 | 2.310 | 0.042 | 0.000 | 0.000 | 0.042 | 1.98 | 889.83 | 2.70 |
| 67 | 660 | 0.007 | 0.052 | 4.673 | 2.352 | 0.043 | 0.000 | 0.000 | 0.043 | 1.99 | 892.77 | 2.60 |
| 68 | 670 | 0.007 | 0.052 | 4.725 | 2.395 | 0.043 | 0.000 | 0.000 | 0.043 | 2.00 | 895.64 | 2.51 |
| 69 | 680 | 0.007 | 0.052 | 4.777 | 2.438 | 0.043 | 0.000 | 0.000 | 0.043 | 2.00 | 898.44 | 2.43 |
| 70 | 690 | 0.007 | 0.052 | 4.830 | 2.481 | 0.043 | 0.000 | 0.000 | 0.043 | 2.01 | 901.19 | 2.37 |
| 71 | 700 | 0.007 | 0.052 | 4.882 | 2.524 | 0.043 | 0.000 | 0.000 | 0.043 | 2.01 | 903.87 | 2.32 |
| 72 | 710 | 0.007 | 0.052 | 4.934 | 2.567 | 0.043 | 0.000 | 0.000 | 0.043 | 2.02 | 906.50 | 2.27 |
| 73 | 720 | 0.007 | 0.052 | 4.986 | 2.611 | 0.043 | 0.000 | 0.000 | 0.043 | 2.03 | 909.08 | 2.24 |
| 74 | 730 | 0.007 | 0.052 | 5.038 | 2.654 | 0.044 | 0.000 | 0.000 | 0.044 | 2.03 | 911.60 | 2.21 |
| 75 | 740 | 0.007 | 0.052 | 5.090 | 2.698 | 0.044 | 0.000 | 0.000 | 0.044 | 2.04 | 914.06 | 2.18 |
| 76 | 750 | 0.007 | 0.052 | 5.142 | 2.742 | 0.044 | 0.000 | 0.000 | 0.044 | 2.04 | 916.48 | 2.16 |
| 77 | 760 | 0.007 | 0.052 | 5.194 | 2.786 | 0.044 | 0.000 | 0.000 | 0.044 | 2.05 | 918.84 | 2.14 |
| 78 | 770 | 0.006 | 0.045 | 5.238 | 2.823 | 0.038 | 0.000 | 0.000 | 0.038 | 1.76 | 789.43 | 2.11 |
| 79 | 780 | 0.006 | 0.045 | 5.283 | 2.861 | 0.038 | 0.000 | 0.000 | 0.038 | 1.76 | 791.10 | 2.06 |
| 80 | 790 | 0.006 | 0.045 | 5.327 | 2.899 | 0.038 | 0.000 | 0.000 | 0.038 | 1.77 | 792.74 | 2.01 |
| 81 | 800 | 0.006 | 0.045 | 5.372 | 2.937 | 0.038 | 0.000 | 0.000 | 0.038 | 1.77 | 794.36 | 1.98 |
| 82 | 810 | 0.006 | 0.045 | 5.416 | 2.975 | 0.038 | 0.000 | 0.000 | 0.038 | 1.77 | 795.95 | 1.95 |
| 83 | 820 | 0.006 | 0.045 | 5.461 | 3.013 | 0.038 | 0.000 | 0.000 | 0.038 | 1.78 | 797.51 | 1.92 |
| 84 | 830 | 0.006 | 0.045 | 5.506 | 3.051 | 0.038 | 0.000 | 0.000 | 0.038 | 1.78 | 799.04 | 1.90 |
| 85 | 840 | 0.006 | 0.045 | 5.550 | 3.090 | 0.038 | 0.000 | 0.000 | 0.038 | 1.78 | 800.55 | 1.88 |
| 86 | 850 | 0.006 | 0.045 | 5.595 | 3.128 | 0.038 | 0.000 | 0.000 | 0.038 | 1.79 | 802.04 | 1.87 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| Time Increment | Time (min) | Rainfall | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 87 | 860 | 0.006 | 0.045 | 5.639 | 3.166 | 0.038 | 0.000 | 0.000 | 0.038 | 1.79 | 803.50 | 1.86 |
| 88 | 870 | 0.006 | 0.045 | 5.684 | 3.205 | 0.038 | 0.000 | 0.000 | 0.038 | 1.79 | 804.93 | 1.85 |
| 89 | 880 | 0.006 | 0.045 | 5.729 | 3.243 | 0.039 | 0.000 | 0.000 | 0.039 | 1.80 | 806.34 | 1.84 |
| 90 | 890 | 0.005 | 0.037 | 5.766 | 3.275 | 0.032 | 0.000 | 0.000 | 0.032 | 1.50 | 673.01 | 1.81 |
| 91 | 900 | 0.005 | 0.037 | 5.803 | 3.307 | 0.032 | 0.000 | 0.000 | 0.032 | 1.50 | 673.96 | 1.77 |
| 92 | 910 | 0.005 | 0.037 | 5.840 | 3.340 | 0.032 | 0.000 | 0.000 | 0.032 | 1.50 | 674.90 | 1.73 |
| 93 | 920 | 0.005 | 0.037 | 5.877 | 3.372 | 0.032 | 0.000 | 0.000 | 0.032 | 1.51 | 675.83 | 1.70 |
| 94 | 930 | 0.005 | 0.037 | 5.914 | 3.404 | 0.032 | 0.000 | 0.000 | 0.032 | 1.51 | 676.74 | 1.67 |
| 95 | 940 | 0.005 | 0.037 | 5.951 | 3.437 | 0.032 | 0.000 | 0.000 | 0.032 | 1.51 | 677.64 | 1.64 |
| 96 | 950 | 0.005 | 0.037 | 5.989 | 3.469 | 0.032 | 0.000 | 0.000 | 0.032 | 1.51 | 678.53 | 1.62 |
| 97 | 960 | 0.005 | 0.037 | 6.026 | 3.502 | 0.032 | 0.000 | 0.000 | 0.032 | 1.51 | 679.40 | 1.61 |
| 98 | 970 | 0.005 | 0.037 | 6.063 | 3.534 | 0.032 | 0.000 | 0.000 | 0.032 | 1.52 | 680.27 | 1.59 |
| 99 | 980 | 0.005 | 0.037 | 6.100 | 3.567 | 0.033 | 0.000 | 0.000 | 0.033 | 1.52 | 681.12 | 1.58 |
| 100 | 990 | 0.005 | 0.037 | 6.137 | 3.599 | 0.033 | 0.000 | 0.000 | 0.033 | 1.52 | 681.97 | 1.57 |
| 101 | 1000 | 0.005 | 0.037 | 6.174 | 3.632 | 0.033 | 0.000 | 0.000 | 0.033 | 1.52 | 682.80 | 1.57 |
| 102 | 1010 | 0.004 | 0.030 | 6.204 | 3.658 | 0.026 | 0.000 | 0.000 | 0.026 | 1.22 | 546.83 | 1.54 |
| 103 | 1020 | 0.004 | 0.030 | 6.234 | 3.684 | 0.026 | 0.000 | 0.000 | 0.026 | 1.22 | 547.35 | 1.49 |
| 104 | 1030 | 0.004 | 0.030 | 6.263 | 3.710 | 0.026 | 0.000 | 0.000 | 0.026 | 1.22 | 547.87 | 1.45 |
| 105 | 1040 | 0.004 | 0.030 | 6.293 | 3.736 | 0.026 | 0.000 | 0.000 | 0.026 | 1.22 | 548.37 | 1.42 |
| 106 | 1050 | 0.004 | 0.030 | 6.323 | 3.763 | 0.026 | 0.000 | 0.000 | 0.026 | 1.22 | 548.88 | 1.39 |
| 107 | 1060 | 0.004 | 0.030 | 6.353 | 3.789 | 0.026 | 0.000 | 0.000 | 0.026 | 1.22 | 549.38 | 1.36 |
| 108 | 1070 | 0.004 | 0.030 | 6.382 | 3.815 | 0.026 | 0.000 | 0.000 | 0.026 | 1.23 | 549.87 | 1.34 |
| 109 | 1080 | 0.004 | 0.030 | 6.412 | 3.841 | 0.026 | 0.000 | 0.000 | 0.026 | 1.23 | 550.36 | 1.33 |
| 110 | 1090 | 0.004 | 0.030 | 6.442 | 3.868 | 0.026 | 0.000 | 0.000 | 0.026 | 1.23 | 550.84 | 1.31 |
| 111 | 1100 | 0.004 | 0.030 | 6.472 | 3.894 | 0.026 | 0.000 | 0.000 | 0.026 | 1.23 | 551.32 | 1.30 |
| 112 | 1110 | 0.004 | 0.030 | 6.501 | 3.920 | 0.026 | 0.000 | 0.000 | 0.026 | 1.23 | 551.80 | 1.29 |
| 113 | 1120 | 0.004 | 0.030 | 6.531 | 3.947 | 0.026 | 0.000 | 0.000 | 0.026 | 1.23 | 552.27 | 1.28 |
| 114 | 1130 | 0.004 | 0.030 | 6.561 | 3.973 | 0.026 | 0.000 | 0.000 | 0.026 | 1.23 | 552.73 | 1.27 |
| 115 | 1140 | 0.004 | 0.030 | 6.590 | 4.000 | 0.026 | 0.000 | 0.000 | 0.026 | 1.23 | 553.19 | 1.27 |
| 116 | 1150 | 0.004 | 0.030 | 6.620 | 4.026 | 0.026 | 0.000 | 0.000 | 0.026 | 1.23 | 553.65 | 1.26 |
| 117 | 1160 | 0.004 | 0.030 | 6.650 | 4.052 | 0.026 | 0.000 | 0.000 | 0.026 | 1.23 | 554.10 | 1.26 |
| 118 | 1170 | 0.004 | 0.030 | 6.680 | 4.079 | 0.026 | 0.000 | 0.000 | 0.026 | 1.24 | 554.55 | 1.25 |
| 119 | 1180 | 0.004 | 0.030 | 6.709 | 4.105 | 0.027 | 0.000 | 0.000 | 0.027 | 1.24 | 554.99 | 1.25 |
| 120 | 1190 | 0.004 | 0.030 | 6.739 | 4.132 | 0.027 | 0.000 | 0.000 | 0.027 | 1.24 | 555.43 | 1.25 |
| 121 | 1200 | 0.004 | 0.030 | 6.769 | 4.159 | 0.027 | 0.000 | 0.000 | 0.027 | 1.24 | 555.86 | 1.25 |
| 122 | 1210 | 0.004 | 0.030 | 6.798 | 4.185 | 0.027 | 0.000 | 0.000 | 0.027 | 1.24 | 556.29 | 1.25 |
| 123 | 1220 | 0.004 | 0.030 | 6.828 | 4.212 | 0.027 | 0.000 | 0.000 | 0.027 | 1.24 | 556.72 | 1.25 |
| 124 | 1230 | 0.004 | 0.030 | 6.858 | 4.238 | 0.027 | 0.000 | 0.000 | 0.027 | 1.24 | 557.14 | 1.25 |
| 125 | 1240 | 0.004 | 0.030 | 6.888 | 4.265 | 0.027 | 0.000 | 0.000 | 0.027 | 1.24 | 557.55 | 1.24 |
| 126 | 1250 | 0.004 | 0.030 | 6.917 | 4.292 | 0.027 | 0.000 | 0.000 | 0.027 | 1.24 | 557.97 | 1.24 |
| 127 | 1260 | 0.004 | 0.030 | 6.947 | 4.318 | 0.027 | 0.000 | 0.000 | 0.027 | 1.24 | 558.38 | 1.24 |
| 128 | 1270 | 0.004 | 0.030 | 6.977 | 4.345 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 558.78 | 1.24 |
| 129 | 1280 | 0.004 | 0.030 | 7.006 | 4.372 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 559.18 | 1.24 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| Time Increment | Time (min) | Rainfall | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 130 | 1290 | 0.004 | 0.030 | 7.036 | 4.398 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 559.58 | 1.24 |
| 131 | 1300 | 0.004 | 0.030 | 7.066 | 4.425 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 559.98 | 1.25 |
| 132 | 1310 | 0.004 | 0.030 | 7.096 | 4.452 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 560.37 | 1.25 |
| 133 | 1320 | 0.004 | 0.030 | 7.125 | 4.479 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 560.75 | 1.25 |
| 134 | 1330 | 0.004 | 0.030 | 7.155 | 4.505 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 561.14 | 1.25 |
| 135 | 1340 | 0.004 | 0.030 | 7.185 | 4.532 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 561.52 | 1.25 |
| 136 | 1350 | 0.004 | 0.030 | 7.215 | 4.559 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 561.89 | 1.25 |
| 137 | 1360 | 0.004 | 0.030 | 7.244 | 4.586 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 562.26 | 1.25 |
| 138 | 1370 | 0.004 | 0.030 | 7.274 | 4.613 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 562.63 | 1.25 |
| 139 | 1380 | 0.004 | 0.030 | 7.304 | 4.640 | 0.027 | 0.000 | 0.000 | 0.027 | 1.25 | 563.00 | 1.25 |
| 140 | 1390 | 0.004 | 0.030 | 7.333 | 4.667 | 0.027 | 0.000 | 0.000 | 0.027 | 1.26 | 563.36 | 1.25 |
| 141 | 1400 | 0.004 | 0.030 | 7.363 | 4.694 | 0.027 | 0.000 | 0.000 | 0.027 | 1.26 | 563.72 | 1.25 |
| 142 | 1410 | 0.004 | 0.030 | 7.393 | 4.721 | 0.027 | 0.000 | 0.000 | 0.027 | 1.26 | 564.08 | 1.25 |
| 143 | 1420 | 0.004 | 0.030 | 7.423 | 4.747 | 0.027 | 0.000 | 0.000 | 0.027 | 1.26 | 564.43 | 1.25 |
| 144 | 1430 | 0.004 | 0.030 | 7.452 | 4.774 | 0.027 | 0.000 | 0.000 | 0.027 | 1.26 | 564.78 | 1.25 |
| 145 | 1440 | 0.004 | 0.030 | 7.482 | 4.801 | 0.027 | 0.000 | 0.000 | 0.027 | 1.26 | 565.12 | 1.25 |

| | | | |
|------------------|--------------|----------------|-------------|
| Peak Flow | 12.84 | 5760.43 | 4.82 |
|------------------|--------------|----------------|-------------|

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| Time | | Rainfall | | | Pervious | | Impervious | | Instant | | Design | |
|-----------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|----------------|----------------------------|----------------|
| Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Flowrate (cfs) | Instant Flowrate (gal/min) | Flowrate (cfs) |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 2 | 10 | 0.004 | 0.033 | 0.033 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 3 | 20 | 0.004 | 0.033 | 0.065 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 4 | 30 | 0.004 | 0.033 | 0.098 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 5 | 40 | 0.004 | 0.033 | 0.130 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 6 | 50 | 0.004 | 0.033 | 0.163 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 7 | 60 | 0.004 | 0.033 | 0.195 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 8 | 70 | 0.004 | 0.033 | 0.228 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 9 | 80 | 0.004 | 0.033 | 0.260 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 10 | 90 | 0.005 | 0.041 | 0.301 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 11 | 100 | 0.005 | 0.041 | 0.342 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 12 | 110 | 0.005 | 0.041 | 0.383 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 13 | 120 | 0.005 | 0.041 | 0.423 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 14 | 130 | 0.005 | 0.041 | 0.464 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 15 | 140 | 0.005 | 0.041 | 0.505 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 16 | 150 | 0.005 | 0.041 | 0.545 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 17 | 160 | 0.006 | 0.049 | 0.594 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 18 | 170 | 0.006 | 0.049 | 0.643 | 0.001 | 0.001 | 0.000 | 0.000 | 0.001 | 0.03 | 14.39 | 0.00 |
| 19 | 180 | 0.006 | 0.049 | 0.692 | 0.003 | 0.002 | 0.000 | 0.000 | 0.002 | 0.10 | 46.28 | 0.01 |
| 20 | 190 | 0.006 | 0.049 | 0.741 | 0.007 | 0.004 | 0.000 | 0.000 | 0.004 | 0.17 | 76.75 | 0.03 |
| 21 | 200 | 0.006 | 0.049 | 0.790 | 0.012 | 0.005 | 0.000 | 0.000 | 0.005 | 0.24 | 105.81 | 0.06 |
| 22 | 210 | 0.006 | 0.049 | 0.838 | 0.018 | 0.006 | 0.000 | 0.000 | 0.006 | 0.30 | 133.55 | 0.09 |
| 23 | 220 | 0.007 | 0.057 | 0.895 | 0.027 | 0.009 | 0.000 | 0.000 | 0.009 | 0.42 | 189.22 | 0.13 |
| 24 | 230 | 0.007 | 0.057 | 0.952 | 0.038 | 0.011 | 0.000 | 0.000 | 0.011 | 0.50 | 223.45 | 0.18 |
| 25 | 240 | 0.007 | 0.057 | 1.009 | 0.050 | 0.012 | 0.000 | 0.000 | 0.012 | 0.57 | 255.96 | 0.23 |
| 26 | 250 | 0.007 | 0.057 | 1.066 | 0.064 | 0.014 | 0.000 | 0.000 | 0.014 | 0.64 | 286.86 | 0.28 |
| 27 | 260 | 0.007 | 0.057 | 1.123 | 0.079 | 0.015 | 0.000 | 0.000 | 0.015 | 0.70 | 316.26 | 0.34 |
| 28 | 270 | 0.007 | 0.057 | 1.180 | 0.095 | 0.016 | 0.000 | 0.000 | 0.016 | 0.77 | 344.24 | 0.40 |
| 29 | 280 | 0.007 | 0.057 | 1.237 | 0.113 | 0.018 | 0.000 | 0.000 | 0.018 | 0.83 | 370.91 | 0.46 |
| 30 | 290 | 0.008 | 0.065 | 1.302 | 0.135 | 0.022 | 0.000 | 0.000 | 0.022 | 1.01 | 454.97 | 0.52 |
| 31 | 300 | 0.008 | 0.065 | 1.368 | 0.158 | 0.023 | 0.000 | 0.000 | 0.023 | 1.08 | 486.47 | 0.60 |
| 32 | 310 | 0.008 | 0.065 | 1.433 | 0.183 | 0.025 | 0.000 | 0.000 | 0.025 | 1.15 | 516.35 | 0.68 |
| 33 | 320 | 0.008 | 0.065 | 1.498 | 0.209 | 0.026 | 0.000 | 0.000 | 0.026 | 1.21 | 544.73 | 0.75 |
| 34 | 330 | 0.008 | 0.065 | 1.563 | 0.236 | 0.027 | 0.000 | 0.000 | 0.027 | 1.27 | 571.71 | 0.82 |
| 35 | 340 | 0.008 | 0.065 | 1.628 | 0.264 | 0.029 | 0.000 | 0.000 | 0.029 | 1.33 | 597.38 | 0.89 |
| 36 | 350 | 0.01 | 0.081 | 1.709 | 0.302 | 0.037 | 0.000 | 0.000 | 0.037 | 1.74 | 780.95 | 0.99 |
| 37 | 360 | 0.01 | 0.081 | 1.791 | 0.341 | 0.039 | 0.000 | 0.000 | 0.039 | 1.82 | 816.91 | 1.10 |
| 38 | 370 | 0.01 | 0.081 | 1.872 | 0.381 | 0.041 | 0.000 | 0.000 | 0.041 | 1.90 | 850.81 | 1.21 |
| 39 | 380 | 0.01 | 0.081 | 1.954 | 0.423 | 0.042 | 0.000 | 0.000 | 0.042 | 1.97 | 882.80 | 1.32 |
| 40 | 390 | 0.01 | 0.081 | 2.035 | 0.467 | 0.044 | 0.000 | 0.000 | 0.044 | 2.03 | 913.03 | 1.42 |
| 41 | 400 | 0.01 | 0.081 | 2.116 | 0.512 | 0.045 | 0.000 | 0.000 | 0.045 | 2.10 | 941.62 | 1.51 |
| 42 | 410 | 0.013 | 0.106 | 2.222 | 0.572 | 0.060 | 0.000 | 0.000 | 0.060 | 2.82 | 1264.36 | 1.65 |
| 43 | 420 | 0.013 | 0.106 | 2.328 | 0.635 | 0.062 | 0.000 | 0.000 | 0.062 | 2.91 | 1307.03 | 1.83 |
| 44 | 430 | 0.013 | 0.106 | 2.434 | 0.699 | 0.064 | 0.000 | 0.000 | 0.064 | 3.00 | 1346.90 | 2.00 |
| 45 | 440 | 0.018 | 0.147 | 2.580 | 0.791 | 0.092 | 0.000 | 0.000 | 0.092 | 4.29 | 1926.01 | 2.24 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| | | Pervious | | | Impervious | | Total Rainfall | | Instant | Instant | Design | |
|-----------|------------|-------------------------|---------------|---------------|---------------|---------------|----------------|----------------|----------|-----------|----------|------|
| Time | Rainfall | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Flowrate | Flowrate | Flowrate | |
| Increment | Time (min) | Distribution (fraction) | Rainfall (in) | (in) | (cfs) | (gal/min) | (cfs) | |
| 46 | 450 | 0.018 | 0.147 | 2.727 | 0.886 | 0.095 | 0.000 | 0.000 | 0.095 | 4.44 | 1991.41 | 2.55 |
| 47 | 460 | 0.034 | 0.277 | 3.004 | 1.074 | 0.187 | 0.000 | 0.000 | 0.187 | 8.74 | 3921.11 | 3.14 |
| 48 | 470 | 0.054 | 0.440 | 3.443 | 1.388 | 0.315 | 0.000 | 0.000 | 0.315 | 14.69 | 6593.10 | 4.40 |
| 49 | 480 | 0.027 | 0.220 | 3.663 | 1.553 | 0.164 | 0.000 | 0.000 | 0.164 | 7.66 | 3438.73 | 5.39 |
| 50 | 490 | 0.018 | 0.147 | 3.810 | 1.664 | 0.112 | 0.000 | 0.000 | 0.112 | 5.21 | 2338.30 | 5.55 |
| 51 | 500 | 0.013 | 0.106 | 3.915 | 1.746 | 0.082 | 0.000 | 0.000 | 0.082 | 3.81 | 1709.86 | 5.39 |
| 52 | 510 | 0.013 | 0.106 | 4.021 | 1.829 | 0.082 | 0.000 | 0.000 | 0.082 | 3.85 | 1726.55 | 5.16 |
| 53 | 520 | 0.013 | 0.106 | 4.127 | 1.912 | 0.083 | 0.000 | 0.000 | 0.083 | 3.88 | 1742.44 | 4.97 |
| 54 | 530 | 0.009 | 0.073 | 4.200 | 1.970 | 0.058 | 0.000 | 0.000 | 0.058 | 2.71 | 1215.21 | 4.73 |
| 55 | 540 | 0.009 | 0.073 | 4.274 | 2.028 | 0.058 | 0.000 | 0.000 | 0.058 | 2.72 | 1222.21 | 4.43 |
| 56 | 550 | 0.009 | 0.073 | 4.347 | 2.087 | 0.059 | 0.000 | 0.000 | 0.059 | 2.74 | 1228.99 | 4.18 |
| 57 | 560 | 0.009 | 0.073 | 4.420 | 2.146 | 0.059 | 0.000 | 0.000 | 0.059 | 2.75 | 1235.55 | 3.97 |
| 58 | 570 | 0.009 | 0.073 | 4.493 | 2.205 | 0.059 | 0.000 | 0.000 | 0.059 | 2.77 | 1241.90 | 3.79 |
| 59 | 580 | 0.009 | 0.073 | 4.567 | 2.265 | 0.060 | 0.000 | 0.000 | 0.060 | 2.78 | 1248.06 | 3.64 |
| 60 | 590 | 0.009 | 0.073 | 4.640 | 2.325 | 0.060 | 0.000 | 0.000 | 0.060 | 2.79 | 1254.01 | 3.52 |
| 61 | 600 | 0.009 | 0.073 | 4.713 | 2.385 | 0.060 | 0.000 | 0.000 | 0.060 | 2.81 | 1259.79 | 3.41 |
| 62 | 610 | 0.009 | 0.073 | 4.786 | 2.445 | 0.060 | 0.000 | 0.000 | 0.060 | 2.82 | 1265.38 | 3.33 |
| 63 | 620 | 0.009 | 0.073 | 4.860 | 2.506 | 0.061 | 0.000 | 0.000 | 0.061 | 2.83 | 1270.81 | 3.25 |
| 64 | 630 | 0.009 | 0.073 | 4.933 | 2.567 | 0.061 | 0.000 | 0.000 | 0.061 | 2.84 | 1276.08 | 3.19 |
| 65 | 640 | 0.009 | 0.073 | 5.006 | 2.628 | 0.061 | 0.000 | 0.000 | 0.061 | 2.85 | 1281.18 | 3.14 |
| 66 | 650 | 0.007 | 0.057 | 5.063 | 2.676 | 0.048 | 0.000 | 0.000 | 0.048 | 2.23 | 999.91 | 3.05 |
| 67 | 660 | 0.007 | 0.057 | 5.120 | 2.724 | 0.048 | 0.000 | 0.000 | 0.048 | 2.23 | 1002.84 | 2.93 |
| 68 | 670 | 0.007 | 0.057 | 5.177 | 2.772 | 0.048 | 0.000 | 0.000 | 0.048 | 2.24 | 1005.71 | 2.83 |
| 69 | 680 | 0.007 | 0.057 | 5.234 | 2.820 | 0.048 | 0.000 | 0.000 | 0.048 | 2.25 | 1008.51 | 2.74 |
| 70 | 690 | 0.007 | 0.057 | 5.291 | 2.868 | 0.048 | 0.000 | 0.000 | 0.048 | 2.25 | 1011.24 | 2.67 |
| 71 | 700 | 0.007 | 0.057 | 5.348 | 2.917 | 0.048 | 0.000 | 0.000 | 0.048 | 2.26 | 1013.92 | 2.61 |
| 72 | 710 | 0.007 | 0.057 | 5.405 | 2.965 | 0.049 | 0.000 | 0.000 | 0.049 | 2.27 | 1016.54 | 2.56 |
| 73 | 720 | 0.007 | 0.057 | 5.462 | 3.014 | 0.049 | 0.000 | 0.000 | 0.049 | 2.27 | 1019.10 | 2.52 |
| 74 | 730 | 0.007 | 0.057 | 5.519 | 3.063 | 0.049 | 0.000 | 0.000 | 0.049 | 2.28 | 1021.61 | 2.48 |
| 75 | 740 | 0.007 | 0.057 | 5.576 | 3.112 | 0.049 | 0.000 | 0.000 | 0.049 | 2.28 | 1024.06 | 2.45 |
| 76 | 750 | 0.007 | 0.057 | 5.633 | 3.161 | 0.049 | 0.000 | 0.000 | 0.049 | 2.29 | 1026.46 | 2.43 |
| 77 | 760 | 0.007 | 0.057 | 5.690 | 3.210 | 0.049 | 0.000 | 0.000 | 0.049 | 2.29 | 1028.81 | 2.41 |
| 78 | 770 | 0.006 | 0.049 | 5.739 | 3.252 | 0.042 | 0.000 | 0.000 | 0.042 | 1.97 | 883.67 | 2.37 |
| 79 | 780 | 0.006 | 0.049 | 5.788 | 3.294 | 0.042 | 0.000 | 0.000 | 0.042 | 1.97 | 885.33 | 2.31 |
| 80 | 790 | 0.006 | 0.049 | 5.836 | 3.337 | 0.042 | 0.000 | 0.000 | 0.042 | 1.98 | 886.96 | 2.26 |
| 81 | 800 | 0.006 | 0.049 | 5.885 | 3.379 | 0.042 | 0.000 | 0.000 | 0.042 | 1.98 | 888.56 | 2.22 |
| 82 | 810 | 0.006 | 0.049 | 5.934 | 3.422 | 0.043 | 0.000 | 0.000 | 0.043 | 1.98 | 890.13 | 2.18 |
| 83 | 820 | 0.006 | 0.049 | 5.983 | 3.464 | 0.043 | 0.000 | 0.000 | 0.043 | 1.99 | 891.68 | 2.15 |
| 84 | 830 | 0.006 | 0.049 | 6.032 | 3.507 | 0.043 | 0.000 | 0.000 | 0.043 | 1.99 | 893.20 | 2.13 |
| 85 | 840 | 0.006 | 0.049 | 6.081 | 3.550 | 0.043 | 0.000 | 0.000 | 0.043 | 1.99 | 894.69 | 2.11 |
| 86 | 850 | 0.006 | 0.049 | 6.129 | 3.592 | 0.043 | 0.000 | 0.000 | 0.043 | 2.00 | 896.16 | 2.09 |
| 87 | 860 | 0.006 | 0.049 | 6.178 | 3.635 | 0.043 | 0.000 | 0.000 | 0.043 | 2.00 | 897.60 | 2.08 |
| 88 | 870 | 0.006 | 0.049 | 6.227 | 3.678 | 0.043 | 0.000 | 0.000 | 0.043 | 2.00 | 899.02 | 2.07 |
| 89 | 880 | 0.006 | 0.049 | 6.276 | 3.721 | 0.043 | 0.000 | 0.000 | 0.043 | 2.01 | 900.41 | 2.06 |
| 90 | 890 | 0.005 | 0.041 | 6.317 | 3.757 | 0.036 | 0.000 | 0.000 | 0.036 | 1.67 | 751.39 | 2.03 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| | | Pervious | | | Impervious | | | | | | | |
|----------------|------------|----------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| Time Increment | Time (min) | Rainfall Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
| 91 | 900 | 0.005 | 0.041 | 6.357 | 3.793 | 0.036 | 0.000 | 0.000 | 0.036 | 1.68 | 752.33 | 1.97 |
| 92 | 910 | 0.005 | 0.041 | 6.398 | 3.829 | 0.036 | 0.000 | 0.000 | 0.036 | 1.68 | 753.25 | 1.93 |
| 93 | 920 | 0.005 | 0.041 | 6.439 | 3.865 | 0.036 | 0.000 | 0.000 | 0.036 | 1.68 | 754.16 | 1.89 |
| 94 | 930 | 0.005 | 0.041 | 6.479 | 3.901 | 0.036 | 0.000 | 0.000 | 0.036 | 1.68 | 755.06 | 1.86 |
| 95 | 940 | 0.005 | 0.041 | 6.520 | 3.937 | 0.036 | 0.000 | 0.000 | 0.036 | 1.68 | 755.95 | 1.84 |
| 96 | 950 | 0.005 | 0.041 | 6.561 | 3.973 | 0.036 | 0.000 | 0.000 | 0.036 | 1.69 | 756.82 | 1.81 |
| 97 | 960 | 0.005 | 0.041 | 6.602 | 4.009 | 0.036 | 0.000 | 0.000 | 0.036 | 1.69 | 757.69 | 1.80 |
| 98 | 970 | 0.005 | 0.041 | 6.642 | 4.046 | 0.036 | 0.000 | 0.000 | 0.036 | 1.69 | 758.54 | 1.78 |
| 99 | 980 | 0.005 | 0.041 | 6.683 | 4.082 | 0.036 | 0.000 | 0.000 | 0.036 | 1.69 | 759.38 | 1.77 |
| 100 | 990 | 0.005 | 0.041 | 6.724 | 4.118 | 0.036 | 0.000 | 0.000 | 0.036 | 1.69 | 760.21 | 1.76 |
| 101 | 1000 | 0.005 | 0.041 | 6.764 | 4.155 | 0.036 | 0.000 | 0.000 | 0.036 | 1.70 | 761.03 | 1.75 |
| 102 | 1010 | 0.004 | 0.033 | 6.797 | 4.184 | 0.029 | 0.000 | 0.000 | 0.029 | 1.36 | 609.40 | 1.71 |
| 103 | 1020 | 0.004 | 0.033 | 6.829 | 4.213 | 0.029 | 0.000 | 0.000 | 0.029 | 1.36 | 609.91 | 1.66 |
| 104 | 1030 | 0.004 | 0.033 | 6.862 | 4.242 | 0.029 | 0.000 | 0.000 | 0.029 | 1.36 | 610.42 | 1.62 |
| 105 | 1040 | 0.004 | 0.033 | 6.895 | 4.271 | 0.029 | 0.000 | 0.000 | 0.029 | 1.36 | 610.92 | 1.58 |
| 106 | 1050 | 0.004 | 0.033 | 6.927 | 4.300 | 0.029 | 0.000 | 0.000 | 0.029 | 1.36 | 611.41 | 1.55 |
| 107 | 1060 | 0.004 | 0.033 | 6.960 | 4.330 | 0.029 | 0.000 | 0.000 | 0.029 | 1.36 | 611.90 | 1.52 |
| 108 | 1070 | 0.004 | 0.033 | 6.992 | 4.359 | 0.029 | 0.000 | 0.000 | 0.029 | 1.36 | 612.39 | 1.50 |
| 109 | 1080 | 0.004 | 0.033 | 7.025 | 4.388 | 0.029 | 0.000 | 0.000 | 0.029 | 1.37 | 612.87 | 1.48 |
| 110 | 1090 | 0.004 | 0.033 | 7.057 | 4.417 | 0.029 | 0.000 | 0.000 | 0.029 | 1.37 | 613.34 | 1.46 |
| 111 | 1100 | 0.004 | 0.033 | 7.090 | 4.447 | 0.029 | 0.000 | 0.000 | 0.029 | 1.37 | 613.81 | 1.45 |
| 112 | 1110 | 0.004 | 0.033 | 7.123 | 4.476 | 0.029 | 0.000 | 0.000 | 0.029 | 1.37 | 614.28 | 1.44 |
| 113 | 1120 | 0.004 | 0.033 | 7.155 | 4.505 | 0.029 | 0.000 | 0.000 | 0.029 | 1.37 | 614.74 | 1.43 |
| 114 | 1130 | 0.004 | 0.033 | 7.188 | 4.535 | 0.029 | 0.000 | 0.000 | 0.029 | 1.37 | 615.19 | 1.42 |
| 115 | 1140 | 0.004 | 0.033 | 7.220 | 4.564 | 0.029 | 0.000 | 0.000 | 0.029 | 1.37 | 615.64 | 1.41 |
| 116 | 1150 | 0.004 | 0.033 | 7.253 | 4.594 | 0.029 | 0.000 | 0.000 | 0.029 | 1.37 | 616.09 | 1.41 |
| 117 | 1160 | 0.004 | 0.033 | 7.285 | 4.623 | 0.029 | 0.000 | 0.000 | 0.029 | 1.37 | 616.53 | 1.40 |
| 118 | 1170 | 0.004 | 0.033 | 7.318 | 4.653 | 0.029 | 0.000 | 0.000 | 0.029 | 1.37 | 616.97 | 1.40 |
| 119 | 1180 | 0.004 | 0.033 | 7.350 | 4.682 | 0.029 | 0.000 | 0.000 | 0.029 | 1.38 | 617.40 | 1.39 |
| 120 | 1190 | 0.004 | 0.033 | 7.383 | 4.712 | 0.030 | 0.000 | 0.000 | 0.030 | 1.38 | 617.83 | 1.39 |
| 121 | 1200 | 0.004 | 0.033 | 7.416 | 4.741 | 0.030 | 0.000 | 0.000 | 0.030 | 1.38 | 618.26 | 1.39 |
| 122 | 1210 | 0.004 | 0.033 | 7.448 | 4.771 | 0.030 | 0.000 | 0.000 | 0.030 | 1.38 | 618.68 | 1.39 |
| 123 | 1220 | 0.004 | 0.033 | 7.481 | 4.800 | 0.030 | 0.000 | 0.000 | 0.030 | 1.38 | 619.09 | 1.39 |
| 124 | 1230 | 0.004 | 0.033 | 7.513 | 4.830 | 0.030 | 0.000 | 0.000 | 0.030 | 1.38 | 619.50 | 1.39 |
| 125 | 1240 | 0.004 | 0.033 | 7.546 | 4.859 | 0.030 | 0.000 | 0.000 | 0.030 | 1.38 | 619.91 | 1.38 |
| 126 | 1250 | 0.004 | 0.033 | 7.578 | 4.889 | 0.030 | 0.000 | 0.000 | 0.030 | 1.38 | 620.32 | 1.38 |
| 127 | 1260 | 0.004 | 0.033 | 7.611 | 4.919 | 0.030 | 0.000 | 0.000 | 0.030 | 1.38 | 620.72 | 1.38 |
| 128 | 1270 | 0.004 | 0.033 | 7.643 | 4.948 | 0.030 | 0.000 | 0.000 | 0.030 | 1.38 | 621.11 | 1.38 |
| 129 | 1280 | 0.004 | 0.033 | 7.676 | 4.978 | 0.030 | 0.000 | 0.000 | 0.030 | 1.38 | 621.50 | 1.38 |
| 130 | 1290 | 0.004 | 0.033 | 7.709 | 5.008 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 621.89 | 1.38 |
| 131 | 1300 | 0.004 | 0.033 | 7.741 | 5.037 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 622.28 | 1.38 |
| 132 | 1310 | 0.004 | 0.033 | 7.774 | 5.067 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 622.66 | 1.38 |
| 133 | 1320 | 0.004 | 0.033 | 7.806 | 5.097 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 623.03 | 1.39 |
| 134 | 1330 | 0.004 | 0.033 | 7.839 | 5.127 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 623.41 | 1.39 |
| 135 | 1340 | 0.004 | 0.033 | 7.871 | 5.156 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 623.78 | 1.39 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Pre-Development Conditions (Basin #1)

| | | | | | Pervious | | Impervious | | | | | |
|----------------|------------|----------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| Time Increment | Time (min) | Rainfall Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
| 136 | 1350 | 0.004 | 0.033 | 7.904 | 5.186 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 624.15 | 1.39 |
| 137 | 1360 | 0.004 | 0.033 | 7.937 | 5.216 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 624.51 | 1.39 |
| 138 | 1370 | 0.004 | 0.033 | 7.969 | 5.246 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 624.87 | 1.39 |
| 139 | 1380 | 0.004 | 0.033 | 8.002 | 5.276 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 625.22 | 1.39 |
| 140 | 1390 | 0.004 | 0.033 | 8.034 | 5.306 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 625.58 | 1.39 |
| 141 | 1400 | 0.004 | 0.033 | 8.067 | 5.336 | 0.030 | 0.000 | 0.000 | 0.030 | 1.39 | 625.93 | 1.39 |
| 142 | 1410 | 0.004 | 0.033 | 8.099 | 5.366 | 0.030 | 0.000 | 0.000 | 0.030 | 1.40 | 626.27 | 1.39 |
| 143 | 1420 | 0.004 | 0.033 | 8.132 | 5.395 | 0.030 | 0.000 | 0.000 | 0.030 | 1.40 | 626.62 | 1.39 |
| 144 | 1430 | 0.004 | 0.033 | 8.164 | 5.425 | 0.030 | 0.000 | 0.000 | 0.030 | 1.40 | 626.96 | 1.39 |
| 145 | 1440 | 0.004 | 0.033 | 8.197 | 5.455 | 0.030 | 0.000 | 0.000 | 0.030 | 1.40 | 627.29 | 1.39 |

| | | | |
|------------------|--------------|----------------|-------------|
| Peak Flow | 14.69 | 6593.10 | 5.55 |
|------------------|--------------|----------------|-------------|

Client: Mendocino Solid Waste Management Authority Date: August 4, 2014
 Project: Tranfer Station EIR Proj. #: 8411065
 Prepared by: BB Checked by: DS

Santa Barbara Urban Hydrograph Method

Purpose:

Determine the stormwater runoff volume required for: Pre-Development Conditions (Basin #2)

Assumptions:

1. Runoff volume is computed with the Santa Barbara Urban Hydrograph Method (SBUH)
2. 2-year/ 24-hour design storm event
3. 25-year/ 24-hour design storm event
4. 50-year/ 24-hour design storm event
5. 100-year/ 24-hour design storm event
6. Total Basin Area 9.3 acres
7. Design storm precipitation depths obtained using PF Data Server, lat39.4126 long-123.7548
8. Areas used for subbasins estimated using proposed site development plan
9. Slopes for time of concentration calculation assumed to be 6% based on LACO field study dated 6/7/2012
10. Soil assumed to be of soil group D, with an average antecedent soil moisture condition
11. Ground coverage for pervious area assumed to be woods in good condition
12. Drainage length assumed to originate from the center of the line which splits the parcel from the southwest corner to the northeast corner, and terminates at the drainage basin
13. Manning roughness coefficient assumed to be 0.6, which is the middle range for woods underbrush ($0.4 < n < 0.8$)
14. Cuve numbers determined using TR-55 Documentation

Methodology:

1. Determine the runoff volume for the design storm event using the SBUH method

References:

1. Urban Hydrology for Small Watersheds, Technical Release 55
Natural Resource Conservation Service, USDA 1986
2. Handbook of Hydrology (1993), Maidment, D.
McGraw-Hill Publishing, New York, NY
3. Open Channel Hydraulics
Chow, V.T. 1959, McGraw-Hill Book Company
4. NOAA Atlas 14, Volume 6, Version 2
http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_printpage.html

Client: Mendocino Solid Waste Management Authority
 Project: Tranfer Station EIR
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Santa Barbara Urban Hydrograph Method

Input Variables:

Basin Number = 2 **Pre-Development Conditions (Basin #2)**

Total Area = 9.33 ac

Precipitation (Quantity) = 3.75 in (2-yr. 24-hr event)

Precipitation (Quantity) = 6.69 in (25-yr. 24-hr event)

Precipitation (Quantity) = 7.43 in (50-yr. 24-hr event)

Precipitation (Quantity) = 8.14 in (100-yr. 24-hr event)

Time Step = 10 min

Pervious Area:

Area = 9.33 ac

CN = 77

S = 2.99 (1000/CN)-10

0.2S = 0.60

Impervious Area:

Area = 0.0 ac

CN = 83

S = 2.05 (1000/CN)-10

0.2S = 0.41

Time of Concentration:

Drainage Length = 300 ft

Average Slope = 0.060 ft/ft

Manning's n = 0.600

T_c = 52.2 min (minimum of 5 minutes)

Routing Constant:

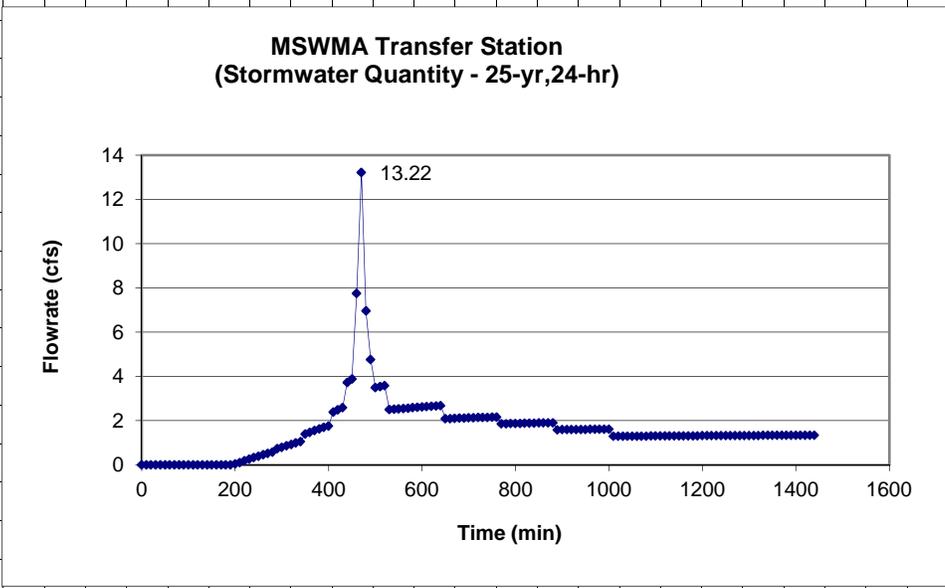
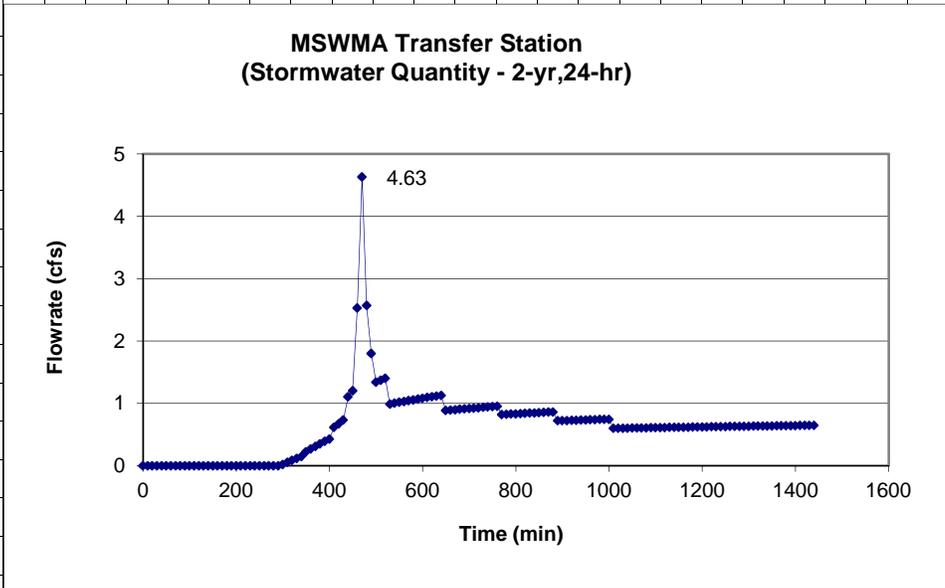
w = 0.087 dt/(2T_c+dt)

Client: Mendocino Solid Waste Management Authority
Project: Transfer Station EIR
Prepared by: BB

Date: August 4, 2014
Proj. #: 8411065
Checked by: DS

Santa Barbara Urban Hydrograph Method

Results: Pre-Development Conditions (Basin #2)



Client: Mendocino Solid Waste Management Authority

Date: August 4, 2014

Project: Tranfer Station EIR

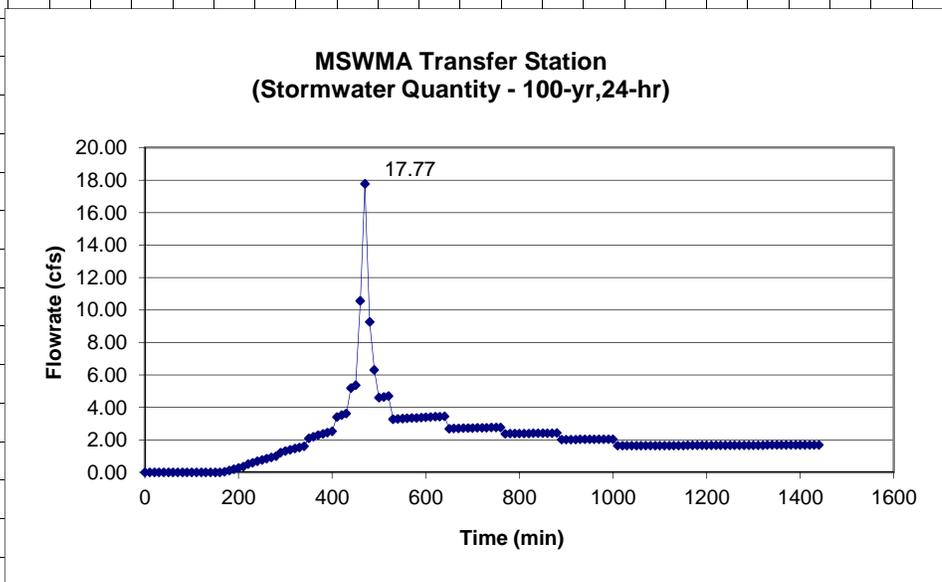
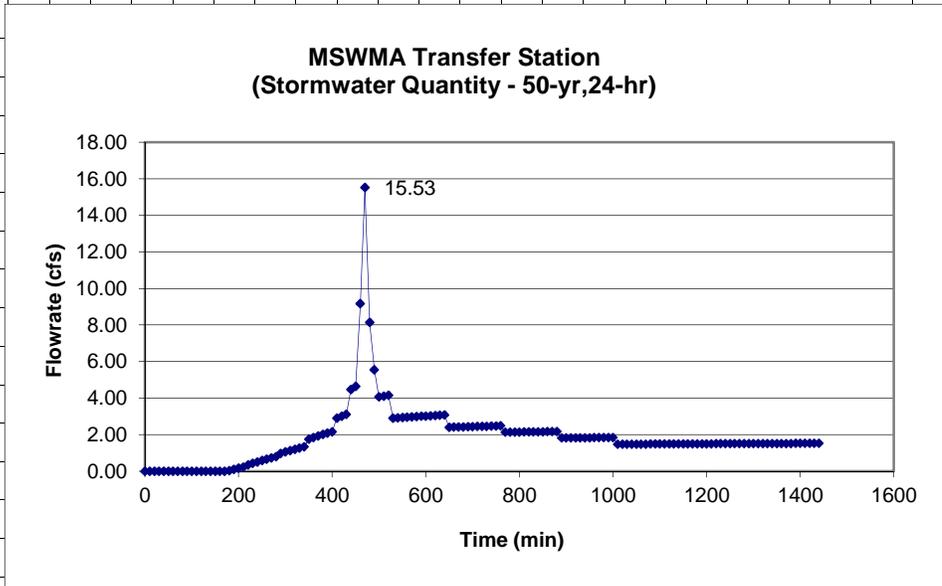
Proj. #: 8411065

Prepared by: BB

Checked by: DS

Santa Barbara Urban Hydrograph Method

Results: Pre-Development Conditions (Basin #2)



Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|--------------------|----------------|
| Time Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 2 | 10 | 0.004 | 0.015 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 3 | 20 | 0.004 | 0.015 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 4 | 30 | 0.004 | 0.015 | 0.045 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 5 | 40 | 0.004 | 0.015 | 0.060 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 6 | 50 | 0.004 | 0.015 | 0.075 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 7 | 60 | 0.004 | 0.015 | 0.090 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 8 | 70 | 0.004 | 0.015 | 0.105 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 9 | 80 | 0.004 | 0.015 | 0.120 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 10 | 90 | 0.005 | 0.019 | 0.139 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 11 | 100 | 0.005 | 0.019 | 0.158 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 12 | 110 | 0.005 | 0.019 | 0.176 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 13 | 120 | 0.005 | 0.019 | 0.195 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 14 | 130 | 0.005 | 0.019 | 0.214 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 15 | 140 | 0.005 | 0.019 | 0.233 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 16 | 150 | 0.005 | 0.019 | 0.251 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 17 | 160 | 0.006 | 0.023 | 0.274 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 18 | 170 | 0.006 | 0.023 | 0.296 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 19 | 180 | 0.006 | 0.023 | 0.319 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 20 | 190 | 0.006 | 0.023 | 0.341 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 21 | 200 | 0.006 | 0.023 | 0.364 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 22 | 210 | 0.006 | 0.023 | 0.386 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 23 | 220 | 0.007 | 0.026 | 0.413 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 24 | 230 | 0.007 | 0.026 | 0.439 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 25 | 240 | 0.007 | 0.026 | 0.465 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 26 | 250 | 0.007 | 0.026 | 0.491 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 27 | 260 | 0.007 | 0.026 | 0.518 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 28 | 270 | 0.007 | 0.026 | 0.544 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 29 | 280 | 0.007 | 0.026 | 0.570 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 30 | 290 | 0.008 | 0.030 | 0.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.06 | 0.00 |
| 31 | 300 | 0.008 | 0.030 | 0.630 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.02 | 8.86 | 0.00 |
| 32 | 310 | 0.008 | 0.030 | 0.660 | 0.001 | 0.001 | 0.000 | 0.000 | 0.001 | 0.05 | 23.64 | 0.01 |
| 33 | 320 | 0.008 | 0.030 | 0.690 | 0.003 | 0.001 | 0.000 | 0.000 | 0.001 | 0.08 | 37.98 | 0.02 |
| 34 | 330 | 0.008 | 0.030 | 0.720 | 0.005 | 0.002 | 0.000 | 0.000 | 0.002 | 0.12 | 51.91 | 0.03 |
| 35 | 340 | 0.008 | 0.030 | 0.750 | 0.007 | 0.003 | 0.000 | 0.000 | 0.003 | 0.15 | 65.45 | 0.05 |
| 36 | 350 | 0.01 | 0.038 | 0.788 | 0.011 | 0.004 | 0.000 | 0.000 | 0.004 | 0.22 | 100.25 | 0.07 |
| 37 | 360 | 0.01 | 0.038 | 0.825 | 0.016 | 0.005 | 0.000 | 0.000 | 0.005 | 0.27 | 120.08 | 0.10 |
| 38 | 370 | 0.01 | 0.038 | 0.863 | 0.022 | 0.005 | 0.000 | 0.000 | 0.005 | 0.31 | 139.22 | 0.14 |
| 39 | 380 | 0.01 | 0.038 | 0.900 | 0.028 | 0.006 | 0.000 | 0.000 | 0.006 | 0.35 | 157.70 | 0.17 |
| 40 | 390 | 0.01 | 0.038 | 0.938 | 0.035 | 0.007 | 0.000 | 0.000 | 0.007 | 0.39 | 175.56 | 0.21 |
| 41 | 400 | 0.01 | 0.038 | 0.975 | 0.042 | 0.008 | 0.000 | 0.000 | 0.008 | 0.43 | 192.82 | 0.24 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 42 | 410 | 0.013 | 0.049 | 1.024 | 0.053 | 0.011 | 0.000 | 0.000 | 0.011 | 0.61 | 275.54 | 0.29 |
| 43 | 420 | 0.013 | 0.049 | 1.073 | 0.065 | 0.012 | 0.000 | 0.000 | 0.012 | 0.67 | 302.56 | 0.35 |
| 44 | 430 | 0.013 | 0.049 | 1.121 | 0.078 | 0.013 | 0.000 | 0.000 | 0.013 | 0.73 | 328.46 | 0.41 |
| 45 | 440 | 0.018 | 0.068 | 1.189 | 0.098 | 0.020 | 0.000 | 0.000 | 0.020 | 1.10 | 495.57 | 0.50 |
| 46 | 450 | 0.018 | 0.068 | 1.256 | 0.119 | 0.021 | 0.000 | 0.000 | 0.021 | 1.20 | 540.53 | 0.62 |
| 47 | 460 | 0.034 | 0.128 | 1.384 | 0.164 | 0.045 | 0.000 | 0.000 | 0.045 | 2.53 | 1135.17 | 0.83 |
| 48 | 470 | 0.054 | 0.203 | 1.586 | 0.246 | 0.082 | 0.000 | 0.000 | 0.082 | 4.63 | 2079.06 | 1.31 |
| 49 | 480 | 0.027 | 0.101 | 1.688 | 0.291 | 0.046 | 0.000 | 0.000 | 0.046 | 2.57 | 1153.18 | 1.71 |
| 50 | 490 | 0.018 | 0.068 | 1.755 | 0.323 | 0.032 | 0.000 | 0.000 | 0.032 | 1.80 | 807.11 | 1.80 |
| 51 | 500 | 0.013 | 0.049 | 1.804 | 0.347 | 0.024 | 0.000 | 0.000 | 0.024 | 1.34 | 600.99 | 1.76 |
| 52 | 510 | 0.013 | 0.049 | 1.853 | 0.371 | 0.024 | 0.000 | 0.000 | 0.024 | 1.37 | 615.56 | 1.69 |
| 53 | 520 | 0.013 | 0.049 | 1.901 | 0.396 | 0.025 | 0.000 | 0.000 | 0.025 | 1.40 | 629.63 | 1.63 |
| 54 | 530 | 0.009 | 0.034 | 1.935 | 0.414 | 0.018 | 0.000 | 0.000 | 0.018 | 0.99 | 443.90 | 1.56 |
| 55 | 540 | 0.009 | 0.034 | 1.969 | 0.431 | 0.018 | 0.000 | 0.000 | 0.018 | 1.00 | 450.26 | 1.46 |
| 56 | 550 | 0.009 | 0.034 | 2.003 | 0.450 | 0.018 | 0.000 | 0.000 | 0.018 | 1.02 | 456.48 | 1.38 |
| 57 | 560 | 0.009 | 0.034 | 2.036 | 0.468 | 0.018 | 0.000 | 0.000 | 0.018 | 1.03 | 462.56 | 1.32 |
| 58 | 570 | 0.009 | 0.034 | 2.070 | 0.486 | 0.018 | 0.000 | 0.000 | 0.018 | 1.04 | 468.50 | 1.27 |
| 59 | 580 | 0.009 | 0.034 | 2.104 | 0.505 | 0.019 | 0.000 | 0.000 | 0.019 | 1.06 | 474.31 | 1.23 |
| 60 | 590 | 0.009 | 0.034 | 2.138 | 0.524 | 0.019 | 0.000 | 0.000 | 0.019 | 1.07 | 479.98 | 1.20 |
| 61 | 600 | 0.009 | 0.034 | 2.171 | 0.543 | 0.019 | 0.000 | 0.000 | 0.019 | 1.08 | 485.53 | 1.18 |
| 62 | 610 | 0.009 | 0.034 | 2.205 | 0.562 | 0.019 | 0.000 | 0.000 | 0.019 | 1.09 | 490.96 | 1.16 |
| 63 | 620 | 0.009 | 0.034 | 2.239 | 0.582 | 0.020 | 0.000 | 0.000 | 0.020 | 1.11 | 496.27 | 1.15 |
| 64 | 630 | 0.009 | 0.034 | 2.273 | 0.602 | 0.020 | 0.000 | 0.000 | 0.020 | 1.12 | 501.46 | 1.15 |
| 65 | 640 | 0.009 | 0.034 | 2.306 | 0.622 | 0.020 | 0.000 | 0.000 | 0.020 | 1.13 | 506.55 | 1.14 |
| 66 | 650 | 0.007 | 0.026 | 2.333 | 0.638 | 0.016 | 0.000 | 0.000 | 0.016 | 0.89 | 397.42 | 1.12 |
| 67 | 660 | 0.007 | 0.026 | 2.359 | 0.653 | 0.016 | 0.000 | 0.000 | 0.016 | 0.89 | 400.38 | 1.08 |
| 68 | 670 | 0.007 | 0.026 | 2.385 | 0.669 | 0.016 | 0.000 | 0.000 | 0.016 | 0.90 | 403.29 | 1.05 |
| 69 | 680 | 0.007 | 0.026 | 2.411 | 0.685 | 0.016 | 0.000 | 0.000 | 0.016 | 0.90 | 406.15 | 1.02 |
| 70 | 690 | 0.007 | 0.026 | 2.438 | 0.701 | 0.016 | 0.000 | 0.000 | 0.016 | 0.91 | 408.97 | 1.00 |
| 71 | 700 | 0.007 | 0.026 | 2.464 | 0.718 | 0.016 | 0.000 | 0.000 | 0.016 | 0.92 | 411.74 | 0.99 |
| 72 | 710 | 0.007 | 0.026 | 2.490 | 0.734 | 0.016 | 0.000 | 0.000 | 0.016 | 0.92 | 414.46 | 0.97 |
| 73 | 720 | 0.007 | 0.026 | 2.516 | 0.751 | 0.016 | 0.000 | 0.000 | 0.016 | 0.93 | 417.14 | 0.97 |
| 74 | 730 | 0.007 | 0.026 | 2.543 | 0.767 | 0.017 | 0.000 | 0.000 | 0.017 | 0.94 | 419.78 | 0.96 |
| 75 | 740 | 0.007 | 0.026 | 2.569 | 0.784 | 0.017 | 0.000 | 0.000 | 0.017 | 0.94 | 422.38 | 0.96 |
| 76 | 750 | 0.007 | 0.026 | 2.595 | 0.801 | 0.017 | 0.000 | 0.000 | 0.017 | 0.95 | 424.93 | 0.95 |
| 77 | 760 | 0.007 | 0.026 | 2.621 | 0.817 | 0.017 | 0.000 | 0.000 | 0.017 | 0.95 | 427.45 | 0.95 |
| 78 | 770 | 0.006 | 0.023 | 2.644 | 0.832 | 0.015 | 0.000 | 0.000 | 0.015 | 0.82 | 368.36 | 0.94 |
| 79 | 780 | 0.006 | 0.023 | 2.666 | 0.847 | 0.015 | 0.000 | 0.000 | 0.015 | 0.82 | 370.15 | 0.92 |
| 80 | 790 | 0.006 | 0.023 | 2.689 | 0.861 | 0.015 | 0.000 | 0.000 | 0.015 | 0.83 | 371.92 | 0.90 |
| 81 | 800 | 0.006 | 0.023 | 2.711 | 0.876 | 0.015 | 0.000 | 0.000 | 0.015 | 0.83 | 373.67 | 0.89 |
| 82 | 810 | 0.006 | 0.023 | 2.734 | 0.891 | 0.015 | 0.000 | 0.000 | 0.015 | 0.84 | 375.39 | 0.88 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 83 | 820 | 0.006 | 0.023 | 2.756 | 0.906 | 0.015 | 0.000 | 0.000 | 0.015 | 0.84 | 377.10 | 0.87 |
| 84 | 830 | 0.006 | 0.023 | 2.779 | 0.921 | 0.015 | 0.000 | 0.000 | 0.015 | 0.84 | 378.78 | 0.87 |
| 85 | 840 | 0.006 | 0.023 | 2.801 | 0.936 | 0.015 | 0.000 | 0.000 | 0.015 | 0.85 | 380.43 | 0.86 |
| 86 | 850 | 0.006 | 0.023 | 2.824 | 0.951 | 0.015 | 0.000 | 0.000 | 0.015 | 0.85 | 382.07 | 0.86 |
| 87 | 860 | 0.006 | 0.023 | 2.846 | 0.966 | 0.015 | 0.000 | 0.000 | 0.015 | 0.85 | 383.68 | 0.86 |
| 88 | 870 | 0.006 | 0.023 | 2.869 | 0.981 | 0.015 | 0.000 | 0.000 | 0.015 | 0.86 | 385.28 | 0.86 |
| 89 | 880 | 0.006 | 0.023 | 2.891 | 0.996 | 0.015 | 0.000 | 0.000 | 0.015 | 0.86 | 386.85 | 0.86 |
| 90 | 890 | 0.005 | 0.019 | 2.910 | 1.009 | 0.013 | 0.000 | 0.000 | 0.013 | 0.72 | 323.57 | 0.85 |
| 91 | 900 | 0.005 | 0.019 | 2.929 | 1.022 | 0.013 | 0.000 | 0.000 | 0.013 | 0.72 | 324.63 | 0.83 |
| 92 | 910 | 0.005 | 0.019 | 2.948 | 1.035 | 0.013 | 0.000 | 0.000 | 0.013 | 0.73 | 325.69 | 0.81 |
| 93 | 920 | 0.005 | 0.019 | 2.966 | 1.048 | 0.013 | 0.000 | 0.000 | 0.013 | 0.73 | 326.74 | 0.79 |
| 94 | 930 | 0.005 | 0.019 | 2.985 | 1.061 | 0.013 | 0.000 | 0.000 | 0.013 | 0.73 | 327.77 | 0.78 |
| 95 | 940 | 0.005 | 0.019 | 3.004 | 1.074 | 0.013 | 0.000 | 0.000 | 0.013 | 0.73 | 328.79 | 0.77 |
| 96 | 950 | 0.005 | 0.019 | 3.023 | 1.087 | 0.013 | 0.000 | 0.000 | 0.013 | 0.73 | 329.81 | 0.77 |
| 97 | 960 | 0.005 | 0.019 | 3.041 | 1.100 | 0.013 | 0.000 | 0.000 | 0.013 | 0.74 | 330.81 | 0.76 |
| 98 | 970 | 0.005 | 0.019 | 3.060 | 1.113 | 0.013 | 0.000 | 0.000 | 0.013 | 0.74 | 331.80 | 0.76 |
| 99 | 980 | 0.005 | 0.019 | 3.079 | 1.126 | 0.013 | 0.000 | 0.000 | 0.013 | 0.74 | 332.78 | 0.75 |
| 100 | 990 | 0.005 | 0.019 | 3.098 | 1.139 | 0.013 | 0.000 | 0.000 | 0.013 | 0.74 | 333.76 | 0.75 |
| 101 | 1000 | 0.005 | 0.019 | 3.116 | 1.152 | 0.013 | 0.000 | 0.000 | 0.013 | 0.75 | 334.72 | 0.75 |
| 102 | 1010 | 0.004 | 0.015 | 3.131 | 1.163 | 0.011 | 0.000 | 0.000 | 0.011 | 0.60 | 268.46 | 0.74 |
| 103 | 1020 | 0.004 | 0.015 | 3.146 | 1.174 | 0.011 | 0.000 | 0.000 | 0.011 | 0.60 | 269.06 | 0.71 |
| 104 | 1030 | 0.004 | 0.015 | 3.161 | 1.184 | 0.011 | 0.000 | 0.000 | 0.011 | 0.60 | 269.66 | 0.69 |
| 105 | 1040 | 0.004 | 0.015 | 3.176 | 1.195 | 0.011 | 0.000 | 0.000 | 0.011 | 0.60 | 270.26 | 0.68 |
| 106 | 1050 | 0.004 | 0.015 | 3.191 | 1.206 | 0.011 | 0.000 | 0.000 | 0.011 | 0.60 | 270.85 | 0.66 |
| 107 | 1060 | 0.004 | 0.015 | 3.206 | 1.216 | 0.011 | 0.000 | 0.000 | 0.011 | 0.60 | 271.43 | 0.65 |
| 108 | 1070 | 0.004 | 0.015 | 3.221 | 1.227 | 0.011 | 0.000 | 0.000 | 0.011 | 0.61 | 272.01 | 0.65 |
| 109 | 1080 | 0.004 | 0.015 | 3.236 | 1.238 | 0.011 | 0.000 | 0.000 | 0.011 | 0.61 | 272.59 | 0.64 |
| 110 | 1090 | 0.004 | 0.015 | 3.251 | 1.249 | 0.011 | 0.000 | 0.000 | 0.011 | 0.61 | 273.16 | 0.63 |
| 111 | 1100 | 0.004 | 0.015 | 3.266 | 1.259 | 0.011 | 0.000 | 0.000 | 0.011 | 0.61 | 273.73 | 0.63 |
| 112 | 1110 | 0.004 | 0.015 | 3.281 | 1.270 | 0.011 | 0.000 | 0.000 | 0.011 | 0.61 | 274.29 | 0.63 |
| 113 | 1120 | 0.004 | 0.015 | 3.296 | 1.281 | 0.011 | 0.000 | 0.000 | 0.011 | 0.61 | 274.85 | 0.62 |
| 114 | 1130 | 0.004 | 0.015 | 3.311 | 1.292 | 0.011 | 0.000 | 0.000 | 0.011 | 0.61 | 275.40 | 0.62 |
| 115 | 1140 | 0.004 | 0.015 | 3.326 | 1.303 | 0.011 | 0.000 | 0.000 | 0.011 | 0.61 | 275.95 | 0.62 |
| 116 | 1150 | 0.004 | 0.015 | 3.341 | 1.314 | 0.011 | 0.000 | 0.000 | 0.011 | 0.62 | 276.49 | 0.62 |
| 117 | 1160 | 0.004 | 0.015 | 3.356 | 1.325 | 0.011 | 0.000 | 0.000 | 0.011 | 0.62 | 277.04 | 0.62 |
| 118 | 1170 | 0.004 | 0.015 | 3.371 | 1.336 | 0.011 | 0.000 | 0.000 | 0.011 | 0.62 | 277.57 | 0.62 |
| 119 | 1180 | 0.004 | 0.015 | 3.386 | 1.347 | 0.011 | 0.000 | 0.000 | 0.011 | 0.62 | 278.10 | 0.62 |
| 120 | 1190 | 0.004 | 0.015 | 3.401 | 1.358 | 0.011 | 0.000 | 0.000 | 0.011 | 0.62 | 278.63 | 0.62 |
| 121 | 1200 | 0.004 | 0.015 | 3.416 | 1.369 | 0.011 | 0.000 | 0.000 | 0.011 | 0.62 | 279.15 | 0.62 |
| 122 | 1210 | 0.004 | 0.015 | 3.431 | 1.380 | 0.011 | 0.000 | 0.000 | 0.011 | 0.62 | 279.67 | 0.62 |
| 123 | 1220 | 0.004 | 0.015 | 3.446 | 1.391 | 0.011 | 0.000 | 0.000 | 0.011 | 0.62 | 280.19 | 0.62 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 124 | 1230 | 0.004 | 0.015 | 3.461 | 1.402 | 0.011 | 0.000 | 0.000 | 0.011 | 0.63 | 280.70 | 0.62 |
| 125 | 1240 | 0.004 | 0.015 | 3.476 | 1.413 | 0.011 | 0.000 | 0.000 | 0.011 | 0.63 | 281.21 | 0.62 |
| 126 | 1250 | 0.004 | 0.015 | 3.491 | 1.424 | 0.011 | 0.000 | 0.000 | 0.011 | 0.63 | 281.71 | 0.62 |
| 127 | 1260 | 0.004 | 0.015 | 3.506 | 1.435 | 0.011 | 0.000 | 0.000 | 0.011 | 0.63 | 282.21 | 0.62 |
| 128 | 1270 | 0.004 | 0.015 | 3.521 | 1.446 | 0.011 | 0.000 | 0.000 | 0.011 | 0.63 | 282.71 | 0.62 |
| 129 | 1280 | 0.004 | 0.015 | 3.536 | 1.457 | 0.011 | 0.000 | 0.000 | 0.011 | 0.63 | 283.20 | 0.63 |
| 130 | 1290 | 0.004 | 0.015 | 3.551 | 1.469 | 0.011 | 0.000 | 0.000 | 0.011 | 0.63 | 283.69 | 0.63 |
| 131 | 1300 | 0.004 | 0.015 | 3.566 | 1.480 | 0.011 | 0.000 | 0.000 | 0.011 | 0.63 | 284.18 | 0.63 |
| 132 | 1310 | 0.004 | 0.015 | 3.581 | 1.491 | 0.011 | 0.000 | 0.000 | 0.011 | 0.63 | 284.66 | 0.63 |
| 133 | 1320 | 0.004 | 0.015 | 3.596 | 1.502 | 0.011 | 0.000 | 0.000 | 0.011 | 0.64 | 285.14 | 0.63 |
| 134 | 1330 | 0.004 | 0.015 | 3.611 | 1.514 | 0.011 | 0.000 | 0.000 | 0.011 | 0.64 | 285.61 | 0.63 |
| 135 | 1340 | 0.004 | 0.015 | 3.626 | 1.525 | 0.011 | 0.000 | 0.000 | 0.011 | 0.64 | 286.08 | 0.63 |
| 136 | 1350 | 0.004 | 0.015 | 3.641 | 1.536 | 0.011 | 0.000 | 0.000 | 0.011 | 0.64 | 286.55 | 0.63 |
| 137 | 1360 | 0.004 | 0.015 | 3.656 | 1.548 | 0.011 | 0.000 | 0.000 | 0.011 | 0.64 | 287.01 | 0.63 |
| 138 | 1370 | 0.004 | 0.015 | 3.671 | 1.559 | 0.011 | 0.000 | 0.000 | 0.011 | 0.64 | 287.47 | 0.64 |
| 139 | 1380 | 0.004 | 0.015 | 3.686 | 1.570 | 0.011 | 0.000 | 0.000 | 0.011 | 0.64 | 287.93 | 0.64 |
| 140 | 1390 | 0.004 | 0.015 | 3.701 | 1.582 | 0.011 | 0.000 | 0.000 | 0.011 | 0.64 | 288.38 | 0.64 |
| 141 | 1400 | 0.004 | 0.015 | 3.716 | 1.593 | 0.011 | 0.000 | 0.000 | 0.011 | 0.64 | 288.83 | 0.64 |
| 142 | 1410 | 0.004 | 0.015 | 3.731 | 1.605 | 0.011 | 0.000 | 0.000 | 0.011 | 0.64 | 289.28 | 0.64 |
| 143 | 1420 | 0.004 | 0.015 | 3.746 | 1.616 | 0.011 | 0.000 | 0.000 | 0.011 | 0.65 | 289.72 | 0.64 |
| 144 | 1430 | 0.004 | 0.015 | 3.761 | 1.627 | 0.011 | 0.000 | 0.000 | 0.011 | 0.65 | 290.16 | 0.64 |
| 145 | 1440 | 0.004 | 0.015 | 3.776 | 1.639 | 0.011 | 0.000 | 0.000 | 0.011 | 0.65 | 290.60 | 0.64 |

| | | | |
|------------------|-------------|----------------|-------------|
| Peak Flow | 4.63 | 2079.06 | 1.80 |
|------------------|-------------|----------------|-------------|

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| Time Increment | Time (min) | Rainfall | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 2 | 10 | 0.004 | 0.027 | 0.027 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 3 | 20 | 0.004 | 0.027 | 0.054 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 4 | 30 | 0.004 | 0.027 | 0.080 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 5 | 40 | 0.004 | 0.027 | 0.107 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 6 | 50 | 0.004 | 0.027 | 0.134 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 7 | 60 | 0.004 | 0.027 | 0.161 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 8 | 70 | 0.004 | 0.027 | 0.187 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 9 | 80 | 0.004 | 0.027 | 0.214 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 10 | 90 | 0.005 | 0.033 | 0.248 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 11 | 100 | 0.005 | 0.033 | 0.281 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 12 | 110 | 0.005 | 0.033 | 0.314 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 13 | 120 | 0.005 | 0.033 | 0.348 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 14 | 130 | 0.005 | 0.033 | 0.381 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 15 | 140 | 0.005 | 0.033 | 0.415 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 16 | 150 | 0.005 | 0.033 | 0.448 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 17 | 160 | 0.006 | 0.040 | 0.488 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 18 | 170 | 0.006 | 0.040 | 0.529 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 19 | 180 | 0.006 | 0.040 | 0.569 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 20 | 190 | 0.006 | 0.040 | 0.609 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 1.10 | 0.00 | |
| 21 | 200 | 0.006 | 0.040 | 0.649 | 0.001 | 0.001 | 0.000 | 0.000 | 0.001 | 0.05 | 21.04 | |
| 22 | 210 | 0.006 | 0.040 | 0.689 | 0.003 | 0.002 | 0.000 | 0.000 | 0.002 | 0.10 | 47.01 | |
| 23 | 220 | 0.007 | 0.047 | 0.736 | 0.006 | 0.003 | 0.000 | 0.000 | 0.003 | 0.19 | 86.33 | |
| 24 | 230 | 0.007 | 0.047 | 0.783 | 0.011 | 0.005 | 0.000 | 0.000 | 0.005 | 0.26 | 118.80 | |
| 25 | 240 | 0.007 | 0.047 | 0.830 | 0.017 | 0.006 | 0.000 | 0.000 | 0.006 | 0.33 | 149.86 | |
| 26 | 250 | 0.007 | 0.047 | 0.876 | 0.024 | 0.007 | 0.000 | 0.000 | 0.007 | 0.40 | 179.59 | |
| 27 | 260 | 0.007 | 0.047 | 0.923 | 0.032 | 0.008 | 0.000 | 0.000 | 0.008 | 0.46 | 208.05 | |
| 28 | 270 | 0.007 | 0.047 | 0.970 | 0.041 | 0.009 | 0.000 | 0.000 | 0.009 | 0.52 | 235.32 | |
| 29 | 280 | 0.007 | 0.047 | 1.017 | 0.052 | 0.010 | 0.000 | 0.000 | 0.010 | 0.58 | 261.47 | |
| 30 | 290 | 0.008 | 0.054 | 1.070 | 0.065 | 0.013 | 0.000 | 0.000 | 0.013 | 0.73 | 329.48 | |
| 31 | 300 | 0.008 | 0.054 | 1.124 | 0.079 | 0.014 | 0.000 | 0.000 | 0.014 | 0.80 | 360.75 | |
| 32 | 310 | 0.008 | 0.054 | 1.177 | 0.094 | 0.015 | 0.000 | 0.000 | 0.015 | 0.87 | 390.61 | |
| 33 | 320 | 0.008 | 0.054 | 1.231 | 0.111 | 0.017 | 0.000 | 0.000 | 0.017 | 0.93 | 419.15 | |
| 34 | 330 | 0.008 | 0.054 | 1.284 | 0.128 | 0.018 | 0.000 | 0.000 | 0.018 | 0.99 | 446.44 | |
| 35 | 340 | 0.008 | 0.054 | 1.338 | 0.147 | 0.019 | 0.000 | 0.000 | 0.019 | 1.05 | 472.55 | |
| 36 | 350 | 0.01 | 0.067 | 1.405 | 0.172 | 0.025 | 0.000 | 0.000 | 0.025 | 1.39 | 625.73 | |
| 37 | 360 | 0.01 | 0.067 | 1.472 | 0.198 | 0.026 | 0.000 | 0.000 | 0.026 | 1.48 | 662.77 | |
| 38 | 370 | 0.01 | 0.067 | 1.539 | 0.226 | 0.028 | 0.000 | 0.000 | 0.028 | 1.56 | 697.92 | |
| 39 | 380 | 0.01 | 0.067 | 1.606 | 0.254 | 0.029 | 0.000 | 0.000 | 0.029 | 1.63 | 731.31 | |
| 40 | 390 | 0.01 | 0.067 | 1.673 | 0.285 | 0.030 | 0.000 | 0.000 | 0.030 | 1.70 | 763.04 | |
| 41 | 400 | 0.01 | 0.067 | 1.739 | 0.316 | 0.031 | 0.000 | 0.000 | 0.031 | 1.77 | 793.23 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | | Design |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|--------------------|----------------|--------|
| Time Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) | |
| 42 | 410 | 0.013 | 0.087 | 1.826 | 0.358 | 0.042 | 0.000 | 0.000 | 0.042 | 2.39 | 1073.98 | 1.44 | |
| 43 | 420 | 0.013 | 0.087 | 1.913 | 0.402 | 0.044 | 0.000 | 0.000 | 0.044 | 2.49 | 1119.63 | 1.62 | |
| 44 | 430 | 0.013 | 0.087 | 2.000 | 0.448 | 0.046 | 0.000 | 0.000 | 0.046 | 2.59 | 1162.56 | 1.78 | |
| 45 | 440 | 0.018 | 0.120 | 2.121 | 0.514 | 0.066 | 0.000 | 0.000 | 0.066 | 3.73 | 1675.96 | 2.02 | |
| 46 | 450 | 0.018 | 0.120 | 2.241 | 0.583 | 0.069 | 0.000 | 0.000 | 0.069 | 3.89 | 1747.45 | 2.33 | |
| 47 | 460 | 0.034 | 0.227 | 2.469 | 0.721 | 0.137 | 0.000 | 0.000 | 0.137 | 7.75 | 3477.01 | 2.94 | |
| 48 | 470 | 0.054 | 0.361 | 2.830 | 0.955 | 0.234 | 0.000 | 0.000 | 0.234 | 13.22 | 5931.69 | 4.26 | |
| 49 | 480 | 0.027 | 0.181 | 3.011 | 1.078 | 0.123 | 0.000 | 0.000 | 0.123 | 6.97 | 3127.42 | 5.28 | |
| 50 | 490 | 0.018 | 0.120 | 3.131 | 1.163 | 0.084 | 0.000 | 0.000 | 0.084 | 4.76 | 2137.60 | 5.38 | |
| 51 | 500 | 0.013 | 0.087 | 3.218 | 1.225 | 0.062 | 0.000 | 0.000 | 0.062 | 3.49 | 1568.21 | 5.16 | |
| 52 | 510 | 0.013 | 0.087 | 3.305 | 1.287 | 0.063 | 0.000 | 0.000 | 0.063 | 3.54 | 1587.61 | 4.88 | |
| 53 | 520 | 0.013 | 0.087 | 3.392 | 1.351 | 0.063 | 0.000 | 0.000 | 0.063 | 3.58 | 1606.13 | 4.65 | |
| 54 | 530 | 0.009 | 0.060 | 3.452 | 1.395 | 0.044 | 0.000 | 0.000 | 0.044 | 2.50 | 1122.35 | 4.36 | |
| 55 | 540 | 0.009 | 0.060 | 3.512 | 1.440 | 0.045 | 0.000 | 0.000 | 0.045 | 2.52 | 1130.57 | 4.04 | |
| 56 | 550 | 0.009 | 0.060 | 3.572 | 1.485 | 0.045 | 0.000 | 0.000 | 0.045 | 2.54 | 1138.55 | 3.78 | |
| 57 | 560 | 0.009 | 0.060 | 3.633 | 1.530 | 0.045 | 0.000 | 0.000 | 0.045 | 2.55 | 1146.28 | 3.56 | |
| 58 | 570 | 0.009 | 0.060 | 3.693 | 1.575 | 0.046 | 0.000 | 0.000 | 0.046 | 2.57 | 1153.78 | 3.39 | |
| 59 | 580 | 0.009 | 0.060 | 3.753 | 1.621 | 0.046 | 0.000 | 0.000 | 0.046 | 2.59 | 1161.07 | 3.24 | |
| 60 | 590 | 0.009 | 0.060 | 3.813 | 1.667 | 0.046 | 0.000 | 0.000 | 0.046 | 2.60 | 1168.14 | 3.13 | |
| 61 | 600 | 0.009 | 0.060 | 3.874 | 1.714 | 0.046 | 0.000 | 0.000 | 0.046 | 2.62 | 1175.01 | 3.04 | |
| 62 | 610 | 0.009 | 0.060 | 3.934 | 1.760 | 0.047 | 0.000 | 0.000 | 0.047 | 2.63 | 1181.68 | 2.97 | |
| 63 | 620 | 0.009 | 0.060 | 3.994 | 1.807 | 0.047 | 0.000 | 0.000 | 0.047 | 2.65 | 1188.16 | 2.91 | |
| 64 | 630 | 0.009 | 0.060 | 4.054 | 1.854 | 0.047 | 0.000 | 0.000 | 0.047 | 2.66 | 1194.46 | 2.87 | |
| 65 | 640 | 0.009 | 0.060 | 4.114 | 1.902 | 0.047 | 0.000 | 0.000 | 0.047 | 2.68 | 1200.59 | 2.83 | |
| 66 | 650 | 0.007 | 0.047 | 4.161 | 1.939 | 0.037 | 0.000 | 0.000 | 0.037 | 2.09 | 937.92 | 2.75 | |
| 67 | 660 | 0.007 | 0.047 | 4.208 | 1.976 | 0.037 | 0.000 | 0.000 | 0.037 | 2.10 | 941.44 | 2.64 | |
| 68 | 670 | 0.007 | 0.047 | 4.255 | 2.013 | 0.037 | 0.000 | 0.000 | 0.037 | 2.11 | 944.90 | 2.54 | |
| 69 | 680 | 0.007 | 0.047 | 4.302 | 2.051 | 0.037 | 0.000 | 0.000 | 0.037 | 2.11 | 948.27 | 2.47 | |
| 70 | 690 | 0.007 | 0.047 | 4.349 | 2.088 | 0.038 | 0.000 | 0.000 | 0.038 | 2.12 | 951.58 | 2.41 | |
| 71 | 700 | 0.007 | 0.047 | 4.395 | 2.126 | 0.038 | 0.000 | 0.000 | 0.038 | 2.13 | 954.82 | 2.36 | |
| 72 | 710 | 0.007 | 0.047 | 4.442 | 2.164 | 0.038 | 0.000 | 0.000 | 0.038 | 2.13 | 958.00 | 2.32 | |
| 73 | 720 | 0.007 | 0.047 | 4.489 | 2.202 | 0.038 | 0.000 | 0.000 | 0.038 | 2.14 | 961.11 | 2.29 | |
| 74 | 730 | 0.007 | 0.047 | 4.536 | 2.240 | 0.038 | 0.000 | 0.000 | 0.038 | 2.15 | 964.15 | 2.26 | |
| 75 | 740 | 0.007 | 0.047 | 4.583 | 2.278 | 0.038 | 0.000 | 0.000 | 0.038 | 2.15 | 967.14 | 2.24 | |
| 76 | 750 | 0.007 | 0.047 | 4.629 | 2.316 | 0.038 | 0.000 | 0.000 | 0.038 | 2.16 | 970.06 | 2.23 | |
| 77 | 760 | 0.007 | 0.047 | 4.676 | 2.355 | 0.038 | 0.000 | 0.000 | 0.038 | 2.17 | 972.93 | 2.22 | |
| 78 | 770 | 0.006 | 0.040 | 4.716 | 2.388 | 0.033 | 0.000 | 0.000 | 0.033 | 1.86 | 836.18 | 2.18 | |
| 79 | 780 | 0.006 | 0.040 | 4.757 | 2.421 | 0.033 | 0.000 | 0.000 | 0.033 | 1.87 | 838.21 | 2.13 | |
| 80 | 790 | 0.006 | 0.040 | 4.797 | 2.454 | 0.033 | 0.000 | 0.000 | 0.033 | 1.87 | 840.21 | 2.08 | |
| 81 | 800 | 0.006 | 0.040 | 4.837 | 2.487 | 0.033 | 0.000 | 0.000 | 0.033 | 1.88 | 842.17 | 2.05 | |
| 82 | 810 | 0.006 | 0.040 | 4.877 | 2.520 | 0.033 | 0.000 | 0.000 | 0.033 | 1.88 | 844.10 | 2.02 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| Rainfall | | | | | Pervious | | Impervious | | | | Instant | | Design |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|--------------------|----------------|--------|
| Time Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) | |
| 83 | 820 | 0.006 | 0.040 | 4.917 | 2.554 | 0.033 | 0.000 | 0.000 | 0.033 | 1.89 | 846.00 | 1.99 | |
| 84 | 830 | 0.006 | 0.040 | 4.957 | 2.587 | 0.033 | 0.000 | 0.000 | 0.033 | 1.89 | 847.86 | 1.97 | |
| 85 | 840 | 0.006 | 0.040 | 4.997 | 2.621 | 0.034 | 0.000 | 0.000 | 0.034 | 1.89 | 849.70 | 1.96 | |
| 86 | 850 | 0.006 | 0.040 | 5.038 | 2.654 | 0.034 | 0.000 | 0.000 | 0.034 | 1.90 | 851.51 | 1.95 | |
| 87 | 860 | 0.006 | 0.040 | 5.078 | 2.688 | 0.034 | 0.000 | 0.000 | 0.034 | 1.90 | 853.29 | 1.94 | |
| 88 | 870 | 0.006 | 0.040 | 5.118 | 2.722 | 0.034 | 0.000 | 0.000 | 0.034 | 1.91 | 855.04 | 1.93 | |
| 89 | 880 | 0.006 | 0.040 | 5.158 | 2.756 | 0.034 | 0.000 | 0.000 | 0.034 | 1.91 | 856.76 | 1.93 | |
| 90 | 890 | 0.005 | 0.033 | 5.191 | 2.784 | 0.028 | 0.000 | 0.000 | 0.028 | 1.59 | 715.26 | 1.90 | |
| 91 | 900 | 0.005 | 0.033 | 5.225 | 2.812 | 0.028 | 0.000 | 0.000 | 0.028 | 1.60 | 716.42 | 1.84 | |
| 92 | 910 | 0.005 | 0.033 | 5.258 | 2.841 | 0.028 | 0.000 | 0.000 | 0.028 | 1.60 | 717.57 | 1.80 | |
| 93 | 920 | 0.005 | 0.033 | 5.292 | 2.869 | 0.028 | 0.000 | 0.000 | 0.028 | 1.60 | 718.70 | 1.77 | |
| 94 | 930 | 0.005 | 0.033 | 5.325 | 2.897 | 0.028 | 0.000 | 0.000 | 0.028 | 1.60 | 719.81 | 1.74 | |
| 95 | 940 | 0.005 | 0.033 | 5.359 | 2.926 | 0.028 | 0.000 | 0.000 | 0.028 | 1.61 | 720.91 | 1.71 | |
| 96 | 950 | 0.005 | 0.033 | 5.392 | 2.954 | 0.029 | 0.000 | 0.000 | 0.029 | 1.61 | 722.00 | 1.70 | |
| 97 | 960 | 0.005 | 0.033 | 5.426 | 2.983 | 0.029 | 0.000 | 0.000 | 0.029 | 1.61 | 723.07 | 1.68 | |
| 98 | 970 | 0.005 | 0.033 | 5.459 | 3.011 | 0.029 | 0.000 | 0.000 | 0.029 | 1.61 | 724.13 | 1.67 | |
| 99 | 980 | 0.005 | 0.033 | 5.492 | 3.040 | 0.029 | 0.000 | 0.000 | 0.029 | 1.62 | 725.18 | 1.66 | |
| 100 | 990 | 0.005 | 0.033 | 5.526 | 3.069 | 0.029 | 0.000 | 0.000 | 0.029 | 1.62 | 726.21 | 1.65 | |
| 101 | 1000 | 0.005 | 0.033 | 5.559 | 3.097 | 0.029 | 0.000 | 0.000 | 0.029 | 1.62 | 727.23 | 1.65 | |
| 102 | 1010 | 0.004 | 0.027 | 5.586 | 3.120 | 0.023 | 0.000 | 0.000 | 0.023 | 1.30 | 582.51 | 1.61 | |
| 103 | 1020 | 0.004 | 0.027 | 5.613 | 3.143 | 0.023 | 0.000 | 0.000 | 0.023 | 1.30 | 583.15 | 1.56 | |
| 104 | 1030 | 0.004 | 0.027 | 5.640 | 3.166 | 0.023 | 0.000 | 0.000 | 0.023 | 1.30 | 583.78 | 1.51 | |
| 105 | 1040 | 0.004 | 0.027 | 5.666 | 3.190 | 0.023 | 0.000 | 0.000 | 0.023 | 1.30 | 584.41 | 1.48 | |
| 106 | 1050 | 0.004 | 0.027 | 5.693 | 3.213 | 0.023 | 0.000 | 0.000 | 0.023 | 1.30 | 585.03 | 1.45 | |
| 107 | 1060 | 0.004 | 0.027 | 5.720 | 3.236 | 0.023 | 0.000 | 0.000 | 0.023 | 1.30 | 585.64 | 1.42 | |
| 108 | 1070 | 0.004 | 0.027 | 5.747 | 3.259 | 0.023 | 0.000 | 0.000 | 0.023 | 1.31 | 586.25 | 1.40 | |
| 109 | 1080 | 0.004 | 0.027 | 5.773 | 3.282 | 0.023 | 0.000 | 0.000 | 0.023 | 1.31 | 586.85 | 1.38 | |
| 110 | 1090 | 0.004 | 0.027 | 5.800 | 3.305 | 0.023 | 0.000 | 0.000 | 0.023 | 1.31 | 587.44 | 1.37 | |
| 111 | 1100 | 0.004 | 0.027 | 5.827 | 3.328 | 0.023 | 0.000 | 0.000 | 0.023 | 1.31 | 588.03 | 1.36 | |
| 112 | 1110 | 0.004 | 0.027 | 5.854 | 3.352 | 0.023 | 0.000 | 0.000 | 0.023 | 1.31 | 588.62 | 1.35 | |
| 113 | 1120 | 0.004 | 0.027 | 5.881 | 3.375 | 0.023 | 0.000 | 0.000 | 0.023 | 1.31 | 589.19 | 1.34 | |
| 114 | 1130 | 0.004 | 0.027 | 5.907 | 3.398 | 0.023 | 0.000 | 0.000 | 0.023 | 1.31 | 589.77 | 1.34 | |
| 115 | 1140 | 0.004 | 0.027 | 5.934 | 3.422 | 0.023 | 0.000 | 0.000 | 0.023 | 1.32 | 590.33 | 1.34 | |
| 116 | 1150 | 0.004 | 0.027 | 5.961 | 3.445 | 0.023 | 0.000 | 0.000 | 0.023 | 1.32 | 590.89 | 1.33 | |
| 117 | 1160 | 0.004 | 0.027 | 5.988 | 3.468 | 0.023 | 0.000 | 0.000 | 0.023 | 1.32 | 591.45 | 1.33 | |
| 118 | 1170 | 0.004 | 0.027 | 6.014 | 3.492 | 0.023 | 0.000 | 0.000 | 0.023 | 1.32 | 592.00 | 1.33 | |
| 119 | 1180 | 0.004 | 0.027 | 6.041 | 3.515 | 0.023 | 0.000 | 0.000 | 0.023 | 1.32 | 592.55 | 1.33 | |
| 120 | 1190 | 0.004 | 0.027 | 6.068 | 3.538 | 0.023 | 0.000 | 0.000 | 0.023 | 1.32 | 593.09 | 1.33 | |
| 121 | 1200 | 0.004 | 0.027 | 6.095 | 3.562 | 0.023 | 0.000 | 0.000 | 0.023 | 1.32 | 593.62 | 1.32 | |
| 122 | 1210 | 0.004 | 0.027 | 6.121 | 3.585 | 0.023 | 0.000 | 0.000 | 0.023 | 1.32 | 594.15 | 1.32 | |
| 123 | 1220 | 0.004 | 0.027 | 6.148 | 3.609 | 0.023 | 0.000 | 0.000 | 0.023 | 1.33 | 594.68 | 1.32 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 124 | 1230 | 0.004 | 0.027 | 6.175 | 3.632 | 0.023 | 0.000 | 0.000 | 0.023 | 1.33 | 595.20 | 1.32 |
| 125 | 1240 | 0.004 | 0.027 | 6.202 | 3.656 | 0.024 | 0.000 | 0.000 | 0.024 | 1.33 | 595.71 | 1.32 |
| 126 | 1250 | 0.004 | 0.027 | 6.228 | 3.679 | 0.024 | 0.000 | 0.000 | 0.024 | 1.33 | 596.22 | 1.33 |
| 127 | 1260 | 0.004 | 0.027 | 6.255 | 3.703 | 0.024 | 0.000 | 0.000 | 0.024 | 1.33 | 596.73 | 1.33 |
| 128 | 1270 | 0.004 | 0.027 | 6.282 | 3.726 | 0.024 | 0.000 | 0.000 | 0.024 | 1.33 | 597.23 | 1.33 |
| 129 | 1280 | 0.004 | 0.027 | 6.309 | 3.750 | 0.024 | 0.000 | 0.000 | 0.024 | 1.33 | 597.73 | 1.33 |
| 130 | 1290 | 0.004 | 0.027 | 6.335 | 3.774 | 0.024 | 0.000 | 0.000 | 0.024 | 1.33 | 598.22 | 1.33 |
| 131 | 1300 | 0.004 | 0.027 | 6.362 | 3.797 | 0.024 | 0.000 | 0.000 | 0.024 | 1.33 | 598.71 | 1.33 |
| 132 | 1310 | 0.004 | 0.027 | 6.389 | 3.821 | 0.024 | 0.000 | 0.000 | 0.024 | 1.34 | 599.19 | 1.33 |
| 133 | 1320 | 0.004 | 0.027 | 6.416 | 3.845 | 0.024 | 0.000 | 0.000 | 0.024 | 1.34 | 599.67 | 1.33 |
| 134 | 1330 | 0.004 | 0.027 | 6.442 | 3.868 | 0.024 | 0.000 | 0.000 | 0.024 | 1.34 | 600.14 | 1.33 |
| 135 | 1340 | 0.004 | 0.027 | 6.469 | 3.892 | 0.024 | 0.000 | 0.000 | 0.024 | 1.34 | 600.61 | 1.33 |
| 136 | 1350 | 0.004 | 0.027 | 6.496 | 3.916 | 0.024 | 0.000 | 0.000 | 0.024 | 1.34 | 601.08 | 1.33 |
| 137 | 1360 | 0.004 | 0.027 | 6.523 | 3.939 | 0.024 | 0.000 | 0.000 | 0.024 | 1.34 | 601.54 | 1.34 |
| 138 | 1370 | 0.004 | 0.027 | 6.550 | 3.963 | 0.024 | 0.000 | 0.000 | 0.024 | 1.34 | 602.00 | 1.34 |
| 139 | 1380 | 0.004 | 0.027 | 6.576 | 3.987 | 0.024 | 0.000 | 0.000 | 0.024 | 1.34 | 602.45 | 1.34 |
| 140 | 1390 | 0.004 | 0.027 | 6.603 | 4.011 | 0.024 | 0.000 | 0.000 | 0.024 | 1.34 | 602.90 | 1.34 |
| 141 | 1400 | 0.004 | 0.027 | 6.630 | 4.035 | 0.024 | 0.000 | 0.000 | 0.024 | 1.34 | 603.34 | 1.34 |
| 142 | 1410 | 0.004 | 0.027 | 6.657 | 4.058 | 0.024 | 0.000 | 0.000 | 0.024 | 1.35 | 603.78 | 1.34 |
| 143 | 1420 | 0.004 | 0.027 | 6.683 | 4.082 | 0.024 | 0.000 | 0.000 | 0.024 | 1.35 | 604.22 | 1.34 |
| 144 | 1430 | 0.004 | 0.027 | 6.710 | 4.106 | 0.024 | 0.000 | 0.000 | 0.024 | 1.35 | 604.65 | 1.34 |
| 145 | 1440 | 0.004 | 0.027 | 6.737 | 4.130 | 0.024 | 0.000 | 0.000 | 0.024 | 1.35 | 605.08 | 1.34 |

| | | | |
|------------------|--------------|----------------|-------------|
| Peak Flow | 13.22 | 5931.69 | 5.38 |
|------------------|--------------|----------------|-------------|

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| Time Increment | Time (min) | Rainfall | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 2 | 10 | 0.004 | 0.030 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 3 | 20 | 0.004 | 0.030 | 0.059 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 4 | 30 | 0.004 | 0.030 | 0.089 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 5 | 40 | 0.004 | 0.030 | 0.119 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 6 | 50 | 0.004 | 0.030 | 0.149 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 7 | 60 | 0.004 | 0.030 | 0.178 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 8 | 70 | 0.004 | 0.030 | 0.208 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 9 | 80 | 0.004 | 0.030 | 0.238 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 10 | 90 | 0.005 | 0.037 | 0.275 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 11 | 100 | 0.005 | 0.037 | 0.312 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 12 | 110 | 0.005 | 0.037 | 0.349 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 13 | 120 | 0.005 | 0.037 | 0.386 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 14 | 130 | 0.005 | 0.037 | 0.424 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 15 | 140 | 0.005 | 0.037 | 0.461 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 16 | 150 | 0.005 | 0.037 | 0.498 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 17 | 160 | 0.006 | 0.045 | 0.542 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 18 | 170 | 0.006 | 0.045 | 0.587 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 19 | 180 | 0.006 | 0.045 | 0.632 | 0.000 | 0.000 | 0.000 | 0.000 | 0.02 | 9.78 | 0.00 | |
| 20 | 190 | 0.006 | 0.045 | 0.676 | 0.002 | 0.002 | 0.000 | 0.000 | 0.002 | 0.09 | 41.44 | 0.01 |
| 21 | 200 | 0.006 | 0.045 | 0.721 | 0.005 | 0.003 | 0.000 | 0.000 | 0.003 | 0.16 | 72.62 | 0.03 |
| 22 | 210 | 0.006 | 0.045 | 0.765 | 0.009 | 0.004 | 0.000 | 0.000 | 0.004 | 0.23 | 102.49 | 0.06 |
| 23 | 220 | 0.007 | 0.052 | 0.817 | 0.015 | 0.006 | 0.000 | 0.000 | 0.006 | 0.35 | 155.65 | 0.10 |
| 24 | 230 | 0.007 | 0.052 | 0.869 | 0.023 | 0.008 | 0.000 | 0.000 | 0.008 | 0.43 | 192.74 | 0.15 |
| 25 | 240 | 0.007 | 0.052 | 0.921 | 0.032 | 0.009 | 0.000 | 0.000 | 0.009 | 0.51 | 228.08 | 0.21 |
| 26 | 250 | 0.007 | 0.052 | 0.973 | 0.042 | 0.010 | 0.000 | 0.000 | 0.010 | 0.58 | 261.78 | 0.27 |
| 27 | 260 | 0.007 | 0.052 | 1.025 | 0.054 | 0.012 | 0.000 | 0.000 | 0.012 | 0.65 | 293.94 | 0.33 |
| 28 | 270 | 0.007 | 0.052 | 1.077 | 0.066 | 0.013 | 0.000 | 0.000 | 0.013 | 0.72 | 324.65 | 0.39 |
| 29 | 280 | 0.007 | 0.052 | 1.129 | 0.080 | 0.014 | 0.000 | 0.000 | 0.014 | 0.79 | 354.00 | 0.45 |
| 30 | 290 | 0.008 | 0.059 | 1.189 | 0.098 | 0.017 | 0.000 | 0.000 | 0.017 | 0.98 | 438.87 | 0.53 |
| 31 | 300 | 0.008 | 0.059 | 1.248 | 0.116 | 0.019 | 0.000 | 0.000 | 0.019 | 1.06 | 473.74 | 0.61 |
| 32 | 310 | 0.008 | 0.059 | 1.308 | 0.136 | 0.020 | 0.000 | 0.000 | 0.020 | 1.13 | 506.92 | 0.70 |
| 33 | 320 | 0.008 | 0.059 | 1.367 | 0.158 | 0.021 | 0.000 | 0.000 | 0.021 | 1.20 | 538.53 | 0.78 |
| 34 | 330 | 0.008 | 0.059 | 1.427 | 0.180 | 0.022 | 0.000 | 0.000 | 0.022 | 1.27 | 568.66 | 0.86 |
| 35 | 340 | 0.008 | 0.059 | 1.486 | 0.204 | 0.024 | 0.000 | 0.000 | 0.024 | 1.33 | 597.41 | 0.94 |
| 36 | 350 | 0.01 | 0.074 | 1.560 | 0.235 | 0.031 | 0.000 | 0.000 | 0.031 | 1.75 | 785.21 | 1.04 |
| 37 | 360 | 0.01 | 0.074 | 1.635 | 0.267 | 0.033 | 0.000 | 0.000 | 0.033 | 1.84 | 825.72 | 1.17 |
| 38 | 370 | 0.01 | 0.074 | 1.709 | 0.301 | 0.034 | 0.000 | 0.000 | 0.034 | 1.93 | 864.03 | 1.30 |
| 39 | 380 | 0.01 | 0.074 | 1.783 | 0.337 | 0.036 | 0.000 | 0.000 | 0.036 | 2.01 | 900.29 | 1.41 |
| 40 | 390 | 0.01 | 0.074 | 1.858 | 0.374 | 0.037 | 0.000 | 0.000 | 0.037 | 2.08 | 934.64 | 1.52 |
| 41 | 400 | 0.01 | 0.074 | 1.932 | 0.412 | 0.038 | 0.000 | 0.000 | 0.038 | 2.16 | 967.23 | 1.63 |
| 42 | 410 | 0.013 | 0.097 | 2.028 | 0.463 | 0.051 | 0.000 | 0.000 | 0.051 | 2.90 | 1303.41 | 1.79 |
| 43 | 420 | 0.013 | 0.097 | 2.125 | 0.517 | 0.053 | 0.000 | 0.000 | 0.053 | 3.01 | 1352.34 | 1.99 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| Time Increment | Time (min) | Rainfall Distribution | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 44 | 430 | 0.013 | 0.097 | 2.222 | 0.572 | 0.055 | 0.000 | 0.000 | 0.055 | 3.12 | 1398.20 | 2.18 |
| 45 | 440 | 0.018 | 0.134 | 2.355 | 0.651 | 0.079 | 0.000 | 0.000 | 0.079 | 4.47 | 2006.45 | 2.46 |
| 46 | 450 | 0.018 | 0.134 | 2.489 | 0.733 | 0.082 | 0.000 | 0.000 | 0.082 | 4.64 | 2082.20 | 2.83 |
| 47 | 460 | 0.034 | 0.253 | 2.742 | 0.896 | 0.163 | 0.000 | 0.000 | 0.163 | 9.18 | 4118.77 | 3.54 |
| 48 | 470 | 0.054 | 0.401 | 3.143 | 1.171 | 0.275 | 0.000 | 0.000 | 0.275 | 15.53 | 6969.71 | 5.08 |
| 49 | 480 | 0.027 | 0.201 | 3.344 | 1.315 | 0.144 | 0.000 | 0.000 | 0.144 | 8.14 | 3652.52 | 6.26 |
| 50 | 490 | 0.018 | 0.134 | 3.477 | 1.414 | 0.098 | 0.000 | 0.000 | 0.098 | 5.55 | 2489.33 | 6.36 |
| 51 | 500 | 0.013 | 0.097 | 3.574 | 1.486 | 0.072 | 0.000 | 0.000 | 0.072 | 4.06 | 1822.92 | 6.09 |
| 52 | 510 | 0.013 | 0.097 | 3.670 | 1.558 | 0.073 | 0.000 | 0.000 | 0.073 | 4.11 | 1842.81 | 5.74 |
| 53 | 520 | 0.013 | 0.097 | 3.767 | 1.632 | 0.073 | 0.000 | 0.000 | 0.073 | 4.15 | 1861.77 | 5.46 |
| 54 | 530 | 0.009 | 0.067 | 3.834 | 1.683 | 0.051 | 0.000 | 0.000 | 0.051 | 2.90 | 1299.56 | 5.12 |
| 55 | 540 | 0.009 | 0.067 | 3.901 | 1.735 | 0.052 | 0.000 | 0.000 | 0.052 | 2.91 | 1307.94 | 4.73 |
| 56 | 550 | 0.009 | 0.067 | 3.968 | 1.787 | 0.052 | 0.000 | 0.000 | 0.052 | 2.93 | 1316.07 | 4.42 |
| 57 | 560 | 0.009 | 0.067 | 4.034 | 1.839 | 0.052 | 0.000 | 0.000 | 0.052 | 2.95 | 1323.93 | 4.16 |
| 58 | 570 | 0.009 | 0.067 | 4.101 | 1.892 | 0.053 | 0.000 | 0.000 | 0.053 | 2.97 | 1331.56 | 3.95 |
| 59 | 580 | 0.009 | 0.067 | 4.168 | 1.944 | 0.053 | 0.000 | 0.000 | 0.053 | 2.98 | 1338.95 | 3.78 |
| 60 | 590 | 0.009 | 0.067 | 4.235 | 1.997 | 0.053 | 0.000 | 0.000 | 0.053 | 3.00 | 1346.12 | 3.64 |
| 61 | 600 | 0.009 | 0.067 | 4.302 | 2.051 | 0.053 | 0.000 | 0.000 | 0.053 | 3.01 | 1353.07 | 3.53 |
| 62 | 610 | 0.009 | 0.067 | 4.369 | 2.105 | 0.054 | 0.000 | 0.000 | 0.054 | 3.03 | 1359.82 | 3.44 |
| 63 | 620 | 0.009 | 0.067 | 4.436 | 2.159 | 0.054 | 0.000 | 0.000 | 0.054 | 3.04 | 1366.37 | 3.37 |
| 64 | 630 | 0.009 | 0.067 | 4.503 | 2.213 | 0.054 | 0.000 | 0.000 | 0.054 | 3.06 | 1372.73 | 3.31 |
| 65 | 640 | 0.009 | 0.067 | 4.569 | 2.267 | 0.054 | 0.000 | 0.000 | 0.054 | 3.07 | 1378.90 | 3.27 |
| 66 | 650 | 0.007 | 0.052 | 4.621 | 2.310 | 0.042 | 0.000 | 0.000 | 0.042 | 2.40 | 1076.64 | 3.18 |
| 67 | 660 | 0.007 | 0.052 | 4.673 | 2.352 | 0.043 | 0.000 | 0.000 | 0.043 | 2.41 | 1080.18 | 3.04 |
| 68 | 670 | 0.007 | 0.052 | 4.725 | 2.395 | 0.043 | 0.000 | 0.000 | 0.043 | 2.41 | 1083.65 | 2.93 |
| 69 | 680 | 0.007 | 0.052 | 4.777 | 2.438 | 0.043 | 0.000 | 0.000 | 0.043 | 2.42 | 1087.05 | 2.84 |
| 70 | 690 | 0.007 | 0.052 | 4.830 | 2.481 | 0.043 | 0.000 | 0.000 | 0.043 | 2.43 | 1090.37 | 2.77 |
| 71 | 700 | 0.007 | 0.052 | 4.882 | 2.524 | 0.043 | 0.000 | 0.000 | 0.043 | 2.44 | 1093.62 | 2.71 |
| 72 | 710 | 0.007 | 0.052 | 4.934 | 2.567 | 0.043 | 0.000 | 0.000 | 0.043 | 2.44 | 1096.80 | 2.66 |
| 73 | 720 | 0.007 | 0.052 | 4.986 | 2.611 | 0.043 | 0.000 | 0.000 | 0.043 | 2.45 | 1099.92 | 2.63 |
| 74 | 730 | 0.007 | 0.052 | 5.038 | 2.654 | 0.044 | 0.000 | 0.000 | 0.044 | 2.46 | 1102.96 | 2.60 |
| 75 | 740 | 0.007 | 0.052 | 5.090 | 2.698 | 0.044 | 0.000 | 0.000 | 0.044 | 2.46 | 1105.95 | 2.57 |
| 76 | 750 | 0.007 | 0.052 | 5.142 | 2.742 | 0.044 | 0.000 | 0.000 | 0.044 | 2.47 | 1108.87 | 2.55 |
| 77 | 760 | 0.007 | 0.052 | 5.194 | 2.786 | 0.044 | 0.000 | 0.000 | 0.044 | 2.48 | 1111.74 | 2.54 |
| 78 | 770 | 0.006 | 0.045 | 5.238 | 2.823 | 0.038 | 0.000 | 0.000 | 0.038 | 2.13 | 955.15 | 2.50 |
| 79 | 780 | 0.006 | 0.045 | 5.283 | 2.861 | 0.038 | 0.000 | 0.000 | 0.038 | 2.13 | 957.17 | 2.43 |
| 80 | 790 | 0.006 | 0.045 | 5.327 | 2.899 | 0.038 | 0.000 | 0.000 | 0.038 | 2.14 | 959.16 | 2.38 |
| 81 | 800 | 0.006 | 0.045 | 5.372 | 2.937 | 0.038 | 0.000 | 0.000 | 0.038 | 2.14 | 961.12 | 2.34 |
| 82 | 810 | 0.006 | 0.045 | 5.416 | 2.975 | 0.038 | 0.000 | 0.000 | 0.038 | 2.15 | 963.04 | 2.31 |
| 83 | 820 | 0.006 | 0.045 | 5.461 | 3.013 | 0.038 | 0.000 | 0.000 | 0.038 | 2.15 | 964.93 | 2.28 |
| 84 | 830 | 0.006 | 0.045 | 5.506 | 3.051 | 0.038 | 0.000 | 0.000 | 0.038 | 2.15 | 966.79 | 2.26 |
| 85 | 840 | 0.006 | 0.045 | 5.550 | 3.090 | 0.038 | 0.000 | 0.000 | 0.038 | 2.16 | 968.61 | 2.24 |
| 86 | 850 | 0.006 | 0.045 | 5.595 | 3.128 | 0.038 | 0.000 | 0.000 | 0.038 | 2.16 | 970.41 | 2.22 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| Time Increment | Time (min) | Rainfall | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 87 | 860 | 0.006 | 0.045 | 5.639 | 3.166 | 0.038 | 0.000 | 0.000 | 0.038 | 2.17 | 972.17 | 2.21 |
| 88 | 870 | 0.006 | 0.045 | 5.684 | 3.205 | 0.038 | 0.000 | 0.000 | 0.038 | 2.17 | 973.91 | 2.21 |
| 89 | 880 | 0.006 | 0.045 | 5.729 | 3.243 | 0.039 | 0.000 | 0.000 | 0.039 | 2.17 | 975.62 | 2.20 |
| 90 | 890 | 0.005 | 0.037 | 5.766 | 3.275 | 0.032 | 0.000 | 0.000 | 0.032 | 1.81 | 814.30 | 2.16 |
| 91 | 900 | 0.005 | 0.037 | 5.803 | 3.307 | 0.032 | 0.000 | 0.000 | 0.032 | 1.82 | 815.45 | 2.10 |
| 92 | 910 | 0.005 | 0.037 | 5.840 | 3.340 | 0.032 | 0.000 | 0.000 | 0.032 | 1.82 | 816.58 | 2.05 |
| 93 | 920 | 0.005 | 0.037 | 5.877 | 3.372 | 0.032 | 0.000 | 0.000 | 0.032 | 1.82 | 817.70 | 2.01 |
| 94 | 930 | 0.005 | 0.037 | 5.914 | 3.404 | 0.032 | 0.000 | 0.000 | 0.032 | 1.82 | 818.81 | 1.98 |
| 95 | 940 | 0.005 | 0.037 | 5.951 | 3.437 | 0.032 | 0.000 | 0.000 | 0.032 | 1.83 | 819.89 | 1.95 |
| 96 | 950 | 0.005 | 0.037 | 5.989 | 3.469 | 0.032 | 0.000 | 0.000 | 0.032 | 1.83 | 820.97 | 1.93 |
| 97 | 960 | 0.005 | 0.037 | 6.026 | 3.502 | 0.032 | 0.000 | 0.000 | 0.032 | 1.83 | 822.03 | 1.91 |
| 98 | 970 | 0.005 | 0.037 | 6.063 | 3.534 | 0.032 | 0.000 | 0.000 | 0.032 | 1.83 | 823.08 | 1.90 |
| 99 | 980 | 0.005 | 0.037 | 6.100 | 3.567 | 0.033 | 0.000 | 0.000 | 0.033 | 1.84 | 824.11 | 1.89 |
| 100 | 990 | 0.005 | 0.037 | 6.137 | 3.599 | 0.033 | 0.000 | 0.000 | 0.033 | 1.84 | 825.13 | 1.88 |
| 101 | 1000 | 0.005 | 0.037 | 6.174 | 3.632 | 0.033 | 0.000 | 0.000 | 0.033 | 1.84 | 826.14 | 1.87 |
| 102 | 1010 | 0.004 | 0.030 | 6.204 | 3.658 | 0.026 | 0.000 | 0.000 | 0.026 | 1.47 | 661.63 | 1.83 |
| 103 | 1020 | 0.004 | 0.030 | 6.234 | 3.684 | 0.026 | 0.000 | 0.000 | 0.026 | 1.48 | 662.25 | 1.77 |
| 104 | 1030 | 0.004 | 0.030 | 6.263 | 3.710 | 0.026 | 0.000 | 0.000 | 0.026 | 1.48 | 662.88 | 1.72 |
| 105 | 1040 | 0.004 | 0.030 | 6.293 | 3.736 | 0.026 | 0.000 | 0.000 | 0.026 | 1.48 | 663.49 | 1.68 |
| 106 | 1050 | 0.004 | 0.030 | 6.323 | 3.763 | 0.026 | 0.000 | 0.000 | 0.026 | 1.48 | 664.10 | 1.64 |
| 107 | 1060 | 0.004 | 0.030 | 6.353 | 3.789 | 0.026 | 0.000 | 0.000 | 0.026 | 1.48 | 664.71 | 1.61 |
| 108 | 1070 | 0.004 | 0.030 | 6.382 | 3.815 | 0.026 | 0.000 | 0.000 | 0.026 | 1.48 | 665.30 | 1.59 |
| 109 | 1080 | 0.004 | 0.030 | 6.412 | 3.841 | 0.026 | 0.000 | 0.000 | 0.026 | 1.48 | 665.90 | 1.57 |
| 110 | 1090 | 0.004 | 0.030 | 6.442 | 3.868 | 0.026 | 0.000 | 0.000 | 0.026 | 1.49 | 666.48 | 1.56 |
| 111 | 1100 | 0.004 | 0.030 | 6.472 | 3.894 | 0.026 | 0.000 | 0.000 | 0.026 | 1.49 | 667.06 | 1.54 |
| 112 | 1110 | 0.004 | 0.030 | 6.501 | 3.920 | 0.026 | 0.000 | 0.000 | 0.026 | 1.49 | 667.64 | 1.53 |
| 113 | 1120 | 0.004 | 0.030 | 6.531 | 3.947 | 0.026 | 0.000 | 0.000 | 0.026 | 1.49 | 668.20 | 1.53 |
| 114 | 1130 | 0.004 | 0.030 | 6.561 | 3.973 | 0.026 | 0.000 | 0.000 | 0.026 | 1.49 | 668.77 | 1.52 |
| 115 | 1140 | 0.004 | 0.030 | 6.590 | 4.000 | 0.026 | 0.000 | 0.000 | 0.026 | 1.49 | 669.32 | 1.51 |
| 116 | 1150 | 0.004 | 0.030 | 6.620 | 4.026 | 0.026 | 0.000 | 0.000 | 0.026 | 1.49 | 669.87 | 1.51 |
| 117 | 1160 | 0.004 | 0.030 | 6.650 | 4.052 | 0.026 | 0.000 | 0.000 | 0.026 | 1.49 | 670.42 | 1.51 |
| 118 | 1170 | 0.004 | 0.030 | 6.680 | 4.079 | 0.026 | 0.000 | 0.000 | 0.026 | 1.50 | 670.96 | 1.51 |
| 119 | 1180 | 0.004 | 0.030 | 6.709 | 4.105 | 0.027 | 0.000 | 0.000 | 0.027 | 1.50 | 671.50 | 1.50 |
| 120 | 1190 | 0.004 | 0.030 | 6.739 | 4.132 | 0.027 | 0.000 | 0.000 | 0.027 | 1.50 | 672.03 | 1.50 |
| 121 | 1200 | 0.004 | 0.030 | 6.769 | 4.159 | 0.027 | 0.000 | 0.000 | 0.027 | 1.50 | 672.55 | 1.50 |
| 122 | 1210 | 0.004 | 0.030 | 6.798 | 4.185 | 0.027 | 0.000 | 0.000 | 0.027 | 1.50 | 673.07 | 1.50 |
| 123 | 1220 | 0.004 | 0.030 | 6.828 | 4.212 | 0.027 | 0.000 | 0.000 | 0.027 | 1.50 | 673.59 | 1.50 |
| 124 | 1230 | 0.004 | 0.030 | 6.858 | 4.238 | 0.027 | 0.000 | 0.000 | 0.027 | 1.50 | 674.10 | 1.50 |
| 125 | 1240 | 0.004 | 0.030 | 6.888 | 4.265 | 0.027 | 0.000 | 0.000 | 0.027 | 1.50 | 674.60 | 1.50 |
| 126 | 1250 | 0.004 | 0.030 | 6.917 | 4.292 | 0.027 | 0.000 | 0.000 | 0.027 | 1.50 | 675.10 | 1.50 |
| 127 | 1260 | 0.004 | 0.030 | 6.947 | 4.318 | 0.027 | 0.000 | 0.000 | 0.027 | 1.51 | 675.60 | 1.50 |
| 128 | 1270 | 0.004 | 0.030 | 6.977 | 4.345 | 0.027 | 0.000 | 0.000 | 0.027 | 1.51 | 676.09 | 1.50 |
| 129 | 1280 | 0.004 | 0.030 | 7.006 | 4.372 | 0.027 | 0.000 | 0.000 | 0.027 | 1.51 | 676.57 | 1.50 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| Time Increment | Time (min) | Rainfall | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 130 | 1290 | 0.004 | 0.030 | 7.036 | 4.398 | 0.027 | 0.000 | 0.000 | 0.027 | 1.51 | 677.05 | 1.50 |
| 131 | 1300 | 0.004 | 0.030 | 7.066 | 4.425 | 0.027 | 0.000 | 0.000 | 0.027 | 1.51 | 677.53 | 1.51 |
| 132 | 1310 | 0.004 | 0.030 | 7.096 | 4.452 | 0.027 | 0.000 | 0.000 | 0.027 | 1.51 | 678.00 | 1.51 |
| 133 | 1320 | 0.004 | 0.030 | 7.125 | 4.479 | 0.027 | 0.000 | 0.000 | 0.027 | 1.51 | 678.47 | 1.51 |
| 134 | 1330 | 0.004 | 0.030 | 7.155 | 4.505 | 0.027 | 0.000 | 0.000 | 0.027 | 1.51 | 678.93 | 1.51 |
| 135 | 1340 | 0.004 | 0.030 | 7.185 | 4.532 | 0.027 | 0.000 | 0.000 | 0.027 | 1.51 | 679.39 | 1.51 |
| 136 | 1350 | 0.004 | 0.030 | 7.215 | 4.559 | 0.027 | 0.000 | 0.000 | 0.027 | 1.51 | 679.85 | 1.51 |
| 137 | 1360 | 0.004 | 0.030 | 7.244 | 4.586 | 0.027 | 0.000 | 0.000 | 0.027 | 1.52 | 680.30 | 1.51 |
| 138 | 1370 | 0.004 | 0.030 | 7.274 | 4.613 | 0.027 | 0.000 | 0.000 | 0.027 | 1.52 | 680.75 | 1.51 |
| 139 | 1380 | 0.004 | 0.030 | 7.304 | 4.640 | 0.027 | 0.000 | 0.000 | 0.027 | 1.52 | 681.19 | 1.51 |
| 140 | 1390 | 0.004 | 0.030 | 7.333 | 4.667 | 0.027 | 0.000 | 0.000 | 0.027 | 1.52 | 681.63 | 1.51 |
| 141 | 1400 | 0.004 | 0.030 | 7.363 | 4.694 | 0.027 | 0.000 | 0.000 | 0.027 | 1.52 | 682.06 | 1.51 |
| 142 | 1410 | 0.004 | 0.030 | 7.393 | 4.721 | 0.027 | 0.000 | 0.000 | 0.027 | 1.52 | 682.49 | 1.52 |
| 143 | 1420 | 0.004 | 0.030 | 7.423 | 4.747 | 0.027 | 0.000 | 0.000 | 0.027 | 1.52 | 682.92 | 1.52 |
| 144 | 1430 | 0.004 | 0.030 | 7.452 | 4.774 | 0.027 | 0.000 | 0.000 | 0.027 | 1.52 | 683.34 | 1.52 |
| 145 | 1440 | 0.004 | 0.030 | 7.482 | 4.801 | 0.027 | 0.000 | 0.000 | 0.027 | 1.52 | 683.76 | 1.52 |

| | | | |
|------------------|--------------|----------------|-------------|
| Peak Flow | 15.53 | 6969.71 | 6.36 |
|------------------|--------------|----------------|-------------|

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| Time | | Rainfall | | | Pervious | | Impervious | | Instant | | Design | |
|-----------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|----------------|----------------------------|----------------|
| Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Flowrate (cfs) | Instant Flowrate (gal/min) | Flowrate (cfs) |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 2 | 10 | 0.004 | 0.033 | 0.033 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 3 | 20 | 0.004 | 0.033 | 0.065 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 4 | 30 | 0.004 | 0.033 | 0.098 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 5 | 40 | 0.004 | 0.033 | 0.130 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 6 | 50 | 0.004 | 0.033 | 0.163 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 7 | 60 | 0.004 | 0.033 | 0.195 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 8 | 70 | 0.004 | 0.033 | 0.228 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 9 | 80 | 0.004 | 0.033 | 0.260 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 10 | 90 | 0.005 | 0.041 | 0.301 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 11 | 100 | 0.005 | 0.041 | 0.342 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 12 | 110 | 0.005 | 0.041 | 0.383 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 13 | 120 | 0.005 | 0.041 | 0.423 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 14 | 130 | 0.005 | 0.041 | 0.464 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 15 | 140 | 0.005 | 0.041 | 0.505 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 16 | 150 | 0.005 | 0.041 | 0.545 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 17 | 160 | 0.006 | 0.049 | 0.594 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 18 | 170 | 0.006 | 0.049 | 0.643 | 0.001 | 0.001 | 0.000 | 0.000 | 0.001 | 0.04 | 17.41 | 0.00 |
| 19 | 180 | 0.006 | 0.049 | 0.692 | 0.003 | 0.002 | 0.000 | 0.000 | 0.002 | 0.12 | 56.00 | 0.02 |
| 20 | 190 | 0.006 | 0.049 | 0.741 | 0.007 | 0.004 | 0.000 | 0.000 | 0.004 | 0.21 | 92.86 | 0.04 |
| 21 | 200 | 0.006 | 0.049 | 0.790 | 0.012 | 0.005 | 0.000 | 0.000 | 0.005 | 0.29 | 128.02 | 0.08 |
| 22 | 210 | 0.006 | 0.049 | 0.838 | 0.018 | 0.006 | 0.000 | 0.000 | 0.006 | 0.36 | 161.59 | 0.12 |
| 23 | 220 | 0.007 | 0.057 | 0.895 | 0.027 | 0.009 | 0.000 | 0.000 | 0.009 | 0.51 | 228.94 | 0.18 |
| 24 | 230 | 0.007 | 0.057 | 0.952 | 0.038 | 0.011 | 0.000 | 0.000 | 0.011 | 0.60 | 270.36 | 0.24 |
| 25 | 240 | 0.007 | 0.057 | 1.009 | 0.050 | 0.012 | 0.000 | 0.000 | 0.012 | 0.69 | 309.69 | 0.31 |
| 26 | 250 | 0.007 | 0.057 | 1.066 | 0.064 | 0.014 | 0.000 | 0.000 | 0.014 | 0.77 | 347.08 | 0.39 |
| 27 | 260 | 0.007 | 0.057 | 1.123 | 0.079 | 0.015 | 0.000 | 0.000 | 0.015 | 0.85 | 382.65 | 0.46 |
| 28 | 270 | 0.007 | 0.057 | 1.180 | 0.095 | 0.016 | 0.000 | 0.000 | 0.016 | 0.93 | 416.51 | 0.54 |
| 29 | 280 | 0.007 | 0.057 | 1.237 | 0.113 | 0.018 | 0.000 | 0.000 | 0.018 | 1.00 | 448.78 | 0.61 |
| 30 | 290 | 0.008 | 0.065 | 1.302 | 0.135 | 0.022 | 0.000 | 0.000 | 0.022 | 1.23 | 550.49 | 0.70 |
| 31 | 300 | 0.008 | 0.065 | 1.368 | 0.158 | 0.023 | 0.000 | 0.000 | 0.023 | 1.31 | 588.59 | 0.80 |
| 32 | 310 | 0.008 | 0.065 | 1.433 | 0.183 | 0.025 | 0.000 | 0.000 | 0.025 | 1.39 | 624.75 | 0.90 |
| 33 | 320 | 0.008 | 0.065 | 1.498 | 0.209 | 0.026 | 0.000 | 0.000 | 0.026 | 1.47 | 659.09 | 0.99 |
| 34 | 330 | 0.008 | 0.065 | 1.563 | 0.236 | 0.027 | 0.000 | 0.000 | 0.027 | 1.54 | 691.73 | 1.08 |
| 35 | 340 | 0.008 | 0.065 | 1.628 | 0.264 | 0.029 | 0.000 | 0.000 | 0.029 | 1.61 | 722.78 | 1.17 |
| 36 | 350 | 0.01 | 0.081 | 1.709 | 0.302 | 0.037 | 0.000 | 0.000 | 0.037 | 2.11 | 944.89 | 1.29 |
| 37 | 360 | 0.01 | 0.081 | 1.791 | 0.341 | 0.039 | 0.000 | 0.000 | 0.039 | 2.20 | 988.40 | 1.44 |
| 38 | 370 | 0.01 | 0.081 | 1.872 | 0.381 | 0.041 | 0.000 | 0.000 | 0.041 | 2.29 | 1029.42 | 1.58 |
| 39 | 380 | 0.01 | 0.081 | 1.954 | 0.423 | 0.042 | 0.000 | 0.000 | 0.042 | 2.38 | 1068.13 | 1.71 |
| 40 | 390 | 0.01 | 0.081 | 2.035 | 0.467 | 0.044 | 0.000 | 0.000 | 0.044 | 2.46 | 1104.70 | 1.84 |
| 41 | 400 | 0.01 | 0.081 | 2.116 | 0.512 | 0.045 | 0.000 | 0.000 | 0.045 | 2.54 | 1139.29 | 1.95 |
| 42 | 410 | 0.013 | 0.106 | 2.222 | 0.572 | 0.060 | 0.000 | 0.000 | 0.060 | 3.41 | 1529.78 | 2.13 |
| 43 | 420 | 0.013 | 0.106 | 2.328 | 0.635 | 0.062 | 0.000 | 0.000 | 0.062 | 3.52 | 1581.42 | 2.36 |
| 44 | 430 | 0.013 | 0.106 | 2.434 | 0.699 | 0.064 | 0.000 | 0.000 | 0.064 | 3.63 | 1629.65 | 2.58 |
| 45 | 440 | 0.018 | 0.147 | 2.580 | 0.791 | 0.092 | 0.000 | 0.000 | 0.092 | 5.19 | 2330.33 | 2.90 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| | | Pervious | | | Impervious | | | | | | Design | |
|----------------|------------|----------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|----------------|
| Time Increment | Time (min) | Rainfall Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Flowrate (cfs) |
| 46 | 450 | 0.018 | 0.147 | 2.727 | 0.886 | 0.095 | 0.000 | 0.000 | 0.095 | 5.37 | 2409.46 | 3.31 |
| 47 | 460 | 0.034 | 0.277 | 3.004 | 1.074 | 0.187 | 0.000 | 0.000 | 0.187 | 10.57 | 4744.27 | 4.13 |
| 48 | 470 | 0.054 | 0.440 | 3.443 | 1.388 | 0.315 | 0.000 | 0.000 | 0.315 | 17.77 | 7977.18 | 5.88 |
| 49 | 480 | 0.027 | 0.220 | 3.663 | 1.553 | 0.164 | 0.000 | 0.000 | 0.164 | 9.27 | 4160.61 | 7.22 |
| 50 | 490 | 0.018 | 0.147 | 3.810 | 1.664 | 0.112 | 0.000 | 0.000 | 0.112 | 6.30 | 2829.17 | 7.32 |
| 51 | 500 | 0.013 | 0.106 | 3.915 | 1.746 | 0.082 | 0.000 | 0.000 | 0.082 | 4.61 | 2068.80 | 6.99 |
| 52 | 510 | 0.013 | 0.106 | 4.021 | 1.829 | 0.082 | 0.000 | 0.000 | 0.082 | 4.65 | 2089.01 | 6.58 |
| 53 | 520 | 0.013 | 0.106 | 4.127 | 1.912 | 0.083 | 0.000 | 0.000 | 0.083 | 4.70 | 2108.22 | 6.25 |
| 54 | 530 | 0.009 | 0.073 | 4.200 | 1.970 | 0.058 | 0.000 | 0.000 | 0.058 | 3.28 | 1470.31 | 5.85 |
| 55 | 540 | 0.009 | 0.073 | 4.274 | 2.028 | 0.058 | 0.000 | 0.000 | 0.058 | 3.29 | 1478.79 | 5.40 |
| 56 | 550 | 0.009 | 0.073 | 4.347 | 2.087 | 0.059 | 0.000 | 0.000 | 0.059 | 3.31 | 1486.99 | 5.04 |
| 57 | 560 | 0.009 | 0.073 | 4.420 | 2.146 | 0.059 | 0.000 | 0.000 | 0.059 | 3.33 | 1494.93 | 4.74 |
| 58 | 570 | 0.009 | 0.073 | 4.493 | 2.205 | 0.059 | 0.000 | 0.000 | 0.059 | 3.35 | 1502.62 | 4.49 |
| 59 | 580 | 0.009 | 0.073 | 4.567 | 2.265 | 0.060 | 0.000 | 0.000 | 0.060 | 3.36 | 1510.06 | 4.29 |
| 60 | 590 | 0.009 | 0.073 | 4.640 | 2.325 | 0.060 | 0.000 | 0.000 | 0.060 | 3.38 | 1517.27 | 4.13 |
| 61 | 600 | 0.009 | 0.073 | 4.713 | 2.385 | 0.060 | 0.000 | 0.000 | 0.060 | 3.40 | 1524.25 | 4.00 |
| 62 | 610 | 0.009 | 0.073 | 4.786 | 2.445 | 0.060 | 0.000 | 0.000 | 0.060 | 3.41 | 1531.02 | 3.90 |
| 63 | 620 | 0.009 | 0.073 | 4.860 | 2.506 | 0.061 | 0.000 | 0.000 | 0.061 | 3.43 | 1537.59 | 3.81 |
| 64 | 630 | 0.009 | 0.073 | 4.933 | 2.567 | 0.061 | 0.000 | 0.000 | 0.061 | 3.44 | 1543.96 | 3.75 |
| 65 | 640 | 0.009 | 0.073 | 5.006 | 2.628 | 0.061 | 0.000 | 0.000 | 0.061 | 3.45 | 1550.14 | 3.69 |
| 66 | 650 | 0.007 | 0.057 | 5.063 | 2.676 | 0.048 | 0.000 | 0.000 | 0.048 | 2.70 | 1209.82 | 3.59 |
| 67 | 660 | 0.007 | 0.057 | 5.120 | 2.724 | 0.048 | 0.000 | 0.000 | 0.048 | 2.70 | 1213.37 | 3.43 |
| 68 | 670 | 0.007 | 0.057 | 5.177 | 2.772 | 0.048 | 0.000 | 0.000 | 0.048 | 2.71 | 1216.83 | 3.30 |
| 69 | 680 | 0.007 | 0.057 | 5.234 | 2.820 | 0.048 | 0.000 | 0.000 | 0.048 | 2.72 | 1220.22 | 3.20 |
| 70 | 690 | 0.007 | 0.057 | 5.291 | 2.868 | 0.048 | 0.000 | 0.000 | 0.048 | 2.73 | 1223.53 | 3.12 |
| 71 | 700 | 0.007 | 0.057 | 5.348 | 2.917 | 0.048 | 0.000 | 0.000 | 0.048 | 2.73 | 1226.77 | 3.05 |
| 72 | 710 | 0.007 | 0.057 | 5.405 | 2.965 | 0.049 | 0.000 | 0.000 | 0.049 | 2.74 | 1229.94 | 3.00 |
| 73 | 720 | 0.007 | 0.057 | 5.462 | 3.014 | 0.049 | 0.000 | 0.000 | 0.049 | 2.75 | 1233.04 | 2.95 |
| 74 | 730 | 0.007 | 0.057 | 5.519 | 3.063 | 0.049 | 0.000 | 0.000 | 0.049 | 2.75 | 1236.07 | 2.92 |
| 75 | 740 | 0.007 | 0.057 | 5.576 | 3.112 | 0.049 | 0.000 | 0.000 | 0.049 | 2.76 | 1239.04 | 2.89 |
| 76 | 750 | 0.007 | 0.057 | 5.633 | 3.161 | 0.049 | 0.000 | 0.000 | 0.049 | 2.77 | 1241.94 | 2.87 |
| 77 | 760 | 0.007 | 0.057 | 5.690 | 3.210 | 0.049 | 0.000 | 0.000 | 0.049 | 2.77 | 1244.79 | 2.85 |
| 78 | 770 | 0.006 | 0.049 | 5.739 | 3.252 | 0.042 | 0.000 | 0.000 | 0.042 | 2.38 | 1069.18 | 2.80 |
| 79 | 780 | 0.006 | 0.049 | 5.788 | 3.294 | 0.042 | 0.000 | 0.000 | 0.042 | 2.39 | 1071.19 | 2.73 |
| 80 | 790 | 0.006 | 0.049 | 5.836 | 3.337 | 0.042 | 0.000 | 0.000 | 0.042 | 2.39 | 1073.16 | 2.67 |
| 81 | 800 | 0.006 | 0.049 | 5.885 | 3.379 | 0.042 | 0.000 | 0.000 | 0.042 | 2.40 | 1075.09 | 2.62 |
| 82 | 810 | 0.006 | 0.049 | 5.934 | 3.422 | 0.043 | 0.000 | 0.000 | 0.043 | 2.40 | 1077.00 | 2.58 |
| 83 | 820 | 0.006 | 0.049 | 5.983 | 3.464 | 0.043 | 0.000 | 0.000 | 0.043 | 2.40 | 1078.87 | 2.55 |
| 84 | 830 | 0.006 | 0.049 | 6.032 | 3.507 | 0.043 | 0.000 | 0.000 | 0.043 | 2.41 | 1080.71 | 2.53 |
| 85 | 840 | 0.006 | 0.049 | 6.081 | 3.550 | 0.043 | 0.000 | 0.000 | 0.043 | 2.41 | 1082.51 | 2.51 |
| 86 | 850 | 0.006 | 0.049 | 6.129 | 3.592 | 0.043 | 0.000 | 0.000 | 0.043 | 2.42 | 1084.29 | 2.49 |
| 87 | 860 | 0.006 | 0.049 | 6.178 | 3.635 | 0.043 | 0.000 | 0.000 | 0.043 | 2.42 | 1086.03 | 2.48 |
| 88 | 870 | 0.006 | 0.049 | 6.227 | 3.678 | 0.043 | 0.000 | 0.000 | 0.043 | 2.42 | 1087.74 | 2.47 |
| 89 | 880 | 0.006 | 0.049 | 6.276 | 3.721 | 0.043 | 0.000 | 0.000 | 0.043 | 2.43 | 1089.43 | 2.46 |
| 90 | 890 | 0.005 | 0.041 | 6.317 | 3.757 | 0.036 | 0.000 | 0.000 | 0.036 | 2.03 | 909.13 | 2.42 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| | | Pervious | | | Impervious | | | | | | | |
|----------------|------------|----------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| Time Increment | Time (min) | Rainfall Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
| 91 | 900 | 0.005 | 0.041 | 6.357 | 3.793 | 0.036 | 0.000 | 0.000 | 0.036 | 2.03 | 910.26 | 2.35 |
| 92 | 910 | 0.005 | 0.041 | 6.398 | 3.829 | 0.036 | 0.000 | 0.000 | 0.036 | 2.03 | 911.38 | 2.29 |
| 93 | 920 | 0.005 | 0.041 | 6.439 | 3.865 | 0.036 | 0.000 | 0.000 | 0.036 | 2.03 | 912.48 | 2.25 |
| 94 | 930 | 0.005 | 0.041 | 6.479 | 3.901 | 0.036 | 0.000 | 0.000 | 0.036 | 2.04 | 913.57 | 2.21 |
| 95 | 940 | 0.005 | 0.041 | 6.520 | 3.937 | 0.036 | 0.000 | 0.000 | 0.036 | 2.04 | 914.64 | 2.18 |
| 96 | 950 | 0.005 | 0.041 | 6.561 | 3.973 | 0.036 | 0.000 | 0.000 | 0.036 | 2.04 | 915.70 | 2.16 |
| 97 | 960 | 0.005 | 0.041 | 6.602 | 4.009 | 0.036 | 0.000 | 0.000 | 0.036 | 2.04 | 916.75 | 2.14 |
| 98 | 970 | 0.005 | 0.041 | 6.642 | 4.046 | 0.036 | 0.000 | 0.000 | 0.036 | 2.04 | 917.78 | 2.12 |
| 99 | 980 | 0.005 | 0.041 | 6.683 | 4.082 | 0.036 | 0.000 | 0.000 | 0.036 | 2.05 | 918.79 | 2.11 |
| 100 | 990 | 0.005 | 0.041 | 6.724 | 4.118 | 0.036 | 0.000 | 0.000 | 0.036 | 2.05 | 919.80 | 2.10 |
| 101 | 1000 | 0.005 | 0.041 | 6.764 | 4.155 | 0.036 | 0.000 | 0.000 | 0.036 | 2.05 | 920.79 | 2.09 |
| 102 | 1010 | 0.004 | 0.033 | 6.797 | 4.184 | 0.029 | 0.000 | 0.000 | 0.029 | 1.64 | 737.33 | 2.05 |
| 103 | 1020 | 0.004 | 0.033 | 6.829 | 4.213 | 0.029 | 0.000 | 0.000 | 0.029 | 1.64 | 737.95 | 1.98 |
| 104 | 1030 | 0.004 | 0.033 | 6.862 | 4.242 | 0.029 | 0.000 | 0.000 | 0.029 | 1.65 | 738.56 | 1.92 |
| 105 | 1040 | 0.004 | 0.033 | 6.895 | 4.271 | 0.029 | 0.000 | 0.000 | 0.029 | 1.65 | 739.17 | 1.87 |
| 106 | 1050 | 0.004 | 0.033 | 6.927 | 4.300 | 0.029 | 0.000 | 0.000 | 0.029 | 1.65 | 739.77 | 1.83 |
| 107 | 1060 | 0.004 | 0.033 | 6.960 | 4.330 | 0.029 | 0.000 | 0.000 | 0.029 | 1.65 | 740.36 | 1.80 |
| 108 | 1070 | 0.004 | 0.033 | 6.992 | 4.359 | 0.029 | 0.000 | 0.000 | 0.029 | 1.65 | 740.95 | 1.77 |
| 109 | 1080 | 0.004 | 0.033 | 7.025 | 4.388 | 0.029 | 0.000 | 0.000 | 0.029 | 1.65 | 741.53 | 1.75 |
| 110 | 1090 | 0.004 | 0.033 | 7.057 | 4.417 | 0.029 | 0.000 | 0.000 | 0.029 | 1.65 | 742.10 | 1.73 |
| 111 | 1100 | 0.004 | 0.033 | 7.090 | 4.447 | 0.029 | 0.000 | 0.000 | 0.029 | 1.65 | 742.67 | 1.72 |
| 112 | 1110 | 0.004 | 0.033 | 7.123 | 4.476 | 0.029 | 0.000 | 0.000 | 0.029 | 1.66 | 743.23 | 1.71 |
| 113 | 1120 | 0.004 | 0.033 | 7.155 | 4.505 | 0.029 | 0.000 | 0.000 | 0.029 | 1.66 | 743.79 | 1.70 |
| 114 | 1130 | 0.004 | 0.033 | 7.188 | 4.535 | 0.029 | 0.000 | 0.000 | 0.029 | 1.66 | 744.34 | 1.69 |
| 115 | 1140 | 0.004 | 0.033 | 7.220 | 4.564 | 0.029 | 0.000 | 0.000 | 0.029 | 1.66 | 744.88 | 1.69 |
| 116 | 1150 | 0.004 | 0.033 | 7.253 | 4.594 | 0.029 | 0.000 | 0.000 | 0.029 | 1.66 | 745.42 | 1.68 |
| 117 | 1160 | 0.004 | 0.033 | 7.285 | 4.623 | 0.029 | 0.000 | 0.000 | 0.029 | 1.66 | 745.96 | 1.68 |
| 118 | 1170 | 0.004 | 0.033 | 7.318 | 4.653 | 0.029 | 0.000 | 0.000 | 0.029 | 1.66 | 746.49 | 1.68 |
| 119 | 1180 | 0.004 | 0.033 | 7.350 | 4.682 | 0.029 | 0.000 | 0.000 | 0.029 | 1.66 | 747.01 | 1.67 |
| 120 | 1190 | 0.004 | 0.033 | 7.383 | 4.712 | 0.030 | 0.000 | 0.000 | 0.030 | 1.67 | 747.53 | 1.67 |
| 121 | 1200 | 0.004 | 0.033 | 7.416 | 4.741 | 0.030 | 0.000 | 0.000 | 0.030 | 1.67 | 748.04 | 1.67 |
| 122 | 1210 | 0.004 | 0.033 | 7.448 | 4.771 | 0.030 | 0.000 | 0.000 | 0.030 | 1.67 | 748.55 | 1.67 |
| 123 | 1220 | 0.004 | 0.033 | 7.481 | 4.800 | 0.030 | 0.000 | 0.000 | 0.030 | 1.67 | 749.06 | 1.67 |
| 124 | 1230 | 0.004 | 0.033 | 7.513 | 4.830 | 0.030 | 0.000 | 0.000 | 0.030 | 1.67 | 749.55 | 1.67 |
| 125 | 1240 | 0.004 | 0.033 | 7.546 | 4.859 | 0.030 | 0.000 | 0.000 | 0.030 | 1.67 | 750.05 | 1.67 |
| 126 | 1250 | 0.004 | 0.033 | 7.578 | 4.889 | 0.030 | 0.000 | 0.000 | 0.030 | 1.67 | 750.54 | 1.67 |
| 127 | 1260 | 0.004 | 0.033 | 7.611 | 4.919 | 0.030 | 0.000 | 0.000 | 0.030 | 1.67 | 751.02 | 1.67 |
| 128 | 1270 | 0.004 | 0.033 | 7.643 | 4.948 | 0.030 | 0.000 | 0.000 | 0.030 | 1.67 | 751.50 | 1.67 |
| 129 | 1280 | 0.004 | 0.033 | 7.676 | 4.978 | 0.030 | 0.000 | 0.000 | 0.030 | 1.68 | 751.97 | 1.67 |
| 130 | 1290 | 0.004 | 0.033 | 7.709 | 5.008 | 0.030 | 0.000 | 0.000 | 0.030 | 1.68 | 752.44 | 1.67 |
| 131 | 1300 | 0.004 | 0.033 | 7.741 | 5.037 | 0.030 | 0.000 | 0.000 | 0.030 | 1.68 | 752.91 | 1.67 |
| 132 | 1310 | 0.004 | 0.033 | 7.774 | 5.067 | 0.030 | 0.000 | 0.000 | 0.030 | 1.68 | 753.37 | 1.67 |
| 133 | 1320 | 0.004 | 0.033 | 7.806 | 5.097 | 0.030 | 0.000 | 0.000 | 0.030 | 1.68 | 753.83 | 1.68 |
| 134 | 1330 | 0.004 | 0.033 | 7.839 | 5.127 | 0.030 | 0.000 | 0.000 | 0.030 | 1.68 | 754.28 | 1.68 |
| 135 | 1340 | 0.004 | 0.033 | 7.871 | 5.156 | 0.030 | 0.000 | 0.000 | 0.030 | 1.68 | 754.73 | 1.68 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Pre-Development Conditions (Basin #2)

| Rainfall | | | | Pervious | | Impervious | | | | | | |
|------------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| Time Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
| 136 | 1350 | 0.004 | 0.033 | 7.904 | 5.186 | 0.030 | 0.000 | 0.000 | 0.030 | 1.68 | 755.17 | 1.68 |
| 137 | 1360 | 0.004 | 0.033 | 7.937 | 5.216 | 0.030 | 0.000 | 0.000 | 0.030 | 1.68 | 755.61 | 1.68 |
| 138 | 1370 | 0.004 | 0.033 | 7.969 | 5.246 | 0.030 | 0.000 | 0.000 | 0.030 | 1.68 | 756.05 | 1.68 |
| 139 | 1380 | 0.004 | 0.033 | 8.002 | 5.276 | 0.030 | 0.000 | 0.000 | 0.030 | 1.69 | 756.48 | 1.68 |
| 140 | 1390 | 0.004 | 0.033 | 8.034 | 5.306 | 0.030 | 0.000 | 0.000 | 0.030 | 1.69 | 756.90 | 1.68 |
| 141 | 1400 | 0.004 | 0.033 | 8.067 | 5.336 | 0.030 | 0.000 | 0.000 | 0.030 | 1.69 | 757.33 | 1.68 |
| 142 | 1410 | 0.004 | 0.033 | 8.099 | 5.366 | 0.030 | 0.000 | 0.000 | 0.030 | 1.69 | 757.75 | 1.68 |
| 143 | 1420 | 0.004 | 0.033 | 8.132 | 5.395 | 0.030 | 0.000 | 0.000 | 0.030 | 1.69 | 758.16 | 1.68 |
| 144 | 1430 | 0.004 | 0.033 | 8.164 | 5.425 | 0.030 | 0.000 | 0.000 | 0.030 | 1.69 | 758.57 | 1.69 |
| 145 | 1440 | 0.004 | 0.033 | 8.197 | 5.455 | 0.030 | 0.000 | 0.000 | 0.030 | 1.69 | 758.98 | 1.69 |
| 179479.906 | | | | | | | | | | | | |
| Peak Flow | | | | | | | | | | 17.77 | 7977.18 | 7.32 |

Client: Mendocino Solid Waste Management Authority Date: August 4, 2014
 Project: Central Coast Transfer Station EIR Proj. #: 8411065
 Prepared by: BB Checked by: DS

Santa Barbara Urban Hydrograph Method

Purpose:

Determine the stormwater runoff volume required for: Post-Development Conditions (Basin #1)

Assumptions:

1. Runoff volume is computed with the Santa Barbara Urban Hydrograph Method (SBUH)
2. 2-year/ 24-hour design storm event
3. 25-year/ 24-hour design storm event
4. 50-year/ 24-hour design storm event
5. 100-year/ 24-hour design storm event
6. Total Basin Area 7.7 acres
7. Design storm precipitation depths obtained using PF Data Server, lat39.4126 long-123.7548
8. Areas used for subbasins estimated using proposed site development plan
9. Slopes for time of concentration calculation assumed to be 6% based on LACO field study dated 6/7/2012
10. Soil assumed to be of soil group D, with an average antecedent soil moisture condition
11. Ground coverage for pervious area assumed to be woods in good condition
12. Drainage length assumed to originate from the center of the line which splits the parcel from the southwest corner to the northeast corner, and terminates at the drainage basin
13. Manning roughness coefficient assumed to be 0.6, which is the middle range for woods underbrush ($0.4 < n < 0.8$)
14. Cuve numbers determined using TR-55 Documentation

Methodology:

1. Determine the runoff volume for the design storm event using the SBUH method

References:

1. Urban Hydrology for Small Watersheds, Technical Release 55
Natural Resource Conservation Service, USDA 1986
2. Handbook of Hydrology (1993), Maidment, D.
McGraw-Hill Publishing, New York, NY
3. Open Channel Hydraulics
Chow, V.T. 1959, McGraw-Hill Book Company
4. NOAA Atlas 14, Volume 6, Version 2
http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_printpage.html

Client: Mendocino Solid Waste Management Authority Date: August 4, 2014
 Project: Central Coast Transfer Station EIR Proj. # : 8411065
 Prepared by: BB Checked by: DS

Santa Barbara Urban Hydrograph Method

Input Variables:

| | | | |
|--------------------------|---|------|---|
| Basin Number | = | 1 | Post-Development Conditions (Basin #1) |
| Total Area | = | 7.71 | ac |
| Precipitation (Quantity) | = | 3.75 | in (2-yr. 24-hr event) |
| Precipitation (Quantity) | = | 6.69 | in (25-yr. 24-hr event) |
| Precipitation (Quantity) | = | 7.43 | in (50-yr. 24-hr event) |
| Precipitation (Quantity) | = | 8.14 | in (100-yr. 24-hr event) |
| Time Step | = | 10 | min |

Pervious Area:

| | | | |
|------|---|------|--------------|
| Area | = | 5.82 | ac |
| CN | = | 77 | |
| S | = | 2.99 | (1000/CN)-10 |
| 0.2S | = | 0.60 | |

Impervious Area:

| | | | |
|------|---|------|--------------|
| Area | = | 1.9 | ac |
| CN | = | 98 | |
| S | = | 0.20 | (1000/CN)-10 |
| 0.2S | = | 0.04 | |

Time of Concentration:

| | | | |
|-----------------|---|-------|-------|
| Drainage Length | = | 381 | ft |
| Average Slope | = | 0.060 | ft/ft |
| Manning's n | = | 0.600 | |

T_c = 63.2 min (minimum of 5 minutes)

Routing Constant:

w = 0.073 dt/(2T_c+dt)

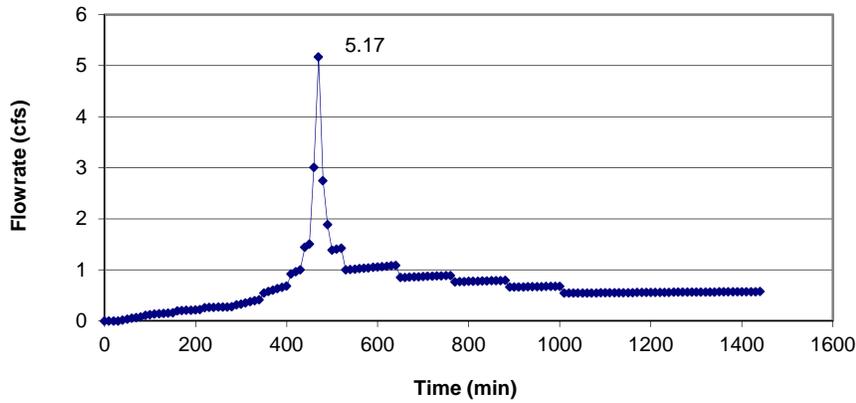
Client: Mendocino Solid Waste Management Authority
Project: Central Coast Transfer Station EIR
Prepared by: BB

Date: August 4, 2014
Proj. # : 8411065
Checked by: DS

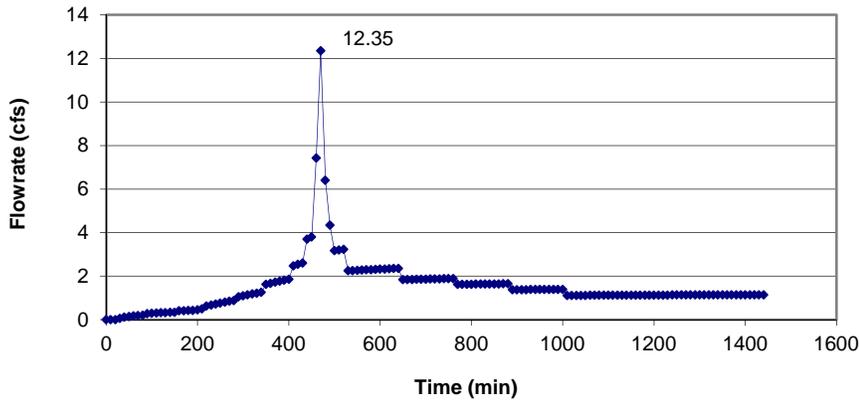
Santa Barbara Urban Hydrograph Method

Results: Post-Development Conditions (Basin #1)

**MSWMA Transfer Station
(Stormwater Quantity - 2-yr,24-hr)**



**MSWMA Transfer Station
(Stormwater Quantity - 25-yr,24-hr)**



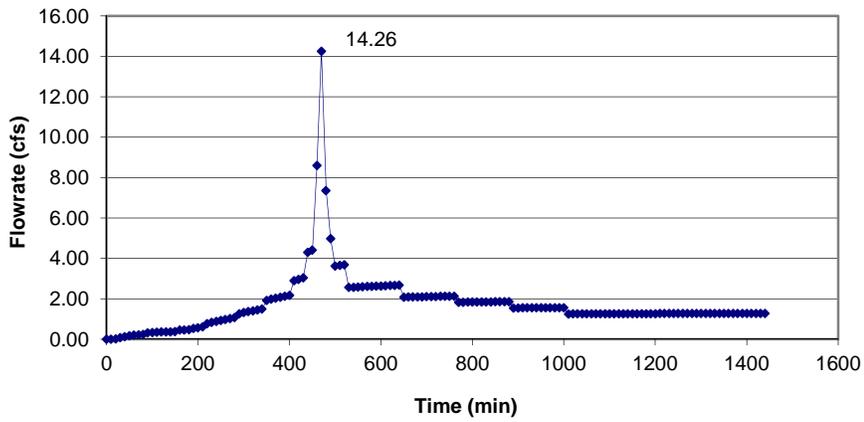
Client: Mendocino Solid Waste Management Authority
Project: Central Coast Transfer Station EIR
Prepared by: BB

Date: August 4, 2014
Proj. #: 8411065
Checked by: DS

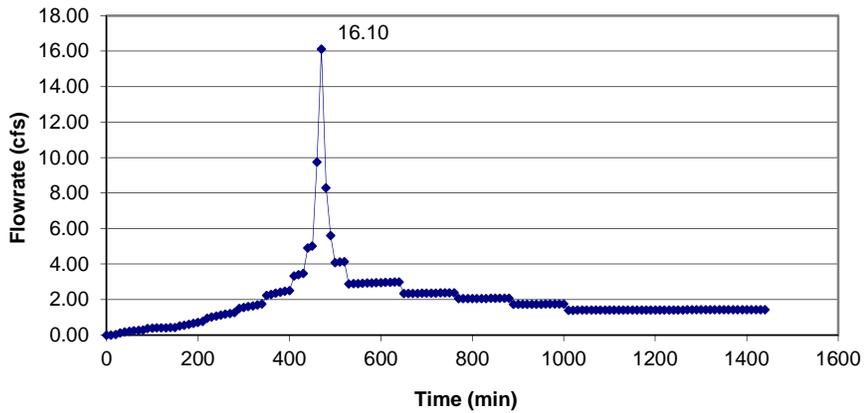
Santa Barbara Urban Hydrograph Method

Results: Post-Development Conditions (Basin #1)

**MSWMA Transfer Station
(Stormwater Quantity - 50-yr,24-hr)**



**MSWMA Transfer Station
(Stormwater Quantity - 100-yr,24-hr)**



Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Post-Development Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 2 | 10 | 0.004 | 0.015 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 3 | 20 | 0.004 | 0.015 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 4 | 30 | 0.004 | 0.015 | 0.045 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.43 | 0.00 |
| 5 | 40 | 0.004 | 0.015 | 0.060 | 0.000 | 0.000 | 0.002 | 0.002 | 0.000 | 0.02 | 8.03 | 0.00 |
| 6 | 50 | 0.004 | 0.015 | 0.075 | 0.000 | 0.000 | 0.005 | 0.003 | 0.001 | 0.04 | 16.71 | 0.01 |
| 7 | 60 | 0.004 | 0.015 | 0.090 | 0.000 | 0.000 | 0.010 | 0.005 | 0.001 | 0.05 | 23.85 | 0.01 |
| 8 | 70 | 0.004 | 0.015 | 0.105 | 0.000 | 0.000 | 0.015 | 0.006 | 0.001 | 0.07 | 29.79 | 0.02 |
| 9 | 80 | 0.004 | 0.015 | 0.120 | 0.000 | 0.000 | 0.022 | 0.007 | 0.002 | 0.08 | 34.79 | 0.03 |
| 10 | 90 | 0.005 | 0.019 | 0.139 | 0.000 | 0.000 | 0.032 | 0.010 | 0.002 | 0.11 | 49.38 | 0.04 |
| 11 | 100 | 0.005 | 0.019 | 0.158 | 0.000 | 0.000 | 0.042 | 0.011 | 0.003 | 0.12 | 54.85 | 0.05 |
| 12 | 110 | 0.005 | 0.019 | 0.176 | 0.000 | 0.000 | 0.054 | 0.012 | 0.003 | 0.13 | 59.42 | 0.06 |
| 13 | 120 | 0.005 | 0.019 | 0.195 | 0.000 | 0.000 | 0.066 | 0.012 | 0.003 | 0.14 | 63.27 | 0.07 |
| 14 | 130 | 0.005 | 0.019 | 0.214 | 0.000 | 0.000 | 0.079 | 0.013 | 0.003 | 0.15 | 66.55 | 0.08 |
| 15 | 140 | 0.005 | 0.019 | 0.233 | 0.000 | 0.000 | 0.093 | 0.014 | 0.003 | 0.15 | 69.36 | 0.09 |
| 16 | 150 | 0.005 | 0.019 | 0.251 | 0.000 | 0.000 | 0.107 | 0.014 | 0.003 | 0.16 | 71.79 | 0.10 |
| 17 | 160 | 0.006 | 0.023 | 0.274 | 0.000 | 0.000 | 0.124 | 0.017 | 0.004 | 0.20 | 88.92 | 0.11 |
| 18 | 170 | 0.006 | 0.023 | 0.296 | 0.000 | 0.000 | 0.142 | 0.018 | 0.004 | 0.20 | 91.52 | 0.13 |
| 19 | 180 | 0.006 | 0.023 | 0.319 | 0.000 | 0.000 | 0.160 | 0.018 | 0.004 | 0.21 | 93.75 | 0.14 |
| 20 | 190 | 0.006 | 0.023 | 0.341 | 0.000 | 0.000 | 0.179 | 0.019 | 0.005 | 0.21 | 95.69 | 0.15 |
| 21 | 200 | 0.006 | 0.023 | 0.364 | 0.000 | 0.000 | 0.198 | 0.019 | 0.005 | 0.22 | 97.38 | 0.16 |
| 22 | 210 | 0.006 | 0.023 | 0.386 | 0.000 | 0.000 | 0.217 | 0.019 | 0.005 | 0.22 | 98.86 | 0.17 |
| 23 | 220 | 0.007 | 0.026 | 0.413 | 0.000 | 0.000 | 0.240 | 0.023 | 0.006 | 0.26 | 116.98 | 0.18 |
| 24 | 230 | 0.007 | 0.026 | 0.439 | 0.000 | 0.000 | 0.263 | 0.023 | 0.006 | 0.26 | 118.52 | 0.19 |
| 25 | 240 | 0.007 | 0.026 | 0.465 | 0.000 | 0.000 | 0.286 | 0.023 | 0.006 | 0.27 | 119.88 | 0.20 |
| 26 | 250 | 0.007 | 0.026 | 0.491 | 0.000 | 0.000 | 0.310 | 0.024 | 0.006 | 0.27 | 121.07 | 0.21 |
| 27 | 260 | 0.007 | 0.026 | 0.518 | 0.000 | 0.000 | 0.334 | 0.024 | 0.006 | 0.27 | 122.12 | 0.22 |
| 28 | 270 | 0.007 | 0.026 | 0.544 | 0.000 | 0.000 | 0.358 | 0.024 | 0.006 | 0.27 | 123.05 | 0.23 |
| 29 | 280 | 0.007 | 0.026 | 0.570 | 0.000 | 0.000 | 0.382 | 0.024 | 0.006 | 0.28 | 123.89 | 0.23 |
| 30 | 290 | 0.008 | 0.030 | 0.600 | 0.000 | 0.000 | 0.410 | 0.028 | 0.007 | 0.32 | 142.53 | 0.24 |
| 31 | 300 | 0.008 | 0.030 | 0.630 | 0.000 | 0.000 | 0.438 | 0.028 | 0.007 | 0.33 | 148.89 | 0.26 |
| 32 | 310 | 0.008 | 0.030 | 0.660 | 0.001 | 0.001 | 0.466 | 0.028 | 0.008 | 0.35 | 158.88 | 0.27 |
| 33 | 320 | 0.008 | 0.030 | 0.690 | 0.003 | 0.001 | 0.494 | 0.028 | 0.008 | 0.38 | 168.52 | 0.28 |
| 34 | 330 | 0.008 | 0.030 | 0.720 | 0.005 | 0.002 | 0.522 | 0.028 | 0.008 | 0.40 | 177.83 | 0.30 |
| 35 | 340 | 0.008 | 0.030 | 0.750 | 0.007 | 0.003 | 0.551 | 0.028 | 0.009 | 0.42 | 186.83 | 0.31 |
| 36 | 350 | 0.01 | 0.038 | 0.788 | 0.011 | 0.004 | 0.586 | 0.036 | 0.012 | 0.55 | 245.75 | 0.34 |
| 37 | 360 | 0.01 | 0.038 | 0.825 | 0.016 | 0.005 | 0.622 | 0.036 | 0.012 | 0.58 | 258.82 | 0.37 |
| 38 | 370 | 0.01 | 0.038 | 0.863 | 0.022 | 0.005 | 0.658 | 0.036 | 0.013 | 0.60 | 271.38 | 0.40 |
| 39 | 380 | 0.01 | 0.038 | 0.900 | 0.028 | 0.006 | 0.694 | 0.036 | 0.014 | 0.63 | 283.47 | 0.43 |
| 40 | 390 | 0.01 | 0.038 | 0.938 | 0.035 | 0.007 | 0.730 | 0.036 | 0.014 | 0.66 | 295.11 | 0.47 |
| 41 | 400 | 0.01 | 0.038 | 0.975 | 0.042 | 0.008 | 0.767 | 0.036 | 0.015 | 0.68 | 306.33 | 0.50 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Post-Development Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 42 | 410 | 0.013 | 0.049 | 1.024 | 0.053 | 0.011 | 0.814 | 0.047 | 0.020 | 0.92 | 414.35 | 0.54 |
| 43 | 420 | 0.013 | 0.049 | 1.073 | 0.065 | 0.012 | 0.861 | 0.047 | 0.021 | 0.96 | 431.81 | 0.60 |
| 44 | 430 | 0.013 | 0.049 | 1.121 | 0.078 | 0.013 | 0.909 | 0.047 | 0.021 | 1.00 | 448.50 | 0.66 |
| 45 | 440 | 0.018 | 0.068 | 1.189 | 0.098 | 0.020 | 0.975 | 0.066 | 0.031 | 1.44 | 647.22 | 0.74 |
| 46 | 450 | 0.018 | 0.068 | 1.256 | 0.119 | 0.021 | 1.041 | 0.066 | 0.032 | 1.51 | 676.06 | 0.85 |
| 47 | 460 | 0.034 | 0.128 | 1.384 | 0.164 | 0.045 | 1.166 | 0.125 | 0.064 | 3.01 | 1350.01 | 1.05 |
| 48 | 470 | 0.054 | 0.203 | 1.586 | 0.246 | 0.082 | 1.365 | 0.199 | 0.111 | 5.17 | 2320.10 | 1.50 |
| 49 | 480 | 0.027 | 0.101 | 1.688 | 0.291 | 0.046 | 1.465 | 0.100 | 0.059 | 2.75 | 1232.26 | 1.86 |
| 50 | 490 | 0.018 | 0.068 | 1.755 | 0.323 | 0.032 | 1.532 | 0.067 | 0.040 | 1.88 | 845.80 | 1.93 |
| 51 | 500 | 0.013 | 0.049 | 1.804 | 0.347 | 0.024 | 1.580 | 0.048 | 0.030 | 1.39 | 622.31 | 1.88 |
| 52 | 510 | 0.013 | 0.049 | 1.853 | 0.371 | 0.024 | 1.628 | 0.048 | 0.030 | 1.41 | 631.53 | 1.81 |
| 53 | 520 | 0.013 | 0.049 | 1.901 | 0.396 | 0.025 | 1.677 | 0.048 | 0.031 | 1.43 | 640.43 | 1.75 |
| 54 | 530 | 0.009 | 0.034 | 1.935 | 0.414 | 0.018 | 1.710 | 0.033 | 0.021 | 1.00 | 448.43 | 1.67 |
| 55 | 540 | 0.009 | 0.034 | 1.969 | 0.431 | 0.018 | 1.743 | 0.033 | 0.022 | 1.01 | 452.46 | 1.58 |
| 56 | 550 | 0.009 | 0.034 | 2.003 | 0.450 | 0.018 | 1.777 | 0.033 | 0.022 | 1.02 | 456.39 | 1.49 |
| 57 | 560 | 0.009 | 0.034 | 2.036 | 0.468 | 0.018 | 1.810 | 0.033 | 0.022 | 1.03 | 460.23 | 1.42 |
| 58 | 570 | 0.009 | 0.034 | 2.070 | 0.486 | 0.018 | 1.844 | 0.033 | 0.022 | 1.03 | 463.98 | 1.37 |
| 59 | 580 | 0.009 | 0.034 | 2.104 | 0.505 | 0.019 | 1.877 | 0.033 | 0.022 | 1.04 | 467.64 | 1.32 |
| 60 | 590 | 0.009 | 0.034 | 2.138 | 0.524 | 0.019 | 1.911 | 0.033 | 0.023 | 1.05 | 471.23 | 1.28 |
| 61 | 600 | 0.009 | 0.034 | 2.171 | 0.543 | 0.019 | 1.944 | 0.033 | 0.023 | 1.06 | 474.73 | 1.25 |
| 62 | 610 | 0.009 | 0.034 | 2.205 | 0.562 | 0.019 | 1.978 | 0.033 | 0.023 | 1.07 | 478.15 | 1.22 |
| 63 | 620 | 0.009 | 0.034 | 2.239 | 0.582 | 0.020 | 2.011 | 0.034 | 0.023 | 1.07 | 481.50 | 1.20 |
| 64 | 630 | 0.009 | 0.034 | 2.273 | 0.602 | 0.020 | 2.045 | 0.034 | 0.023 | 1.08 | 484.78 | 1.18 |
| 65 | 640 | 0.009 | 0.034 | 2.306 | 0.622 | 0.020 | 2.078 | 0.034 | 0.023 | 1.09 | 487.98 | 1.16 |
| 66 | 650 | 0.007 | 0.026 | 2.333 | 0.638 | 0.016 | 2.104 | 0.026 | 0.018 | 0.85 | 381.71 | 1.14 |
| 67 | 660 | 0.007 | 0.026 | 2.359 | 0.653 | 0.016 | 2.130 | 0.026 | 0.018 | 0.85 | 383.57 | 1.09 |
| 68 | 670 | 0.007 | 0.026 | 2.385 | 0.669 | 0.016 | 2.156 | 0.026 | 0.018 | 0.86 | 385.41 | 1.06 |
| 69 | 680 | 0.007 | 0.026 | 2.411 | 0.685 | 0.016 | 2.183 | 0.026 | 0.018 | 0.86 | 387.21 | 1.03 |
| 70 | 690 | 0.007 | 0.026 | 2.438 | 0.701 | 0.016 | 2.209 | 0.026 | 0.019 | 0.87 | 388.98 | 1.01 |
| 71 | 700 | 0.007 | 0.026 | 2.464 | 0.718 | 0.016 | 2.235 | 0.026 | 0.019 | 0.87 | 390.73 | 0.99 |
| 72 | 710 | 0.007 | 0.026 | 2.490 | 0.734 | 0.016 | 2.261 | 0.026 | 0.019 | 0.87 | 392.44 | 0.97 |
| 73 | 720 | 0.007 | 0.026 | 2.516 | 0.751 | 0.016 | 2.287 | 0.026 | 0.019 | 0.88 | 394.13 | 0.96 |
| 74 | 730 | 0.007 | 0.026 | 2.543 | 0.767 | 0.017 | 2.313 | 0.026 | 0.019 | 0.88 | 395.79 | 0.94 |
| 75 | 740 | 0.007 | 0.026 | 2.569 | 0.784 | 0.017 | 2.339 | 0.026 | 0.019 | 0.89 | 397.43 | 0.94 |
| 76 | 750 | 0.007 | 0.026 | 2.595 | 0.801 | 0.017 | 2.365 | 0.026 | 0.019 | 0.89 | 399.04 | 0.93 |
| 77 | 760 | 0.007 | 0.026 | 2.621 | 0.817 | 0.017 | 2.391 | 0.026 | 0.019 | 0.89 | 400.62 | 0.92 |
| 78 | 770 | 0.006 | 0.023 | 2.644 | 0.832 | 0.015 | 2.414 | 0.022 | 0.016 | 0.77 | 344.63 | 0.91 |
| 79 | 780 | 0.006 | 0.023 | 2.666 | 0.847 | 0.015 | 2.436 | 0.022 | 0.017 | 0.77 | 345.76 | 0.89 |
| 80 | 790 | 0.006 | 0.023 | 2.689 | 0.861 | 0.015 | 2.458 | 0.022 | 0.017 | 0.77 | 346.87 | 0.87 |
| 81 | 800 | 0.006 | 0.023 | 2.711 | 0.876 | 0.015 | 2.481 | 0.022 | 0.017 | 0.78 | 347.97 | 0.86 |
| 82 | 810 | 0.006 | 0.023 | 2.734 | 0.891 | 0.015 | 2.503 | 0.022 | 0.017 | 0.78 | 349.06 | 0.85 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Post-Development Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 83 | 820 | 0.006 | 0.023 | 2.756 | 0.906 | 0.015 | 2.526 | 0.022 | 0.017 | 0.78 | 350.13 | 0.84 |
| 84 | 830 | 0.006 | 0.023 | 2.779 | 0.921 | 0.015 | 2.548 | 0.022 | 0.017 | 0.78 | 351.18 | 0.83 |
| 85 | 840 | 0.006 | 0.023 | 2.801 | 0.936 | 0.015 | 2.570 | 0.022 | 0.017 | 0.78 | 352.23 | 0.82 |
| 86 | 850 | 0.006 | 0.023 | 2.824 | 0.951 | 0.015 | 2.593 | 0.022 | 0.017 | 0.79 | 353.26 | 0.82 |
| 87 | 860 | 0.006 | 0.023 | 2.846 | 0.966 | 0.015 | 2.615 | 0.022 | 0.017 | 0.79 | 354.27 | 0.81 |
| 88 | 870 | 0.006 | 0.023 | 2.869 | 0.981 | 0.015 | 2.638 | 0.022 | 0.017 | 0.79 | 355.27 | 0.81 |
| 89 | 880 | 0.006 | 0.023 | 2.891 | 0.996 | 0.015 | 2.660 | 0.022 | 0.017 | 0.79 | 356.26 | 0.81 |
| 90 | 890 | 0.005 | 0.019 | 2.910 | 1.009 | 0.013 | 2.679 | 0.019 | 0.014 | 0.66 | 297.63 | 0.80 |
| 91 | 900 | 0.005 | 0.019 | 2.929 | 1.022 | 0.013 | 2.697 | 0.019 | 0.014 | 0.66 | 298.30 | 0.78 |
| 92 | 910 | 0.005 | 0.019 | 2.948 | 1.035 | 0.013 | 2.716 | 0.019 | 0.014 | 0.67 | 298.97 | 0.76 |
| 93 | 920 | 0.005 | 0.019 | 2.966 | 1.048 | 0.013 | 2.735 | 0.019 | 0.014 | 0.67 | 299.63 | 0.75 |
| 94 | 930 | 0.005 | 0.019 | 2.985 | 1.061 | 0.013 | 2.753 | 0.019 | 0.014 | 0.67 | 300.28 | 0.73 |
| 95 | 940 | 0.005 | 0.019 | 3.004 | 1.074 | 0.013 | 2.772 | 0.019 | 0.014 | 0.67 | 300.92 | 0.73 |
| 96 | 950 | 0.005 | 0.019 | 3.023 | 1.087 | 0.013 | 2.791 | 0.019 | 0.014 | 0.67 | 301.56 | 0.72 |
| 97 | 960 | 0.005 | 0.019 | 3.041 | 1.100 | 0.013 | 2.809 | 0.019 | 0.014 | 0.67 | 302.19 | 0.71 |
| 98 | 970 | 0.005 | 0.019 | 3.060 | 1.113 | 0.013 | 2.828 | 0.019 | 0.014 | 0.67 | 302.81 | 0.71 |
| 99 | 980 | 0.005 | 0.019 | 3.079 | 1.126 | 0.013 | 2.847 | 0.019 | 0.014 | 0.68 | 303.43 | 0.70 |
| 100 | 990 | 0.005 | 0.019 | 3.098 | 1.139 | 0.013 | 2.865 | 0.019 | 0.015 | 0.68 | 304.04 | 0.70 |
| 101 | 1000 | 0.005 | 0.019 | 3.116 | 1.152 | 0.013 | 2.884 | 0.019 | 0.015 | 0.68 | 304.64 | 0.69 |
| 102 | 1010 | 0.004 | 0.015 | 3.131 | 1.163 | 0.011 | 2.899 | 0.015 | 0.012 | 0.54 | 244.14 | 0.68 |
| 103 | 1020 | 0.004 | 0.015 | 3.146 | 1.174 | 0.011 | 2.914 | 0.015 | 0.012 | 0.54 | 244.52 | 0.66 |
| 104 | 1030 | 0.004 | 0.015 | 3.161 | 1.184 | 0.011 | 2.929 | 0.015 | 0.012 | 0.55 | 244.90 | 0.64 |
| 105 | 1040 | 0.004 | 0.015 | 3.176 | 1.195 | 0.011 | 2.944 | 0.015 | 0.012 | 0.55 | 245.27 | 0.63 |
| 106 | 1050 | 0.004 | 0.015 | 3.191 | 1.206 | 0.011 | 2.959 | 0.015 | 0.012 | 0.55 | 245.64 | 0.62 |
| 107 | 1060 | 0.004 | 0.015 | 3.206 | 1.216 | 0.011 | 2.974 | 0.015 | 0.012 | 0.55 | 246.01 | 0.61 |
| 108 | 1070 | 0.004 | 0.015 | 3.221 | 1.227 | 0.011 | 2.989 | 0.015 | 0.012 | 0.55 | 246.38 | 0.60 |
| 109 | 1080 | 0.004 | 0.015 | 3.236 | 1.238 | 0.011 | 3.004 | 0.015 | 0.012 | 0.55 | 246.74 | 0.59 |
| 110 | 1090 | 0.004 | 0.015 | 3.251 | 1.249 | 0.011 | 3.019 | 0.015 | 0.012 | 0.55 | 247.10 | 0.59 |
| 111 | 1100 | 0.004 | 0.015 | 3.266 | 1.259 | 0.011 | 3.033 | 0.015 | 0.012 | 0.55 | 247.45 | 0.58 |
| 112 | 1110 | 0.004 | 0.015 | 3.281 | 1.270 | 0.011 | 3.048 | 0.015 | 0.012 | 0.55 | 247.81 | 0.58 |
| 113 | 1120 | 0.004 | 0.015 | 3.296 | 1.281 | 0.011 | 3.063 | 0.015 | 0.012 | 0.55 | 248.16 | 0.57 |
| 114 | 1130 | 0.004 | 0.015 | 3.311 | 1.292 | 0.011 | 3.078 | 0.015 | 0.012 | 0.55 | 248.50 | 0.57 |
| 115 | 1140 | 0.004 | 0.015 | 3.326 | 1.303 | 0.011 | 3.093 | 0.015 | 0.012 | 0.55 | 248.85 | 0.57 |
| 116 | 1150 | 0.004 | 0.015 | 3.341 | 1.314 | 0.011 | 3.108 | 0.015 | 0.012 | 0.56 | 249.19 | 0.57 |
| 117 | 1160 | 0.004 | 0.015 | 3.356 | 1.325 | 0.011 | 3.123 | 0.015 | 0.012 | 0.56 | 249.53 | 0.56 |
| 118 | 1170 | 0.004 | 0.015 | 3.371 | 1.336 | 0.011 | 3.138 | 0.015 | 0.012 | 0.56 | 249.87 | 0.56 |
| 119 | 1180 | 0.004 | 0.015 | 3.386 | 1.347 | 0.011 | 3.153 | 0.015 | 0.012 | 0.56 | 250.20 | 0.56 |
| 120 | 1190 | 0.004 | 0.015 | 3.401 | 1.358 | 0.011 | 3.168 | 0.015 | 0.012 | 0.56 | 250.53 | 0.56 |
| 121 | 1200 | 0.004 | 0.015 | 3.416 | 1.369 | 0.011 | 3.183 | 0.015 | 0.012 | 0.56 | 250.86 | 0.56 |
| 122 | 1210 | 0.004 | 0.015 | 3.431 | 1.380 | 0.011 | 3.198 | 0.015 | 0.012 | 0.56 | 251.19 | 0.56 |
| 123 | 1220 | 0.004 | 0.015 | 3.446 | 1.391 | 0.011 | 3.213 | 0.015 | 0.012 | 0.56 | 251.51 | 0.56 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Post-Development Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 124 | 1230 | 0.004 | 0.015 | 3.461 | 1.402 | 0.011 | 3.228 | 0.015 | 0.012 | 0.56 | 251.83 | 0.56 |
| 125 | 1240 | 0.004 | 0.015 | 3.476 | 1.413 | 0.011 | 3.243 | 0.015 | 0.012 | 0.56 | 252.15 | 0.56 |
| 126 | 1250 | 0.004 | 0.015 | 3.491 | 1.424 | 0.011 | 3.258 | 0.015 | 0.012 | 0.56 | 252.47 | 0.56 |
| 127 | 1260 | 0.004 | 0.015 | 3.506 | 1.435 | 0.011 | 3.273 | 0.015 | 0.012 | 0.56 | 252.78 | 0.56 |
| 128 | 1270 | 0.004 | 0.015 | 3.521 | 1.446 | 0.011 | 3.288 | 0.015 | 0.012 | 0.56 | 253.09 | 0.56 |
| 129 | 1280 | 0.004 | 0.015 | 3.536 | 1.457 | 0.011 | 3.303 | 0.015 | 0.012 | 0.56 | 253.40 | 0.56 |
| 130 | 1290 | 0.004 | 0.015 | 3.551 | 1.469 | 0.011 | 3.318 | 0.015 | 0.012 | 0.57 | 253.71 | 0.56 |
| 131 | 1300 | 0.004 | 0.015 | 3.566 | 1.480 | 0.011 | 3.333 | 0.015 | 0.012 | 0.57 | 254.01 | 0.56 |
| 132 | 1310 | 0.004 | 0.015 | 3.581 | 1.491 | 0.011 | 3.347 | 0.015 | 0.012 | 0.57 | 254.32 | 0.56 |
| 133 | 1320 | 0.004 | 0.015 | 3.596 | 1.502 | 0.011 | 3.362 | 0.015 | 0.012 | 0.57 | 254.62 | 0.56 |
| 134 | 1330 | 0.004 | 0.015 | 3.611 | 1.514 | 0.011 | 3.377 | 0.015 | 0.012 | 0.57 | 254.91 | 0.56 |
| 135 | 1340 | 0.004 | 0.015 | 3.626 | 1.525 | 0.011 | 3.392 | 0.015 | 0.012 | 0.57 | 255.21 | 0.57 |
| 136 | 1350 | 0.004 | 0.015 | 3.641 | 1.536 | 0.011 | 3.407 | 0.015 | 0.012 | 0.57 | 255.50 | 0.57 |
| 137 | 1360 | 0.004 | 0.015 | 3.656 | 1.548 | 0.011 | 3.422 | 0.015 | 0.012 | 0.57 | 255.79 | 0.57 |
| 138 | 1370 | 0.004 | 0.015 | 3.671 | 1.559 | 0.011 | 3.437 | 0.015 | 0.012 | 0.57 | 256.08 | 0.57 |
| 139 | 1380 | 0.004 | 0.015 | 3.686 | 1.570 | 0.011 | 3.452 | 0.015 | 0.012 | 0.57 | 256.37 | 0.57 |
| 140 | 1390 | 0.004 | 0.015 | 3.701 | 1.582 | 0.011 | 3.467 | 0.015 | 0.012 | 0.57 | 256.65 | 0.57 |
| 141 | 1400 | 0.004 | 0.015 | 3.716 | 1.593 | 0.011 | 3.482 | 0.015 | 0.012 | 0.57 | 256.94 | 0.57 |
| 142 | 1410 | 0.004 | 0.015 | 3.731 | 1.605 | 0.011 | 3.497 | 0.015 | 0.012 | 0.57 | 257.22 | 0.57 |
| 143 | 1420 | 0.004 | 0.015 | 3.746 | 1.616 | 0.011 | 3.512 | 0.015 | 0.012 | 0.57 | 257.49 | 0.57 |
| 144 | 1430 | 0.004 | 0.015 | 3.761 | 1.627 | 0.011 | 3.527 | 0.015 | 0.012 | 0.57 | 257.77 | 0.57 |
| 145 | 1440 | 0.004 | 0.015 | 3.776 | 1.639 | 0.011 | 3.542 | 0.015 | 0.012 | 0.57 | 258.04 | 0.57 |

| | | | |
|------------------|-------------|----------------|-------------|
| Peak Flow | 5.17 | 2320.10 | 1.93 |
|------------------|-------------|----------------|-------------|

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

ment Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | | Design |
|------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|--------------------|----------------|--------|
| Time | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) | |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 2 | 10 | 0.004 | 0.027 | 0.027 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 3 | 20 | 0.004 | 0.027 | 0.054 | 0.000 | 0.000 | 0.001 | 0.001 | 0.000 | 0.01 | 3.82 | 0.00 | |
| 4 | 30 | 0.004 | 0.027 | 0.080 | 0.000 | 0.000 | 0.006 | 0.006 | 0.001 | 0.06 | 29.00 | 0.01 | |
| 5 | 40 | 0.004 | 0.027 | 0.107 | 0.000 | 0.000 | 0.016 | 0.010 | 0.002 | 0.11 | 50.45 | 0.02 | |
| 6 | 50 | 0.004 | 0.027 | 0.134 | 0.000 | 0.000 | 0.029 | 0.013 | 0.003 | 0.15 | 66.10 | 0.03 | |
| 7 | 60 | 0.004 | 0.027 | 0.161 | 0.000 | 0.000 | 0.044 | 0.015 | 0.004 | 0.17 | 77.87 | 0.05 | |
| 8 | 70 | 0.004 | 0.027 | 0.187 | 0.000 | 0.000 | 0.061 | 0.017 | 0.004 | 0.19 | 86.95 | 0.07 | |
| 9 | 80 | 0.004 | 0.027 | 0.214 | 0.000 | 0.000 | 0.080 | 0.018 | 0.004 | 0.21 | 94.09 | 0.09 | |
| 10 | 90 | 0.005 | 0.033 | 0.248 | 0.000 | 0.000 | 0.104 | 0.024 | 0.006 | 0.28 | 125.54 | 0.11 | |
| 11 | 100 | 0.005 | 0.033 | 0.281 | 0.000 | 0.000 | 0.130 | 0.026 | 0.006 | 0.30 | 132.48 | 0.14 | |
| 12 | 110 | 0.005 | 0.033 | 0.314 | 0.000 | 0.000 | 0.157 | 0.027 | 0.007 | 0.31 | 137.97 | 0.16 | |
| 13 | 120 | 0.005 | 0.033 | 0.348 | 0.000 | 0.000 | 0.184 | 0.028 | 0.007 | 0.32 | 142.38 | 0.18 | |
| 14 | 130 | 0.005 | 0.033 | 0.381 | 0.000 | 0.000 | 0.213 | 0.028 | 0.007 | 0.33 | 145.98 | 0.20 | |
| 15 | 140 | 0.005 | 0.033 | 0.415 | 0.000 | 0.000 | 0.242 | 0.029 | 0.007 | 0.33 | 148.95 | 0.22 | |
| 16 | 150 | 0.005 | 0.033 | 0.448 | 0.000 | 0.000 | 0.271 | 0.030 | 0.007 | 0.34 | 151.43 | 0.24 | |
| 17 | 160 | 0.006 | 0.040 | 0.488 | 0.000 | 0.000 | 0.307 | 0.036 | 0.009 | 0.41 | 184.46 | 0.26 | |
| 18 | 170 | 0.006 | 0.040 | 0.529 | 0.000 | 0.000 | 0.344 | 0.036 | 0.009 | 0.42 | 186.96 | 0.28 | |
| 19 | 180 | 0.006 | 0.040 | 0.569 | 0.000 | 0.000 | 0.381 | 0.037 | 0.009 | 0.42 | 189.05 | 0.30 | |
| 20 | 190 | 0.006 | 0.040 | 0.609 | 0.000 | 0.000 | 0.418 | 0.037 | 0.009 | 0.43 | 191.49 | 0.32 | |
| 21 | 200 | 0.006 | 0.040 | 0.649 | 0.001 | 0.001 | 0.455 | 0.037 | 0.010 | 0.46 | 205.43 | 0.34 | |
| 22 | 210 | 0.006 | 0.040 | 0.689 | 0.003 | 0.002 | 0.493 | 0.038 | 0.011 | 0.50 | 222.92 | 0.36 | |
| 23 | 220 | 0.007 | 0.047 | 0.736 | 0.006 | 0.003 | 0.537 | 0.044 | 0.013 | 0.63 | 281.11 | 0.39 | |
| 24 | 230 | 0.007 | 0.047 | 0.783 | 0.011 | 0.005 | 0.582 | 0.045 | 0.014 | 0.67 | 302.67 | 0.43 | |
| 25 | 240 | 0.007 | 0.047 | 0.830 | 0.017 | 0.006 | 0.627 | 0.045 | 0.015 | 0.72 | 323.15 | 0.47 | |
| 26 | 250 | 0.007 | 0.047 | 0.876 | 0.024 | 0.007 | 0.672 | 0.045 | 0.016 | 0.76 | 342.65 | 0.51 | |
| 27 | 260 | 0.007 | 0.047 | 0.923 | 0.032 | 0.008 | 0.717 | 0.045 | 0.017 | 0.80 | 361.24 | 0.55 | |
| 28 | 270 | 0.007 | 0.047 | 0.970 | 0.041 | 0.009 | 0.762 | 0.045 | 0.018 | 0.84 | 378.99 | 0.59 | |
| 29 | 280 | 0.007 | 0.047 | 1.017 | 0.052 | 0.010 | 0.807 | 0.045 | 0.019 | 0.88 | 395.94 | 0.63 | |
| 30 | 290 | 0.008 | 0.054 | 1.070 | 0.065 | 0.013 | 0.859 | 0.052 | 0.023 | 1.05 | 472.33 | 0.68 | |
| 31 | 300 | 0.008 | 0.054 | 1.124 | 0.079 | 0.014 | 0.911 | 0.052 | 0.024 | 1.10 | 492.48 | 0.74 | |
| 32 | 310 | 0.008 | 0.054 | 1.177 | 0.094 | 0.015 | 0.964 | 0.052 | 0.024 | 1.14 | 511.69 | 0.79 | |
| 33 | 320 | 0.008 | 0.054 | 1.231 | 0.111 | 0.017 | 1.016 | 0.052 | 0.025 | 1.18 | 530.00 | 0.85 | |
| 34 | 330 | 0.008 | 0.054 | 1.284 | 0.128 | 0.018 | 1.068 | 0.052 | 0.026 | 1.22 | 547.47 | 0.90 | |
| 35 | 340 | 0.008 | 0.054 | 1.338 | 0.147 | 0.019 | 1.121 | 0.052 | 0.027 | 1.26 | 564.16 | 0.95 | |
| 36 | 350 | 0.01 | 0.067 | 1.405 | 0.172 | 0.025 | 1.187 | 0.066 | 0.035 | 1.62 | 727.57 | 1.02 | |
| 37 | 360 | 0.01 | 0.067 | 1.472 | 0.198 | 0.026 | 1.252 | 0.066 | 0.036 | 1.67 | 751.17 | 1.11 | |
| 38 | 370 | 0.01 | 0.067 | 1.539 | 0.226 | 0.028 | 1.318 | 0.066 | 0.037 | 1.72 | 773.54 | 1.20 | |
| 39 | 380 | 0.01 | 0.067 | 1.606 | 0.254 | 0.029 | 1.384 | 0.066 | 0.038 | 1.77 | 794.75 | 1.28 | |
| 40 | 390 | 0.01 | 0.067 | 1.673 | 0.285 | 0.030 | 1.450 | 0.066 | 0.039 | 1.82 | 814.90 | 1.35 | |
| 41 | 400 | 0.01 | 0.067 | 1.739 | 0.316 | 0.031 | 1.516 | 0.066 | 0.040 | 1.86 | 834.04 | 1.43 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

ment Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) | (cfs) |
| 42 | 410 | 0.013 | 0.087 | 1.826 | 0.358 | 0.042 | 1.602 | 0.086 | 0.053 | 2.48 | 1111.35 | 1.53 | |
| 43 | 420 | 0.013 | 0.087 | 1.913 | 0.402 | 0.044 | 1.688 | 0.086 | 0.054 | 2.54 | 1140.23 | 1.68 | |
| 44 | 430 | 0.013 | 0.087 | 2.000 | 0.448 | 0.046 | 1.775 | 0.086 | 0.056 | 2.60 | 1167.38 | 1.81 | |
| 45 | 440 | 0.018 | 0.120 | 2.121 | 0.514 | 0.066 | 1.894 | 0.119 | 0.079 | 3.69 | 1658.22 | 2.00 | |
| 46 | 450 | 0.018 | 0.120 | 2.241 | 0.583 | 0.069 | 2.014 | 0.120 | 0.081 | 3.80 | 1703.34 | 2.26 | |
| 47 | 460 | 0.034 | 0.227 | 2.469 | 0.721 | 0.137 | 2.240 | 0.226 | 0.159 | 7.42 | 3328.53 | 2.75 | |
| 48 | 470 | 0.054 | 0.361 | 2.830 | 0.955 | 0.234 | 2.599 | 0.359 | 0.265 | 12.35 | 5544.27 | 3.80 | |
| 49 | 480 | 0.027 | 0.181 | 3.011 | 1.078 | 0.123 | 2.779 | 0.180 | 0.137 | 6.40 | 2873.76 | 4.62 | |
| 50 | 490 | 0.018 | 0.120 | 3.131 | 1.163 | 0.084 | 2.899 | 0.120 | 0.093 | 4.34 | 1948.94 | 4.73 | |
| 51 | 500 | 0.013 | 0.087 | 3.218 | 1.225 | 0.062 | 2.985 | 0.087 | 0.068 | 3.17 | 1422.89 | 4.58 | |
| 52 | 510 | 0.013 | 0.087 | 3.305 | 1.287 | 0.063 | 3.072 | 0.087 | 0.069 | 3.20 | 1435.07 | 4.38 | |
| 53 | 520 | 0.013 | 0.087 | 3.392 | 1.351 | 0.063 | 3.159 | 0.087 | 0.069 | 3.22 | 1446.70 | 4.21 | |
| 54 | 530 | 0.009 | 0.060 | 3.452 | 1.395 | 0.044 | 3.219 | 0.060 | 0.048 | 2.25 | 1008.10 | 3.99 | |
| 55 | 540 | 0.009 | 0.060 | 3.512 | 1.440 | 0.045 | 3.279 | 0.060 | 0.048 | 2.26 | 1013.26 | 3.74 | |
| 56 | 550 | 0.009 | 0.060 | 3.572 | 1.485 | 0.045 | 3.339 | 0.060 | 0.049 | 2.27 | 1018.27 | 3.52 | |
| 57 | 560 | 0.009 | 0.060 | 3.633 | 1.530 | 0.045 | 3.399 | 0.060 | 0.049 | 2.28 | 1023.12 | 3.34 | |
| 58 | 570 | 0.009 | 0.060 | 3.693 | 1.575 | 0.046 | 3.459 | 0.060 | 0.049 | 2.29 | 1027.83 | 3.18 | |
| 59 | 580 | 0.009 | 0.060 | 3.753 | 1.621 | 0.046 | 3.519 | 0.060 | 0.049 | 2.30 | 1032.40 | 3.05 | |
| 60 | 590 | 0.009 | 0.060 | 3.813 | 1.667 | 0.046 | 3.579 | 0.060 | 0.050 | 2.31 | 1036.84 | 2.94 | |
| 61 | 600 | 0.009 | 0.060 | 3.874 | 1.714 | 0.046 | 3.639 | 0.060 | 0.050 | 2.32 | 1041.15 | 2.85 | |
| 62 | 610 | 0.009 | 0.060 | 3.934 | 1.760 | 0.047 | 3.699 | 0.060 | 0.050 | 2.33 | 1045.33 | 2.77 | |
| 63 | 620 | 0.009 | 0.060 | 3.994 | 1.807 | 0.047 | 3.759 | 0.060 | 0.050 | 2.34 | 1049.40 | 2.71 | |
| 64 | 630 | 0.009 | 0.060 | 4.054 | 1.854 | 0.047 | 3.819 | 0.060 | 0.050 | 2.35 | 1053.35 | 2.66 | |
| 65 | 640 | 0.009 | 0.060 | 4.114 | 1.902 | 0.047 | 3.879 | 0.060 | 0.050 | 2.36 | 1057.19 | 2.61 | |
| 66 | 650 | 0.007 | 0.047 | 4.161 | 1.939 | 0.037 | 3.926 | 0.047 | 0.039 | 1.84 | 824.85 | 2.54 | |
| 67 | 660 | 0.007 | 0.047 | 4.208 | 1.976 | 0.037 | 3.973 | 0.047 | 0.040 | 1.84 | 827.06 | 2.43 | |
| 68 | 670 | 0.007 | 0.047 | 4.255 | 2.013 | 0.037 | 4.019 | 0.047 | 0.040 | 1.85 | 829.22 | 2.35 | |
| 69 | 680 | 0.007 | 0.047 | 4.302 | 2.051 | 0.037 | 4.066 | 0.047 | 0.040 | 1.85 | 831.34 | 2.27 | |
| 70 | 690 | 0.007 | 0.047 | 4.349 | 2.088 | 0.038 | 4.113 | 0.047 | 0.040 | 1.86 | 833.42 | 2.21 | |
| 71 | 700 | 0.007 | 0.047 | 4.395 | 2.126 | 0.038 | 4.160 | 0.047 | 0.040 | 1.86 | 835.45 | 2.16 | |
| 72 | 710 | 0.007 | 0.047 | 4.442 | 2.164 | 0.038 | 4.206 | 0.047 | 0.040 | 1.87 | 837.44 | 2.12 | |
| 73 | 720 | 0.007 | 0.047 | 4.489 | 2.202 | 0.038 | 4.253 | 0.047 | 0.040 | 1.87 | 839.39 | 2.08 | |
| 74 | 730 | 0.007 | 0.047 | 4.536 | 2.240 | 0.038 | 4.300 | 0.047 | 0.040 | 1.87 | 841.30 | 2.05 | |
| 75 | 740 | 0.007 | 0.047 | 4.583 | 2.278 | 0.038 | 4.347 | 0.047 | 0.040 | 1.88 | 843.17 | 2.02 | |
| 76 | 750 | 0.007 | 0.047 | 4.629 | 2.316 | 0.038 | 4.393 | 0.047 | 0.040 | 1.88 | 845.00 | 2.00 | |
| 77 | 760 | 0.007 | 0.047 | 4.676 | 2.355 | 0.038 | 4.440 | 0.047 | 0.040 | 1.89 | 846.80 | 1.99 | |
| 78 | 770 | 0.006 | 0.040 | 4.716 | 2.388 | 0.033 | 4.480 | 0.040 | 0.035 | 1.62 | 727.23 | 1.95 | |
| 79 | 780 | 0.006 | 0.040 | 4.757 | 2.421 | 0.033 | 4.520 | 0.040 | 0.035 | 1.62 | 728.50 | 1.90 | |
| 80 | 790 | 0.006 | 0.040 | 4.797 | 2.454 | 0.033 | 4.560 | 0.040 | 0.035 | 1.63 | 729.75 | 1.86 | |
| 81 | 800 | 0.006 | 0.040 | 4.837 | 2.487 | 0.033 | 4.600 | 0.040 | 0.035 | 1.63 | 730.98 | 1.83 | |
| 82 | 810 | 0.006 | 0.040 | 4.877 | 2.520 | 0.033 | 4.640 | 0.040 | 0.035 | 1.63 | 732.19 | 1.80 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

ment Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) | (cfs) |
| 83 | 820 | 0.006 | 0.040 | 4.917 | 2.554 | 0.033 | 4.680 | 0.040 | 0.035 | 1.63 | 733.38 | 1.77 | |
| 84 | 830 | 0.006 | 0.040 | 4.957 | 2.587 | 0.033 | 4.721 | 0.040 | 0.035 | 1.64 | 734.55 | 1.75 | |
| 85 | 840 | 0.006 | 0.040 | 4.997 | 2.621 | 0.034 | 4.761 | 0.040 | 0.035 | 1.64 | 735.70 | 1.74 | |
| 86 | 850 | 0.006 | 0.040 | 5.038 | 2.654 | 0.034 | 4.801 | 0.040 | 0.035 | 1.64 | 736.84 | 1.72 | |
| 87 | 860 | 0.006 | 0.040 | 5.078 | 2.688 | 0.034 | 4.841 | 0.040 | 0.035 | 1.64 | 737.95 | 1.71 | |
| 88 | 870 | 0.006 | 0.040 | 5.118 | 2.722 | 0.034 | 4.881 | 0.040 | 0.035 | 1.65 | 739.05 | 1.70 | |
| 89 | 880 | 0.006 | 0.040 | 5.158 | 2.756 | 0.034 | 4.921 | 0.040 | 0.035 | 1.65 | 740.13 | 1.69 | |
| 90 | 890 | 0.005 | 0.033 | 5.191 | 2.784 | 0.028 | 4.954 | 0.033 | 0.030 | 1.38 | 617.58 | 1.67 | |
| 91 | 900 | 0.005 | 0.033 | 5.225 | 2.812 | 0.028 | 4.988 | 0.033 | 0.030 | 1.38 | 618.31 | 1.62 | |
| 92 | 910 | 0.005 | 0.033 | 5.258 | 2.841 | 0.028 | 5.021 | 0.033 | 0.030 | 1.38 | 619.03 | 1.59 | |
| 93 | 920 | 0.005 | 0.033 | 5.292 | 2.869 | 0.028 | 5.055 | 0.033 | 0.030 | 1.38 | 619.74 | 1.56 | |
| 94 | 930 | 0.005 | 0.033 | 5.325 | 2.897 | 0.028 | 5.088 | 0.033 | 0.030 | 1.38 | 620.43 | 1.53 | |
| 95 | 940 | 0.005 | 0.033 | 5.359 | 2.926 | 0.028 | 5.121 | 0.033 | 0.030 | 1.38 | 621.12 | 1.51 | |
| 96 | 950 | 0.005 | 0.033 | 5.392 | 2.954 | 0.029 | 5.155 | 0.033 | 0.030 | 1.39 | 621.81 | 1.49 | |
| 97 | 960 | 0.005 | 0.033 | 5.426 | 2.983 | 0.029 | 5.188 | 0.033 | 0.030 | 1.39 | 622.48 | 1.48 | |
| 98 | 970 | 0.005 | 0.033 | 5.459 | 3.011 | 0.029 | 5.222 | 0.033 | 0.030 | 1.39 | 623.14 | 1.46 | |
| 99 | 980 | 0.005 | 0.033 | 5.492 | 3.040 | 0.029 | 5.255 | 0.033 | 0.030 | 1.39 | 623.80 | 1.45 | |
| 100 | 990 | 0.005 | 0.033 | 5.526 | 3.069 | 0.029 | 5.288 | 0.033 | 0.030 | 1.39 | 624.44 | 1.44 | |
| 101 | 1000 | 0.005 | 0.033 | 5.559 | 3.097 | 0.029 | 5.322 | 0.033 | 0.030 | 1.39 | 625.08 | 1.44 | |
| 102 | 1010 | 0.004 | 0.027 | 5.586 | 3.120 | 0.023 | 5.348 | 0.027 | 0.024 | 1.12 | 500.52 | 1.41 | |
| 103 | 1020 | 0.004 | 0.027 | 5.613 | 3.143 | 0.023 | 5.375 | 0.027 | 0.024 | 1.12 | 500.92 | 1.37 | |
| 104 | 1030 | 0.004 | 0.027 | 5.640 | 3.166 | 0.023 | 5.402 | 0.027 | 0.024 | 1.12 | 501.32 | 1.33 | |
| 105 | 1040 | 0.004 | 0.027 | 5.666 | 3.190 | 0.023 | 5.429 | 0.027 | 0.024 | 1.12 | 501.71 | 1.30 | |
| 106 | 1050 | 0.004 | 0.027 | 5.693 | 3.213 | 0.023 | 5.455 | 0.027 | 0.024 | 1.12 | 502.10 | 1.27 | |
| 107 | 1060 | 0.004 | 0.027 | 5.720 | 3.236 | 0.023 | 5.482 | 0.027 | 0.024 | 1.12 | 502.48 | 1.25 | |
| 108 | 1070 | 0.004 | 0.027 | 5.747 | 3.259 | 0.023 | 5.509 | 0.027 | 0.024 | 1.12 | 502.86 | 1.23 | |
| 109 | 1080 | 0.004 | 0.027 | 5.773 | 3.282 | 0.023 | 5.536 | 0.027 | 0.024 | 1.12 | 503.24 | 1.21 | |
| 110 | 1090 | 0.004 | 0.027 | 5.800 | 3.305 | 0.023 | 5.562 | 0.027 | 0.024 | 1.12 | 503.61 | 1.20 | |
| 111 | 1100 | 0.004 | 0.027 | 5.827 | 3.328 | 0.023 | 5.589 | 0.027 | 0.024 | 1.12 | 503.98 | 1.19 | |
| 112 | 1110 | 0.004 | 0.027 | 5.854 | 3.352 | 0.023 | 5.616 | 0.027 | 0.024 | 1.12 | 504.34 | 1.18 | |
| 113 | 1120 | 0.004 | 0.027 | 5.881 | 3.375 | 0.023 | 5.643 | 0.027 | 0.024 | 1.12 | 504.71 | 1.17 | |
| 114 | 1130 | 0.004 | 0.027 | 5.907 | 3.398 | 0.023 | 5.669 | 0.027 | 0.024 | 1.13 | 505.06 | 1.16 | |
| 115 | 1140 | 0.004 | 0.027 | 5.934 | 3.422 | 0.023 | 5.696 | 0.027 | 0.024 | 1.13 | 505.42 | 1.16 | |
| 116 | 1150 | 0.004 | 0.027 | 5.961 | 3.445 | 0.023 | 5.723 | 0.027 | 0.024 | 1.13 | 505.77 | 1.15 | |
| 117 | 1160 | 0.004 | 0.027 | 5.988 | 3.468 | 0.023 | 5.749 | 0.027 | 0.024 | 1.13 | 506.12 | 1.15 | |
| 118 | 1170 | 0.004 | 0.027 | 6.014 | 3.492 | 0.023 | 5.776 | 0.027 | 0.024 | 1.13 | 506.46 | 1.15 | |
| 119 | 1180 | 0.004 | 0.027 | 6.041 | 3.515 | 0.023 | 5.803 | 0.027 | 0.024 | 1.13 | 506.80 | 1.14 | |
| 120 | 1190 | 0.004 | 0.027 | 6.068 | 3.538 | 0.023 | 5.830 | 0.027 | 0.024 | 1.13 | 507.14 | 1.14 | |
| 121 | 1200 | 0.004 | 0.027 | 6.095 | 3.562 | 0.023 | 5.856 | 0.027 | 0.024 | 1.13 | 507.48 | 1.14 | |
| 122 | 1210 | 0.004 | 0.027 | 6.121 | 3.585 | 0.023 | 5.883 | 0.027 | 0.024 | 1.13 | 507.81 | 1.14 | |
| 123 | 1220 | 0.004 | 0.027 | 6.148 | 3.609 | 0.023 | 5.910 | 0.027 | 0.024 | 1.13 | 508.14 | 1.14 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

ment Conditions (Basin #1)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 124 | 1230 | 0.004 | 0.027 | 6.175 | 3.632 | 0.023 | 5.937 | 0.027 | 0.024 | 1.13 | 508.46 | 1.14 |
| 125 | 1240 | 0.004 | 0.027 | 6.202 | 3.656 | 0.024 | 5.963 | 0.027 | 0.024 | 1.13 | 508.79 | 1.14 |
| 126 | 1250 | 0.004 | 0.027 | 6.228 | 3.679 | 0.024 | 5.990 | 0.027 | 0.024 | 1.13 | 509.11 | 1.14 |
| 127 | 1260 | 0.004 | 0.027 | 6.255 | 3.703 | 0.024 | 6.017 | 0.027 | 0.024 | 1.14 | 509.42 | 1.14 |
| 128 | 1270 | 0.004 | 0.027 | 6.282 | 3.726 | 0.024 | 6.043 | 0.027 | 0.024 | 1.14 | 509.74 | 1.14 |
| 129 | 1280 | 0.004 | 0.027 | 6.309 | 3.750 | 0.024 | 6.070 | 0.027 | 0.024 | 1.14 | 510.05 | 1.14 |
| 130 | 1290 | 0.004 | 0.027 | 6.335 | 3.774 | 0.024 | 6.097 | 0.027 | 0.024 | 1.14 | 510.36 | 1.14 |
| 131 | 1300 | 0.004 | 0.027 | 6.362 | 3.797 | 0.024 | 6.124 | 0.027 | 0.024 | 1.14 | 510.66 | 1.14 |
| 132 | 1310 | 0.004 | 0.027 | 6.389 | 3.821 | 0.024 | 6.150 | 0.027 | 0.024 | 1.14 | 510.96 | 1.14 |
| 133 | 1320 | 0.004 | 0.027 | 6.416 | 3.845 | 0.024 | 6.177 | 0.027 | 0.024 | 1.14 | 511.26 | 1.14 |
| 134 | 1330 | 0.004 | 0.027 | 6.442 | 3.868 | 0.024 | 6.204 | 0.027 | 0.024 | 1.14 | 511.56 | 1.14 |
| 135 | 1340 | 0.004 | 0.027 | 6.469 | 3.892 | 0.024 | 6.231 | 0.027 | 0.024 | 1.14 | 511.85 | 1.14 |
| 136 | 1350 | 0.004 | 0.027 | 6.496 | 3.916 | 0.024 | 6.257 | 0.027 | 0.024 | 1.14 | 512.15 | 1.14 |
| 137 | 1360 | 0.004 | 0.027 | 6.523 | 3.939 | 0.024 | 6.284 | 0.027 | 0.024 | 1.14 | 512.43 | 1.14 |
| 138 | 1370 | 0.004 | 0.027 | 6.550 | 3.963 | 0.024 | 6.311 | 0.027 | 0.024 | 1.14 | 512.72 | 1.14 |
| 139 | 1380 | 0.004 | 0.027 | 6.576 | 3.987 | 0.024 | 6.338 | 0.027 | 0.025 | 1.14 | 513.00 | 1.14 |
| 140 | 1390 | 0.004 | 0.027 | 6.603 | 4.011 | 0.024 | 6.364 | 0.027 | 0.025 | 1.14 | 513.29 | 1.14 |
| 141 | 1400 | 0.004 | 0.027 | 6.630 | 4.035 | 0.024 | 6.391 | 0.027 | 0.025 | 1.14 | 513.56 | 1.14 |
| 142 | 1410 | 0.004 | 0.027 | 6.657 | 4.058 | 0.024 | 6.418 | 0.027 | 0.025 | 1.14 | 513.84 | 1.14 |
| 143 | 1420 | 0.004 | 0.027 | 6.683 | 4.082 | 0.024 | 6.444 | 0.027 | 0.025 | 1.15 | 514.11 | 1.14 |
| 144 | 1430 | 0.004 | 0.027 | 6.710 | 4.106 | 0.024 | 6.471 | 0.027 | 0.025 | 1.15 | 514.39 | 1.14 |
| 145 | 1440 | 0.004 | 0.027 | 6.737 | 4.130 | 0.024 | 6.498 | 0.027 | 0.025 | 1.15 | 514.65 | 1.14 |

| | | | |
|------------------|--------------|----------------|-------------|
| Peak Flow | 12.35 | 5544.27 | 4.73 |
|------------------|--------------|----------------|-------------|

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

ment Conditions (Basin #1)

| Time Increment | Time (min) | Rainfall | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 2 | 10 | 0.004 | 0.030 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 3 | 20 | 0.004 | 0.030 | 0.059 | 0.000 | 0.000 | 0.002 | 0.002 | 0.002 | 0.02 | 7.99 | |
| 4 | 30 | 0.004 | 0.030 | 0.089 | 0.000 | 0.000 | 0.009 | 0.008 | 0.002 | 0.09 | 39.52 | |
| 5 | 40 | 0.004 | 0.030 | 0.119 | 0.000 | 0.000 | 0.022 | 0.012 | 0.003 | 0.14 | 63.33 | |
| 6 | 50 | 0.004 | 0.030 | 0.149 | 0.000 | 0.000 | 0.037 | 0.016 | 0.004 | 0.18 | 80.33 | |
| 7 | 60 | 0.004 | 0.030 | 0.178 | 0.000 | 0.000 | 0.055 | 0.018 | 0.004 | 0.21 | 92.89 | |
| 8 | 70 | 0.004 | 0.030 | 0.208 | 0.000 | 0.000 | 0.075 | 0.020 | 0.005 | 0.23 | 102.43 | |
| 9 | 80 | 0.004 | 0.030 | 0.238 | 0.000 | 0.000 | 0.097 | 0.021 | 0.005 | 0.24 | 109.86 | |
| 10 | 90 | 0.005 | 0.037 | 0.275 | 0.000 | 0.000 | 0.125 | 0.028 | 0.007 | 0.32 | 145.46 | |
| 11 | 100 | 0.005 | 0.037 | 0.312 | 0.000 | 0.000 | 0.155 | 0.030 | 0.007 | 0.34 | 152.52 | |
| 12 | 110 | 0.005 | 0.037 | 0.349 | 0.000 | 0.000 | 0.186 | 0.031 | 0.008 | 0.35 | 158.05 | |
| 13 | 120 | 0.005 | 0.037 | 0.386 | 0.000 | 0.000 | 0.217 | 0.032 | 0.008 | 0.36 | 162.46 | |
| 14 | 130 | 0.005 | 0.037 | 0.424 | 0.000 | 0.000 | 0.250 | 0.032 | 0.008 | 0.37 | 166.03 | |
| 15 | 140 | 0.005 | 0.037 | 0.461 | 0.000 | 0.000 | 0.283 | 0.033 | 0.008 | 0.38 | 168.96 | |
| 16 | 150 | 0.005 | 0.037 | 0.498 | 0.000 | 0.000 | 0.316 | 0.033 | 0.008 | 0.38 | 171.40 | |
| 17 | 160 | 0.006 | 0.045 | 0.542 | 0.000 | 0.000 | 0.357 | 0.041 | 0.010 | 0.46 | 208.35 | |
| 18 | 170 | 0.006 | 0.045 | 0.587 | 0.000 | 0.000 | 0.398 | 0.041 | 0.010 | 0.47 | 210.78 | |
| 19 | 180 | 0.006 | 0.045 | 0.632 | 0.000 | 0.000 | 0.439 | 0.041 | 0.010 | 0.49 | 218.90 | |
| 20 | 190 | 0.006 | 0.045 | 0.676 | 0.002 | 0.002 | 0.481 | 0.042 | 0.011 | 0.54 | 240.34 | |
| 21 | 200 | 0.006 | 0.045 | 0.721 | 0.005 | 0.003 | 0.523 | 0.042 | 0.012 | 0.58 | 261.24 | |
| 22 | 210 | 0.006 | 0.045 | 0.765 | 0.009 | 0.004 | 0.565 | 0.042 | 0.013 | 0.63 | 281.10 | |
| 23 | 220 | 0.007 | 0.052 | 0.817 | 0.015 | 0.006 | 0.615 | 0.050 | 0.017 | 0.78 | 351.79 | |
| 24 | 230 | 0.007 | 0.052 | 0.869 | 0.023 | 0.008 | 0.665 | 0.050 | 0.018 | 0.84 | 376.16 | |
| 25 | 240 | 0.007 | 0.052 | 0.921 | 0.032 | 0.009 | 0.715 | 0.050 | 0.019 | 0.89 | 399.25 | |
| 26 | 250 | 0.007 | 0.052 | 0.973 | 0.042 | 0.010 | 0.765 | 0.050 | 0.020 | 0.94 | 421.18 | |
| 27 | 260 | 0.007 | 0.052 | 1.025 | 0.054 | 0.012 | 0.815 | 0.050 | 0.021 | 0.98 | 442.03 | |
| 28 | 270 | 0.007 | 0.052 | 1.077 | 0.066 | 0.013 | 0.866 | 0.051 | 0.022 | 1.03 | 461.88 | |
| 29 | 280 | 0.007 | 0.052 | 1.129 | 0.080 | 0.014 | 0.917 | 0.051 | 0.023 | 1.07 | 480.80 | |
| 30 | 290 | 0.008 | 0.059 | 1.189 | 0.098 | 0.017 | 0.975 | 0.058 | 0.027 | 1.27 | 571.53 | |
| 31 | 300 | 0.008 | 0.059 | 1.248 | 0.116 | 0.019 | 1.033 | 0.058 | 0.028 | 1.32 | 593.89 | |
| 32 | 310 | 0.008 | 0.059 | 1.308 | 0.136 | 0.020 | 1.091 | 0.058 | 0.029 | 1.37 | 615.13 | |
| 33 | 320 | 0.008 | 0.059 | 1.367 | 0.158 | 0.021 | 1.149 | 0.058 | 0.030 | 1.42 | 635.32 | |
| 34 | 330 | 0.008 | 0.059 | 1.427 | 0.180 | 0.022 | 1.208 | 0.058 | 0.031 | 1.46 | 654.54 | |
| 35 | 340 | 0.008 | 0.059 | 1.486 | 0.204 | 0.024 | 1.266 | 0.058 | 0.032 | 1.50 | 672.85 | |
| 36 | 350 | 0.01 | 0.074 | 1.560 | 0.235 | 0.031 | 1.340 | 0.073 | 0.041 | 1.93 | 865.51 | |
| 37 | 360 | 0.01 | 0.074 | 1.635 | 0.267 | 0.033 | 1.413 | 0.073 | 0.043 | 1.99 | 891.25 | |
| 38 | 370 | 0.01 | 0.074 | 1.709 | 0.301 | 0.034 | 1.486 | 0.073 | 0.044 | 2.04 | 915.55 | |
| 39 | 380 | 0.01 | 0.074 | 1.783 | 0.337 | 0.036 | 1.560 | 0.073 | 0.045 | 2.09 | 938.53 | |
| 40 | 390 | 0.01 | 0.074 | 1.858 | 0.374 | 0.037 | 1.633 | 0.074 | 0.046 | 2.14 | 960.28 | |
| 41 | 400 | 0.01 | 0.074 | 1.932 | 0.412 | 0.038 | 1.707 | 0.074 | 0.047 | 2.19 | 980.89 | |
| 42 | 410 | 0.013 | 0.097 | 2.028 | 0.463 | 0.051 | 1.802 | 0.096 | 0.062 | 2.91 | 1304.24 | |
| 43 | 420 | 0.013 | 0.097 | 2.125 | 0.517 | 0.053 | 1.898 | 0.096 | 0.064 | 2.97 | 1335.15 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

ment Conditions (Basin #1)

| Time Increment | Time (min) | Rainfall Distribution | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 44 | 430 | 0.013 | 0.097 | 2.222 | 0.572 | 0.055 | 1.994 | 0.096 | 0.065 | 3.04 | 1364.09 | 2.13 |
| 45 | 440 | 0.018 | 0.134 | 2.355 | 0.651 | 0.079 | 2.127 | 0.133 | 0.092 | 4.31 | 1933.18 | 2.36 |
| 46 | 450 | 0.018 | 0.134 | 2.489 | 0.733 | 0.082 | 2.260 | 0.133 | 0.095 | 4.41 | 1980.91 | 2.65 |
| 47 | 460 | 0.034 | 0.253 | 2.742 | 0.896 | 0.163 | 2.511 | 0.251 | 0.184 | 8.60 | 3858.66 | 3.22 |
| 48 | 470 | 0.054 | 0.401 | 3.143 | 1.171 | 0.275 | 2.911 | 0.399 | 0.306 | 14.26 | 6397.72 | 4.42 |
| 49 | 480 | 0.027 | 0.201 | 3.344 | 1.315 | 0.144 | 3.110 | 0.200 | 0.158 | 7.36 | 3304.22 | 5.36 |
| 50 | 490 | 0.018 | 0.134 | 3.477 | 1.414 | 0.098 | 3.244 | 0.133 | 0.107 | 4.98 | 2236.92 | 5.48 |
| 51 | 500 | 0.013 | 0.097 | 3.574 | 1.486 | 0.072 | 3.340 | 0.096 | 0.078 | 3.63 | 1631.29 | 5.31 |
| 52 | 510 | 0.013 | 0.097 | 3.670 | 1.558 | 0.073 | 3.436 | 0.096 | 0.079 | 3.66 | 1643.77 | 5.06 |
| 53 | 520 | 0.013 | 0.097 | 3.767 | 1.632 | 0.073 | 3.533 | 0.096 | 0.079 | 3.69 | 1655.67 | 4.86 |
| 54 | 530 | 0.009 | 0.067 | 3.834 | 1.683 | 0.051 | 3.599 | 0.067 | 0.055 | 2.57 | 1152.91 | 4.61 |
| 55 | 540 | 0.009 | 0.067 | 3.901 | 1.735 | 0.052 | 3.666 | 0.067 | 0.055 | 2.58 | 1158.17 | 4.31 |
| 56 | 550 | 0.009 | 0.067 | 3.968 | 1.787 | 0.052 | 3.733 | 0.067 | 0.056 | 2.59 | 1163.27 | 4.06 |
| 57 | 560 | 0.009 | 0.067 | 4.034 | 1.839 | 0.052 | 3.800 | 0.067 | 0.056 | 2.60 | 1168.20 | 3.84 |
| 58 | 570 | 0.009 | 0.067 | 4.101 | 1.892 | 0.053 | 3.866 | 0.067 | 0.056 | 2.61 | 1172.98 | 3.66 |
| 59 | 580 | 0.009 | 0.067 | 4.168 | 1.944 | 0.053 | 3.933 | 0.067 | 0.056 | 2.62 | 1177.62 | 3.51 |
| 60 | 590 | 0.009 | 0.067 | 4.235 | 1.997 | 0.053 | 4.000 | 0.067 | 0.056 | 2.63 | 1182.12 | 3.38 |
| 61 | 600 | 0.009 | 0.067 | 4.302 | 2.051 | 0.053 | 4.066 | 0.067 | 0.057 | 2.64 | 1186.48 | 3.27 |
| 62 | 610 | 0.009 | 0.067 | 4.369 | 2.105 | 0.054 | 4.133 | 0.067 | 0.057 | 2.65 | 1190.71 | 3.18 |
| 63 | 620 | 0.009 | 0.067 | 4.436 | 2.159 | 0.054 | 4.200 | 0.067 | 0.057 | 2.66 | 1194.81 | 3.10 |
| 64 | 630 | 0.009 | 0.067 | 4.503 | 2.213 | 0.054 | 4.267 | 0.067 | 0.057 | 2.67 | 1198.80 | 3.04 |
| 65 | 640 | 0.009 | 0.067 | 4.569 | 2.267 | 0.054 | 4.333 | 0.067 | 0.057 | 2.68 | 1202.67 | 2.99 |
| 66 | 650 | 0.007 | 0.052 | 4.621 | 2.310 | 0.042 | 4.385 | 0.052 | 0.045 | 2.09 | 938.01 | 2.90 |
| 67 | 660 | 0.007 | 0.052 | 4.673 | 2.352 | 0.043 | 4.437 | 0.052 | 0.045 | 2.10 | 940.24 | 2.78 |
| 68 | 670 | 0.007 | 0.052 | 4.725 | 2.395 | 0.043 | 4.489 | 0.052 | 0.045 | 2.10 | 942.41 | 2.68 |
| 69 | 680 | 0.007 | 0.052 | 4.777 | 2.438 | 0.043 | 4.541 | 0.052 | 0.045 | 2.10 | 944.54 | 2.59 |
| 70 | 690 | 0.007 | 0.052 | 4.830 | 2.481 | 0.043 | 4.593 | 0.052 | 0.045 | 2.11 | 946.62 | 2.52 |
| 71 | 700 | 0.007 | 0.052 | 4.882 | 2.524 | 0.043 | 4.645 | 0.052 | 0.045 | 2.11 | 948.66 | 2.46 |
| 72 | 710 | 0.007 | 0.052 | 4.934 | 2.567 | 0.043 | 4.697 | 0.052 | 0.045 | 2.12 | 950.65 | 2.41 |
| 73 | 720 | 0.007 | 0.052 | 4.986 | 2.611 | 0.043 | 4.749 | 0.052 | 0.046 | 2.12 | 952.60 | 2.37 |
| 74 | 730 | 0.007 | 0.052 | 5.038 | 2.654 | 0.044 | 4.801 | 0.052 | 0.046 | 2.13 | 954.51 | 2.33 |
| 75 | 740 | 0.007 | 0.052 | 5.090 | 2.698 | 0.044 | 4.853 | 0.052 | 0.046 | 2.13 | 956.38 | 2.30 |
| 76 | 750 | 0.007 | 0.052 | 5.142 | 2.742 | 0.044 | 4.905 | 0.052 | 0.046 | 2.14 | 958.21 | 2.28 |
| 77 | 760 | 0.007 | 0.052 | 5.194 | 2.786 | 0.044 | 4.956 | 0.052 | 0.046 | 2.14 | 960.01 | 2.26 |
| 78 | 770 | 0.006 | 0.045 | 5.238 | 2.823 | 0.038 | 5.001 | 0.045 | 0.039 | 1.84 | 824.26 | 2.22 |
| 79 | 780 | 0.006 | 0.045 | 5.283 | 2.861 | 0.038 | 5.045 | 0.045 | 0.039 | 1.84 | 825.53 | 2.16 |
| 80 | 790 | 0.006 | 0.045 | 5.327 | 2.899 | 0.038 | 5.090 | 0.045 | 0.039 | 1.84 | 826.78 | 2.12 |
| 81 | 800 | 0.006 | 0.045 | 5.372 | 2.937 | 0.038 | 5.135 | 0.045 | 0.040 | 1.84 | 828.00 | 2.08 |
| 82 | 810 | 0.006 | 0.045 | 5.416 | 2.975 | 0.038 | 5.179 | 0.045 | 0.040 | 1.85 | 829.21 | 2.04 |
| 83 | 820 | 0.006 | 0.045 | 5.461 | 3.013 | 0.038 | 5.224 | 0.045 | 0.040 | 1.85 | 830.39 | 2.01 |
| 84 | 830 | 0.006 | 0.045 | 5.506 | 3.051 | 0.038 | 5.268 | 0.045 | 0.040 | 1.85 | 831.55 | 1.99 |
| 85 | 840 | 0.006 | 0.045 | 5.550 | 3.090 | 0.038 | 5.313 | 0.045 | 0.040 | 1.86 | 832.70 | 1.97 |
| 86 | 850 | 0.006 | 0.045 | 5.595 | 3.128 | 0.038 | 5.357 | 0.045 | 0.040 | 1.86 | 833.82 | 1.95 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

ment Conditions (Basin #1)

| Time Increment | Time (min) | Rainfall Distribution | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 87 | 860 | 0.006 | 0.045 | 5.639 | 3.166 | 0.038 | 5.402 | 0.045 | 0.040 | 1.86 | 834.93 | 1.94 |
| 88 | 870 | 0.006 | 0.045 | 5.684 | 3.205 | 0.038 | 5.446 | 0.045 | 0.040 | 1.86 | 836.01 | 1.93 |
| 89 | 880 | 0.006 | 0.045 | 5.729 | 3.243 | 0.039 | 5.491 | 0.045 | 0.040 | 1.87 | 837.08 | 1.92 |
| 90 | 890 | 0.005 | 0.037 | 5.766 | 3.275 | 0.032 | 5.528 | 0.037 | 0.033 | 1.56 | 698.37 | 1.89 |
| 91 | 900 | 0.005 | 0.037 | 5.803 | 3.307 | 0.032 | 5.565 | 0.037 | 0.033 | 1.56 | 699.09 | 1.84 |
| 92 | 910 | 0.005 | 0.037 | 5.840 | 3.340 | 0.032 | 5.602 | 0.037 | 0.033 | 1.56 | 699.80 | 1.80 |
| 93 | 920 | 0.005 | 0.037 | 5.877 | 3.372 | 0.032 | 5.639 | 0.037 | 0.033 | 1.56 | 700.50 | 1.76 |
| 94 | 930 | 0.005 | 0.037 | 5.914 | 3.404 | 0.032 | 5.676 | 0.037 | 0.033 | 1.56 | 701.20 | 1.73 |
| 95 | 940 | 0.005 | 0.037 | 5.951 | 3.437 | 0.032 | 5.713 | 0.037 | 0.034 | 1.56 | 701.88 | 1.71 |
| 96 | 950 | 0.005 | 0.037 | 5.989 | 3.469 | 0.032 | 5.750 | 0.037 | 0.034 | 1.57 | 702.55 | 1.69 |
| 97 | 960 | 0.005 | 0.037 | 6.026 | 3.502 | 0.032 | 5.788 | 0.037 | 0.034 | 1.57 | 703.22 | 1.67 |
| 98 | 970 | 0.005 | 0.037 | 6.063 | 3.534 | 0.032 | 5.825 | 0.037 | 0.034 | 1.57 | 703.87 | 1.65 |
| 99 | 980 | 0.005 | 0.037 | 6.100 | 3.567 | 0.033 | 5.862 | 0.037 | 0.034 | 1.57 | 704.52 | 1.64 |
| 100 | 990 | 0.005 | 0.037 | 6.137 | 3.599 | 0.033 | 5.899 | 0.037 | 0.034 | 1.57 | 705.16 | 1.63 |
| 101 | 1000 | 0.005 | 0.037 | 6.174 | 3.632 | 0.033 | 5.936 | 0.037 | 0.034 | 1.57 | 705.79 | 1.62 |
| 102 | 1010 | 0.004 | 0.030 | 6.204 | 3.658 | 0.026 | 5.966 | 0.030 | 0.027 | 1.26 | 565.08 | 1.59 |
| 103 | 1020 | 0.004 | 0.030 | 6.234 | 3.684 | 0.026 | 5.995 | 0.030 | 0.027 | 1.26 | 565.47 | 1.54 |
| 104 | 1030 | 0.004 | 0.030 | 6.263 | 3.710 | 0.026 | 6.025 | 0.030 | 0.027 | 1.26 | 565.86 | 1.50 |
| 105 | 1040 | 0.004 | 0.030 | 6.293 | 3.736 | 0.026 | 6.055 | 0.030 | 0.027 | 1.26 | 566.25 | 1.47 |
| 106 | 1050 | 0.004 | 0.030 | 6.323 | 3.763 | 0.026 | 6.084 | 0.030 | 0.027 | 1.26 | 566.63 | 1.44 |
| 107 | 1060 | 0.004 | 0.030 | 6.353 | 3.789 | 0.026 | 6.114 | 0.030 | 0.027 | 1.26 | 567.01 | 1.41 |
| 108 | 1070 | 0.004 | 0.030 | 6.382 | 3.815 | 0.026 | 6.144 | 0.030 | 0.027 | 1.26 | 567.38 | 1.39 |
| 109 | 1080 | 0.004 | 0.030 | 6.412 | 3.841 | 0.026 | 6.174 | 0.030 | 0.027 | 1.27 | 567.75 | 1.37 |
| 110 | 1090 | 0.004 | 0.030 | 6.442 | 3.868 | 0.026 | 6.203 | 0.030 | 0.027 | 1.27 | 568.12 | 1.36 |
| 111 | 1100 | 0.004 | 0.030 | 6.472 | 3.894 | 0.026 | 6.233 | 0.030 | 0.027 | 1.27 | 568.48 | 1.34 |
| 112 | 1110 | 0.004 | 0.030 | 6.501 | 3.920 | 0.026 | 6.263 | 0.030 | 0.027 | 1.27 | 568.84 | 1.33 |
| 113 | 1120 | 0.004 | 0.030 | 6.531 | 3.947 | 0.026 | 6.292 | 0.030 | 0.027 | 1.27 | 569.20 | 1.32 |
| 114 | 1130 | 0.004 | 0.030 | 6.561 | 3.973 | 0.026 | 6.322 | 0.030 | 0.027 | 1.27 | 569.55 | 1.31 |
| 115 | 1140 | 0.004 | 0.030 | 6.590 | 4.000 | 0.026 | 6.352 | 0.030 | 0.027 | 1.27 | 569.90 | 1.31 |
| 116 | 1150 | 0.004 | 0.030 | 6.620 | 4.026 | 0.026 | 6.381 | 0.030 | 0.027 | 1.27 | 570.24 | 1.30 |
| 117 | 1160 | 0.004 | 0.030 | 6.650 | 4.052 | 0.026 | 6.411 | 0.030 | 0.027 | 1.27 | 570.58 | 1.30 |
| 118 | 1170 | 0.004 | 0.030 | 6.680 | 4.079 | 0.026 | 6.441 | 0.030 | 0.027 | 1.27 | 570.92 | 1.29 |
| 119 | 1180 | 0.004 | 0.030 | 6.709 | 4.105 | 0.027 | 6.470 | 0.030 | 0.027 | 1.27 | 571.26 | 1.29 |
| 120 | 1190 | 0.004 | 0.030 | 6.739 | 4.132 | 0.027 | 6.500 | 0.030 | 0.027 | 1.27 | 571.59 | 1.29 |
| 121 | 1200 | 0.004 | 0.030 | 6.769 | 4.159 | 0.027 | 6.530 | 0.030 | 0.027 | 1.27 | 571.92 | 1.29 |
| 122 | 1210 | 0.004 | 0.030 | 6.798 | 4.185 | 0.027 | 6.560 | 0.030 | 0.027 | 1.28 | 572.24 | 1.28 |
| 123 | 1220 | 0.004 | 0.030 | 6.828 | 4.212 | 0.027 | 6.589 | 0.030 | 0.027 | 1.28 | 572.57 | 1.28 |
| 124 | 1230 | 0.004 | 0.030 | 6.858 | 4.238 | 0.027 | 6.619 | 0.030 | 0.027 | 1.28 | 572.88 | 1.28 |
| 125 | 1240 | 0.004 | 0.030 | 6.888 | 4.265 | 0.027 | 6.649 | 0.030 | 0.027 | 1.28 | 573.20 | 1.28 |
| 126 | 1250 | 0.004 | 0.030 | 6.917 | 4.292 | 0.027 | 6.678 | 0.030 | 0.027 | 1.28 | 573.51 | 1.28 |
| 127 | 1260 | 0.004 | 0.030 | 6.947 | 4.318 | 0.027 | 6.708 | 0.030 | 0.027 | 1.28 | 573.82 | 1.28 |
| 128 | 1270 | 0.004 | 0.030 | 6.977 | 4.345 | 0.027 | 6.738 | 0.030 | 0.027 | 1.28 | 574.13 | 1.28 |
| 129 | 1280 | 0.004 | 0.030 | 7.006 | 4.372 | 0.027 | 6.767 | 0.030 | 0.027 | 1.28 | 574.44 | 1.28 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (50 yr / 24-hour Storm)

ment Conditions (Basin #1)

| Time Increment | Time (min) | Rainfall | | | Pervious | | Impervious | | Total Rainfall (in) | Instant Flowrate (cfs) | Instant Flowrate (gal/min) | Design Flowrate (cfs) |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|----------------------------|-----------------------|
| | | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | | | | |
| 130 | 1290 | 0.004 | 0.030 | 7.036 | 4.398 | 0.027 | 6.797 | 0.030 | 0.027 | 1.28 | 574.74 | 1.28 |
| 131 | 1300 | 0.004 | 0.030 | 7.066 | 4.425 | 0.027 | 6.827 | 0.030 | 0.027 | 1.28 | 575.03 | 1.28 |
| 132 | 1310 | 0.004 | 0.030 | 7.096 | 4.452 | 0.027 | 6.856 | 0.030 | 0.027 | 1.28 | 575.33 | 1.28 |
| 133 | 1320 | 0.004 | 0.030 | 7.125 | 4.479 | 0.027 | 6.886 | 0.030 | 0.027 | 1.28 | 575.62 | 1.28 |
| 134 | 1330 | 0.004 | 0.030 | 7.155 | 4.505 | 0.027 | 6.916 | 0.030 | 0.028 | 1.28 | 575.91 | 1.28 |
| 135 | 1340 | 0.004 | 0.030 | 7.185 | 4.532 | 0.027 | 6.946 | 0.030 | 0.028 | 1.28 | 576.20 | 1.28 |
| 136 | 1350 | 0.004 | 0.030 | 7.215 | 4.559 | 0.027 | 6.975 | 0.030 | 0.028 | 1.28 | 576.49 | 1.28 |
| 137 | 1360 | 0.004 | 0.030 | 7.244 | 4.586 | 0.027 | 7.005 | 0.030 | 0.028 | 1.29 | 576.77 | 1.28 |
| 138 | 1370 | 0.004 | 0.030 | 7.274 | 4.613 | 0.027 | 7.035 | 0.030 | 0.028 | 1.29 | 577.05 | 1.28 |
| 139 | 1380 | 0.004 | 0.030 | 7.304 | 4.640 | 0.027 | 7.064 | 0.030 | 0.028 | 1.29 | 577.32 | 1.28 |
| 140 | 1390 | 0.004 | 0.030 | 7.333 | 4.667 | 0.027 | 7.094 | 0.030 | 0.028 | 1.29 | 577.60 | 1.28 |
| 141 | 1400 | 0.004 | 0.030 | 7.363 | 4.694 | 0.027 | 7.124 | 0.030 | 0.028 | 1.29 | 577.87 | 1.28 |
| 142 | 1410 | 0.004 | 0.030 | 7.393 | 4.721 | 0.027 | 7.153 | 0.030 | 0.028 | 1.29 | 578.14 | 1.28 |
| 143 | 1420 | 0.004 | 0.030 | 7.423 | 4.747 | 0.027 | 7.183 | 0.030 | 0.028 | 1.29 | 578.41 | 1.29 |
| 144 | 1430 | 0.004 | 0.030 | 7.452 | 4.774 | 0.027 | 7.213 | 0.030 | 0.028 | 1.29 | 578.67 | 1.29 |
| 145 | 1440 | 0.004 | 0.030 | 7.482 | 4.801 | 0.027 | 7.243 | 0.030 | 0.028 | 1.29 | 578.93 | 1.29 |

| | | | |
|------------------|--------------|----------------|-------------|
| Peak Flow | 14.26 | 6397.72 | 5.48 |
|------------------|--------------|----------------|-------------|

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

ment Conditions (Basin #1)

| Time | | Rainfall | | | Pervious | | Impervious | | Instant | | Design | |
|-----------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|----------------|----------------------------|----------------|
| Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Flowrate (cfs) | Instant Flowrate (gal/min) | Flowrate (cfs) |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 2 | 10 | 0.004 | 0.033 | 0.033 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 3 | 20 | 0.004 | 0.033 | 0.065 | 0.000 | 0.000 | 0.003 | 0.003 | 0.001 | 0.03 | 13.27 | 0.00 |
| 4 | 30 | 0.004 | 0.033 | 0.098 | 0.000 | 0.000 | 0.012 | 0.010 | 0.002 | 0.11 | 50.32 | 0.01 |
| 5 | 40 | 0.004 | 0.033 | 0.130 | 0.000 | 0.000 | 0.027 | 0.015 | 0.004 | 0.17 | 76.23 | 0.03 |
| 6 | 50 | 0.004 | 0.033 | 0.163 | 0.000 | 0.000 | 0.046 | 0.018 | 0.005 | 0.21 | 94.37 | 0.05 |
| 7 | 60 | 0.004 | 0.033 | 0.195 | 0.000 | 0.000 | 0.067 | 0.021 | 0.005 | 0.24 | 107.58 | 0.08 |
| 8 | 70 | 0.004 | 0.033 | 0.228 | 0.000 | 0.000 | 0.089 | 0.023 | 0.006 | 0.26 | 117.49 | 0.10 |
| 9 | 80 | 0.004 | 0.033 | 0.260 | 0.000 | 0.000 | 0.114 | 0.024 | 0.006 | 0.28 | 125.11 | 0.13 |
| 10 | 90 | 0.005 | 0.041 | 0.301 | 0.000 | 0.000 | 0.146 | 0.032 | 0.008 | 0.37 | 164.66 | 0.16 |
| 11 | 100 | 0.005 | 0.041 | 0.342 | 0.000 | 0.000 | 0.179 | 0.033 | 0.008 | 0.38 | 171.79 | 0.19 |
| 12 | 110 | 0.005 | 0.041 | 0.383 | 0.000 | 0.000 | 0.214 | 0.035 | 0.008 | 0.40 | 177.32 | 0.22 |
| 13 | 120 | 0.005 | 0.041 | 0.423 | 0.000 | 0.000 | 0.249 | 0.035 | 0.009 | 0.40 | 181.69 | 0.25 |
| 14 | 130 | 0.005 | 0.041 | 0.464 | 0.000 | 0.000 | 0.285 | 0.036 | 0.009 | 0.41 | 185.22 | 0.27 |
| 15 | 140 | 0.005 | 0.041 | 0.505 | 0.000 | 0.000 | 0.322 | 0.037 | 0.009 | 0.42 | 188.10 | 0.29 |
| 16 | 150 | 0.005 | 0.041 | 0.545 | 0.000 | 0.000 | 0.359 | 0.037 | 0.009 | 0.42 | 190.49 | 0.31 |
| 17 | 160 | 0.006 | 0.049 | 0.594 | 0.000 | 0.000 | 0.404 | 0.045 | 0.011 | 0.52 | 231.19 | 0.33 |
| 18 | 170 | 0.006 | 0.049 | 0.643 | 0.001 | 0.001 | 0.450 | 0.046 | 0.012 | 0.54 | 244.41 | 0.36 |
| 19 | 180 | 0.006 | 0.049 | 0.692 | 0.003 | 0.002 | 0.496 | 0.046 | 0.013 | 0.60 | 270.43 | 0.39 |
| 20 | 190 | 0.006 | 0.049 | 0.741 | 0.007 | 0.004 | 0.542 | 0.046 | 0.014 | 0.66 | 295.06 | 0.43 |
| 21 | 200 | 0.006 | 0.049 | 0.790 | 0.012 | 0.005 | 0.588 | 0.046 | 0.015 | 0.71 | 318.38 | 0.47 |
| 22 | 210 | 0.006 | 0.049 | 0.838 | 0.018 | 0.006 | 0.635 | 0.047 | 0.016 | 0.76 | 340.50 | 0.50 |
| 23 | 220 | 0.007 | 0.057 | 0.895 | 0.027 | 0.009 | 0.690 | 0.055 | 0.020 | 0.94 | 423.74 | 0.56 |
| 24 | 230 | 0.007 | 0.057 | 0.952 | 0.038 | 0.011 | 0.745 | 0.055 | 0.022 | 1.00 | 450.75 | 0.62 |
| 25 | 240 | 0.007 | 0.057 | 1.009 | 0.050 | 0.012 | 0.800 | 0.055 | 0.023 | 1.06 | 476.28 | 0.68 |
| 26 | 250 | 0.007 | 0.057 | 1.066 | 0.064 | 0.014 | 0.855 | 0.055 | 0.024 | 1.12 | 500.47 | 0.74 |
| 27 | 260 | 0.007 | 0.057 | 1.123 | 0.079 | 0.015 | 0.911 | 0.055 | 0.025 | 1.17 | 523.40 | 0.80 |
| 28 | 270 | 0.007 | 0.057 | 1.180 | 0.095 | 0.016 | 0.966 | 0.056 | 0.026 | 1.21 | 545.18 | 0.85 |
| 29 | 280 | 0.007 | 0.057 | 1.237 | 0.113 | 0.018 | 1.022 | 0.056 | 0.027 | 1.26 | 565.88 | 0.91 |
| 30 | 290 | 0.008 | 0.065 | 1.302 | 0.135 | 0.022 | 1.086 | 0.064 | 0.032 | 1.49 | 670.79 | 0.98 |
| 31 | 300 | 0.008 | 0.065 | 1.368 | 0.158 | 0.023 | 1.150 | 0.064 | 0.033 | 1.55 | 695.14 | 1.06 |
| 32 | 310 | 0.008 | 0.065 | 1.433 | 0.183 | 0.025 | 1.214 | 0.064 | 0.034 | 1.60 | 718.20 | 1.13 |
| 33 | 320 | 0.008 | 0.065 | 1.498 | 0.209 | 0.026 | 1.278 | 0.064 | 0.035 | 1.65 | 740.07 | 1.21 |
| 34 | 330 | 0.008 | 0.065 | 1.563 | 0.236 | 0.027 | 1.342 | 0.064 | 0.036 | 1.70 | 760.82 | 1.27 |
| 35 | 340 | 0.008 | 0.065 | 1.628 | 0.264 | 0.029 | 1.406 | 0.064 | 0.037 | 1.74 | 780.55 | 1.34 |
| 36 | 350 | 0.01 | 0.081 | 1.709 | 0.302 | 0.037 | 1.487 | 0.080 | 0.048 | 2.23 | 1001.96 | 1.43 |
| 37 | 360 | 0.01 | 0.081 | 1.791 | 0.341 | 0.039 | 1.567 | 0.080 | 0.049 | 2.29 | 1029.53 | 1.56 |
| 38 | 370 | 0.01 | 0.081 | 1.872 | 0.381 | 0.041 | 1.648 | 0.081 | 0.050 | 2.35 | 1055.50 | 1.67 |
| 39 | 380 | 0.01 | 0.081 | 1.954 | 0.423 | 0.042 | 1.728 | 0.081 | 0.052 | 2.41 | 1079.98 | 1.77 |
| 40 | 390 | 0.01 | 0.081 | 2.035 | 0.467 | 0.044 | 1.809 | 0.081 | 0.053 | 2.46 | 1103.10 | 1.87 |
| 41 | 400 | 0.01 | 0.081 | 2.116 | 0.512 | 0.045 | 1.890 | 0.081 | 0.054 | 2.51 | 1124.94 | 1.96 |
| 42 | 410 | 0.013 | 0.106 | 2.222 | 0.572 | 0.060 | 1.995 | 0.105 | 0.071 | 3.33 | 1493.16 | 2.10 |
| 43 | 420 | 0.013 | 0.106 | 2.328 | 0.635 | 0.062 | 2.100 | 0.105 | 0.073 | 3.40 | 1525.72 | 2.29 |
| 44 | 430 | 0.013 | 0.106 | 2.434 | 0.699 | 0.064 | 2.205 | 0.105 | 0.074 | 3.47 | 1556.12 | 2.45 |
| 45 | 440 | 0.018 | 0.147 | 2.580 | 0.791 | 0.092 | 2.351 | 0.146 | 0.105 | 4.90 | 2201.17 | 2.71 |

| | | | | | | | | | | | | |
|----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|------|
| 46 | 450 | 0.018 | 0.147 | 2.727 | 0.886 | 0.095 | 2.496 | 0.146 | 0.108 | 5.02 | 2250.97 | 3.04 |
| 47 | 460 | 0.034 | 0.277 | 3.004 | 1.074 | 0.187 | 2.772 | 0.276 | 0.209 | 9.74 | 4373.26 | 3.67 |
| 48 | 470 | 0.054 | 0.440 | 3.443 | 1.388 | 0.315 | 3.210 | 0.438 | 0.345 | 16.10 | 7223.63 | 5.03 |
| 49 | 480 | 0.027 | 0.220 | 3.663 | 1.553 | 0.164 | 3.429 | 0.219 | 0.178 | 8.29 | 3719.83 | 6.08 |
| 50 | 490 | 0.018 | 0.147 | 3.810 | 1.664 | 0.112 | 3.575 | 0.146 | 0.120 | 5.60 | 2514.67 | 6.21 |
| 51 | 500 | 0.013 | 0.106 | 3.915 | 1.746 | 0.082 | 3.681 | 0.106 | 0.088 | 4.08 | 1832.16 | 6.01 |
| 52 | 510 | 0.013 | 0.106 | 4.021 | 1.829 | 0.082 | 3.786 | 0.106 | 0.088 | 4.11 | 1844.83 | 5.73 |
| 53 | 520 | 0.013 | 0.106 | 4.127 | 1.912 | 0.083 | 3.892 | 0.106 | 0.089 | 4.14 | 1856.89 | 5.49 |
| 54 | 530 | 0.009 | 0.073 | 4.200 | 1.970 | 0.058 | 3.965 | 0.073 | 0.062 | 2.88 | 1292.29 | 5.20 |
| 55 | 540 | 0.009 | 0.073 | 4.274 | 2.028 | 0.058 | 4.038 | 0.073 | 0.062 | 2.89 | 1297.61 | 4.86 |
| 56 | 550 | 0.009 | 0.073 | 4.347 | 2.087 | 0.059 | 4.111 | 0.073 | 0.062 | 2.90 | 1302.75 | 4.57 |
| 57 | 560 | 0.009 | 0.073 | 4.420 | 2.146 | 0.059 | 4.184 | 0.073 | 0.062 | 2.91 | 1307.73 | 4.33 |
| 58 | 570 | 0.009 | 0.073 | 4.493 | 2.205 | 0.059 | 4.257 | 0.073 | 0.063 | 2.92 | 1312.54 | 4.12 |
| 59 | 580 | 0.009 | 0.073 | 4.567 | 2.265 | 0.060 | 4.330 | 0.073 | 0.063 | 2.93 | 1317.21 | 3.95 |
| 60 | 590 | 0.009 | 0.073 | 4.640 | 2.325 | 0.060 | 4.404 | 0.073 | 0.063 | 2.95 | 1321.73 | 3.80 |
| 61 | 600 | 0.009 | 0.073 | 4.713 | 2.385 | 0.060 | 4.477 | 0.073 | 0.063 | 2.95 | 1326.11 | 3.68 |
| 62 | 610 | 0.009 | 0.073 | 4.786 | 2.445 | 0.060 | 4.550 | 0.073 | 0.064 | 2.96 | 1330.35 | 3.57 |
| 63 | 620 | 0.009 | 0.073 | 4.860 | 2.506 | 0.061 | 4.623 | 0.073 | 0.064 | 2.97 | 1334.47 | 3.48 |
| 64 | 630 | 0.009 | 0.073 | 4.933 | 2.567 | 0.061 | 4.696 | 0.073 | 0.064 | 2.98 | 1338.46 | 3.41 |
| 65 | 640 | 0.009 | 0.073 | 5.006 | 2.628 | 0.061 | 4.769 | 0.073 | 0.064 | 2.99 | 1342.33 | 3.35 |
| 66 | 650 | 0.007 | 0.057 | 5.063 | 2.676 | 0.048 | 4.826 | 0.057 | 0.050 | 2.33 | 1046.64 | 3.25 |
| 67 | 660 | 0.007 | 0.057 | 5.120 | 2.724 | 0.048 | 4.883 | 0.057 | 0.050 | 2.34 | 1048.86 | 3.11 |
| 68 | 670 | 0.007 | 0.057 | 5.177 | 2.772 | 0.048 | 4.940 | 0.057 | 0.050 | 2.34 | 1051.03 | 3.00 |
| 69 | 680 | 0.007 | 0.057 | 5.234 | 2.820 | 0.048 | 4.997 | 0.057 | 0.050 | 2.35 | 1053.15 | 2.90 |
| 70 | 690 | 0.007 | 0.057 | 5.291 | 2.868 | 0.048 | 5.054 | 0.057 | 0.050 | 2.35 | 1055.23 | 2.82 |
| 71 | 700 | 0.007 | 0.057 | 5.348 | 2.917 | 0.048 | 5.111 | 0.057 | 0.051 | 2.36 | 1057.26 | 2.75 |
| 72 | 710 | 0.007 | 0.057 | 5.405 | 2.965 | 0.049 | 5.168 | 0.057 | 0.051 | 2.36 | 1059.24 | 2.69 |
| 73 | 720 | 0.007 | 0.057 | 5.462 | 3.014 | 0.049 | 5.224 | 0.057 | 0.051 | 2.36 | 1061.18 | 2.65 |
| 74 | 730 | 0.007 | 0.057 | 5.519 | 3.063 | 0.049 | 5.281 | 0.057 | 0.051 | 2.37 | 1063.08 | 2.61 |
| 75 | 740 | 0.007 | 0.057 | 5.576 | 3.112 | 0.049 | 5.338 | 0.057 | 0.051 | 2.37 | 1064.94 | 2.57 |
| 76 | 750 | 0.007 | 0.057 | 5.633 | 3.161 | 0.049 | 5.395 | 0.057 | 0.051 | 2.38 | 1066.76 | 2.54 |
| 77 | 760 | 0.007 | 0.057 | 5.690 | 3.210 | 0.049 | 5.452 | 0.057 | 0.051 | 2.38 | 1068.54 | 2.52 |
| 78 | 770 | 0.006 | 0.049 | 5.739 | 3.252 | 0.042 | 5.501 | 0.049 | 0.044 | 2.04 | 917.28 | 2.47 |
| 79 | 780 | 0.006 | 0.049 | 5.788 | 3.294 | 0.042 | 5.550 | 0.049 | 0.044 | 2.05 | 918.54 | 2.41 |
| 80 | 790 | 0.006 | 0.049 | 5.836 | 3.337 | 0.042 | 5.598 | 0.049 | 0.044 | 2.05 | 919.77 | 2.36 |
| 81 | 800 | 0.006 | 0.049 | 5.885 | 3.379 | 0.042 | 5.647 | 0.049 | 0.044 | 2.05 | 920.99 | 2.31 |
| 82 | 810 | 0.006 | 0.049 | 5.934 | 3.422 | 0.043 | 5.696 | 0.049 | 0.044 | 2.05 | 922.18 | 2.27 |
| 83 | 820 | 0.006 | 0.049 | 5.983 | 3.464 | 0.043 | 5.745 | 0.049 | 0.044 | 2.06 | 923.35 | 2.24 |
| 84 | 830 | 0.006 | 0.049 | 6.032 | 3.507 | 0.043 | 5.794 | 0.049 | 0.044 | 2.06 | 924.50 | 2.22 |
| 85 | 840 | 0.006 | 0.049 | 6.081 | 3.550 | 0.043 | 5.842 | 0.049 | 0.044 | 2.06 | 925.63 | 2.19 |
| 86 | 850 | 0.006 | 0.049 | 6.129 | 3.592 | 0.043 | 5.891 | 0.049 | 0.044 | 2.06 | 926.74 | 2.17 |
| 87 | 860 | 0.006 | 0.049 | 6.178 | 3.635 | 0.043 | 5.940 | 0.049 | 0.044 | 2.07 | 927.83 | 2.16 |
| 88 | 870 | 0.006 | 0.049 | 6.227 | 3.678 | 0.043 | 5.989 | 0.049 | 0.044 | 2.07 | 928.91 | 2.14 |
| 89 | 880 | 0.006 | 0.049 | 6.276 | 3.721 | 0.043 | 6.038 | 0.049 | 0.044 | 2.07 | 929.96 | 2.13 |
| 90 | 890 | 0.005 | 0.041 | 6.317 | 3.757 | 0.036 | 6.078 | 0.041 | 0.037 | 1.73 | 775.76 | 2.10 |
| 91 | 900 | 0.005 | 0.041 | 6.357 | 3.793 | 0.036 | 6.119 | 0.041 | 0.037 | 1.73 | 776.47 | 2.05 |
| 92 | 910 | 0.005 | 0.041 | 6.398 | 3.829 | 0.036 | 6.159 | 0.041 | 0.037 | 1.73 | 777.17 | 2.00 |
| 93 | 920 | 0.005 | 0.041 | 6.439 | 3.865 | 0.036 | 6.200 | 0.041 | 0.037 | 1.73 | 777.86 | 1.96 |
| 94 | 930 | 0.005 | 0.041 | 6.479 | 3.901 | 0.036 | 6.241 | 0.041 | 0.037 | 1.73 | 778.55 | 1.93 |
| 95 | 940 | 0.005 | 0.041 | 6.520 | 3.937 | 0.036 | 6.281 | 0.041 | 0.037 | 1.74 | 779.22 | 1.90 |
| 96 | 950 | 0.005 | 0.041 | 6.561 | 3.973 | 0.036 | 6.322 | 0.041 | 0.037 | 1.74 | 779.88 | 1.88 |
| 97 | 960 | 0.005 | 0.041 | 6.602 | 4.009 | 0.036 | 6.363 | 0.041 | 0.037 | 1.74 | 780.53 | 1.86 |
| 98 | 970 | 0.005 | 0.041 | 6.642 | 4.046 | 0.036 | 6.403 | 0.041 | 0.037 | 1.74 | 781.18 | 1.84 |

| | | | | | | | | | | | | |
|-----|------|-------|-------|-------|-------|-------|-------|-------|-------|------|--------|------|
| 99 | 980 | 0.005 | 0.041 | 6.683 | 4.082 | 0.036 | 6.444 | 0.041 | 0.037 | 1.74 | 781.82 | 1.82 |
| 100 | 990 | 0.005 | 0.041 | 6.724 | 4.118 | 0.036 | 6.485 | 0.041 | 0.037 | 1.74 | 782.44 | 1.81 |
| 101 | 1000 | 0.005 | 0.041 | 6.764 | 4.155 | 0.036 | 6.525 | 0.041 | 0.037 | 1.74 | 783.06 | 1.80 |
| 102 | 1010 | 0.004 | 0.033 | 6.797 | 4.184 | 0.029 | 6.558 | 0.033 | 0.030 | 1.40 | 626.89 | 1.77 |
| 103 | 1020 | 0.004 | 0.033 | 6.829 | 4.213 | 0.029 | 6.591 | 0.033 | 0.030 | 1.40 | 627.28 | 1.71 |
| 104 | 1030 | 0.004 | 0.033 | 6.862 | 4.242 | 0.029 | 6.623 | 0.033 | 0.030 | 1.40 | 627.66 | 1.67 |
| 105 | 1040 | 0.004 | 0.033 | 6.895 | 4.271 | 0.029 | 6.656 | 0.033 | 0.030 | 1.40 | 628.04 | 1.63 |
| 106 | 1050 | 0.004 | 0.033 | 6.927 | 4.300 | 0.029 | 6.688 | 0.033 | 0.030 | 1.40 | 628.41 | 1.59 |
| 107 | 1060 | 0.004 | 0.033 | 6.960 | 4.330 | 0.029 | 6.721 | 0.033 | 0.030 | 1.40 | 628.79 | 1.57 |
| 108 | 1070 | 0.004 | 0.033 | 6.992 | 4.359 | 0.029 | 6.753 | 0.033 | 0.030 | 1.40 | 629.15 | 1.54 |
| 109 | 1080 | 0.004 | 0.033 | 7.025 | 4.388 | 0.029 | 6.786 | 0.033 | 0.030 | 1.40 | 629.52 | 1.52 |
| 110 | 1090 | 0.004 | 0.033 | 7.057 | 4.417 | 0.029 | 6.818 | 0.033 | 0.030 | 1.40 | 629.88 | 1.50 |
| 111 | 1100 | 0.004 | 0.033 | 7.090 | 4.447 | 0.029 | 6.851 | 0.033 | 0.030 | 1.40 | 630.23 | 1.49 |
| 112 | 1110 | 0.004 | 0.033 | 7.123 | 4.476 | 0.029 | 6.883 | 0.033 | 0.030 | 1.41 | 630.58 | 1.48 |
| 113 | 1120 | 0.004 | 0.033 | 7.155 | 4.505 | 0.029 | 6.916 | 0.033 | 0.030 | 1.41 | 630.93 | 1.47 |
| 114 | 1130 | 0.004 | 0.033 | 7.188 | 4.535 | 0.029 | 6.948 | 0.033 | 0.030 | 1.41 | 631.28 | 1.46 |
| 115 | 1140 | 0.004 | 0.033 | 7.220 | 4.564 | 0.029 | 6.981 | 0.033 | 0.030 | 1.41 | 631.62 | 1.45 |
| 116 | 1150 | 0.004 | 0.033 | 7.253 | 4.594 | 0.029 | 7.013 | 0.033 | 0.030 | 1.41 | 631.96 | 1.44 |
| 117 | 1160 | 0.004 | 0.033 | 7.285 | 4.623 | 0.029 | 7.046 | 0.033 | 0.030 | 1.41 | 632.29 | 1.44 |
| 118 | 1170 | 0.004 | 0.033 | 7.318 | 4.653 | 0.029 | 7.079 | 0.033 | 0.030 | 1.41 | 632.62 | 1.43 |
| 119 | 1180 | 0.004 | 0.033 | 7.350 | 4.682 | 0.029 | 7.111 | 0.033 | 0.030 | 1.41 | 632.95 | 1.43 |
| 120 | 1190 | 0.004 | 0.033 | 7.383 | 4.712 | 0.030 | 7.144 | 0.033 | 0.030 | 1.41 | 633.27 | 1.43 |
| 121 | 1200 | 0.004 | 0.033 | 7.416 | 4.741 | 0.030 | 7.176 | 0.033 | 0.030 | 1.41 | 633.60 | 1.43 |
| 122 | 1210 | 0.004 | 0.033 | 7.448 | 4.771 | 0.030 | 7.209 | 0.033 | 0.030 | 1.41 | 633.91 | 1.42 |
| 123 | 1220 | 0.004 | 0.033 | 7.481 | 4.800 | 0.030 | 7.241 | 0.033 | 0.030 | 1.41 | 634.23 | 1.42 |
| 124 | 1230 | 0.004 | 0.033 | 7.513 | 4.830 | 0.030 | 7.274 | 0.033 | 0.030 | 1.41 | 634.54 | 1.42 |
| 125 | 1240 | 0.004 | 0.033 | 7.546 | 4.859 | 0.030 | 7.306 | 0.033 | 0.030 | 1.41 | 634.85 | 1.42 |
| 126 | 1250 | 0.004 | 0.033 | 7.578 | 4.889 | 0.030 | 7.339 | 0.033 | 0.030 | 1.42 | 635.16 | 1.42 |
| 127 | 1260 | 0.004 | 0.033 | 7.611 | 4.919 | 0.030 | 7.371 | 0.033 | 0.030 | 1.42 | 635.46 | 1.42 |
| 128 | 1270 | 0.004 | 0.033 | 7.643 | 4.948 | 0.030 | 7.404 | 0.033 | 0.030 | 1.42 | 635.76 | 1.42 |
| 129 | 1280 | 0.004 | 0.033 | 7.676 | 4.978 | 0.030 | 7.436 | 0.033 | 0.030 | 1.42 | 636.06 | 1.42 |
| 130 | 1290 | 0.004 | 0.033 | 7.709 | 5.008 | 0.030 | 7.469 | 0.033 | 0.030 | 1.42 | 636.35 | 1.42 |
| 131 | 1300 | 0.004 | 0.033 | 7.741 | 5.037 | 0.030 | 7.502 | 0.033 | 0.030 | 1.42 | 636.64 | 1.42 |
| 132 | 1310 | 0.004 | 0.033 | 7.774 | 5.067 | 0.030 | 7.534 | 0.033 | 0.030 | 1.42 | 636.93 | 1.42 |
| 133 | 1320 | 0.004 | 0.033 | 7.806 | 5.097 | 0.030 | 7.567 | 0.033 | 0.030 | 1.42 | 637.21 | 1.42 |
| 134 | 1330 | 0.004 | 0.033 | 7.839 | 5.127 | 0.030 | 7.599 | 0.033 | 0.030 | 1.42 | 637.50 | 1.42 |
| 135 | 1340 | 0.004 | 0.033 | 7.871 | 5.156 | 0.030 | 7.632 | 0.033 | 0.030 | 1.42 | 637.78 | 1.42 |
| 136 | 1350 | 0.004 | 0.033 | 7.904 | 5.186 | 0.030 | 7.664 | 0.033 | 0.030 | 1.42 | 638.06 | 1.42 |
| 137 | 1360 | 0.004 | 0.033 | 7.937 | 5.216 | 0.030 | 7.697 | 0.033 | 0.030 | 1.42 | 638.33 | 1.42 |
| 138 | 1370 | 0.004 | 0.033 | 7.969 | 5.246 | 0.030 | 7.729 | 0.033 | 0.031 | 1.42 | 638.60 | 1.42 |
| 139 | 1380 | 0.004 | 0.033 | 8.002 | 5.276 | 0.030 | 7.762 | 0.033 | 0.031 | 1.42 | 638.87 | 1.42 |
| 140 | 1390 | 0.004 | 0.033 | 8.034 | 5.306 | 0.030 | 7.794 | 0.033 | 0.031 | 1.42 | 639.14 | 1.42 |
| 141 | 1400 | 0.004 | 0.033 | 8.067 | 5.336 | 0.030 | 7.827 | 0.033 | 0.031 | 1.42 | 639.40 | 1.42 |
| 142 | 1410 | 0.004 | 0.033 | 8.099 | 5.366 | 0.030 | 7.859 | 0.033 | 0.031 | 1.43 | 639.67 | 1.42 |
| 143 | 1420 | 0.004 | 0.033 | 8.132 | 5.395 | 0.030 | 7.892 | 0.033 | 0.031 | 1.43 | 639.93 | 1.42 |
| 144 | 1430 | 0.004 | 0.033 | 8.164 | 5.425 | 0.030 | 7.925 | 0.033 | 0.031 | 1.43 | 640.18 | 1.42 |
| 145 | 1440 | 0.004 | 0.033 | 8.197 | 5.455 | 0.030 | 7.957 | 0.033 | 0.031 | 1.43 | 640.44 | 1.42 |

| | | | |
|------------------|--------------|----------------|-------------|
| Peak Flow | 16.10 | 7223.63 | 6.21 |
|------------------|--------------|----------------|-------------|

Client: Mendocino Solid Waste Management Authority Date: August 4, 2014
 Project: Tranfer Station EIR Proj. #: 8411065
 Prepared by: BB Checked by: DS

Santa Barbara Urban Hydrograph Method

Purpose:

Determine the stormwater runoff volume required for: Post-Development Conditions (Basin #2)

Assumptions:

1. Runoff volume is computed with the Santa Barbara Urban Hydrograph Method (SBUH)
2. 2-year/ 24-hour design storm event
3. 25-year/ 24-hour design storm event
4. 50-year/ 24-hour design storm event
5. 100-year/ 24-hour design storm event
6. Total Basin Area 9.3 acres
7. Design storm precipitation depths obtained using PF Data Server, lat39.4126 long-123.7548
8. Areas used for subbasins estimated using proposed site development plan
9. Slopes for time of concentration calculation assumed to be 6% based on LACO field study dated 6/7/2012
10. Soil assumed to be of soil group D, with an average antecedent soil moisture condition
11. Ground coverage for pervious area assumed to be woods in good condition
12. Drainage length assumed to originate from the center of the line which splits the parcel from the southwest corner to the northeast corner, and terminates at the drainage basin
13. Manning roughness coefficient assumed to be 0.6, which is the middle range for woods underbrush ($0.4 < n < 0.8$)
14. Cuve numbers determined using TR-55 Documentation

Methodology:

1. Determine the runoff volume for the design storm event using the SBUH method

References:

1. Urban Hydrology for Small Watersheds, Technical Release 55
Natural Resource Conservation Service, USDA 1986
2. Handbook of Hydrology (1993), Maidment, D.
McGraw-Hill Publishing, New York, NY
3. Open Channel Hydraulics
Chow, V.T. 1959, McGraw-Hill Book Company
4. NOAA Atlas 14, Volume 6, Version 2
http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_printpage.html

Client: Mendocino Solid Waste Management Authority Date: August 4, 2014
 Project: Tranfer Station EIR Proj. # : 8411065
 Prepared by: BB Checked by: DS

Santa Barbara Urban Hydrograph Method

Input Variables:

| | | | |
|--------------------------|---|------|---|
| Basin Number | = | 2 | Post-Development Conditions (Basin #2) |
| Total Area | = | 9.33 | ac |
| Precipitation (Quantity) | = | 3.75 | in (2-yr. 24-hr event) |
| Precipitation (Quantity) | = | 6.69 | in (25-yr. 24-hr event) |
| Precipitation (Quantity) | = | 7.43 | in (50-yr. 24-hr event) |
| Precipitation (Quantity) | = | 8.14 | in (100-yr. 24-hr event) |
| Time Step | = | 10 | min |

Pervious Area:

| | | | |
|------|---|------|--------------|
| Area | = | 8.12 | ac |
| CN | = | 77 | |
| S | = | 2.99 | (1000/CN)-10 |
| 0.2S | = | 0.60 | |

Impervious Area:

| | | | |
|------|---|------|--------------|
| Area | = | 1.2 | ac |
| CN | = | 98 | |
| S | = | 0.20 | (1000/CN)-10 |
| 0.2S | = | 0.04 | |

Time of Concentration:

| | | | |
|-----------------|---|-------|-------|
| Drainage Length | = | 300 | ft |
| Average Slope | = | 0.060 | ft/ft |
| Manning's n | = | 0.600 | |

$T_c = 52.2 \text{ min}$ (minimum of 5 minutes)

Routing Constant:

$w = 0.087 \text{ dt}/(2T_c+dt)$

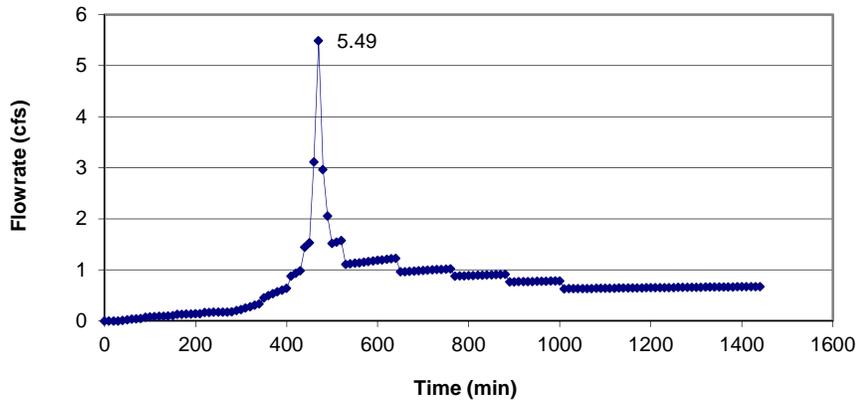
Client: Mendocino Solid Waste Management Authority
Project: Tranfer Station EIR
Prepared by: BB

Date: August 4, 2014
Proj. # : 8411065
Checked by: DS

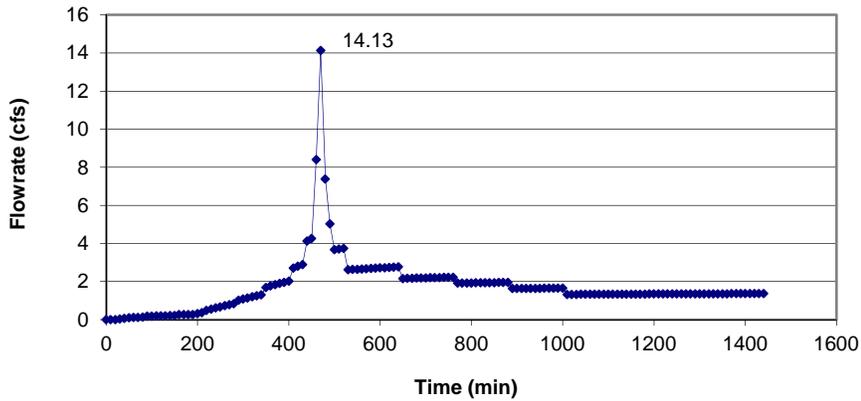
Santa Barbara Urban Hydrograph Method

Results: Post-Development Conditions (Basin #2)

**MSWMA Transfer Station
(Stormwater Quantity - 2-yr,24-hr)**



**MSWMA Transfer Station
(Stormwater Quantity - 25-yr,24-hr)**



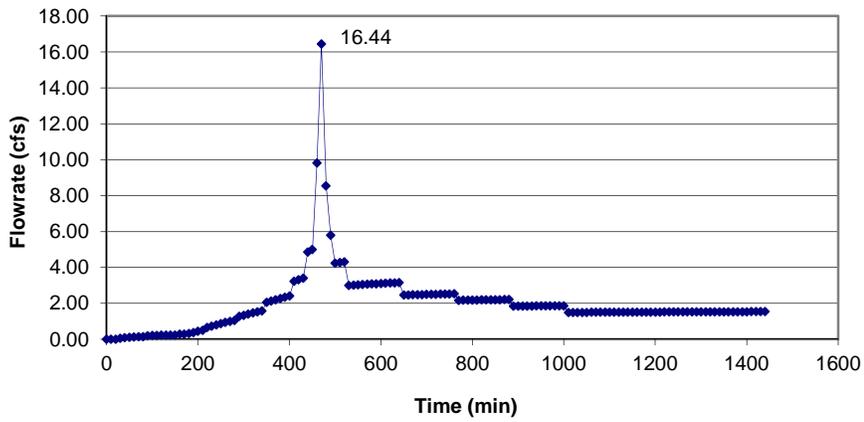
Client: Mendocino Solid Waste Management Authority
Project: Tranfer Station EIR
Prepared by: BB

Date: August 4, 2014
Proj. # : 8411065
Checked by: DS

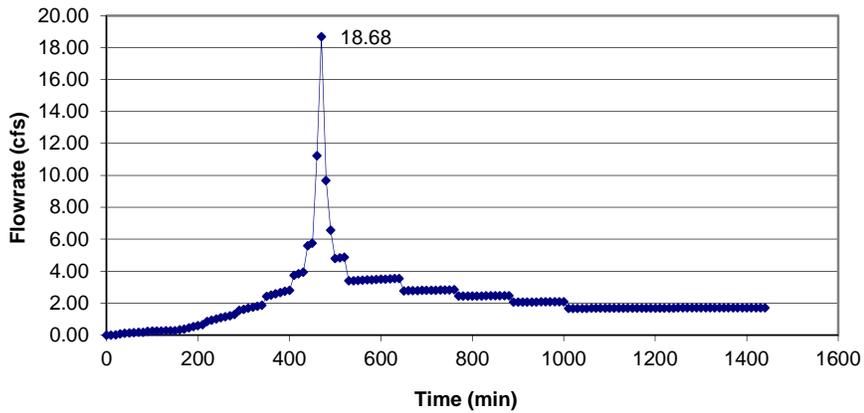
Santa Barbara Urban Hydrograph Method

Results: Post-Development Conditions (Basin #2)

**MSWMA Transfer Station
(Stormwater Quantity - 50-yr,24-hr)**



**MSWMA Transfer Station
(Stormwater Quantity - 100-yr,24-hr)**



Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 2 | 10 | 0.004 | 0.015 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 3 | 20 | 0.004 | 0.015 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 4 | 30 | 0.004 | 0.015 | 0.045 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.28 | 0.00 |
| 5 | 40 | 0.004 | 0.015 | 0.060 | 0.000 | 0.000 | 0.002 | 0.002 | 0.000 | 0.01 | 5.14 | 0.00 |
| 6 | 50 | 0.004 | 0.015 | 0.075 | 0.000 | 0.000 | 0.005 | 0.003 | 0.000 | 0.02 | 10.70 | 0.00 |
| 7 | 60 | 0.004 | 0.015 | 0.090 | 0.000 | 0.000 | 0.010 | 0.005 | 0.001 | 0.03 | 15.27 | 0.01 |
| 8 | 70 | 0.004 | 0.015 | 0.105 | 0.000 | 0.000 | 0.015 | 0.006 | 0.001 | 0.04 | 19.07 | 0.01 |
| 9 | 80 | 0.004 | 0.015 | 0.120 | 0.000 | 0.000 | 0.022 | 0.007 | 0.001 | 0.05 | 22.27 | 0.02 |
| 10 | 90 | 0.005 | 0.019 | 0.139 | 0.000 | 0.000 | 0.032 | 0.010 | 0.001 | 0.07 | 31.61 | 0.03 |
| 11 | 100 | 0.005 | 0.019 | 0.158 | 0.000 | 0.000 | 0.042 | 0.011 | 0.001 | 0.08 | 35.12 | 0.03 |
| 12 | 110 | 0.005 | 0.019 | 0.176 | 0.000 | 0.000 | 0.054 | 0.012 | 0.002 | 0.08 | 38.04 | 0.04 |
| 13 | 120 | 0.005 | 0.019 | 0.195 | 0.000 | 0.000 | 0.066 | 0.012 | 0.002 | 0.09 | 40.51 | 0.05 |
| 14 | 130 | 0.005 | 0.019 | 0.214 | 0.000 | 0.000 | 0.079 | 0.013 | 0.002 | 0.09 | 42.61 | 0.06 |
| 15 | 140 | 0.005 | 0.019 | 0.233 | 0.000 | 0.000 | 0.093 | 0.014 | 0.002 | 0.10 | 44.41 | 0.06 |
| 16 | 150 | 0.005 | 0.019 | 0.251 | 0.000 | 0.000 | 0.107 | 0.014 | 0.002 | 0.10 | 45.96 | 0.07 |
| 17 | 160 | 0.006 | 0.023 | 0.274 | 0.000 | 0.000 | 0.124 | 0.017 | 0.002 | 0.13 | 56.93 | 0.08 |
| 18 | 170 | 0.006 | 0.023 | 0.296 | 0.000 | 0.000 | 0.142 | 0.018 | 0.002 | 0.13 | 58.59 | 0.09 |
| 19 | 180 | 0.006 | 0.023 | 0.319 | 0.000 | 0.000 | 0.160 | 0.018 | 0.002 | 0.13 | 60.02 | 0.10 |
| 20 | 190 | 0.006 | 0.023 | 0.341 | 0.000 | 0.000 | 0.179 | 0.019 | 0.002 | 0.14 | 61.26 | 0.10 |
| 21 | 200 | 0.006 | 0.023 | 0.364 | 0.000 | 0.000 | 0.198 | 0.019 | 0.002 | 0.14 | 62.34 | 0.11 |
| 22 | 210 | 0.006 | 0.023 | 0.386 | 0.000 | 0.000 | 0.217 | 0.019 | 0.002 | 0.14 | 63.29 | 0.11 |
| 23 | 220 | 0.007 | 0.026 | 0.413 | 0.000 | 0.000 | 0.240 | 0.023 | 0.003 | 0.17 | 74.89 | 0.12 |
| 24 | 230 | 0.007 | 0.026 | 0.439 | 0.000 | 0.000 | 0.263 | 0.023 | 0.003 | 0.17 | 75.88 | 0.13 |
| 25 | 240 | 0.007 | 0.026 | 0.465 | 0.000 | 0.000 | 0.286 | 0.023 | 0.003 | 0.17 | 76.75 | 0.14 |
| 26 | 250 | 0.007 | 0.026 | 0.491 | 0.000 | 0.000 | 0.310 | 0.024 | 0.003 | 0.17 | 77.51 | 0.14 |
| 27 | 260 | 0.007 | 0.026 | 0.518 | 0.000 | 0.000 | 0.334 | 0.024 | 0.003 | 0.17 | 78.18 | 0.15 |
| 28 | 270 | 0.007 | 0.026 | 0.544 | 0.000 | 0.000 | 0.358 | 0.024 | 0.003 | 0.18 | 78.78 | 0.15 |
| 29 | 280 | 0.007 | 0.026 | 0.570 | 0.000 | 0.000 | 0.382 | 0.024 | 0.003 | 0.18 | 79.31 | 0.16 |
| 30 | 290 | 0.008 | 0.030 | 0.600 | 0.000 | 0.000 | 0.410 | 0.028 | 0.004 | 0.20 | 91.28 | 0.16 |
| 31 | 300 | 0.008 | 0.030 | 0.630 | 0.000 | 0.000 | 0.438 | 0.028 | 0.004 | 0.22 | 99.49 | 0.17 |
| 32 | 310 | 0.008 | 0.030 | 0.660 | 0.001 | 0.001 | 0.466 | 0.028 | 0.004 | 0.25 | 112.85 | 0.18 |
| 33 | 320 | 0.008 | 0.030 | 0.690 | 0.003 | 0.001 | 0.494 | 0.028 | 0.005 | 0.28 | 125.78 | 0.20 |
| 34 | 330 | 0.008 | 0.030 | 0.720 | 0.005 | 0.002 | 0.522 | 0.028 | 0.005 | 0.31 | 138.30 | 0.21 |
| 35 | 340 | 0.008 | 0.030 | 0.750 | 0.007 | 0.003 | 0.551 | 0.028 | 0.006 | 0.34 | 150.43 | 0.23 |
| 36 | 350 | 0.01 | 0.038 | 0.788 | 0.011 | 0.004 | 0.586 | 0.036 | 0.008 | 0.46 | 204.54 | 0.26 |
| 37 | 360 | 0.01 | 0.038 | 0.825 | 0.016 | 0.005 | 0.622 | 0.036 | 0.009 | 0.50 | 222.25 | 0.30 |
| 38 | 370 | 0.01 | 0.038 | 0.863 | 0.022 | 0.005 | 0.658 | 0.036 | 0.009 | 0.53 | 239.30 | 0.34 |
| 39 | 380 | 0.01 | 0.038 | 0.900 | 0.028 | 0.006 | 0.694 | 0.036 | 0.010 | 0.57 | 255.75 | 0.37 |
| 40 | 390 | 0.01 | 0.038 | 0.938 | 0.035 | 0.007 | 0.730 | 0.036 | 0.011 | 0.61 | 271.61 | 0.41 |
| 41 | 400 | 0.01 | 0.038 | 0.975 | 0.042 | 0.008 | 0.767 | 0.036 | 0.011 | 0.64 | 286.93 | 0.45 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 42 | 410 | 0.013 | 0.049 | 1.024 | 0.053 | 0.011 | 0.814 | 0.047 | 0.016 | 0.88 | 395.04 | 0.50 |
| 43 | 420 | 0.013 | 0.049 | 1.073 | 0.065 | 0.012 | 0.861 | 0.047 | 0.017 | 0.93 | 418.94 | 0.57 |
| 44 | 430 | 0.013 | 0.049 | 1.121 | 0.078 | 0.013 | 0.909 | 0.047 | 0.017 | 0.98 | 441.82 | 0.64 |
| 45 | 440 | 0.018 | 0.068 | 1.189 | 0.098 | 0.020 | 0.975 | 0.066 | 0.026 | 1.44 | 647.75 | 0.74 |
| 46 | 450 | 0.018 | 0.068 | 1.256 | 0.119 | 0.021 | 1.041 | 0.066 | 0.027 | 1.53 | 687.39 | 0.87 |
| 47 | 460 | 0.034 | 0.128 | 1.384 | 0.164 | 0.045 | 1.166 | 0.125 | 0.055 | 3.12 | 1398.90 | 1.13 |
| 48 | 470 | 0.054 | 0.203 | 1.586 | 0.246 | 0.082 | 1.365 | 0.199 | 0.097 | 5.49 | 2464.49 | 1.68 |
| 49 | 480 | 0.027 | 0.101 | 1.688 | 0.291 | 0.046 | 1.465 | 0.100 | 0.053 | 2.97 | 1332.00 | 2.13 |
| 50 | 490 | 0.018 | 0.068 | 1.755 | 0.323 | 0.032 | 1.532 | 0.067 | 0.036 | 2.05 | 921.60 | 2.19 |
| 51 | 500 | 0.013 | 0.049 | 1.804 | 0.347 | 0.024 | 1.580 | 0.048 | 0.027 | 1.52 | 681.44 | 2.12 |
| 52 | 510 | 0.013 | 0.049 | 1.853 | 0.371 | 0.024 | 1.628 | 0.048 | 0.027 | 1.55 | 694.21 | 2.02 |
| 53 | 520 | 0.013 | 0.049 | 1.901 | 0.396 | 0.025 | 1.677 | 0.048 | 0.028 | 1.57 | 706.54 | 1.94 |
| 54 | 530 | 0.009 | 0.034 | 1.935 | 0.414 | 0.018 | 1.710 | 0.033 | 0.020 | 1.11 | 496.15 | 1.83 |
| 55 | 540 | 0.009 | 0.034 | 1.969 | 0.431 | 0.018 | 1.743 | 0.033 | 0.020 | 1.12 | 501.72 | 1.71 |
| 56 | 550 | 0.009 | 0.034 | 2.003 | 0.450 | 0.018 | 1.777 | 0.033 | 0.020 | 1.13 | 507.17 | 1.61 |
| 57 | 560 | 0.009 | 0.034 | 2.036 | 0.468 | 0.018 | 1.810 | 0.033 | 0.020 | 1.14 | 512.49 | 1.52 |
| 58 | 570 | 0.009 | 0.034 | 2.070 | 0.486 | 0.018 | 1.844 | 0.033 | 0.020 | 1.15 | 517.68 | 1.46 |
| 59 | 580 | 0.009 | 0.034 | 2.104 | 0.505 | 0.019 | 1.877 | 0.033 | 0.021 | 1.16 | 522.77 | 1.41 |
| 60 | 590 | 0.009 | 0.034 | 2.138 | 0.524 | 0.019 | 1.911 | 0.033 | 0.021 | 1.18 | 527.73 | 1.36 |
| 61 | 600 | 0.009 | 0.034 | 2.171 | 0.543 | 0.019 | 1.944 | 0.033 | 0.021 | 1.19 | 532.59 | 1.33 |
| 62 | 610 | 0.009 | 0.034 | 2.205 | 0.562 | 0.019 | 1.978 | 0.033 | 0.021 | 1.20 | 537.34 | 1.31 |
| 63 | 620 | 0.009 | 0.034 | 2.239 | 0.582 | 0.020 | 2.011 | 0.034 | 0.021 | 1.21 | 541.98 | 1.29 |
| 64 | 630 | 0.009 | 0.034 | 2.273 | 0.602 | 0.020 | 2.045 | 0.034 | 0.022 | 1.22 | 546.52 | 1.28 |
| 65 | 640 | 0.009 | 0.034 | 2.306 | 0.622 | 0.020 | 2.078 | 0.034 | 0.022 | 1.23 | 550.97 | 1.27 |
| 66 | 650 | 0.007 | 0.026 | 2.333 | 0.638 | 0.016 | 2.104 | 0.026 | 0.017 | 0.96 | 431.54 | 1.24 |
| 67 | 660 | 0.007 | 0.026 | 2.359 | 0.653 | 0.016 | 2.130 | 0.026 | 0.017 | 0.97 | 434.13 | 1.19 |
| 68 | 670 | 0.007 | 0.026 | 2.385 | 0.669 | 0.016 | 2.156 | 0.026 | 0.017 | 0.97 | 436.67 | 1.15 |
| 69 | 680 | 0.007 | 0.026 | 2.411 | 0.685 | 0.016 | 2.183 | 0.026 | 0.017 | 0.98 | 439.17 | 1.12 |
| 70 | 690 | 0.007 | 0.026 | 2.438 | 0.701 | 0.016 | 2.209 | 0.026 | 0.017 | 0.98 | 441.64 | 1.10 |
| 71 | 700 | 0.007 | 0.026 | 2.464 | 0.718 | 0.016 | 2.235 | 0.026 | 0.018 | 0.99 | 444.06 | 1.08 |
| 72 | 710 | 0.007 | 0.026 | 2.490 | 0.734 | 0.016 | 2.261 | 0.026 | 0.018 | 0.99 | 446.44 | 1.06 |
| 73 | 720 | 0.007 | 0.026 | 2.516 | 0.751 | 0.016 | 2.287 | 0.026 | 0.018 | 1.00 | 448.78 | 1.05 |
| 74 | 730 | 0.007 | 0.026 | 2.543 | 0.767 | 0.017 | 2.313 | 0.026 | 0.018 | 1.01 | 451.09 | 1.04 |
| 75 | 740 | 0.007 | 0.026 | 2.569 | 0.784 | 0.017 | 2.339 | 0.026 | 0.018 | 1.01 | 453.36 | 1.04 |
| 76 | 750 | 0.007 | 0.026 | 2.595 | 0.801 | 0.017 | 2.365 | 0.026 | 0.018 | 1.02 | 455.59 | 1.03 |
| 77 | 760 | 0.007 | 0.026 | 2.621 | 0.817 | 0.017 | 2.391 | 0.026 | 0.018 | 1.02 | 457.79 | 1.03 |
| 78 | 770 | 0.006 | 0.023 | 2.644 | 0.832 | 0.015 | 2.414 | 0.022 | 0.016 | 0.88 | 394.11 | 1.02 |
| 79 | 780 | 0.006 | 0.023 | 2.666 | 0.847 | 0.015 | 2.436 | 0.022 | 0.016 | 0.88 | 395.68 | 0.99 |
| 80 | 790 | 0.006 | 0.023 | 2.689 | 0.861 | 0.015 | 2.458 | 0.022 | 0.016 | 0.89 | 397.23 | 0.97 |
| 81 | 800 | 0.006 | 0.023 | 2.711 | 0.876 | 0.015 | 2.481 | 0.022 | 0.016 | 0.89 | 398.76 | 0.96 |
| 82 | 810 | 0.006 | 0.023 | 2.734 | 0.891 | 0.015 | 2.503 | 0.022 | 0.016 | 0.89 | 400.26 | 0.95 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 83 | 820 | 0.006 | 0.023 | 2.756 | 0.906 | 0.015 | 2.526 | 0.022 | 0.016 | 0.90 | 401.75 | 0.94 |
| 84 | 830 | 0.006 | 0.023 | 2.779 | 0.921 | 0.015 | 2.548 | 0.022 | 0.016 | 0.90 | 403.22 | 0.93 |
| 85 | 840 | 0.006 | 0.023 | 2.801 | 0.936 | 0.015 | 2.570 | 0.022 | 0.016 | 0.90 | 404.66 | 0.92 |
| 86 | 850 | 0.006 | 0.023 | 2.824 | 0.951 | 0.015 | 2.593 | 0.022 | 0.016 | 0.90 | 406.09 | 0.92 |
| 87 | 860 | 0.006 | 0.023 | 2.846 | 0.966 | 0.015 | 2.615 | 0.022 | 0.016 | 0.91 | 407.50 | 0.92 |
| 88 | 870 | 0.006 | 0.023 | 2.869 | 0.981 | 0.015 | 2.638 | 0.022 | 0.016 | 0.91 | 408.90 | 0.92 |
| 89 | 880 | 0.006 | 0.023 | 2.891 | 0.996 | 0.015 | 2.660 | 0.022 | 0.016 | 0.91 | 410.27 | 0.92 |
| 90 | 890 | 0.005 | 0.019 | 2.910 | 1.009 | 0.013 | 2.679 | 0.019 | 0.014 | 0.76 | 342.93 | 0.90 |
| 91 | 900 | 0.005 | 0.019 | 2.929 | 1.022 | 0.013 | 2.697 | 0.019 | 0.014 | 0.77 | 343.86 | 0.88 |
| 92 | 910 | 0.005 | 0.019 | 2.948 | 1.035 | 0.013 | 2.716 | 0.019 | 0.014 | 0.77 | 344.79 | 0.86 |
| 93 | 920 | 0.005 | 0.019 | 2.966 | 1.048 | 0.013 | 2.735 | 0.019 | 0.014 | 0.77 | 345.70 | 0.84 |
| 94 | 930 | 0.005 | 0.019 | 2.985 | 1.061 | 0.013 | 2.753 | 0.019 | 0.014 | 0.77 | 346.60 | 0.83 |
| 95 | 940 | 0.005 | 0.019 | 3.004 | 1.074 | 0.013 | 2.772 | 0.019 | 0.014 | 0.77 | 347.50 | 0.82 |
| 96 | 950 | 0.005 | 0.019 | 3.023 | 1.087 | 0.013 | 2.791 | 0.019 | 0.014 | 0.78 | 348.38 | 0.81 |
| 97 | 960 | 0.005 | 0.019 | 3.041 | 1.100 | 0.013 | 2.809 | 0.019 | 0.014 | 0.78 | 349.26 | 0.81 |
| 98 | 970 | 0.005 | 0.019 | 3.060 | 1.113 | 0.013 | 2.828 | 0.019 | 0.014 | 0.78 | 350.12 | 0.80 |
| 99 | 980 | 0.005 | 0.019 | 3.079 | 1.126 | 0.013 | 2.847 | 0.019 | 0.014 | 0.78 | 350.98 | 0.80 |
| 100 | 990 | 0.005 | 0.019 | 3.098 | 1.139 | 0.013 | 2.865 | 0.019 | 0.014 | 0.78 | 351.83 | 0.80 |
| 101 | 1000 | 0.005 | 0.019 | 3.116 | 1.152 | 0.013 | 2.884 | 0.019 | 0.014 | 0.79 | 352.67 | 0.79 |
| 102 | 1010 | 0.004 | 0.015 | 3.131 | 1.163 | 0.011 | 2.899 | 0.015 | 0.011 | 0.63 | 282.74 | 0.78 |
| 103 | 1020 | 0.004 | 0.015 | 3.146 | 1.174 | 0.011 | 2.914 | 0.015 | 0.011 | 0.63 | 283.26 | 0.75 |
| 104 | 1030 | 0.004 | 0.015 | 3.161 | 1.184 | 0.011 | 2.929 | 0.015 | 0.011 | 0.63 | 283.79 | 0.73 |
| 105 | 1040 | 0.004 | 0.015 | 3.176 | 1.195 | 0.011 | 2.944 | 0.015 | 0.011 | 0.63 | 284.31 | 0.71 |
| 106 | 1050 | 0.004 | 0.015 | 3.191 | 1.206 | 0.011 | 2.959 | 0.015 | 0.011 | 0.63 | 284.82 | 0.70 |
| 107 | 1060 | 0.004 | 0.015 | 3.206 | 1.216 | 0.011 | 2.974 | 0.015 | 0.011 | 0.64 | 285.33 | 0.69 |
| 108 | 1070 | 0.004 | 0.015 | 3.221 | 1.227 | 0.011 | 2.989 | 0.015 | 0.011 | 0.64 | 285.84 | 0.68 |
| 109 | 1080 | 0.004 | 0.015 | 3.236 | 1.238 | 0.011 | 3.004 | 0.015 | 0.011 | 0.64 | 286.34 | 0.67 |
| 110 | 1090 | 0.004 | 0.015 | 3.251 | 1.249 | 0.011 | 3.019 | 0.015 | 0.011 | 0.64 | 286.84 | 0.67 |
| 111 | 1100 | 0.004 | 0.015 | 3.266 | 1.259 | 0.011 | 3.033 | 0.015 | 0.011 | 0.64 | 287.33 | 0.66 |
| 112 | 1110 | 0.004 | 0.015 | 3.281 | 1.270 | 0.011 | 3.048 | 0.015 | 0.011 | 0.64 | 287.83 | 0.66 |
| 113 | 1120 | 0.004 | 0.015 | 3.296 | 1.281 | 0.011 | 3.063 | 0.015 | 0.011 | 0.64 | 288.31 | 0.66 |
| 114 | 1130 | 0.004 | 0.015 | 3.311 | 1.292 | 0.011 | 3.078 | 0.015 | 0.011 | 0.64 | 288.80 | 0.65 |
| 115 | 1140 | 0.004 | 0.015 | 3.326 | 1.303 | 0.011 | 3.093 | 0.015 | 0.011 | 0.64 | 289.27 | 0.65 |
| 116 | 1150 | 0.004 | 0.015 | 3.341 | 1.314 | 0.011 | 3.108 | 0.015 | 0.011 | 0.65 | 289.75 | 0.65 |
| 117 | 1160 | 0.004 | 0.015 | 3.356 | 1.325 | 0.011 | 3.123 | 0.015 | 0.011 | 0.65 | 290.22 | 0.65 |
| 118 | 1170 | 0.004 | 0.015 | 3.371 | 1.336 | 0.011 | 3.138 | 0.015 | 0.011 | 0.65 | 290.69 | 0.65 |
| 119 | 1180 | 0.004 | 0.015 | 3.386 | 1.347 | 0.011 | 3.153 | 0.015 | 0.011 | 0.65 | 291.15 | 0.65 |
| 120 | 1190 | 0.004 | 0.015 | 3.401 | 1.358 | 0.011 | 3.168 | 0.015 | 0.012 | 0.65 | 291.62 | 0.65 |
| 121 | 1200 | 0.004 | 0.015 | 3.416 | 1.369 | 0.011 | 3.183 | 0.015 | 0.012 | 0.65 | 292.07 | 0.65 |
| 122 | 1210 | 0.004 | 0.015 | 3.431 | 1.380 | 0.011 | 3.198 | 0.015 | 0.012 | 0.65 | 292.53 | 0.65 |
| 123 | 1220 | 0.004 | 0.015 | 3.446 | 1.391 | 0.011 | 3.213 | 0.015 | 0.012 | 0.65 | 292.98 | 0.65 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (2 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) |
| 124 | 1230 | 0.004 | 0.015 | 3.461 | 1.402 | 0.011 | 3.228 | 0.015 | 0.012 | 0.65 | 293.42 | 0.65 |
| 125 | 1240 | 0.004 | 0.015 | 3.476 | 1.413 | 0.011 | 3.243 | 0.015 | 0.012 | 0.65 | 293.87 | 0.65 |
| 126 | 1250 | 0.004 | 0.015 | 3.491 | 1.424 | 0.011 | 3.258 | 0.015 | 0.012 | 0.66 | 294.31 | 0.65 |
| 127 | 1260 | 0.004 | 0.015 | 3.506 | 1.435 | 0.011 | 3.273 | 0.015 | 0.012 | 0.66 | 294.74 | 0.65 |
| 128 | 1270 | 0.004 | 0.015 | 3.521 | 1.446 | 0.011 | 3.288 | 0.015 | 0.012 | 0.66 | 295.18 | 0.65 |
| 129 | 1280 | 0.004 | 0.015 | 3.536 | 1.457 | 0.011 | 3.303 | 0.015 | 0.012 | 0.66 | 295.61 | 0.65 |
| 130 | 1290 | 0.004 | 0.015 | 3.551 | 1.469 | 0.011 | 3.318 | 0.015 | 0.012 | 0.66 | 296.03 | 0.66 |
| 131 | 1300 | 0.004 | 0.015 | 3.566 | 1.480 | 0.011 | 3.333 | 0.015 | 0.012 | 0.66 | 296.46 | 0.66 |
| 132 | 1310 | 0.004 | 0.015 | 3.581 | 1.491 | 0.011 | 3.347 | 0.015 | 0.012 | 0.66 | 296.88 | 0.66 |
| 133 | 1320 | 0.004 | 0.015 | 3.596 | 1.502 | 0.011 | 3.362 | 0.015 | 0.012 | 0.66 | 297.29 | 0.66 |
| 134 | 1330 | 0.004 | 0.015 | 3.611 | 1.514 | 0.011 | 3.377 | 0.015 | 0.012 | 0.66 | 297.71 | 0.66 |
| 135 | 1340 | 0.004 | 0.015 | 3.626 | 1.525 | 0.011 | 3.392 | 0.015 | 0.012 | 0.66 | 298.12 | 0.66 |
| 136 | 1350 | 0.004 | 0.015 | 3.641 | 1.536 | 0.011 | 3.407 | 0.015 | 0.012 | 0.67 | 298.53 | 0.66 |
| 137 | 1360 | 0.004 | 0.015 | 3.656 | 1.548 | 0.011 | 3.422 | 0.015 | 0.012 | 0.67 | 298.93 | 0.66 |
| 138 | 1370 | 0.004 | 0.015 | 3.671 | 1.559 | 0.011 | 3.437 | 0.015 | 0.012 | 0.67 | 299.33 | 0.66 |
| 139 | 1380 | 0.004 | 0.015 | 3.686 | 1.570 | 0.011 | 3.452 | 0.015 | 0.012 | 0.67 | 299.73 | 0.66 |
| 140 | 1390 | 0.004 | 0.015 | 3.701 | 1.582 | 0.011 | 3.467 | 0.015 | 0.012 | 0.67 | 300.13 | 0.66 |
| 141 | 1400 | 0.004 | 0.015 | 3.716 | 1.593 | 0.011 | 3.482 | 0.015 | 0.012 | 0.67 | 300.52 | 0.66 |
| 142 | 1410 | 0.004 | 0.015 | 3.731 | 1.605 | 0.011 | 3.497 | 0.015 | 0.012 | 0.67 | 300.91 | 0.67 |
| 143 | 1420 | 0.004 | 0.015 | 3.746 | 1.616 | 0.011 | 3.512 | 0.015 | 0.012 | 0.67 | 301.30 | 0.67 |
| 144 | 1430 | 0.004 | 0.015 | 3.761 | 1.627 | 0.011 | 3.527 | 0.015 | 0.012 | 0.67 | 301.68 | 0.67 |
| 145 | 1440 | 0.004 | 0.015 | 3.776 | 1.639 | 0.011 | 3.542 | 0.015 | 0.012 | 0.67 | 302.06 | 0.67 |

| | | | |
|------------------|-------------|----------------|-------------|
| Peak Flow | 5.49 | 2464.49 | 2.19 |
|------------------|-------------|----------------|-------------|

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | | Design |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|------------------------|--------------------|----------------|--------|
| Time Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Instant Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) | |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 2 | 10 | 0.004 | 0.027 | 0.027 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | |
| 3 | 20 | 0.004 | 0.027 | 0.054 | 0.000 | 0.000 | 0.001 | 0.001 | 0.000 | 0.01 | 2.45 | 0.00 | |
| 4 | 30 | 0.004 | 0.027 | 0.080 | 0.000 | 0.000 | 0.006 | 0.006 | 0.001 | 0.04 | 18.56 | 0.00 | |
| 5 | 40 | 0.004 | 0.027 | 0.107 | 0.000 | 0.000 | 0.016 | 0.010 | 0.001 | 0.07 | 32.30 | 0.01 | |
| 6 | 50 | 0.004 | 0.027 | 0.134 | 0.000 | 0.000 | 0.029 | 0.013 | 0.002 | 0.09 | 42.32 | 0.03 | |
| 7 | 60 | 0.004 | 0.027 | 0.161 | 0.000 | 0.000 | 0.044 | 0.015 | 0.002 | 0.11 | 49.85 | 0.04 | |
| 8 | 70 | 0.004 | 0.027 | 0.187 | 0.000 | 0.000 | 0.061 | 0.017 | 0.002 | 0.12 | 55.66 | 0.05 | |
| 9 | 80 | 0.004 | 0.027 | 0.214 | 0.000 | 0.000 | 0.080 | 0.018 | 0.002 | 0.13 | 60.24 | 0.07 | |
| 10 | 90 | 0.005 | 0.033 | 0.248 | 0.000 | 0.000 | 0.104 | 0.024 | 0.003 | 0.18 | 80.37 | 0.08 | |
| 11 | 100 | 0.005 | 0.033 | 0.281 | 0.000 | 0.000 | 0.130 | 0.026 | 0.003 | 0.19 | 84.82 | 0.10 | |
| 12 | 110 | 0.005 | 0.033 | 0.314 | 0.000 | 0.000 | 0.157 | 0.027 | 0.003 | 0.20 | 88.33 | 0.12 | |
| 13 | 120 | 0.005 | 0.033 | 0.348 | 0.000 | 0.000 | 0.184 | 0.028 | 0.004 | 0.20 | 91.15 | 0.13 | |
| 14 | 130 | 0.005 | 0.033 | 0.381 | 0.000 | 0.000 | 0.213 | 0.028 | 0.004 | 0.21 | 93.46 | 0.14 | |
| 15 | 140 | 0.005 | 0.033 | 0.415 | 0.000 | 0.000 | 0.242 | 0.029 | 0.004 | 0.21 | 95.36 | 0.16 | |
| 16 | 150 | 0.005 | 0.033 | 0.448 | 0.000 | 0.000 | 0.271 | 0.030 | 0.004 | 0.22 | 96.95 | 0.17 | |
| 17 | 160 | 0.006 | 0.040 | 0.488 | 0.000 | 0.000 | 0.307 | 0.036 | 0.005 | 0.26 | 118.09 | 0.18 | |
| 18 | 170 | 0.006 | 0.040 | 0.529 | 0.000 | 0.000 | 0.344 | 0.036 | 0.005 | 0.27 | 119.69 | 0.19 | |
| 19 | 180 | 0.006 | 0.040 | 0.569 | 0.000 | 0.000 | 0.381 | 0.037 | 0.005 | 0.27 | 121.03 | 0.21 | |
| 20 | 190 | 0.006 | 0.040 | 0.609 | 0.000 | 0.000 | 0.418 | 0.037 | 0.005 | 0.27 | 123.11 | 0.22 | |
| 21 | 200 | 0.006 | 0.040 | 0.649 | 0.001 | 0.001 | 0.455 | 0.037 | 0.006 | 0.32 | 141.43 | 0.23 | |
| 22 | 210 | 0.006 | 0.040 | 0.689 | 0.003 | 0.002 | 0.493 | 0.038 | 0.007 | 0.37 | 164.85 | 0.25 | |
| 23 | 220 | 0.007 | 0.047 | 0.736 | 0.006 | 0.003 | 0.537 | 0.044 | 0.009 | 0.49 | 220.63 | 0.28 | |
| 24 | 230 | 0.007 | 0.047 | 0.783 | 0.011 | 0.005 | 0.582 | 0.045 | 0.010 | 0.56 | 249.72 | 0.32 | |
| 25 | 240 | 0.007 | 0.047 | 0.830 | 0.017 | 0.006 | 0.627 | 0.045 | 0.011 | 0.62 | 277.46 | 0.37 | |
| 26 | 250 | 0.007 | 0.047 | 0.876 | 0.024 | 0.007 | 0.672 | 0.045 | 0.012 | 0.68 | 303.95 | 0.42 | |
| 27 | 260 | 0.007 | 0.047 | 0.923 | 0.032 | 0.008 | 0.717 | 0.045 | 0.013 | 0.73 | 329.25 | 0.47 | |
| 28 | 270 | 0.007 | 0.047 | 0.970 | 0.041 | 0.009 | 0.762 | 0.045 | 0.014 | 0.79 | 353.46 | 0.52 | |
| 29 | 280 | 0.007 | 0.047 | 1.017 | 0.052 | 0.010 | 0.807 | 0.045 | 0.015 | 0.84 | 376.63 | 0.57 | |
| 30 | 290 | 0.008 | 0.054 | 1.070 | 0.065 | 0.013 | 0.859 | 0.052 | 0.018 | 1.02 | 457.56 | 0.63 | |
| 31 | 300 | 0.008 | 0.054 | 1.124 | 0.079 | 0.014 | 0.911 | 0.052 | 0.019 | 1.08 | 485.19 | 0.71 | |
| 32 | 310 | 0.008 | 0.054 | 1.177 | 0.094 | 0.015 | 0.964 | 0.052 | 0.020 | 1.14 | 511.55 | 0.78 | |
| 33 | 320 | 0.008 | 0.054 | 1.231 | 0.111 | 0.017 | 1.016 | 0.052 | 0.021 | 1.20 | 536.71 | 0.85 | |
| 34 | 330 | 0.008 | 0.054 | 1.284 | 0.128 | 0.018 | 1.068 | 0.052 | 0.022 | 1.25 | 560.75 | 0.91 | |
| 35 | 340 | 0.008 | 0.054 | 1.338 | 0.147 | 0.019 | 1.121 | 0.052 | 0.023 | 1.30 | 583.73 | 0.98 | |
| 36 | 350 | 0.01 | 0.067 | 1.405 | 0.172 | 0.025 | 1.187 | 0.066 | 0.030 | 1.69 | 760.48 | 1.07 | |
| 37 | 360 | 0.01 | 0.067 | 1.472 | 0.198 | 0.026 | 1.252 | 0.066 | 0.031 | 1.77 | 793.04 | 1.18 | |
| 38 | 370 | 0.01 | 0.067 | 1.539 | 0.226 | 0.028 | 1.318 | 0.066 | 0.033 | 1.84 | 823.91 | 1.29 | |
| 39 | 380 | 0.01 | 0.067 | 1.606 | 0.254 | 0.029 | 1.384 | 0.066 | 0.034 | 1.90 | 853.22 | 1.39 | |
| 40 | 390 | 0.01 | 0.067 | 1.673 | 0.285 | 0.030 | 1.450 | 0.066 | 0.035 | 1.96 | 881.06 | 1.49 | |
| 41 | 400 | 0.01 | 0.067 | 1.739 | 0.316 | 0.031 | 1.516 | 0.066 | 0.036 | 2.02 | 907.54 | 1.57 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| | | Rainfall | | | Pervious | | Impervious | | | | Instant | | Design |
|-----------|------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------|----------|----------|
| Time | | Distribution | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Flowrate | Flowrate | Flowrate |
| Increment | Time (min) | (fraction) | Rainfall (in) | (in) | Flowrate (cfs) | (gal/min) | (cfs) | (cfs) |
| 42 | 410 | 0.013 | 0.087 | 1.826 | 0.358 | 0.042 | 1.602 | 0.086 | 0.048 | 2.71 | 1217.29 | 1.71 | |
| 43 | 420 | 0.013 | 0.087 | 1.913 | 0.402 | 0.044 | 1.688 | 0.086 | 0.050 | 2.80 | 1257.28 | 1.90 | |
| 44 | 430 | 0.013 | 0.087 | 2.000 | 0.448 | 0.046 | 1.775 | 0.086 | 0.051 | 2.89 | 1294.88 | 2.06 | |
| 45 | 440 | 0.018 | 0.120 | 2.121 | 0.514 | 0.066 | 1.894 | 0.119 | 0.073 | 4.12 | 1850.90 | 2.31 | |
| 46 | 450 | 0.018 | 0.120 | 2.241 | 0.583 | 0.069 | 2.014 | 0.120 | 0.076 | 4.26 | 1913.46 | 2.64 | |
| 47 | 460 | 0.034 | 0.227 | 2.469 | 0.721 | 0.137 | 2.240 | 0.226 | 0.149 | 8.40 | 3768.46 | 3.29 | |
| 48 | 470 | 0.054 | 0.361 | 2.830 | 0.955 | 0.234 | 2.599 | 0.359 | 0.250 | 14.13 | 6343.04 | 4.68 | |
| 49 | 480 | 0.027 | 0.181 | 3.011 | 1.078 | 0.123 | 2.779 | 0.180 | 0.131 | 7.38 | 3312.67 | 5.74 | |
| 50 | 490 | 0.018 | 0.120 | 3.131 | 1.163 | 0.084 | 2.899 | 0.120 | 0.089 | 5.02 | 2254.44 | 5.82 | |
| 51 | 500 | 0.013 | 0.087 | 3.218 | 1.225 | 0.062 | 2.985 | 0.087 | 0.065 | 3.68 | 1649.50 | 5.57 | |
| 52 | 510 | 0.013 | 0.087 | 3.305 | 1.287 | 0.063 | 3.072 | 0.087 | 0.066 | 3.71 | 1666.43 | 5.24 | |
| 53 | 520 | 0.013 | 0.087 | 3.392 | 1.351 | 0.063 | 3.159 | 0.087 | 0.066 | 3.75 | 1682.60 | 4.98 | |
| 54 | 530 | 0.009 | 0.060 | 3.452 | 1.395 | 0.044 | 3.219 | 0.060 | 0.046 | 2.62 | 1173.97 | 4.66 | |
| 55 | 540 | 0.009 | 0.060 | 3.512 | 1.440 | 0.045 | 3.279 | 0.060 | 0.047 | 2.63 | 1181.15 | 4.31 | |
| 56 | 550 | 0.009 | 0.060 | 3.572 | 1.485 | 0.045 | 3.339 | 0.060 | 0.047 | 2.65 | 1188.11 | 4.01 | |
| 57 | 560 | 0.009 | 0.060 | 3.633 | 1.530 | 0.045 | 3.399 | 0.060 | 0.047 | 2.66 | 1194.86 | 3.78 | |
| 58 | 570 | 0.009 | 0.060 | 3.693 | 1.575 | 0.046 | 3.459 | 0.060 | 0.047 | 2.68 | 1201.40 | 3.58 | |
| 59 | 580 | 0.009 | 0.060 | 3.753 | 1.621 | 0.046 | 3.519 | 0.060 | 0.048 | 2.69 | 1207.76 | 3.43 | |
| 60 | 590 | 0.009 | 0.060 | 3.813 | 1.667 | 0.046 | 3.579 | 0.060 | 0.048 | 2.70 | 1213.93 | 3.30 | |
| 61 | 600 | 0.009 | 0.060 | 3.874 | 1.714 | 0.046 | 3.639 | 0.060 | 0.048 | 2.72 | 1219.92 | 3.20 | |
| 62 | 610 | 0.009 | 0.060 | 3.934 | 1.760 | 0.047 | 3.699 | 0.060 | 0.048 | 2.73 | 1225.74 | 3.11 | |
| 63 | 620 | 0.009 | 0.060 | 3.994 | 1.807 | 0.047 | 3.759 | 0.060 | 0.049 | 2.74 | 1231.40 | 3.05 | |
| 64 | 630 | 0.009 | 0.060 | 4.054 | 1.854 | 0.047 | 3.819 | 0.060 | 0.049 | 2.76 | 1236.90 | 3.00 | |
| 65 | 640 | 0.009 | 0.060 | 4.114 | 1.902 | 0.047 | 3.879 | 0.060 | 0.049 | 2.77 | 1242.24 | 2.95 | |
| 66 | 650 | 0.007 | 0.047 | 4.161 | 1.939 | 0.037 | 3.926 | 0.047 | 0.038 | 2.16 | 969.79 | 2.87 | |
| 67 | 660 | 0.007 | 0.047 | 4.208 | 1.976 | 0.037 | 3.973 | 0.047 | 0.038 | 2.17 | 972.87 | 2.75 | |
| 68 | 670 | 0.007 | 0.047 | 4.255 | 2.013 | 0.037 | 4.019 | 0.047 | 0.039 | 2.17 | 975.88 | 2.65 | |
| 69 | 680 | 0.007 | 0.047 | 4.302 | 2.051 | 0.037 | 4.066 | 0.047 | 0.039 | 2.18 | 978.83 | 2.56 | |
| 70 | 690 | 0.007 | 0.047 | 4.349 | 2.088 | 0.038 | 4.113 | 0.047 | 0.039 | 2.19 | 981.71 | 2.50 | |
| 71 | 700 | 0.007 | 0.047 | 4.395 | 2.126 | 0.038 | 4.160 | 0.047 | 0.039 | 2.19 | 984.54 | 2.44 | |
| 72 | 710 | 0.007 | 0.047 | 4.442 | 2.164 | 0.038 | 4.206 | 0.047 | 0.039 | 2.20 | 987.31 | 2.40 | |
| 73 | 720 | 0.007 | 0.047 | 4.489 | 2.202 | 0.038 | 4.253 | 0.047 | 0.039 | 2.21 | 990.02 | 2.37 | |
| 74 | 730 | 0.007 | 0.047 | 4.536 | 2.240 | 0.038 | 4.300 | 0.047 | 0.039 | 2.21 | 992.68 | 2.34 | |
| 75 | 740 | 0.007 | 0.047 | 4.583 | 2.278 | 0.038 | 4.347 | 0.047 | 0.039 | 2.22 | 995.28 | 2.32 | |
| 76 | 750 | 0.007 | 0.047 | 4.629 | 2.316 | 0.038 | 4.393 | 0.047 | 0.039 | 2.22 | 997.83 | 2.30 | |
| 77 | 760 | 0.007 | 0.047 | 4.676 | 2.355 | 0.038 | 4.440 | 0.047 | 0.039 | 2.23 | 1000.33 | 2.29 | |
| 78 | 770 | 0.006 | 0.040 | 4.716 | 2.388 | 0.033 | 4.480 | 0.040 | 0.034 | 1.91 | 859.38 | 2.25 | |
| 79 | 780 | 0.006 | 0.040 | 4.757 | 2.421 | 0.033 | 4.520 | 0.040 | 0.034 | 1.92 | 861.15 | 2.19 | |
| 80 | 790 | 0.006 | 0.040 | 4.797 | 2.454 | 0.033 | 4.560 | 0.040 | 0.034 | 1.92 | 862.89 | 2.14 | |
| 81 | 800 | 0.006 | 0.040 | 4.837 | 2.487 | 0.033 | 4.600 | 0.040 | 0.034 | 1.93 | 864.60 | 2.11 | |
| 82 | 810 | 0.006 | 0.040 | 4.877 | 2.520 | 0.033 | 4.640 | 0.040 | 0.034 | 1.93 | 866.29 | 2.07 | |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| Rainfall | | | | | Pervious | | Impervious | | Instant | | Design | |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|----------------|--------------------|----------------|
| Time Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) |
| 83 | 820 | 0.006 | 0.040 | 4.917 | 2.554 | 0.033 | 4.680 | 0.040 | 0.034 | 1.93 | 867.94 | 2.05 |
| 84 | 830 | 0.006 | 0.040 | 4.957 | 2.587 | 0.033 | 4.721 | 0.040 | 0.034 | 1.94 | 869.57 | 2.03 |
| 85 | 840 | 0.006 | 0.040 | 4.997 | 2.621 | 0.034 | 4.761 | 0.040 | 0.034 | 1.94 | 871.17 | 2.01 |
| 86 | 850 | 0.006 | 0.040 | 5.038 | 2.654 | 0.034 | 4.801 | 0.040 | 0.034 | 1.94 | 872.75 | 2.00 |
| 87 | 860 | 0.006 | 0.040 | 5.078 | 2.688 | 0.034 | 4.841 | 0.040 | 0.035 | 1.95 | 874.30 | 1.99 |
| 88 | 870 | 0.006 | 0.040 | 5.118 | 2.722 | 0.034 | 4.881 | 0.040 | 0.035 | 1.95 | 875.83 | 1.98 |
| 89 | 880 | 0.006 | 0.040 | 5.158 | 2.756 | 0.034 | 4.921 | 0.040 | 0.035 | 1.95 | 877.33 | 1.98 |
| 90 | 890 | 0.005 | 0.033 | 5.191 | 2.784 | 0.028 | 4.954 | 0.033 | 0.029 | 1.63 | 732.23 | 1.95 |
| 91 | 900 | 0.005 | 0.033 | 5.225 | 2.812 | 0.028 | 4.988 | 0.033 | 0.029 | 1.63 | 733.25 | 1.89 |
| 92 | 910 | 0.005 | 0.033 | 5.258 | 2.841 | 0.028 | 5.021 | 0.033 | 0.029 | 1.64 | 734.25 | 1.85 |
| 93 | 920 | 0.005 | 0.033 | 5.292 | 2.869 | 0.028 | 5.055 | 0.033 | 0.029 | 1.64 | 735.23 | 1.81 |
| 94 | 930 | 0.005 | 0.033 | 5.325 | 2.897 | 0.028 | 5.088 | 0.033 | 0.029 | 1.64 | 736.21 | 1.78 |
| 95 | 940 | 0.005 | 0.033 | 5.359 | 2.926 | 0.028 | 5.121 | 0.033 | 0.029 | 1.64 | 737.17 | 1.76 |
| 96 | 950 | 0.005 | 0.033 | 5.392 | 2.954 | 0.029 | 5.155 | 0.033 | 0.029 | 1.64 | 738.11 | 1.74 |
| 97 | 960 | 0.005 | 0.033 | 5.426 | 2.983 | 0.029 | 5.188 | 0.033 | 0.029 | 1.65 | 739.05 | 1.72 |
| 98 | 970 | 0.005 | 0.033 | 5.459 | 3.011 | 0.029 | 5.222 | 0.033 | 0.029 | 1.65 | 739.97 | 1.71 |
| 99 | 980 | 0.005 | 0.033 | 5.492 | 3.040 | 0.029 | 5.255 | 0.033 | 0.029 | 1.65 | 740.89 | 1.70 |
| 100 | 990 | 0.005 | 0.033 | 5.526 | 3.069 | 0.029 | 5.288 | 0.033 | 0.029 | 1.65 | 741.79 | 1.69 |
| 101 | 1000 | 0.005 | 0.033 | 5.559 | 3.097 | 0.029 | 5.322 | 0.033 | 0.029 | 1.65 | 742.68 | 1.68 |
| 102 | 1010 | 0.004 | 0.027 | 5.586 | 3.120 | 0.023 | 5.348 | 0.027 | 0.023 | 1.33 | 594.77 | 1.65 |
| 103 | 1020 | 0.004 | 0.027 | 5.613 | 3.143 | 0.023 | 5.375 | 0.027 | 0.024 | 1.33 | 595.33 | 1.59 |
| 104 | 1030 | 0.004 | 0.027 | 5.640 | 3.166 | 0.023 | 5.402 | 0.027 | 0.024 | 1.33 | 595.88 | 1.55 |
| 105 | 1040 | 0.004 | 0.027 | 5.666 | 3.190 | 0.023 | 5.429 | 0.027 | 0.024 | 1.33 | 596.43 | 1.51 |
| 106 | 1050 | 0.004 | 0.027 | 5.693 | 3.213 | 0.023 | 5.455 | 0.027 | 0.024 | 1.33 | 596.97 | 1.48 |
| 107 | 1060 | 0.004 | 0.027 | 5.720 | 3.236 | 0.023 | 5.482 | 0.027 | 0.024 | 1.33 | 597.50 | 1.45 |
| 108 | 1070 | 0.004 | 0.027 | 5.747 | 3.259 | 0.023 | 5.509 | 0.027 | 0.024 | 1.33 | 598.03 | 1.43 |
| 109 | 1080 | 0.004 | 0.027 | 5.773 | 3.282 | 0.023 | 5.536 | 0.027 | 0.024 | 1.33 | 598.55 | 1.41 |
| 110 | 1090 | 0.004 | 0.027 | 5.800 | 3.305 | 0.023 | 5.562 | 0.027 | 0.024 | 1.33 | 599.07 | 1.40 |
| 111 | 1100 | 0.004 | 0.027 | 5.827 | 3.328 | 0.023 | 5.589 | 0.027 | 0.024 | 1.34 | 599.59 | 1.39 |
| 112 | 1110 | 0.004 | 0.027 | 5.854 | 3.352 | 0.023 | 5.616 | 0.027 | 0.024 | 1.34 | 600.10 | 1.38 |
| 113 | 1120 | 0.004 | 0.027 | 5.881 | 3.375 | 0.023 | 5.643 | 0.027 | 0.024 | 1.34 | 600.60 | 1.37 |
| 114 | 1130 | 0.004 | 0.027 | 5.907 | 3.398 | 0.023 | 5.669 | 0.027 | 0.024 | 1.34 | 601.10 | 1.37 |
| 115 | 1140 | 0.004 | 0.027 | 5.934 | 3.422 | 0.023 | 5.696 | 0.027 | 0.024 | 1.34 | 601.59 | 1.36 |
| 116 | 1150 | 0.004 | 0.027 | 5.961 | 3.445 | 0.023 | 5.723 | 0.027 | 0.024 | 1.34 | 602.08 | 1.36 |
| 117 | 1160 | 0.004 | 0.027 | 5.988 | 3.468 | 0.023 | 5.749 | 0.027 | 0.024 | 1.34 | 602.57 | 1.36 |
| 118 | 1170 | 0.004 | 0.027 | 6.014 | 3.492 | 0.023 | 5.776 | 0.027 | 0.024 | 1.34 | 603.05 | 1.35 |
| 119 | 1180 | 0.004 | 0.027 | 6.041 | 3.515 | 0.023 | 5.803 | 0.027 | 0.024 | 1.34 | 603.52 | 1.35 |
| 120 | 1190 | 0.004 | 0.027 | 6.068 | 3.538 | 0.023 | 5.830 | 0.027 | 0.024 | 1.35 | 603.99 | 1.35 |
| 121 | 1200 | 0.004 | 0.027 | 6.095 | 3.562 | 0.023 | 5.856 | 0.027 | 0.024 | 1.35 | 604.46 | 1.35 |
| 122 | 1210 | 0.004 | 0.027 | 6.121 | 3.585 | 0.023 | 5.883 | 0.027 | 0.024 | 1.35 | 604.92 | 1.35 |
| 123 | 1220 | 0.004 | 0.027 | 6.148 | 3.609 | 0.023 | 5.910 | 0.027 | 0.024 | 1.35 | 605.38 | 1.35 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (25 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| Rainfall | | | | | Pervious | | Impervious | | Instant | | Design | |
|----------------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|----------------|--------------------|----------------|
| Time Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) |
| 124 | 1230 | 0.004 | 0.027 | 6.175 | 3.632 | 0.023 | 5.937 | 0.027 | 0.024 | 1.35 | 605.83 | 1.35 |
| 125 | 1240 | 0.004 | 0.027 | 6.202 | 3.656 | 0.024 | 5.963 | 0.027 | 0.024 | 1.35 | 606.28 | 1.35 |
| 126 | 1250 | 0.004 | 0.027 | 6.228 | 3.679 | 0.024 | 5.990 | 0.027 | 0.024 | 1.35 | 606.73 | 1.35 |
| 127 | 1260 | 0.004 | 0.027 | 6.255 | 3.703 | 0.024 | 6.017 | 0.027 | 0.024 | 1.35 | 607.17 | 1.35 |
| 128 | 1270 | 0.004 | 0.027 | 6.282 | 3.726 | 0.024 | 6.043 | 0.027 | 0.024 | 1.35 | 607.61 | 1.35 |
| 129 | 1280 | 0.004 | 0.027 | 6.309 | 3.750 | 0.024 | 6.070 | 0.027 | 0.024 | 1.35 | 608.04 | 1.35 |
| 130 | 1290 | 0.004 | 0.027 | 6.335 | 3.774 | 0.024 | 6.097 | 0.027 | 0.024 | 1.36 | 608.47 | 1.35 |
| 131 | 1300 | 0.004 | 0.027 | 6.362 | 3.797 | 0.024 | 6.124 | 0.027 | 0.024 | 1.36 | 608.89 | 1.35 |
| 132 | 1310 | 0.004 | 0.027 | 6.389 | 3.821 | 0.024 | 6.150 | 0.027 | 0.024 | 1.36 | 609.31 | 1.35 |
| 133 | 1320 | 0.004 | 0.027 | 6.416 | 3.845 | 0.024 | 6.177 | 0.027 | 0.024 | 1.36 | 609.73 | 1.35 |
| 134 | 1330 | 0.004 | 0.027 | 6.442 | 3.868 | 0.024 | 6.204 | 0.027 | 0.024 | 1.36 | 610.14 | 1.36 |
| 135 | 1340 | 0.004 | 0.027 | 6.469 | 3.892 | 0.024 | 6.231 | 0.027 | 0.024 | 1.36 | 610.55 | 1.36 |
| 136 | 1350 | 0.004 | 0.027 | 6.496 | 3.916 | 0.024 | 6.257 | 0.027 | 0.024 | 1.36 | 610.96 | 1.36 |
| 137 | 1360 | 0.004 | 0.027 | 6.523 | 3.939 | 0.024 | 6.284 | 0.027 | 0.024 | 1.36 | 611.36 | 1.36 |
| 138 | 1370 | 0.004 | 0.027 | 6.550 | 3.963 | 0.024 | 6.311 | 0.027 | 0.024 | 1.36 | 611.76 | 1.36 |
| 139 | 1380 | 0.004 | 0.027 | 6.576 | 3.987 | 0.024 | 6.338 | 0.027 | 0.024 | 1.36 | 612.15 | 1.36 |
| 140 | 1390 | 0.004 | 0.027 | 6.603 | 4.011 | 0.024 | 6.364 | 0.027 | 0.024 | 1.36 | 612.55 | 1.36 |
| 141 | 1400 | 0.004 | 0.027 | 6.630 | 4.035 | 0.024 | 6.391 | 0.027 | 0.024 | 1.37 | 612.93 | 1.36 |
| 142 | 1410 | 0.004 | 0.027 | 6.657 | 4.058 | 0.024 | 6.418 | 0.027 | 0.024 | 1.37 | 613.32 | 1.36 |
| 143 | 1420 | 0.004 | 0.027 | 6.683 | 4.082 | 0.024 | 6.444 | 0.027 | 0.024 | 1.37 | 613.70 | 1.36 |
| 144 | 1430 | 0.004 | 0.027 | 6.710 | 4.106 | 0.024 | 6.471 | 0.027 | 0.024 | 1.37 | 614.08 | 1.36 |
| 145 | 1440 | 0.004 | 0.027 | 6.737 | 4.130 | 0.024 | 6.498 | 0.027 | 0.024 | 1.37 | 614.45 | 1.36 |

| | | | |
|------------------|--------------|----------------|-------------|
| Peak Flow | 14.13 | 6343.04 | 5.82 |
|------------------|--------------|----------------|-------------|

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| Time | | Rainfall | | | Pervious | | Impervious | | Instant | | Design | |
|-----------|------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------|----------------|----------------------------|----------------|
| Increment | Time (min) | Distribution (fraction) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Accumulated Rainfall (in) | Incremental Rainfall (in) | Total Rainfall (in) | Flowrate (cfs) | Instant Flowrate (gal/min) | Flowrate (cfs) |
| 1 | 0 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 2 | 10 | 0.004 | 0.033 | 0.033 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 3 | 20 | 0.004 | 0.033 | 0.065 | 0.000 | 0.000 | 0.003 | 0.003 | 0.000 | 0.02 | 8.50 | 0.00 |
| 4 | 30 | 0.004 | 0.033 | 0.098 | 0.000 | 0.000 | 0.012 | 0.010 | 0.001 | 0.07 | 32.21 | 0.01 |
| 5 | 40 | 0.004 | 0.033 | 0.130 | 0.000 | 0.000 | 0.027 | 0.015 | 0.002 | 0.11 | 48.80 | 0.02 |
| 6 | 50 | 0.004 | 0.033 | 0.163 | 0.000 | 0.000 | 0.046 | 0.018 | 0.002 | 0.13 | 60.42 | 0.04 |
| 7 | 60 | 0.004 | 0.033 | 0.195 | 0.000 | 0.000 | 0.067 | 0.021 | 0.003 | 0.15 | 68.87 | 0.06 |
| 8 | 70 | 0.004 | 0.033 | 0.228 | 0.000 | 0.000 | 0.089 | 0.023 | 0.003 | 0.17 | 75.22 | 0.08 |
| 9 | 80 | 0.004 | 0.033 | 0.260 | 0.000 | 0.000 | 0.114 | 0.024 | 0.003 | 0.18 | 80.10 | 0.09 |
| 10 | 90 | 0.005 | 0.041 | 0.301 | 0.000 | 0.000 | 0.146 | 0.032 | 0.004 | 0.23 | 105.42 | 0.11 |
| 11 | 100 | 0.005 | 0.041 | 0.342 | 0.000 | 0.000 | 0.179 | 0.033 | 0.004 | 0.25 | 109.98 | 0.14 |
| 12 | 110 | 0.005 | 0.041 | 0.383 | 0.000 | 0.000 | 0.214 | 0.035 | 0.004 | 0.25 | 113.52 | 0.16 |
| 13 | 120 | 0.005 | 0.041 | 0.423 | 0.000 | 0.000 | 0.249 | 0.035 | 0.005 | 0.26 | 116.32 | 0.17 |
| 14 | 130 | 0.005 | 0.041 | 0.464 | 0.000 | 0.000 | 0.285 | 0.036 | 0.005 | 0.26 | 118.58 | 0.19 |
| 15 | 140 | 0.005 | 0.041 | 0.505 | 0.000 | 0.000 | 0.322 | 0.037 | 0.005 | 0.27 | 120.42 | 0.20 |
| 16 | 150 | 0.005 | 0.041 | 0.545 | 0.000 | 0.000 | 0.359 | 0.037 | 0.005 | 0.27 | 121.95 | 0.21 |
| 17 | 160 | 0.006 | 0.049 | 0.594 | 0.000 | 0.000 | 0.404 | 0.045 | 0.006 | 0.33 | 148.01 | 0.23 |
| 18 | 170 | 0.006 | 0.049 | 0.643 | 0.001 | 0.001 | 0.450 | 0.046 | 0.007 | 0.37 | 164.67 | 0.25 |
| 19 | 180 | 0.006 | 0.049 | 0.692 | 0.003 | 0.002 | 0.496 | 0.046 | 0.008 | 0.44 | 199.50 | 0.28 |
| 20 | 190 | 0.006 | 0.049 | 0.741 | 0.007 | 0.004 | 0.542 | 0.046 | 0.009 | 0.52 | 232.63 | 0.31 |
| 21 | 200 | 0.006 | 0.049 | 0.790 | 0.012 | 0.005 | 0.588 | 0.046 | 0.010 | 0.59 | 264.12 | 0.35 |
| 22 | 210 | 0.006 | 0.049 | 0.838 | 0.018 | 0.006 | 0.635 | 0.047 | 0.012 | 0.66 | 294.09 | 0.40 |
| 23 | 220 | 0.007 | 0.057 | 0.895 | 0.027 | 0.009 | 0.690 | 0.055 | 0.015 | 0.84 | 379.10 | 0.46 |
| 24 | 230 | 0.007 | 0.057 | 0.952 | 0.038 | 0.011 | 0.745 | 0.055 | 0.016 | 0.93 | 415.90 | 0.54 |
| 25 | 240 | 0.007 | 0.057 | 1.009 | 0.050 | 0.012 | 0.800 | 0.055 | 0.018 | 1.00 | 450.77 | 0.61 |
| 26 | 250 | 0.007 | 0.057 | 1.066 | 0.064 | 0.014 | 0.855 | 0.055 | 0.019 | 1.08 | 483.86 | 0.69 |
| 27 | 260 | 0.007 | 0.057 | 1.123 | 0.079 | 0.015 | 0.911 | 0.055 | 0.020 | 1.15 | 515.30 | 0.76 |
| 28 | 270 | 0.007 | 0.057 | 1.180 | 0.095 | 0.016 | 0.966 | 0.056 | 0.022 | 1.21 | 545.19 | 0.83 |
| 29 | 280 | 0.007 | 0.057 | 1.237 | 0.113 | 0.018 | 1.022 | 0.056 | 0.023 | 1.28 | 573.64 | 0.91 |
| 30 | 290 | 0.008 | 0.065 | 1.302 | 0.135 | 0.022 | 1.086 | 0.064 | 0.027 | 1.53 | 688.70 | 0.99 |
| 31 | 300 | 0.008 | 0.065 | 1.368 | 0.158 | 0.023 | 1.150 | 0.064 | 0.029 | 1.61 | 722.23 | 1.10 |
| 32 | 310 | 0.008 | 0.065 | 1.433 | 0.183 | 0.025 | 1.214 | 0.064 | 0.030 | 1.68 | 754.02 | 1.19 |
| 33 | 320 | 0.008 | 0.065 | 1.498 | 0.209 | 0.026 | 1.278 | 0.064 | 0.031 | 1.75 | 784.20 | 1.28 |
| 34 | 330 | 0.008 | 0.065 | 1.563 | 0.236 | 0.027 | 1.342 | 0.064 | 0.032 | 1.81 | 812.86 | 1.37 |
| 35 | 340 | 0.008 | 0.065 | 1.628 | 0.264 | 0.029 | 1.406 | 0.064 | 0.033 | 1.87 | 840.11 | 1.45 |
| 36 | 350 | 0.01 | 0.081 | 1.709 | 0.302 | 0.037 | 1.487 | 0.080 | 0.043 | 2.42 | 1086.47 | 1.57 |
| 37 | 360 | 0.01 | 0.081 | 1.791 | 0.341 | 0.039 | 1.567 | 0.080 | 0.044 | 2.51 | 1124.61 | 1.73 |
| 38 | 370 | 0.01 | 0.081 | 1.872 | 0.381 | 0.041 | 1.648 | 0.081 | 0.046 | 2.59 | 1160.55 | 1.87 |
| 39 | 380 | 0.01 | 0.081 | 1.954 | 0.423 | 0.042 | 1.728 | 0.081 | 0.047 | 2.66 | 1194.45 | 2.00 |
| 40 | 390 | 0.01 | 0.081 | 2.035 | 0.467 | 0.044 | 1.809 | 0.081 | 0.048 | 2.73 | 1226.47 | 2.12 |
| 41 | 400 | 0.01 | 0.081 | 2.116 | 0.512 | 0.045 | 1.890 | 0.081 | 0.050 | 2.80 | 1256.75 | 2.24 |
| 42 | 410 | 0.013 | 0.106 | 2.222 | 0.572 | 0.060 | 1.995 | 0.105 | 0.066 | 3.74 | 1676.39 | 2.42 |
| 43 | 420 | 0.013 | 0.106 | 2.328 | 0.635 | 0.062 | 2.100 | 0.105 | 0.068 | 3.84 | 1721.55 | 2.66 |
| 44 | 430 | 0.013 | 0.106 | 2.434 | 0.699 | 0.064 | 2.205 | 0.105 | 0.070 | 3.93 | 1763.73 | 2.87 |
| 45 | 440 | 0.018 | 0.147 | 2.580 | 0.791 | 0.092 | 2.351 | 0.146 | 0.099 | 5.59 | 2506.68 | 3.20 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| | | Pervious | | | Impervious | | Total Rainfall | | Instant | Instant | Design | |
|-----------|------------|-------------------------|---------------|---------------|---------------|---------------|----------------|----------------|----------|-----------|----------|------|
| Time | Rainfall | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Flowrate | Flowrate | Flowrate | |
| Increment | Time (min) | Distribution (fraction) | Rainfall (in) | (in) | (cfs) | (gal/min) | (cfs) | |
| 46 | 450 | 0.018 | 0.147 | 2.727 | 0.886 | 0.095 | 2.496 | 0.146 | 0.102 | 5.74 | 2575.83 | 3.63 |
| 47 | 460 | 0.034 | 0.277 | 3.004 | 1.074 | 0.187 | 2.772 | 0.276 | 0.199 | 11.22 | 5034.13 | 4.48 |
| 48 | 470 | 0.054 | 0.440 | 3.443 | 1.388 | 0.315 | 3.210 | 0.438 | 0.331 | 18.68 | 8381.50 | 6.31 |
| 49 | 480 | 0.027 | 0.220 | 3.663 | 1.553 | 0.164 | 3.429 | 0.219 | 0.171 | 9.67 | 4340.92 | 7.68 |
| 50 | 490 | 0.018 | 0.147 | 3.810 | 1.664 | 0.112 | 3.575 | 0.146 | 0.116 | 6.56 | 2942.32 | 7.76 |
| 51 | 500 | 0.013 | 0.106 | 3.915 | 1.746 | 0.082 | 3.681 | 0.106 | 0.085 | 4.78 | 2147.27 | 7.39 |
| 52 | 510 | 0.013 | 0.106 | 4.021 | 1.829 | 0.082 | 3.786 | 0.106 | 0.085 | 4.82 | 2164.90 | 6.94 |
| 53 | 520 | 0.013 | 0.106 | 4.127 | 1.912 | 0.083 | 3.892 | 0.106 | 0.086 | 4.86 | 2181.67 | 6.57 |
| 54 | 530 | 0.009 | 0.073 | 4.200 | 1.970 | 0.058 | 3.965 | 0.073 | 0.060 | 3.39 | 1519.78 | 6.15 |
| 55 | 540 | 0.009 | 0.073 | 4.274 | 2.028 | 0.058 | 4.038 | 0.073 | 0.060 | 3.40 | 1527.18 | 5.66 |
| 56 | 550 | 0.009 | 0.073 | 4.347 | 2.087 | 0.059 | 4.111 | 0.073 | 0.061 | 3.42 | 1534.34 | 5.27 |
| 57 | 560 | 0.009 | 0.073 | 4.420 | 2.146 | 0.059 | 4.184 | 0.073 | 0.061 | 3.43 | 1541.26 | 4.95 |
| 58 | 570 | 0.009 | 0.073 | 4.493 | 2.205 | 0.059 | 4.257 | 0.073 | 0.061 | 3.45 | 1547.96 | 4.68 |
| 59 | 580 | 0.009 | 0.073 | 4.567 | 2.265 | 0.060 | 4.330 | 0.073 | 0.061 | 3.46 | 1554.45 | 4.47 |
| 60 | 590 | 0.009 | 0.073 | 4.640 | 2.325 | 0.060 | 4.404 | 0.073 | 0.062 | 3.48 | 1560.74 | 4.30 |
| 61 | 600 | 0.009 | 0.073 | 4.713 | 2.385 | 0.060 | 4.477 | 0.073 | 0.062 | 3.49 | 1566.84 | 4.15 |
| 62 | 610 | 0.009 | 0.073 | 4.786 | 2.445 | 0.060 | 4.550 | 0.073 | 0.062 | 3.50 | 1572.74 | 4.04 |
| 63 | 620 | 0.009 | 0.073 | 4.860 | 2.506 | 0.061 | 4.623 | 0.073 | 0.062 | 3.52 | 1578.47 | 3.95 |
| 64 | 630 | 0.009 | 0.073 | 4.933 | 2.567 | 0.061 | 4.696 | 0.073 | 0.063 | 3.53 | 1584.02 | 3.87 |
| 65 | 640 | 0.009 | 0.073 | 5.006 | 2.628 | 0.061 | 4.769 | 0.073 | 0.063 | 3.54 | 1589.41 | 3.81 |
| 66 | 650 | 0.007 | 0.057 | 5.063 | 2.676 | 0.048 | 4.826 | 0.057 | 0.049 | 2.76 | 1239.84 | 3.70 |
| 67 | 660 | 0.007 | 0.057 | 5.120 | 2.724 | 0.048 | 4.883 | 0.057 | 0.049 | 2.77 | 1242.93 | 3.53 |
| 68 | 670 | 0.007 | 0.057 | 5.177 | 2.772 | 0.048 | 4.940 | 0.057 | 0.049 | 2.78 | 1245.95 | 3.40 |
| 69 | 680 | 0.007 | 0.057 | 5.234 | 2.820 | 0.048 | 4.997 | 0.057 | 0.049 | 2.78 | 1248.90 | 3.29 |
| 70 | 690 | 0.007 | 0.057 | 5.291 | 2.868 | 0.048 | 5.054 | 0.057 | 0.049 | 2.79 | 1251.79 | 3.20 |
| 71 | 700 | 0.007 | 0.057 | 5.348 | 2.917 | 0.048 | 5.111 | 0.057 | 0.050 | 2.80 | 1254.62 | 3.13 |
| 72 | 710 | 0.007 | 0.057 | 5.405 | 2.965 | 0.049 | 5.168 | 0.057 | 0.050 | 2.80 | 1257.38 | 3.07 |
| 73 | 720 | 0.007 | 0.057 | 5.462 | 3.014 | 0.049 | 5.224 | 0.057 | 0.050 | 2.81 | 1260.08 | 3.03 |
| 74 | 730 | 0.007 | 0.057 | 5.519 | 3.063 | 0.049 | 5.281 | 0.057 | 0.050 | 2.81 | 1262.73 | 2.99 |
| 75 | 740 | 0.007 | 0.057 | 5.576 | 3.112 | 0.049 | 5.338 | 0.057 | 0.050 | 2.82 | 1265.32 | 2.96 |
| 76 | 750 | 0.007 | 0.057 | 5.633 | 3.161 | 0.049 | 5.395 | 0.057 | 0.050 | 2.82 | 1267.85 | 2.93 |
| 77 | 760 | 0.007 | 0.057 | 5.690 | 3.210 | 0.049 | 5.452 | 0.057 | 0.050 | 2.83 | 1270.33 | 2.92 |
| 78 | 770 | 0.006 | 0.049 | 5.739 | 3.252 | 0.042 | 5.501 | 0.049 | 0.043 | 2.43 | 1090.78 | 2.87 |
| 79 | 780 | 0.006 | 0.049 | 5.788 | 3.294 | 0.042 | 5.550 | 0.049 | 0.043 | 2.43 | 1092.53 | 2.79 |
| 80 | 790 | 0.006 | 0.049 | 5.836 | 3.337 | 0.042 | 5.598 | 0.049 | 0.043 | 2.44 | 1094.25 | 2.73 |
| 81 | 800 | 0.006 | 0.049 | 5.885 | 3.379 | 0.042 | 5.647 | 0.049 | 0.043 | 2.44 | 1095.94 | 2.68 |
| 82 | 810 | 0.006 | 0.049 | 5.934 | 3.422 | 0.043 | 5.696 | 0.049 | 0.043 | 2.45 | 1097.60 | 2.64 |
| 83 | 820 | 0.006 | 0.049 | 5.983 | 3.464 | 0.043 | 5.745 | 0.049 | 0.043 | 2.45 | 1099.23 | 2.60 |
| 84 | 830 | 0.006 | 0.049 | 6.032 | 3.507 | 0.043 | 5.794 | 0.049 | 0.043 | 2.45 | 1100.83 | 2.58 |
| 85 | 840 | 0.006 | 0.049 | 6.081 | 3.550 | 0.043 | 5.842 | 0.049 | 0.044 | 2.46 | 1102.41 | 2.56 |
| 86 | 850 | 0.006 | 0.049 | 6.129 | 3.592 | 0.043 | 5.891 | 0.049 | 0.044 | 2.46 | 1103.96 | 2.54 |
| 87 | 860 | 0.006 | 0.049 | 6.178 | 3.635 | 0.043 | 5.940 | 0.049 | 0.044 | 2.46 | 1105.48 | 2.53 |
| 88 | 870 | 0.006 | 0.049 | 6.227 | 3.678 | 0.043 | 5.989 | 0.049 | 0.044 | 2.47 | 1106.97 | 2.51 |
| 89 | 880 | 0.006 | 0.049 | 6.276 | 3.721 | 0.043 | 6.038 | 0.049 | 0.044 | 2.47 | 1108.44 | 2.51 |
| 90 | 890 | 0.005 | 0.041 | 6.317 | 3.757 | 0.036 | 6.078 | 0.041 | 0.037 | 2.06 | 924.81 | 2.46 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| | | Pervious | | | Impervious | | Total Rainfall | | Instant | Instant | Design | |
|-----------|------------|-------------------------|---------------|---------------|---------------|---------------|----------------|----------------|----------|-----------|----------|------|
| Time | Rainfall | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Flowrate | Flowrate | Flowrate | |
| Increment | Time (min) | Distribution (fraction) | Rainfall (in) | (in) | (cfs) | (gal/min) | (cfs) | |
| 91 | 900 | 0.005 | 0.041 | 6.357 | 3.793 | 0.036 | 6.119 | 0.041 | 0.037 | 2.06 | 925.79 | 2.39 |
| 92 | 910 | 0.005 | 0.041 | 6.398 | 3.829 | 0.036 | 6.159 | 0.041 | 0.037 | 2.06 | 926.77 | 2.34 |
| 93 | 920 | 0.005 | 0.041 | 6.439 | 3.865 | 0.036 | 6.200 | 0.041 | 0.037 | 2.07 | 927.73 | 2.29 |
| 94 | 930 | 0.005 | 0.041 | 6.479 | 3.901 | 0.036 | 6.241 | 0.041 | 0.037 | 2.07 | 928.68 | 2.25 |
| 95 | 940 | 0.005 | 0.041 | 6.520 | 3.937 | 0.036 | 6.281 | 0.041 | 0.037 | 2.07 | 929.62 | 2.22 |
| 96 | 950 | 0.005 | 0.041 | 6.561 | 3.973 | 0.036 | 6.322 | 0.041 | 0.037 | 2.07 | 930.54 | 2.19 |
| 97 | 960 | 0.005 | 0.041 | 6.602 | 4.009 | 0.036 | 6.363 | 0.041 | 0.037 | 2.08 | 931.45 | 2.17 |
| 98 | 970 | 0.005 | 0.041 | 6.642 | 4.046 | 0.036 | 6.403 | 0.041 | 0.037 | 2.08 | 932.35 | 2.16 |
| 99 | 980 | 0.005 | 0.041 | 6.683 | 4.082 | 0.036 | 6.444 | 0.041 | 0.037 | 2.08 | 933.23 | 2.14 |
| 100 | 990 | 0.005 | 0.041 | 6.724 | 4.118 | 0.036 | 6.485 | 0.041 | 0.037 | 2.08 | 934.11 | 2.13 |
| 101 | 1000 | 0.005 | 0.041 | 6.764 | 4.155 | 0.036 | 6.525 | 0.041 | 0.037 | 2.08 | 934.97 | 2.12 |
| 102 | 1010 | 0.004 | 0.033 | 6.797 | 4.184 | 0.029 | 6.558 | 0.033 | 0.030 | 1.67 | 748.59 | 2.08 |
| 103 | 1020 | 0.004 | 0.033 | 6.829 | 4.213 | 0.029 | 6.591 | 0.033 | 0.030 | 1.67 | 749.13 | 2.01 |
| 104 | 1030 | 0.004 | 0.033 | 6.862 | 4.242 | 0.029 | 6.623 | 0.033 | 0.030 | 1.67 | 749.66 | 1.95 |
| 105 | 1040 | 0.004 | 0.033 | 6.895 | 4.271 | 0.029 | 6.656 | 0.033 | 0.030 | 1.67 | 750.19 | 1.90 |
| 106 | 1050 | 0.004 | 0.033 | 6.927 | 4.300 | 0.029 | 6.688 | 0.033 | 0.030 | 1.67 | 750.71 | 1.86 |
| 107 | 1060 | 0.004 | 0.033 | 6.960 | 4.330 | 0.029 | 6.721 | 0.033 | 0.030 | 1.67 | 751.23 | 1.83 |
| 108 | 1070 | 0.004 | 0.033 | 6.992 | 4.359 | 0.029 | 6.753 | 0.033 | 0.030 | 1.67 | 751.74 | 1.80 |
| 109 | 1080 | 0.004 | 0.033 | 7.025 | 4.388 | 0.029 | 6.786 | 0.033 | 0.030 | 1.68 | 752.25 | 1.78 |
| 110 | 1090 | 0.004 | 0.033 | 7.057 | 4.417 | 0.029 | 6.818 | 0.033 | 0.030 | 1.68 | 752.75 | 1.76 |
| 111 | 1100 | 0.004 | 0.033 | 7.090 | 4.447 | 0.029 | 6.851 | 0.033 | 0.030 | 1.68 | 753.24 | 1.75 |
| 112 | 1110 | 0.004 | 0.033 | 7.123 | 4.476 | 0.029 | 6.883 | 0.033 | 0.030 | 1.68 | 753.73 | 1.73 |
| 113 | 1120 | 0.004 | 0.033 | 7.155 | 4.505 | 0.029 | 6.916 | 0.033 | 0.030 | 1.68 | 754.22 | 1.73 |
| 114 | 1130 | 0.004 | 0.033 | 7.188 | 4.535 | 0.029 | 6.948 | 0.033 | 0.030 | 1.68 | 754.70 | 1.72 |
| 115 | 1140 | 0.004 | 0.033 | 7.220 | 4.564 | 0.029 | 6.981 | 0.033 | 0.030 | 1.68 | 755.17 | 1.71 |
| 116 | 1150 | 0.004 | 0.033 | 7.253 | 4.594 | 0.029 | 7.013 | 0.033 | 0.030 | 1.68 | 755.64 | 1.71 |
| 117 | 1160 | 0.004 | 0.033 | 7.285 | 4.623 | 0.029 | 7.046 | 0.033 | 0.030 | 1.68 | 756.11 | 1.70 |
| 118 | 1170 | 0.004 | 0.033 | 7.318 | 4.653 | 0.029 | 7.079 | 0.033 | 0.030 | 1.69 | 756.57 | 1.70 |
| 119 | 1180 | 0.004 | 0.033 | 7.350 | 4.682 | 0.029 | 7.111 | 0.033 | 0.030 | 1.69 | 757.03 | 1.70 |
| 120 | 1190 | 0.004 | 0.033 | 7.383 | 4.712 | 0.030 | 7.144 | 0.033 | 0.030 | 1.69 | 757.48 | 1.70 |
| 121 | 1200 | 0.004 | 0.033 | 7.416 | 4.741 | 0.030 | 7.176 | 0.033 | 0.030 | 1.69 | 757.93 | 1.69 |
| 122 | 1210 | 0.004 | 0.033 | 7.448 | 4.771 | 0.030 | 7.209 | 0.033 | 0.030 | 1.69 | 758.37 | 1.69 |
| 123 | 1220 | 0.004 | 0.033 | 7.481 | 4.800 | 0.030 | 7.241 | 0.033 | 0.030 | 1.69 | 758.81 | 1.69 |
| 124 | 1230 | 0.004 | 0.033 | 7.513 | 4.830 | 0.030 | 7.274 | 0.033 | 0.030 | 1.69 | 759.24 | 1.69 |
| 125 | 1240 | 0.004 | 0.033 | 7.546 | 4.859 | 0.030 | 7.306 | 0.033 | 0.030 | 1.69 | 759.67 | 1.69 |
| 126 | 1250 | 0.004 | 0.033 | 7.578 | 4.889 | 0.030 | 7.339 | 0.033 | 0.030 | 1.69 | 760.10 | 1.69 |
| 127 | 1260 | 0.004 | 0.033 | 7.611 | 4.919 | 0.030 | 7.371 | 0.033 | 0.030 | 1.69 | 760.52 | 1.69 |
| 128 | 1270 | 0.004 | 0.033 | 7.643 | 4.948 | 0.030 | 7.404 | 0.033 | 0.030 | 1.70 | 760.94 | 1.69 |
| 129 | 1280 | 0.004 | 0.033 | 7.676 | 4.978 | 0.030 | 7.436 | 0.033 | 0.030 | 1.70 | 761.35 | 1.69 |
| 130 | 1290 | 0.004 | 0.033 | 7.709 | 5.008 | 0.030 | 7.469 | 0.033 | 0.030 | 1.70 | 761.76 | 1.69 |
| 131 | 1300 | 0.004 | 0.033 | 7.741 | 5.037 | 0.030 | 7.502 | 0.033 | 0.030 | 1.70 | 762.17 | 1.69 |
| 132 | 1310 | 0.004 | 0.033 | 7.774 | 5.067 | 0.030 | 7.534 | 0.033 | 0.030 | 1.70 | 762.57 | 1.70 |
| 133 | 1320 | 0.004 | 0.033 | 7.806 | 5.097 | 0.030 | 7.567 | 0.033 | 0.030 | 1.70 | 762.97 | 1.70 |
| 134 | 1330 | 0.004 | 0.033 | 7.839 | 5.127 | 0.030 | 7.599 | 0.033 | 0.030 | 1.70 | 763.36 | 1.70 |
| 135 | 1340 | 0.004 | 0.033 | 7.871 | 5.156 | 0.030 | 7.632 | 0.033 | 0.030 | 1.70 | 763.75 | 1.70 |

Santa Barbara Urban Hydrograph Method

Quantity Calculations (100 yr / 24-hour Storm)

Post-Development Conditions (Basin #2)

| | | | | Pervious | | Impervious | | | | | | |
|------------------|------------|-------------------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|--------------------|----------------|
| Time | | Rainfall | Incremental | Accumulated | Accumulated | Incremental | Accumulated | Incremental | Total Rainfall | Instant | Instant | Design |
| Increment | Time (min) | Distribution (fraction) | Rainfall (in) | (in) | Flowrate (cfs) | Flowrate (gal/min) | Flowrate (cfs) |
| 136 | 1350 | 0.004 | 0.033 | 7.904 | 5.186 | 0.030 | 7.664 | 0.033 | 0.030 | 1.70 | 764.14 | 1.70 |
| 137 | 1360 | 0.004 | 0.033 | 7.937 | 5.216 | 0.030 | 7.697 | 0.033 | 0.030 | 1.70 | 764.52 | 1.70 |
| 138 | 1370 | 0.004 | 0.033 | 7.969 | 5.246 | 0.030 | 7.729 | 0.033 | 0.030 | 1.70 | 764.90 | 1.70 |
| 139 | 1380 | 0.004 | 0.033 | 8.002 | 5.276 | 0.030 | 7.762 | 0.033 | 0.030 | 1.71 | 765.28 | 1.70 |
| 140 | 1390 | 0.004 | 0.033 | 8.034 | 5.306 | 0.030 | 7.794 | 0.033 | 0.030 | 1.71 | 765.65 | 1.70 |
| 141 | 1400 | 0.004 | 0.033 | 8.067 | 5.336 | 0.030 | 7.827 | 0.033 | 0.030 | 1.71 | 766.02 | 1.70 |
| 142 | 1410 | 0.004 | 0.033 | 8.099 | 5.366 | 0.030 | 7.859 | 0.033 | 0.030 | 1.71 | 766.38 | 1.70 |
| 143 | 1420 | 0.004 | 0.033 | 8.132 | 5.395 | 0.030 | 7.892 | 0.033 | 0.030 | 1.71 | 766.75 | 1.70 |
| 144 | 1430 | 0.004 | 0.033 | 8.164 | 5.425 | 0.030 | 7.925 | 0.033 | 0.030 | 1.71 | 767.10 | 1.70 |
| 145 | 1440 | 0.004 | 0.033 | 8.197 | 5.455 | 0.030 | 7.957 | 0.033 | 0.030 | 1.71 | 767.46 | 1.71 |
| Peak Flow | | | | | | | | | | 18.68 | 8381.50 | 7.76 |

Coast Central Transfer Station

SBUHM Results

Stormwater Peak Flowrates in cubic feet per second (cfs)

Channel Velocities in feet per second (fps)

Stormwater Peak Flowrates

Pre-Development - Existing Conditions (cfs)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 3.8 | 8.3 | 10.9 | 12.8 | 14.7 |
| 2 | 4.6 | 10.0 | 13.2 | 15.5 | 17.8 |

Post-Development (cfs)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 5.2 | 9.7 | 12.4 | 14.3 | 16.1 |
| 2 | 5.5 | 11.0 | 14.1 | 16.4 | 18.7 |

Stormwater Peak Flowrates Percent Increase

Percent Increase
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 25.9% | 14.6% | 11.6% | 10.0% | 8.8% |
| 2 | 15.7% | 8.3% | 6.4% | 5.5% | 4.9% |

Channel Velocities - Slope Conveyance Method

Pre-Development Channel Velocities (fps)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 2.4 | 2.9 | 3.1 | 3.2 | 3.4 |
| 2 | 2.5 | 3.0 | 3.3 | 3.4 | 3.5 |

Post-Development Channel Velocities (fps)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 2.6 | 3.0 | 3.2 | 3.3 | 3.4 |
| 2 | 2.6 | 3.1 | 3.3 | 3.5 | 3.6 |

Channel Water Surface Elevations - Slope Conveyance Method

Pre-Development Channel Water Surface Elevations (fps)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 0.54 | 0.76 | 0.86 | 0.93 | 0.99 |
| 2 | 0.59 | 0.83 | 0.94 | 1.01 | 1.07 |

Post-Development Channel Water Surface Elevations (fps)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 0.62 | 0.82 | 0.91 | 0.97 | 1.03 |
| 2 | 0.64 | 0.86 | 0.97 | 1.04 | 1.10 |

Appendix E – Channel and Detention Basin Hydraulic Analyses

Coast Central Transfer Station
Slope Conveyance Method
Channel Analyses

Inputs:

| | |
|----------------------------------|------|
| Channel Width (ft): | 2 |
| Channel Side Slope (1:X): | 2 |
| Slope (%): | 1% |
| Manning's Roughness Coefficient: | 0.03 |

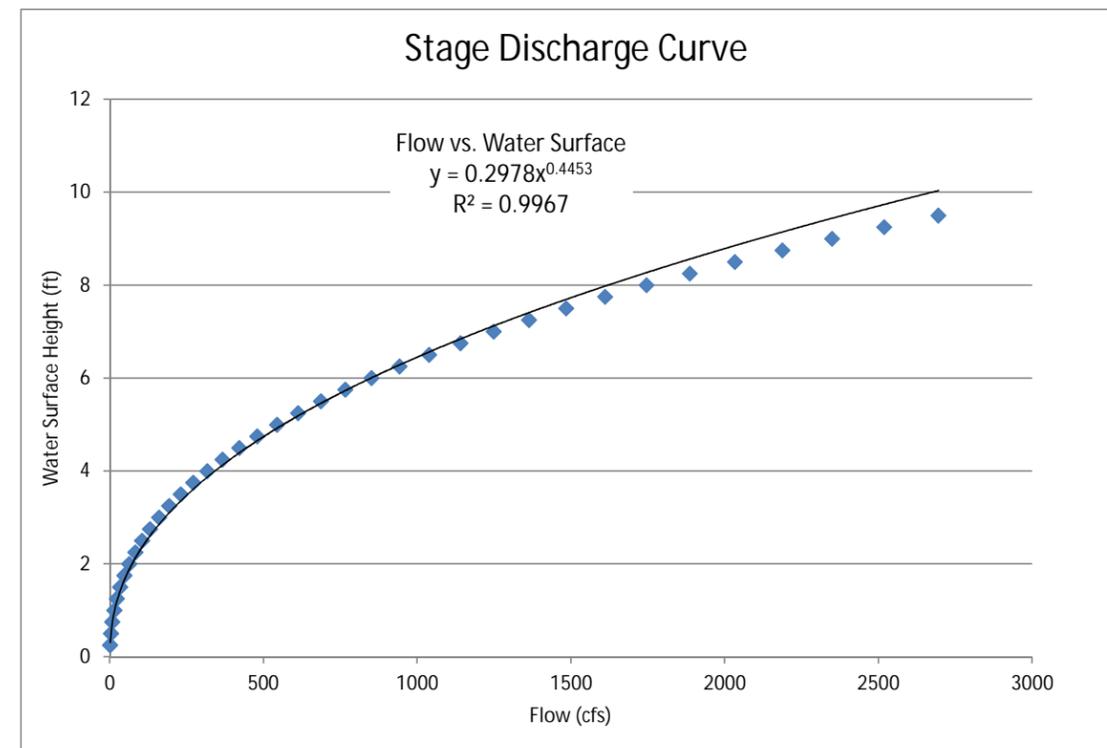
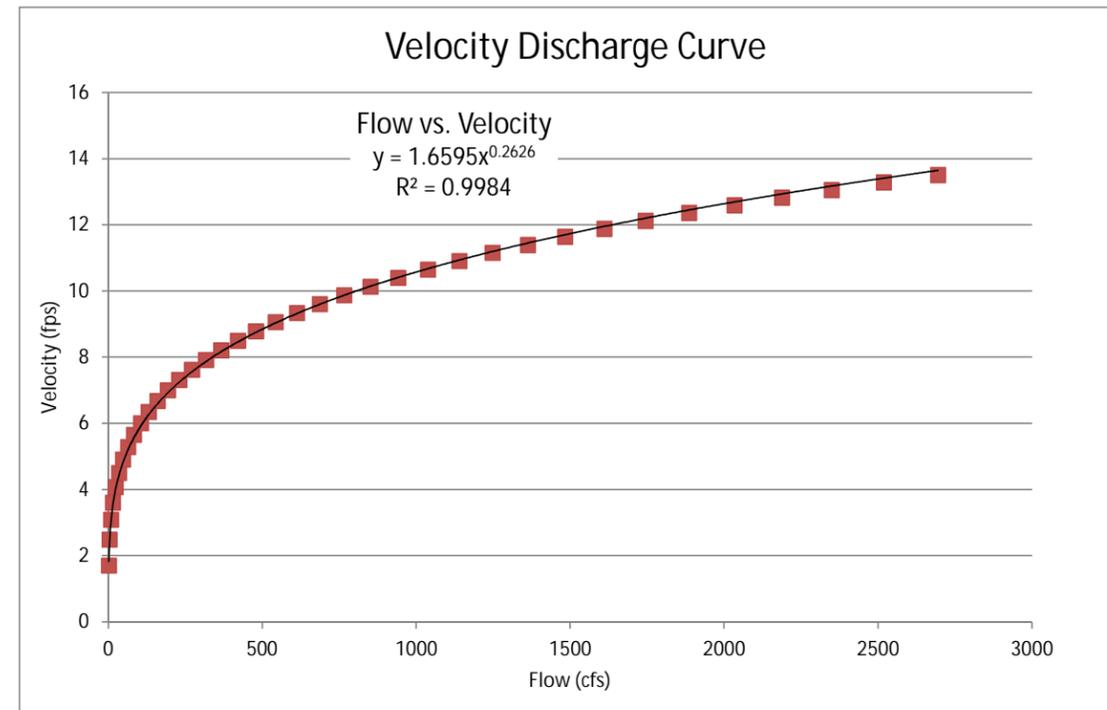
| Water Surface Elev (ft): | Calculations: | | |
|--------------------------|------------------------|-----------------|-------------|
| | Hydraulic Radius (ft): | Velocity (fps): | Flow (cfs): |
| 0.25 | 0.20 | 1.70 | 1.06 |
| 0.50 | 0.35 | 2.49 | 3.73 |
| 0.75 | 0.49 | 3.09 | 8.11 |
| 1.00 | 0.62 | 3.60 | 14.41 |
| 1.25 | 0.74 | 4.07 | 22.88 |
| 1.50 | 0.86 | 4.50 | 33.72 |
| 1.75 | 0.98 | 4.90 | 47.15 |
| 2.00 | 1.10 | 5.28 | 63.37 |
| 2.25 | 1.21 | 5.65 | 82.59 |
| 2.50 | 1.33 | 6.00 | 105.00 |
| 2.75 | 1.44 | 6.34 | 130.78 |
| 3.00 | 1.56 | 6.67 | 160.11 |
| 3.25 | 1.67 | 6.99 | 193.19 |
| 3.50 | 1.78 | 7.31 | 230.17 |
| 3.75 | 1.90 | 7.61 | 271.23 |
| 4.00 | 2.01 | 7.91 | 316.54 |
| 4.25 | 2.12 | 8.21 | 366.26 |
| 4.50 | 2.24 | 8.50 | 420.56 |
| 4.75 | 2.35 | 8.78 | 479.58 |
| 5.00 | 2.46 | 9.06 | 543.49 |
| 5.25 | 2.58 | 9.33 | 612.44 |
| 5.50 | 2.69 | 9.60 | 686.58 |
| 5.75 | 2.80 | 9.87 | 766.06 |
| 6.00 | 2.91 | 10.13 | 851.02 |
| 6.25 | 3.03 | 10.39 | 941.61 |
| 6.50 | 3.14 | 10.65 | 1037.98 |
| 6.75 | 3.25 | 10.90 | 1140.26 |
| 7.00 | 3.36 | 11.15 | 1248.60 |
| 7.25 | 3.48 | 11.39 | 1363.13 |
| 7.50 | 3.59 | 11.64 | 1483.98 |
| 7.75 | 3.70 | 11.88 | 1611.30 |
| 8.00 | 3.81 | 12.12 | 1745.22 |
| 8.25 | 3.92 | 12.36 | 1885.87 |
| 8.50 | 4.04 | 12.59 | 2033.37 |
| 8.75 | 4.15 | 12.82 | 2187.87 |
| 9.00 | 4.26 | 13.05 | 2349.49 |
| 9.25 | 4.37 | 13.28 | 2518.35 |
| 9.50 | 4.48 | 13.51 | 2694.59 |

Assumptions:

1. The width, side slopes, and channel slopes are assumed values, intended to be generally representative of the average conditions at the site.

References:

- Fluid Mechanics, 6th Edition, Frank M. White, University of Rhode Island, 2008, McGraw Hill, Boston, MA.
- Hydraulic Design Manual, Texas Department of Transportation, 2011, <http://onlinemanuals.txdot.gov/txdotmanuals/hyd/index.htm>



Coast Central Transfer Station

SBUHM Results

Stormwater Peak Flowrates in cubic feet per second (cfs)

Channel Velocities in feet per second (fps)

Stormwater Peak Flowrates

Pre-Development - Existing Conditions (cfs)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 3.8 | 8.3 | 10.9 | 12.8 | 14.7 |
| 2 | 4.6 | 10.0 | 13.2 | 15.5 | 17.8 |

Post-Development (cfs)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 5.2 | 9.7 | 12.4 | 14.3 | 16.1 |
| 2 | 5.5 | 11.0 | 14.1 | 16.4 | 18.7 |

Stormwater Peak Flowrates Percent Increase

Percent Increase
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 25.9% | 14.6% | 11.6% | 10.0% | 8.8% |
| 2 | 15.7% | 8.3% | 6.4% | 5.5% | 4.9% |

Channel Velocities - Slope Conveyance Method

Pre-Development Channel Velocities (fps)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 2.4 | 2.9 | 3.1 | 3.2 | 3.4 |
| 2 | 2.5 | 3.0 | 3.3 | 3.4 | 3.5 |

Post-Development Channel Velocities (fps)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 2.6 | 3.0 | 3.2 | 3.3 | 3.4 |
| 2 | 2.6 | 3.1 | 3.3 | 3.5 | 3.6 |

Channel Water Surface Elevations - Slope Conveyance Method

Pre-Development Channel Water Surface Elevations (fps)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 0.54 | 0.76 | 0.86 | 0.93 | 0.99 |
| 2 | 0.59 | 0.83 | 0.94 | 1.01 | 1.07 |

Post-Development Channel Water Surface Elevations (fps)
Design Storm Events

| Basin | 2-year/24-hour | 10-year/24-hour | 25-year/24-hour | 50-year/24-hour | 100-year/24-hour |
|-------|----------------|-----------------|-----------------|-----------------|------------------|
| 1 | 0.62 | 0.82 | 0.91 | 0.97 | 1.03 |
| 2 | 0.64 | 0.86 | 0.97 | 1.04 | 1.10 |

Modified Rational Equation

Pre-Development Runoff Coefficients

C Values

| | | |
|-------------------|------|---|
| Relief | 0.14 | Relatively flat land with average slopes of 0 to 5% |
| Soil Infiltration | 0.12 | Slow to take up water, clay or shallow loam soils of low infiltration capacity, imperfectly or poorly drained |
| Vegetal Cover | 0.06 | Good to excellent about 90% of the drainage area in good grassland, woodland or equivalent cover. |
| Surface Storage | 0.1 | Low; well defined system of small drainageways; no ponds or marshes |

Pre-Development Composite C 0.42

source: Caltrans Highway Design Manual Figure 819.2A (<http://www.dot.ca.gov/hq/oppd/hdm/pdf/chp0810.pdf>)

Post Development

| | Basin 1 | | Basin 2 | |
|------------------------------|---|------------------|-----------------|------------------|
| | Pre-Development | Post Development | Pre-Development | Post Development |
| Developed Area (ac) | 0 | 2.1 | 0 | 1.6 |
| Undeveloped Area (ac) | 7.7 | 5.6 | 9.3 | 7.7 |
| Developed Area C Value | 0.95 *Assumed to be impervious surface for roofs and asphalt paving | | | |
| Post-Development Composite C | 0.42 | 0.56 | 0.42 | 0.51 |

Coast Central Transfer Station
Detention Basin Sizing

Detention Basin Sizing

Post-Development Conditions
Detention Basin Volume

| Basin | Rainfall Intensity (in/hr) | Runoff Coefficient | Area (acres) | Q ₁₀ (cfs) | Area of Pond (ft ²) | Volume of Pond (ac-ft) |
|-------|----------------------------|--------------------|--------------|-----------------------|---------------------------------|------------------------|
| 1 | 3.10 | 0.56 | 7.7 | 13.5 | 16,845 | 0.77 |
| 2 | 3.10 | 0.51 | 9.3 | 14.7 | 18,422 | 0.85 |

Rainfall intensity assumes 5 min time of concentration
Note: Detention Volumes based on the Rational Method

Settling Velocities for Particle Sizes

| | Particle Size | Settling velocity |
|-------------|---------------|-------------------|
| Coarse sand | 0.5 | 0.19 |
| medium sand | 0.2 | 0.067 |
| fine sand | 0.1 | 0.023 |
| coarse silt | 0.05 | 0.0062 |
| medium silt | 0.02 | 0.00096 |
| fine silt | 0.01 | 0.00024 |
| clay | 0.005 | 0.00006 |

Basin Sizing

| Drainage Area | | 2-year/24-hour | | | 10-year/24-hour | | | 50-year/24-hour | | | 100-year/24-hour | | |
|---------------|----------------------------|----------------|--------------|---------|-----------------|--------------|---------|-----------------|--------------|---------|------------------|--------------|---------|
| | | Pre-Project | Post-Project | % Diff. | Pre-Project | Post-Project | % Diff. | Pre-Project | Post-Project | % Diff. | Pre-Project | Post-Project | % Diff. |
| Basin 1 | Peak Flow (cfs) | 3.8 | 5.2 | 26% | 8 | 10 | 15% | 12.8 | 14.3 | 10% | 14.7 | 16.1 | 9% |
| | Total Storm Volume (ac-ft) | 0.22 | 0.30 | 26% | 0.48 | 0.56 | 15% | 0.74 | 0.82 | 10% | 0.84 | 0.92 | 9% |
| Basin 2 | Peak Flow (cfs) | 4.6 | 5.5 | 16% | 10.0 | 11.0 | 8% | 15.5 | 16.4 | 6% | 17.8 | 18.7 | 5% |
| | Total Storm Volume (ac-ft) | 0.27 | 0.32 | 16% | 0.58 | 0.63 | 8% | 0.89 | 0.94 | 6% | 1.02 | 1.07 | 5% |

Note: Detention Volumes based on the SBUH Method

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| | | Name | Signature | Name | Signature | Date |
| 1 | Dagan Short | Misha Schwarz | | Steve Allen | | |
| | | | | | | |
| | | | | | | |

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Appendix H

Traffic Impact Study



MENDOCINO SOLID WASTE
MANAGEMENT AUTHORITY
CENTRAL COAST TRANSFER
STATION PROJECT
TRAFFIC IMPACT ANALYSIS REPORT

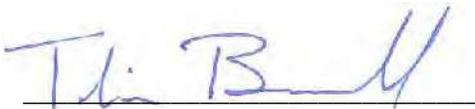


**TRAFFIC IMPACT ANALYSIS REPORT
FOR MENDOCINO SOLID WASTE MANAGEMENT AUTHORITY CENTRAL COAST TRANSFER
STATION PROJECT**

Project No. 8411065

Prepared for: Mendocino Solid Waste Management Authority

Prepared by:



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September 2014

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- Appendix A Intersection Turning Movement Count Data
- Appendix B Historic Collision Analysis
- Appendix C Existing Conditions Scenario Level of Service and Queue Calculations
- Appendix D Mendocino Solid Waste Management Authority Memorandum - Projected Traffic, Hwy 20 Transfer Station

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- Appendix G Existing Plus Project Conditions Scenario Level of Service and Queue Calculations
- Appendix H Traffic Signal Warrant No. 3 Worksheets

1. Study Introduction

This report presents an analysis of the traffic and transportation impacts associated with the proposal to construct a new solid waste transfer station facility for the Central Coast region of Mendocino County. The new station facility, to be owned by the County of Mendocino and City of Fort Bragg, and operated by a private contractor, would allow direct haul of all solid waste to a destination landfill. The Central Coast region of Mendocino County extends from the mouth of the Navarro River north to the southern edge of the town of Westport, and inland from the Pacific Ocean to a point approximately half-way to the inland valleys. It corresponds to the Coastal Zone of Mendocino County Solid Waste Refuse Collection Area No. 2, together with the incorporated City of Fort Bragg. In 2013, this watershed generated 11,882 tons of solid waste, most of which is transferred by Empire Waste Management truck haul pods and debris boxes. The new waste transfer station, proposed to be located within the Jackson Demonstration State Forest (JDSF) at 30075 State Route (SR-) 20, would be held in title by the City of Fort Bragg and County of Mendocino. However, the Mendocino Solid Waste Management Authority (MSWMA), a private solid waste management company, would be retained under a long-term contract to design, build, and operate the facility.

The traffic study was completed in accordance with the County of Mendocino, Caltrans District 1, and CEQA guidelines, in coordination with MSWMA, and is consistent with previous similar analyses and standard traffic engineering techniques. The traffic impact analysis provides an evaluation of operating conditions during weekday morning (AM) and evening (PM) peak periods, and weekend mid-day peak periods. These peak period scenarios were analyzed under Existing, Existing plus Project, Cumulative, and Cumulative plus Project conditions. Cumulative scenarios are based on Caltrans District 1 20-year growth projections for State Highways, and were compared against the Mendocino Council of Governments (MCOG) Travel Demand Forecasting Model and the Mendocino County General Plan 2030 for adequacy. In addition to analysis of the operational effect of motor vehicles upon the study area roadway network, this study provides evaluation of existing bicycle and pedestrian facilities along and connecting to the proposed site, historical collisions within the study area roadway network, and existing transit service utilizing the study corridor.

2. Study Parameters

2.1 Prelude

The purpose of a traffic impact study is to provide MSWMA and policy makers such as Planning Commissioners, Supervisors, and Council members with data that they can use to make an informed decision regarding the potential traffic impacts of a proposed project, and any associated improvements that would be required in order to mitigate these impacts to below a level of significance. Traffic impacts are typically evaluated by determining the number of trips the new use would be expected to generate, distributing the new trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to a proposed project, then analyzing the impact the new traffic would be expected to have on critical intersections included in the study.

Two (2) intersections were selected for analysis as the locations most likely to experience impacts due to project-generated traffic. These were the intersections of SR-20 and State Route (SR-) 1, and SR-20 and the proposed project access. Presently the existing study intersection of SR-20 and SR-1 is operating acceptably at LOS B or better during the Existing Condition peak periods.

2.2 Study Periods

The potential traffic and circulation impacts were analyzed during the weekday morning (AM) and evening (PM) peak hours, and during the weekend mid-day peak hours. The weekday AM peak hour is defined as the hour with the highest traffic volume within the AM peak period (7:00 to 9:00 a.m.). The weekday PM peak hour is defined as the hour with the highest traffic volume within the PM peak period (4:00 to 6:00 p.m.). The weekend midday peak hour is defined as the hour with the highest traffic volume within the midday peak period (Saturday at 11:00 a.m. to 1:00 p.m.). These periods were chosen in order to demonstrate a comprehensive analysis of the Study area, as self-haul demand could be expected to be higher during the weekend. Intersection turning movement counts are provided with Appendix A.

2.3 Study Scenarios

The Project being proposed by the MSWMA is to develop a 17-acre site in Jackson Demonstration State Forest (JDSF) along SR-20 as a solid waste transfer station. The facility would replace the existing Caspar self-haul transfer station, located at the end of Prairie Way in Casper, while also serving the compactor and roll-off trucks of Empire Waste Management, the franchised solid waste collector for the City of Fort Bragg and the County Solid Waste Refuse Collection Area #2. The transfer station would allow for the region's solid waste to be loaded for direct haul to a destination landfill, rather than being dumped and reloaded at the Willits Transfer Station, as is the current practice.

Peak period scenarios were analyzed under Existing, Existing plus Project, Cumulative, and Cumulative plus Project conditions. The Existing Condition scenarios are based on intersection turning movement collected on Thursday, August 22, 2013 and Saturday, August 24, 2013. The Cumulative Condition scenarios are based on Caltrans District 1 20-year growth projections for State Highways, and were compared against the Mendocino Council of Governments (MCOG) Travel Demand Forecasting Model and the Mendocino County General Plan 2030 for adequacy.

2.4 Measures of Effectiveness

Caltrans maintains jurisdiction over the operation of the study area highways and intersections (i.e.: Highway 20 and Highway 1). Caltrans uses measures of effectiveness (MOEs) to describe the measures best suited for analyzing State highway facilities. MOEs are calculated performance measures that reflect the operating conditions of a facility, given a set of roadway, traffic, and control conditions. Table 1 summarizes the MOEs by facility type recommended by Caltrans, and the MOEs used in this study.

Table 1 Measures of Effectiveness (MOE) by Facility Type

| Type of Facility | Caltrans MOE ¹ | Study MOE |
|-----------------------------|-------------------------------------|-------------------------------------|
| Signalized Intersections | Control Delay per Vehicle (sec/veh) | Control Delay per Vehicle (sec/veh) |
| Un-signalized Intersections | Control Delay per Vehicle (sec/veh) | Control Delay per Vehicle (sec/veh) |

¹Source: (Caltrans, 2002).

2.5 Thresholds of Significance

Title 14, Chapter 3 Article 20 §§15382 of the California Code of Regulations defines a *significant effect on the environment* as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project. Thresholds of significance are principally used to determine whether a project may have a significant environmental effect. A threshold of significance is a quantitative or qualitative standard, or set of criteria from which the significance of a given environmental effect may be determined. In the context of traffic, levels of service based standards are typically used to establish thresholds of significance and qualify potential impacts.

2.5.1 State – California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for planning, design, construction, and maintenance of all State highways. SR-20 is adjoining and south of the project site, and would provide access to the project site. SR-1 connects Fort Bragg and other coastal communities to SR-20. Specific to this study, the signalized intersection of SR-20 and SR-1 is under the jurisdiction of Caltrans.

The Caltrans Guide for the Preparation of Traffic Impact Studies (2002) includes criteria for evaluating the effects of land use development and changes to the circulation system on state highways. The Guide defines when traffic studies should be conducted to address impacts to state facilities. The Guide states that Measures of Effectiveness (MOEs) are used to evaluate Caltrans facilities, and provides a Level of Service significance threshold for signalized intersections. Specifically, the guide states that the agency strives to maintain a LOS value of C or better at signalized intersections. The Guide states, however, that the appropriate target LOS varies by facility and congestion level, and is defined differently by Caltrans depending on the analyzed facility.

2.5.2 Mendocino County General Plan

The *County of Mendocino General Plan* provides goals and policies for roadway systems and transportation corridors within the county. While the study area roadway network all falls within the limits of Mendocino County, the *General Plan* does not provide explicit threshold criteria for intersections. With State Route 20 being under the jurisdiction of Caltrans, the intersection operation threshold criteria set

forth by Caltrans were the only ones considered with this study. Outside of intersection operations, the following are the goals and policies from the *General Plan* that are applicable to the project: **Goal DE-9 (Road Systems): A countywide road system that provides safe, efficient and attractive access, coordinated with interstate, state, local and area-wide systems.**

- Policy DE-126: Provide for multiple transportation modes and functions within transportation corridors and rights-of-way constructed by project developers or using appropriate grants funding.
- Policy DE-128: Ensure that transportation infrastructure accommodates the safety and mobility of motorists, pedestrians, bicyclists, and persons in wheelchairs.
- Policy DE-136: The County will ensure that development projects which propose direct access to a state highway have legal entitlements for such access.
- Policy DE-141: The County encourages development using existing roads with available capacity prior to locating development in areas that require new transportation facilities.
- Policy DE-145: Maximize the compatibility of major highway and road realignments, extensions and capacity-increasing projects with community objectives, and minimize impacts on commercial areas, neighborhoods, and resources.
- Policy DE-148: Land divisions and other discretionary projects shall not be approved until access and road improvements adequate for the intended uses, density or intensity are identified and constructed or funding mechanisms are in place.
- Policy DE-149: Major development applications shall include traffic studies to evaluate and mitigate cumulative effects on network level of service and safety.

2.5.3 City of Fort Bragg

The *Fort Bragg Coastal General Plan* (City of Fort Bragg, 2008) establishes minimum level of service standards (per Policy C-1.1) for various roadway facilities. The following are standards that are applicable to the study area:

- Signalized and All-Way-Stop Intersections along SR-1: LOS D

Since Caltrans standards provide a more stringent significance threshold for the intersection of SR1 and SR-20 than that provided by the City of Fort Bragg, the Caltrans significance thresholds shall be the determining factors to which operations of this intersection should be compared.

2.6 Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. The LOS designation for intersections is generally accompanied by a unit of measure which indicates a level of delay.

The two study intersections were analyzed using methodologies from the *Highway Capacity Manual 2010*¹. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

2.6.1 Signalized Intersections (SR-20/SR-1)

The signalized methodology is based on factors including traffic volumes, green time for each movement, phasing, whether or not the signals are coordinated, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. The ranges of delay associated with the various signalized levels of service are indicated in Table 2.

2.6.2 Unsignalized Intersections (Entrance)

The methodology for intersections with all-way or side street stop controls, those which are “unsignalized,” is based on using the unsignalized intersection capacity method. For side street stop controls, the method determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. The movement with the highest level of delay is presented as the Worst Case Level of Service. The ranges of delay associated with the various unsignalized levels of service are indicated in Table 3.

2.7 Vehicle Queuing

Vehicle queuing analysis is completed for signalized study intersections to assess the capacity of intersection movements to accommodate the number of vehicles expected to wait at the intersections before being able to pass through or turn. This analysis is important because if there is not enough queuing space between intersections, in left-turn or right-turn pockets, the overflow of vehicles can obstruct the operations of the roadway.

For the signalized intersection of SR-20 and SR-1, the Synchro software program was used to determine the 50th percentile vehicle queue, which is the maximum back of queue on a typical cycle. The queue analysis determines the 50th percentile movement queue lengths based on HCM2010 methodology for movements with storage lanes.

As the Highway Capacity Manual does not provide specific guidance for the procedure to determine the length of vehicle queues at unsignalized intersections, queuing analysis at the proposed intersection of SR-20 and the project access entrance was not explicitly performed as a part of this study. However, the proposed configuration of this unsignalized intersection assumed with the associated operations analysis takes into account discussions with Caltrans regarding provisions for ingress and egress from the project site. Traffic signal warrant analysis was performed for this intersection as a part of this study in order to verify that no additional traffic control measures should be considered. Further discussion regarding the operation of this intersection, as it applies to vehicle queuing, is provided with the analysis portion of this study.

Table 2 Signalized Level of Service

| Level of Service | Description | Average Control Delay (Seconds Per Vehicle) |
|------------------|---|---|
| A | Operations with very low delay occurring with favorable progression and/or short cycle lengths. | < 10.0 |
| B | Operations with low delay occurring with good progression and/or short cycle lengths. | 10.1 to 20.0 |
| C | Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear. | 20.1 to 35.0 |
| D | Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and/or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable. | 35.1 to 55.0 |
| E | Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay. | 55.1 to 80.0 |
| F | Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths. | > 80.0 |

Source: 2010 Highway Capacity Manual (Transportation Research Board, 2010)

Table 3 Unsignalized Level of Service

| Level of Service | Description | Average Control Delay (Seconds Per Vehicle) |
|------------------|---|---|
| A | Little or no delay | < 10.0 |
| B | Short traffic delays | 10.1 to 15.0 |
| C | Average traffic delays | 15.1 to 25.0 |
| D | Long traffic delays | 25.1 to 35.0 |
| E | Very long traffic delays | 35.1 to 50.0 |
| F | Extreme traffic delays with intersection capacity exceeded (for an all-way stop), or with approach/turn movement capacity exceeded (for a side street stop controlled intersection) | > 50.0 |

Source: 2010 Highway Capacity Manual (Transportation Research Board, 2010).

2.8 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to transportation, as defined by the CEQA Guidelines (Appendix G), if it would:

1. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

2. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
4. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
5. Result in inadequate emergency access; or
6. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

2.8.1 Areas of No Project Impact

Construction and operation of the project would not result in impacts related to the following significance criteria and are therefore not discussed further in the impact analysis section, for the following reasons:

- ***Would the Project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?*** Mendocino County is considered rural and has no Congestion Management Agency. Therefore, no conflict with an applicable congestion management program would occur. The significance criterion related to a conflict with an applicable congestion management program is not applicable to the proposed project and is not discussed further.
- ***Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*** The proposed project is not located within an airport land use plan or within two miles of a public airport. Project construction and operation would include only ground-based travel. Therefore this significance criterion is not applicable to the proposed project and is not discussed further.

3. Existing Conditions

Currently, the region's curbside solid waste is collected by Empire Waste Management and stored at Empire Waste Management's truck depot at 219 Pudding Creek Road, Fort Bragg. This waste is then hauled approximately 35 miles east on SR-20 to the Willits Transfer Station, where it is reloaded for long-haul to Potrero Hills Landfill in Suisun City, California. Empire Waste Management also collects solid waste in roll-off boxes (also known as debris boxes) which are hauled two-at-a-time to Willits Transfer Station. Solid waste from private vehicles is received at the Caspar self-haul transfer station at 14000 Prairie Way, Caspar, the site of a closed landfill. The waste is received in debris boxes and pods, which are hauled by Empire Waste Management to the Willits Transfer Station.

This section describes the existing conditions at the study intersections and roadways during both the weekday a.m. and p.m. peak hours and weekend mid-day peak hour based on peak hour traffic conditions. Also included is a discussion of transportation facilities in the project area, including the roadway network, transit services, and bicycle and pedestrian facilities.

3.1 Study Area

3.1.1 Roadways

The roadways analyzed in this study are functionally classified as state highways. Highways are high-speed limited access roadways serving primarily regional and county-wide travel.

SR-1 is a four-lane or two-lane highway in the vicinity of the proposed project site. It runs in a north/south direction and passes through the City of Fort Bragg. The proposed project site is located approximately two miles to the east of SR-1. The posted speed limit on SR-1 is currently 40 miles per hour (mph). At its intersection with SR-20, SR-1 features a dual left turn lane and one through lane in the southbound direction, and a dual through lane with a channelized right turn lane in the northbound direction.

SR-20 is a two-lane east/west highway which terminates at SR 1. SR-20 is planned to provide direct access to the proposed project site, approximately two miles east of the SR-1/SR-20 intersection. The posted speed limit on SR-20 is currently 45 mph. The westbound approach of SR-20 to SR-1 features dedicated left and right-turn lanes.

3.1.2 Transit Service

The Mendocino Transit Authority (MTA) provides regional transit service on a daily scheduled basis to the City of Fort Bragg Monday through Saturday. Transit Route 5 (BraggAbout) provides local service in and around the City of Fort Bragg. There are two bus stops for Transit Line 5 in the study area, one at College of the Redwoods off of Ocean View Drive and one at the Boatyard Shopping Center off of Boatyard Drive. Transit Route 60 (The Coaster) provides regional service between Fort Bragg and Mendocino/Navarro River. Transit Line 60 connects with Transit Lines 5 and 65 at the College of the Redwoods and Boatyard Shopping Center stops. Transit Line 65 (CC Rider) provides regional service between Fort Bragg, Willits, Ukiah and Santa Rosa. In the immediate vicinity of the project frontage there are no transit facilities or stops.

MTA service connects with Greyhound bus service, Amtrak train service, Sonoma County Transit, Golden Gate Transit, Lake Transit, and Santa Rosa CityBus.

3.1.3 Rail Service

The Skunk Train is a scenic tourist train that runs between Willits and Fort Bragg seven days a week. Trains depart daily in the morning, with the trip taking approximately 3.5 hours. This rail line is not a commuter rail. In the immediate vicinity of the project there are no rail facilities or stops.

3.1.4 Bicycle and Pedestrian Facilities

SR-1 makes up part of the designated Pacific Coast Bike Route (PCBR), an interstate bike route that extends along the Pacific Coast. The current PCBR alignment remains on SR-1 through the study area. Class II bike lanes are present in various locations along both sides of SR-1 and SR-20 as a paved shoulder separated from vehicular traffic by a striped edge of travel way line. The bike lane is generally between 4 feet and 6 feet wide. There are no existing bicycle facilities along the frontage of the project site, with Class II lanes having terminated approximately 1 mile west.

Pedestrian facilities in the study area are limited, with no existing sidewalks along SR-20 or in the vicinity of the intersection of SR-1 and SR-20. Although crosswalks are present at the intersection of SR-1 and SR-20, existing curb ramps are not compliant with Americans with Disabilities Act (ADA) standards. This appears to be a result of the age of the constructed facilities, and the lack of contiguous compliant facilities to adjacent land uses. At the intersection and adjacent corridor, pedestrians walk directly in the roadway, on paved or gravel shoulders where they exist, or off the pavement adjacent to the roadway. Pedestrian traffic in the vicinity of the project is limited, as the area is at the edge of the rural residential development and nearly 3 miles from any commercial facilities.

3.1.5 Collision Analysis

Caltrans District 1 performed a safety analysis for a half mile segment of SR-20 in the vicinity proposed for the waste transfer station project access. The analysis covered a 3-year time period encompassing the years 2009 through 2011. The analysis concluded that the three year period only saw two total collisions, with no collisions occurring within an intersection, and that the total collision rate within this corridor is 48% less than the statewide average. The Caltrans memorandum summarizing the details of this analysis is included with Appendix B.

Additional queries on the California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) were performed as a part of this study for the years 2012 and 2013. These records show that ten accidents have occurred at the intersection of SR-20 and SR-1 over the two year period, with four of these collisions resulting in injury. In addition, the records show that the corridor of SR-20 between SR-1 and the proposed MSWMA entrance has seen five collisions over the two year period, three of which resulted in injury. The records do not show any over-riding trends among the collisions that indicate sight distance or other design-related issues within the corridors. These records are included with Appendix B.

3.1.6 Emergency Services

Fire protection in Mendocino County is provided by local districts, the cities of Ukiah and Fort Bragg, the CAL FIRE and the U.S. Forest Service. The project site is within the Fort Bragg Rural Fire Protection

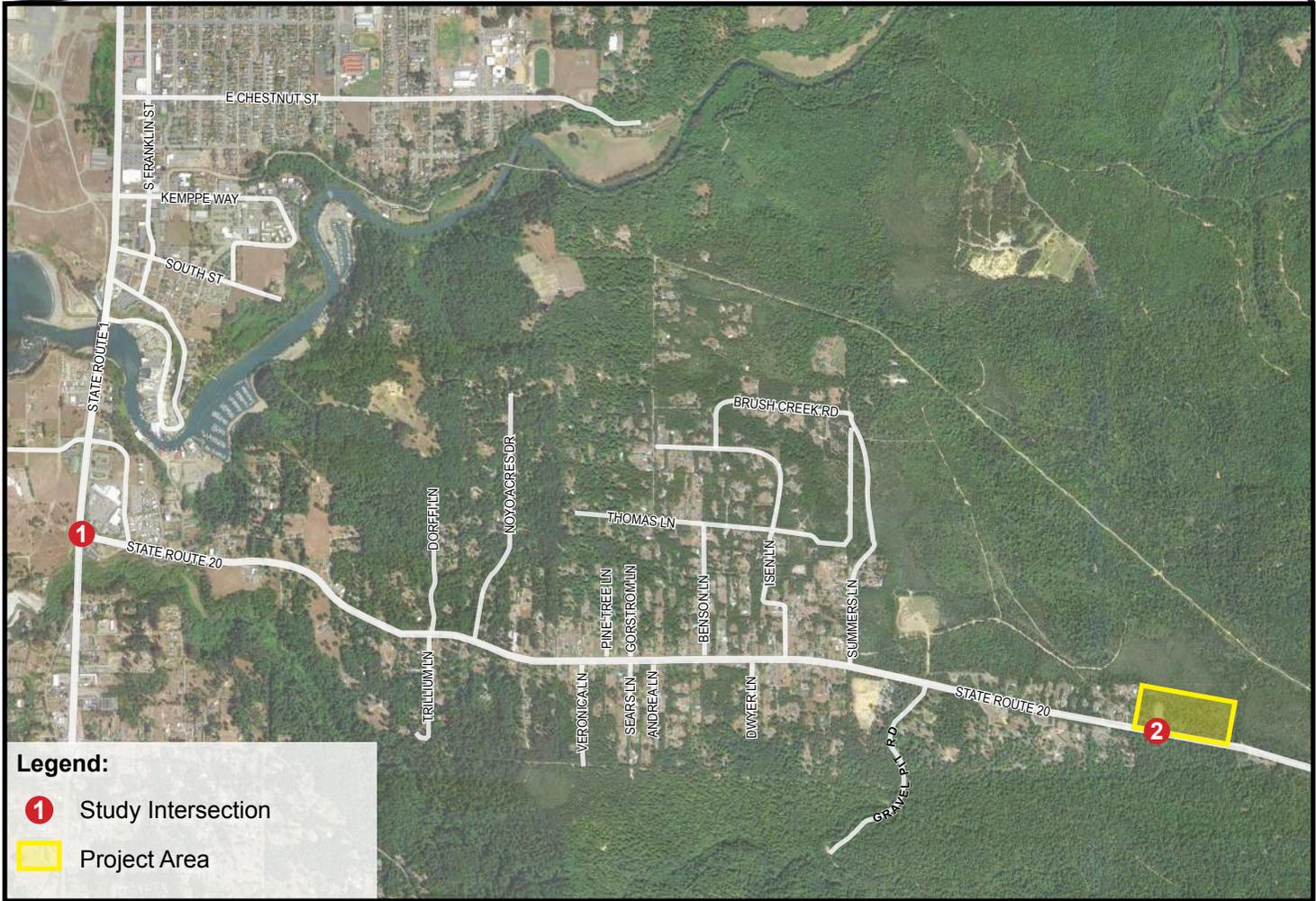
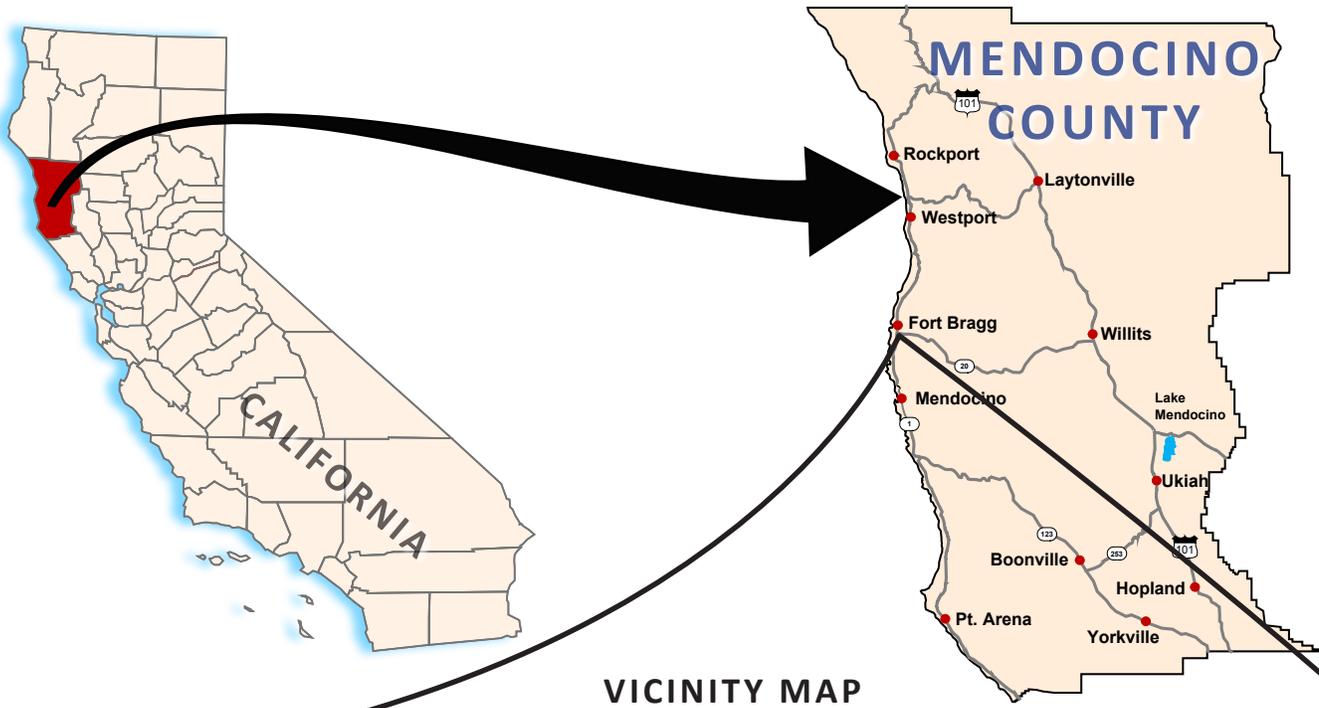
District. CAL FIRE identifies fire hazard severity zones in State Responsibility Areas (SRA) throughout California. The project site is located in a very high fire hazard severity zone (CAL FIRE 2007). The County of Mendocino Office of Emergency Services coordinates emergency response in Mendocino County through the Fire and Rescue Mutual Aid Coordinator. The Fire and Rescue Mutual Aid Coordinator functions within the California Fire Service and Rescue Emergency Mutual Aid System (PMC 2009).

3.2 Study Intersections

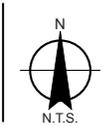
The following intersections were selected for analysis as the locations most likely to experience impacts due to the project-generated traffic. The intersections and study area context map are provided in Figure 1.

1. State Route 1 / State Route 20 Existing Signalized
2. State Route 20 / Proposed MSWMA Entrance Proposed Two-Way Stop Control

Existing and proposed intersection geometrics are shown on Figure 2.



- Legend:**
- ① Study Intersection
 - Project Area



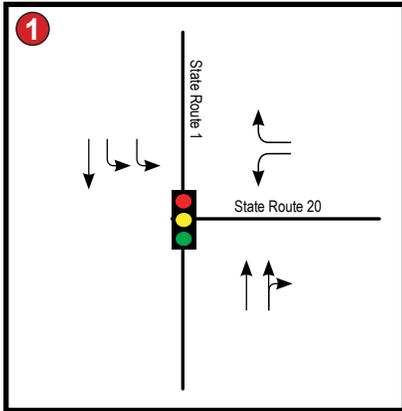
Mendocino Solid Waste Management Authority
 Central Coast Transfer Station Project
 Traffic Impact Analysis

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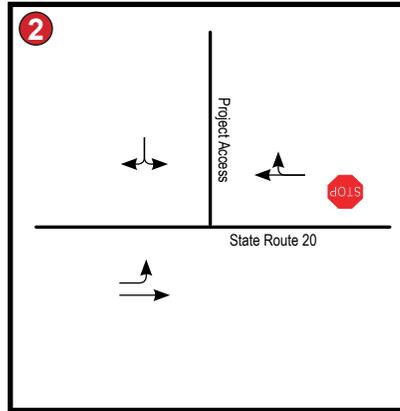
Project Vicinity & Location Map

Figure 1

State Route 1/
State Route 20*



State Route 20/
Project Access (E+P)



Legend:

① Study Intersection

(E+P) Existing Plus Project

 Signalized Intersection

 Stop Sign

* Intersection Lane Geometry and Traffic Control that remains unaltered in all scenarios



Mendocino Solid Waste Management Authority
Central Coast Transfer Station Project
Traffic Impact Analysis
Intersection Lane Geometry
& Traffic Control

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Figure 2

3.3 Existing Traffic Volumes

As noted previously in the *Study Parameters* section, vehicular turning movement counts were performed during each of the specified peak periods. To determine the peak hour within each peak period, turning movement vehicle counts were performed in the field at each of the study area intersections. Existing peak-hour traffic volumes are indicated in Figure 3.

3.4 Existing Conditions Intersection Level of Service Analysis

The analysis finds that the existing intersection of SR-20 and SR-1 is operating acceptably based on the applicable Caltrans significance threshold of level of service C. The Existing Conditions level of service calculations are summarized in Table 4, and full results are provided in Appendix C.

Table 4 Summary of Existing Peak Hour Intersection Level of Service Calculations

| Intersection | | Existing Conditions | | |
|--------------|-------------------------------------|---------------------|-----------------|---------------------|
| | | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak |
| | | Delay/LOS | Delay/LOS | Delay/LOS |
| 1. | SR-20 / SR-1 ¹ | 10.2/B | 15.1/B | 13.0/B |
| 2. | SR-20 / Project Access ² | | | |
| | <i>Eastbound Left Turn</i> | N/A | N/A | N/A |
| | <i>Southbound Approach</i> | N/A | N/A | N/A |

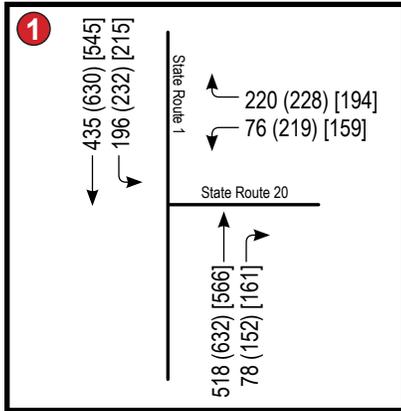
Notes: *Italics* = results for minor movements at unsignalized intersections Results are indicated in Delay (average seconds per vehicle)/LOS (Level of Service)

¹LOS based on HCM2010 method of analysis for signalized intersections.

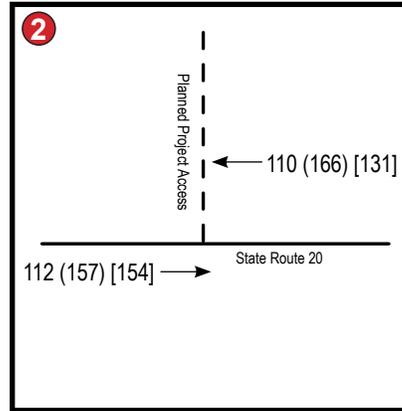
²LOS based on HCM2010 method of analysis for TWSC intersections.

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State Route 1/
State Route 20



State Route 20/
Project Access



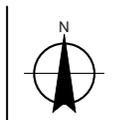
Legend:

① Study Intersection

xxx Weekday AM Peak Hour Volume

(xxx) Weekday PM Peak Hour Volume

[xxx] Weekend Midday Peak Hour Volume



Mendocino Solid Waste Management Authority
Central Coast Transfer Station Project
Traffic Impact Analysis
Existing Conditions
Intersection Traffic Volumes

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Figure 3

3.5 Existing Conditions Signalized Intersections Queue Analysis

Existing traffic volumes were applied to signalized study intersections and the peak hour demand 50th percentile queue lengths were reviewed against the existing lane storage capacity at the intersection.

The Existing Peak Hour Intersection Queue Analysis is summarized in Table 5. Detailed results are provided in Appendix C.

Peak hour 50th percentile queue lengths are within existing storage lane capacity at all signalized intersections.

Table 5 Summary of Existing Peak Hour Intersection Queue Analysis

| Movement | Lanes / Available Storage | Queue Length - 50th (feet) | | |
|-----------------------|---------------------------|----------------------------|------|--------|
| | | a.m. | p.m. | midday |
| SR-1 / SR-20 | | | | |
| Westbound Right Turn | 1 / 120 ft | 0 | 0 | 0 |
| Northbound Through | 1 / 170 ft | 60 | 94 | 82 |
| Northbound Right Turn | 1 / 120 ft | 0 | 0 | 0 |
| Southbound Left Turn | 2 / 320 ft | 26 | 48 | 35 |

Notes: Queue shown is maximum after two cycles

Bold = results where available storage is exceeded by more than one standard vehicle, 25 ft.

4. Existing plus Project Analysis

4.1 Proposed Project

Access to the project site would be controlled by gate with security fencing surrounding the perimeter of the facility. The site will include two queuing lanes for ingress and one queuing lane for egress. Vehicles would enter and exit the facility directly from SR-20, which would be improved with deceleration and acceleration lanes as illustrated in the proposed site plan provided with Figure 4. For purposes of this study, it was assumed that SR-20 would be widened from the roadway centerline north to accommodate the acceleration and deceleration lanes, and for the new eastbound left-turn pocket and westbound right-turn pockets at the proposed project access point. Left turn warrants common to standard engineering practice would not be met at this intersection based on the anticipated traffic volumes, but is being provided based on preliminary discourse with Caltrans, in which concerns for the allowance of heavy vehicle turning movements was discussed. Based on Caltrans Highway Design Manual, the minimum storage length for a left turn lane shall be 50 feet. The eastbound left turn lane storage length at the proposed site was assumed to be approximately 100 feet long, in order to address Caltrans concerns over the ability to accommodate the truck turning volumes expected during the peak hours. In order to further verify that the assumptions would be appropriate per Caltrans standards and no additional traffic control measures would be required, the proposed intersection was analyzed for traffic signal warrants with this study.

Based on the location of fully permitted landfills within the region, all waste transfer vehicles leaving the facility are expected to proceed to the east on SR-20, while most self-haul traffic is expected to arrive or depart to/from the west. This section explores the traffic impacts, as well as transit, pedestrian, and bicycle impacts, associated with the construction of the proposed commercial waste transfer station facility.

4.1.1 Proposed Project Assumptions

With the replacement of the existing solid waste transfer and disposal system, the nature of the traffic patterns within the region would be expected to change. Specifically, all new vehicular trips generated by the new transfer facility would utilize SR-20 for both entrance and exit access. The project trips are expected to consist of self-haul trash and recyclables, franchised hauler traffic, outhaul traffic for recyclables, and transfer truck traffic. In a memorandum dated September 24, 2013, the MSWMA provides estimates of the projected daily traffic, based on current demand, that would utilize the new facility. The traffic impact study associated with this report assumes that the projected peak hour project trips will be consistent with the projected daily volumes provided with the MSWMA memorandum. It was assumed that 10% of the weekday and weekend daily traffic volumes would occur during peak hour traffic. Table 6 shows the projected peak hour project-generated traffic, with respect to the different types of project trips. A copy of the MSWMA memorandum is included in Appendix D.

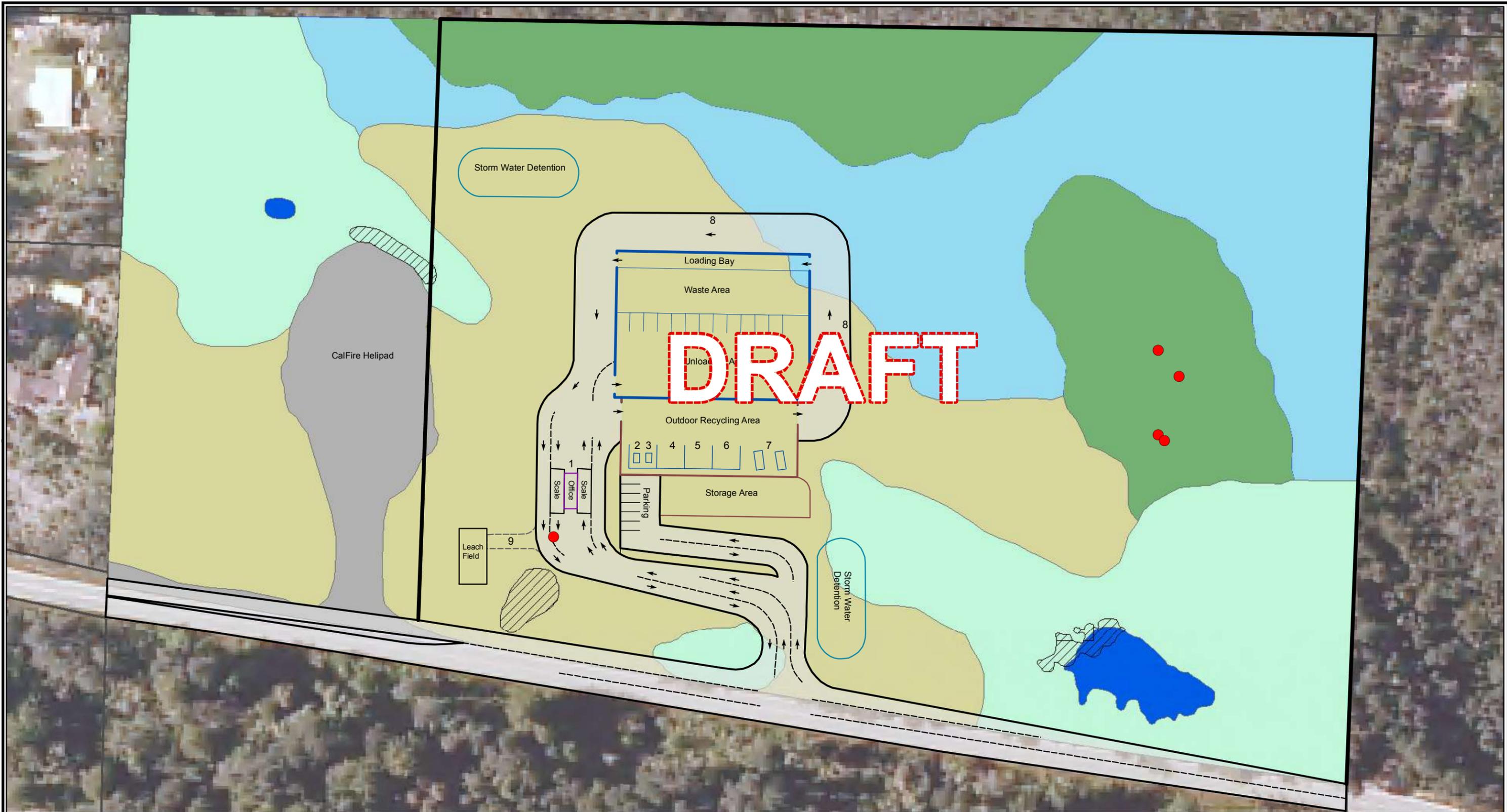
Table 6 Summary of Projected Peak Hour Project Trips

| | Weekday Daily Traffic (Total Trips) | Weekday Peak Hour Traffic (Total Trips) | Weekend Daily Traffic (Total Trips) | Weekend Peak Hour Traffic (Total Trips) |
|------------------------------------|-------------------------------------|---|-------------------------------------|---|
| Self-Haul Customers | 91 | 10 | 138 | 14 |
| Franchise Hauler Collection Trucks | 20 | 2 | 0 | 0 |
| Recycling Outhaul | 1 | 0 | 0 | 0 |
| Transfer Truck Outhaul | 2 | 2 | 2 | 2 |
| Employee Commute | 4 | 4 | 4 | 0 |

The total peak hour trips shown in Table 6 represent trips that will arrive and depart within the peak hour of operations. Employee trips were not included with the weekend midday peak hour trips because these trips were assumed to occur outside of this peak hour. Therefore, in order to depict the arrival and departure of these trips, the total number of project trip ends during the peak hour will be double the peak hour volumes shown in Table 6. For purposes of this study, the distribution of project-generated trips was performed based on probable origins and destinations of these trips. Trip origins and destinations were based on the location of existing facilities which will be supplanted by the new facility, the existing traffic patterns established from existing turning movement counts, and knowledge of the population distribution of the region. Specifically, self-haul customers were assumed to arrive/depart from the west of the project site and rural areas outside of the City of Fort Bragg. Franchise hauler collection trucks were assumed to arrive/depart from the west of the project site and within the City of Fort Bragg. Recycling outhaul traffic is minimal, and it was assumed to not affect the peak hour of operations. Transfer truck outhaul traffic was assumed to arrive/depart from the east of the project site.

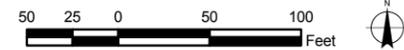
The stop control and lane configurations that exist at the study area intersection of SR-20 and SR-1 in the existing condition were assumed to remain the same under future scenarios. Assumed project trip distribution, as it applies to the study area intersections, is shown graphically in Figure 5. It was assumed that all of franchise hauler collection and transfer outhaul traffic would consist of heavy vehicles, while self-haul traffic would be composed of minimal heavy vehicle traffic. No proposed pedestrian, bicycle, or public transit improvements were assumed as a part of the Existing plus Project analysis, and no associated modal shift away from motor vehicle use was assumed.

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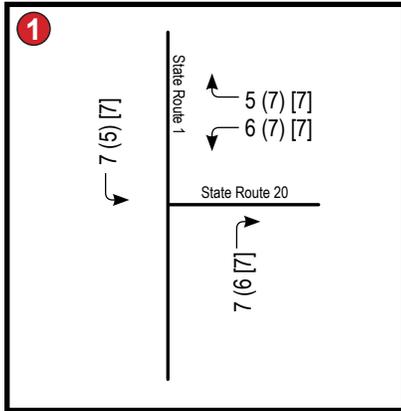


Draft Site Plan

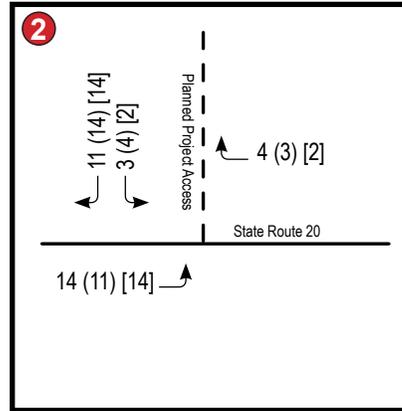
- 17ac portion
- Short Hydric Pygmy Forest
- Potential Jurisdiction Wetlands
- Disturbed Ruderal Area
- Parcels
- Extreme Pygmy Forest
- Tall Hydric Pygmy Forest
- Bishop Pine Forest
- RarePlants
- Coast Lily



State Route 1/
State Route 20



State Route 20/
Project Access



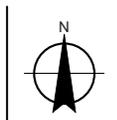
Legend:

① Study Intersection

xxx Weekday AM Peak Hour Volume

(xxx) Weekday PM Peak Hour Volume

[xxx] Weekend Midday Peak Hour Volume



Mendocino Solid Waste Management Authority
Central Coast Transfer Station Project
Traffic Impact Analysis
Project Trip Assignment
Traffic Volumes

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Figure 5

4.1.2 Traffic Volumes- Existing plus Project

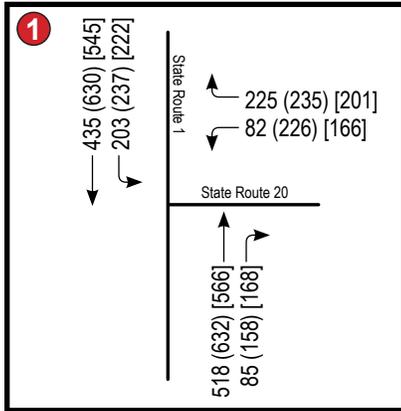
Existing plus Project traffic volumes are represented by existing traffic volumes, as shown with Figure 3, with the addition of project-related trips, as shown with Figure 5, assigned accordingly to the study area roadway network. Based on this methodology, Existing plus Project traffic volumes are indicated in Figure 6.

4.1.3 Study Intersections and Roadway Segment Level of Service – Existing plus Project

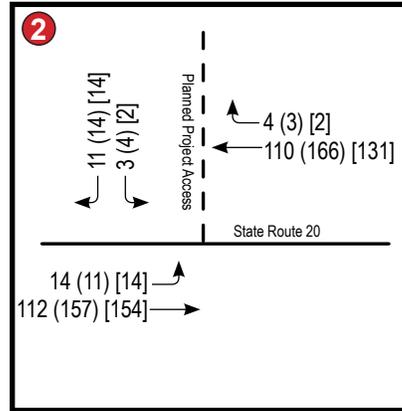
With the addition of project-related traffic volumes to the study area intersections, all of the movements within the study intersections are expected to operate at acceptable levels of service with respect to Caltrans, county, and city significance thresholds. The intersection of SR-20 and SR-1 remains at the same level of service when compared to the existing scenarios. The Existing plus Project level of service calculations are summarized in Table 7, and full results are provided in Appendix E.

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State Route 1/
State Route 20



State Route 20/
Project Access



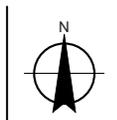
Legend:

① Study Intersection

xxx Weekday AM Peak Hour Volume

(xxx) Weekday PM Peak Hour Volume

[xxx] Weekend Midday Peak Hour Volume



Mendocino Solid Waste Management Authority
Central Coast Transfer Station Project
Traffic Impact Analysis
Existing Plus Project Conditions
Intersection Traffic Volumes

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Figure 6

Table 7 Summary of Peak Hour Intersection Level of Service Calculations – Existing plus Project

| Intersection | | Existing plus Project | | |
|--------------|-------------------------------------|-----------------------|-----------------|---------------------|
| | | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak |
| | | Delay/LOS | Delay/LOS | Delay/LOS |
| 1. | SR-20 / SR-1 ¹ | 10.4/B | 15.6/B | 13.3/B |
| 2. | SR-20 / Project Access ² | | | |
| | <i>Eastbound Left Turn</i> | <i>0.8/A</i> | <i>0.5/A</i> | <i>0.6/A</i> |
| | <i>Southbound Approach</i> | <i>9.6/A</i> | <i>10.1/B</i> | <i>9.5/A</i> |

Notes: *Italics* = results for minor movements at unsignalized intersections
 Results are indicated in Delay (average seconds per vehicle)/LOS (Level of Service)
¹LOS based on HCM2010 method of analysis for Signalized intersections.
²LOS based on HCM2010 method of analysis for TWSC intersections.

4.1.4 Existing plus Project Conditions Signalized Intersections Queue Analysis

Existing plus Project traffic volumes were applied to the study area signalized intersection of SR-20 and SR-1, and the peak hour demand 50th percentile queue lengths were reviewed against the existing lane storage capacity at the intersection.

The Existing plus Project peak hour intersection queue analysis is summarized in Table 8. Detailed results are provided in Appendix E.

Table 8 shows that peak hour 50th percentile queue lengths are within existing storage lane capacities at the SR-20 and SR-1 intersection.

Table 8 Summary of Existing plus Project Peak Hour Intersection Queue Analysis

| Movement | Lanes / Avail. Storage | Queue Length - 50th / 95th (feet/feet) | | |
|---------------------|------------------------|--|------|--------|
| | | a.m. | p.m. | midday |
| SR-1 / SR-20 | | | | |
| WBR | 1 / 120 ft | 0 | 0 | 0 |
| NBT | 1/ 170 ft | 60 | 95 | 83 |
| NBR | 1 / 120 ft | 0 | 0 | 0 |
| SBL | 2 / 320 ft | 27 | 50 | 36 |

Notes: Queue shown is maximum after two cycles

Bold = results where available storage is exceeded by more than one standard vehicle, 25 ft.

4.1.5 Transit Service – Existing plus Project

No proposed transit improvements were proposed or assumed to be implemented to the study area roadway area as a part of this project. Because level of service analyses determined that the maximum peak hour increase in average control delay experienced as a result of this project would be less than one second, it is safe to assume that transit operations and headways within the study area would not be significantly affected by the impact of this project. Due to the location and type of operations proposed, it is not expected that transit would be a viable mode of access, nor is ridership expected to increase as a result of the proposed project.

4.1.6 Pedestrians and Bicycles – Existing plus Project

As mentioned, no proposed pedestrian and bicycle improvements are proposed or assumed as a part of this study, and traffic models used signal timing that allows for sufficient pedestrian crossing times at the intersection of SR-1 and SR-20. As the analyses determined that the existing signal timing, which accommodates pedestrians and bicycles, could be used and not result in decreases in levels of service beyond the applicable significance thresholds, it is safe to assume that pedestrian and bicycle operations within the study area would not be significantly affected by the impact of this project. Due to the location and type of operations proposed, it is not expected that pedestrian or bicycle traffic would increase as a result of the proposed project.

4.2 On-Site Circulation/Queuing

Because of the nature of the proposed site, which features a weigh station at which incoming vehicles must stop, this study evaluated the on-site circulation of vehicles to determine whether the basic functions of the facility could impact SR-20. The conceptual site plan, as shown with Figure 4, was utilized to evaluate how the proposed geometrics affect the adjacent roadway. Most critical to this evaluation is distance provided between the proposed ingress lanes and the scale at which arriving vehicles must stop to be weighed. This is because of the potential queuing effect that the scale could have, and the potential for the length of queue to “back-up” onto the left and right-turn lanes proposed for SR-20.

Evaluation of the proposed geometrics of the conceptual site plan determined that the weigh station for incoming vehicles is proposed to be approximately 350 feet from the proposed point of ingress. Assuming a standard passenger vehicle or pickup truck would be the typical type of vehicle to utilize the weigh

station, this distance provides room for approximately 14 vehicles in queue. Looking at the anticipated traffic volumes to be generated by the project site, the maximum traffic flow coming into the site would be expected to be 18 vehicles per hour. Using an assumed service rate of approximately two minutes per vehicle at the weigh station, the average queue at the weigh station during a peak hour would be approximately one vehicle. Based on probable arrival rates during the peak hour, it is not anticipated that any maximum queue lengths will surpass the amount of distance provided with the proposed site entrance geometrics.

Also critical to the evaluation of on-site circulation relates to the movements of emergency vehicles within the site. While the site was not evaluated for all anticipated turning movements as a part of this study, the functionality of the site will depend upon the appropriate consideration of these movements. Specifically, the site shall be designed to accommodate the turning movements of the type of heavy vehicles associated with the waste transfer and hauling activities. In designing for the turning movements of these heavy vehicles, it is anticipated that the turning movements for large emergency vehicles would also be sufficiently provided. With the detail design of this site, coordination with the appropriate fire and emergency service officials shall be undertaken to ensure that the circulation of vehicles on site will not prevent emergency services from being provided to the site and surrounding area in the most efficient manner.

4.3 CEQA Evaluation – Existing plus Project

Impact TR-1: Would the Project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Based on the analysis and discussion provided with this study, it is not anticipated that the project would cause a conflict with plans, ordinances, or policies established by Caltrans, Mendocino County, or the City of Fort Bragg.

Level of Significance: Less than Significant

Impact TR-2: Would the Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Based on the description of the proposed project site and the improvements associated with providing an access entrance compliant with Caltrans design standards, it is not anticipated that the project would cause any increase in safety hazards or introduce features that are incompatible with current or anticipated roadway users. This is based on the fact that the new improvements provide an adequate line of sight, and the existing roadway features a lower-than-average number of accidents reported.

Level of Significance: Not Significant

Impact TR-3: Would the Project result in inadequate emergency access?

Because the proposed project is essentially reallocating existing trips amongst the region, it is not anticipated that the project would result in decreased accessibility to the region's critical emergency services. Looking at the level of service analyses performed as a part of this study, the maximum increase in average control delay experienced as a result of this project would be less than one second. Therefore, emergency vehicles would move through the area with nearly the same ability as under

existing conditions. Furthermore, it is not anticipated that any entrances or exits of nearby emergency facilities would be blocked or impeded by the proposed roadway improvements and project-generated traffic.

Level of Significance: Less than Significant

Impact TR-4: Would the Project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

The project would not result in any conflict with the applicable goals and policies regarding bicycle and pedestrian facilities set forth in the *Mendocino County General Plan*, as it would not prevent the future extension of the existing Class II bike lanes on State Route 20. Also, the project would not conflict with the designated Pacific Coast Bike Route on State Route 1. Furthermore, because level of service analyses determined that the maximum peak hour increase in average control delay experienced as a result of this project would be less than one second, it is not anticipated that the project would result in significant effects upon headways and functionality of regional public transit, also consistent with *General Plan* policy.

Level of Significance: Less than Significant

5. Cumulative Conditions

5.1 Study Area Cumulative Condition

In order to provide a 20-year forecast for the study area roadway network, the forecast year of 2034 was chosen to represent cumulative conditions in this study. Because the critical corridors of the study area are designated state routes, 20-year forecast conditions were estimated using Caltrans District 1 20-year growth factors, as established in the February 2014 memorandum. Consistent with these established rates for the applicable sections of state routes, a 20-year growth factor of 1.05 was applied to the existing turning movement volumes for SR-20 and a factor of 1.15 was applied to the existing turning movement volumes for SR-1.

5.1.1 Cumulative Traffic Volumes

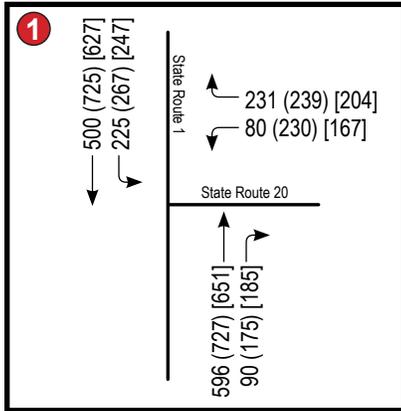
Cumulative traffic volumes in the noted peak hours are indicated in Figure 7.

5.1.2 Study Intersections Cumulative Level of Service

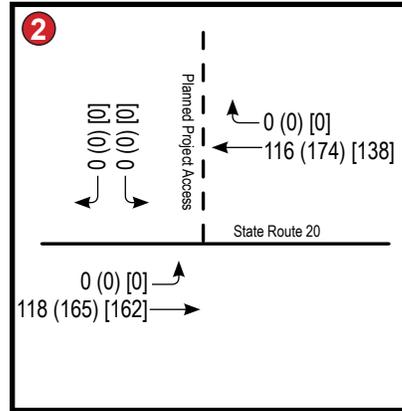
Based on the analysis of Cumulative Conditions traffic volumes, the study intersection of SR-20 and SR-1 is not expected to experience decreases in levels of service during the analyzed peak periods when compared to Existing Conditions. This intersection in this scenario operates at LOS B in both the Existing and Cumulative Conditions scenarios. The Cumulative Conditions scenario level of service calculations are summarized in Table 9, and full results are provided in Appendix F.

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State Route 1/
State Route 20



State Route 20/
Project Access



Legend:

① Study Intersection

xxx Weekday AM Peak Hour Volume

(xxx) Weekday PM Peak Hour Volume

[xxx] Weekend Midday Peak Hour Volume

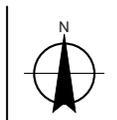


Table 9 Summary of Cumulative Peak Hour Intersection Level of Service Calculations

| Intersection | | Cumulative Condition | | |
|--------------|-------------------------------------|----------------------|-----------------|---------------------|
| | | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak |
| | | Delay/LOS | Delay/LOS | Delay/LOS |
| 1. | SR-20 / SR-1 ¹ | 10.6/B | 18.9/B | 14.2/B |
| 2. | SR-20 / Project Access ² | | | |
| | <i>Eastbound Left Turn</i> | <i>N/A</i> | <i>N/A</i> | <i>N/A</i> |
| | <i>Southbound Approach</i> | <i>N/A</i> | <i>N/A</i> | <i>N/A</i> |

Notes: *Italics* = results for minor movements at unsignalized intersections

* = Intersection in downtown, no LOS threshold

Results are indicated in Delay (average seconds per vehicle)/LOS (Level of Service)

¹LOS based on HCM2010 method of analysis for Signalized intersections.

²LOS based on HCM2010 method of analysis for TWSC intersections.

5.1.3 Cumulative Conditions Signalized Intersections Queue Analysis

Cumulative traffic volumes were applied to the study area signalized intersection of SR-20 and SR-1, and the peak hour demand 50th percentile queue lengths were reviewed against the existing lane storage capacity at the intersection.

The Cumulative Conditions peak hour intersection queue analysis is summarized in Table 10. Table 10 shows that peak hour 50th percentile queue lengths are within existing storage lane capacities at SR-20 and SR-1. Detailed results are provided in Appendix F.

Table 10 Summary of Cumulative Project Peak Hour Intersection Queue Analysis

| Movement | Lanes / Available Storage | Queue Length - 50th (feet) | | |
|-----------------------|---------------------------|----------------------------|------|--------|
| | | a.m. | p.m. | midday |
| SR-1 / SR-20 | | | | |
| Westbound Right Turn | 1 / 120 ft | 0 | 3 | 0 |
| Northbound Through | 1/ 170 ft | 72 | 115 | 102 |
| Northbound right Turn | 1 / 120 ft | 0 | 0 | 0 |
| Southbound Left Turn | 2 / 320 ft | 31 | 75 | 45 |

Notes: Queue shown is maximum after two cycles

Bold = results where available storage is exceeded by more than one standard vehicle, 25 ft.

5.1.4 Transit Service – Cumulative Condition

Most future plans for regional public transit agencies involve achieving a more sustainable multi-modal system for the region and increasing the promotion of transit to the public. This will primarily be achieved by replacement of the current fleets with hybrid and/or electric vehicles, and by making real-time passenger information systems more reliable and available.

Despite planned efforts to promote the increased use of public transit, the Cumulative Condition scenarios analyzed with this study do not reflect any shifts in the regional use of public transit or any associated modal shift that would potentially lower the number of motor vehicles being used by commuters. Because the analysis of the Cumulative Condition does not result in significant decreases in the intersection levels of service when compared to the Existing Condition, it is not anticipated that significant effects upon headways and functionality of regional public transit would occur in the future.

5.1.5 Pedestrians and Bicycles - Cumulative Condition

As mentioned with the description of the existing pedestrian and bicycle facilities, while Class II Bike Lanes are marked along SR-20 from the Fort Bragg City Limit to Summers Lane (~1 mile from project), the portion of SR-20 fronting the proposed project site does not currently feature paved shoulders for separation of bicycle traffic from motor vehicle traffic. The Cumulative Condition scenarios analyzed with this study do not reflect any shifts in the regional use of bicycles or any associated modal shift that would potentially lower the number of motor vehicles being used by commuters. Likewise, no sidewalk or ADA improvements to the intersection of SR-20 and SR-1 were assumed to be implemented with the Cumulative Condition scenario.

The Cumulative Condition scenarios at the intersection of SR-20 and SR-1 were analyzed using the existing signal timing, which accommodates pedestrians and bicycles. Since these timings were used for analysis and no decreases in level of service beyond the applicable significance thresholds were reported, it could be concluded that pedestrian and bicycle operations within the study area would not be significantly affected by the impact of regional cumulative growth anticipated in the future.

5.2 Cumulative plus Project

This section explores the traffic impacts, as well as transit, pedestrian, and bicycle impacts, that could be expected in the future with the construction of the proposed commercial waste transfer station facility. All of the assumptions that were used with the Existing plus Project conditions scenario were similarly used for this scenario.

5.2.1 Traffic Volumes - Cumulative plus Project

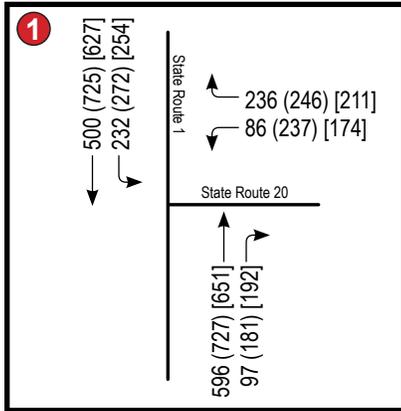
Cumulative plus Project traffic volumes are represented by cumulative traffic volumes, as shown with Figure 7, with the addition of project-related trips, as shown with Figure 5, assigned accordingly to the study area roadway network. Cumulative plus Project traffic volumes are indicated in Figure 8.

5.2.2 Study Intersections and Roadway Segment Level of Service - Cumulative plus Project

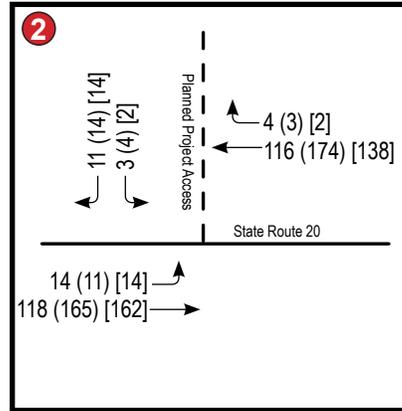
With the addition of project-related traffic volumes to the projected cumulative traffic volumes, all of the movements within the study intersections are expected to operate at acceptable levels of service with respect to Caltrans, County, and City significance thresholds. The intersection of SR-20 and SR-1 goes from LOS B in the cumulative condition to LOS C in the weekday PM peak hour. The Cumulative plus Project Scenario Level of Service calculations are summarized in Table 11, and full results are provided in Appendix G.

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State Route 1/
State Route 20



State Route 20/
Project Access



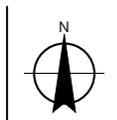
Legend:

① Study Intersection

xxx Weekday AM Peak Hour Volume

(xxx) Weekday PM Peak Hour Volume

[xxx] Weekend Midday Peak Hour Volume



Mendocino Solid Waste Management Authority
Central Coast Transfer Station Project
Traffic Impact Analysis
Cumulative Plus Project Conditions
Intersection Traffic Volumes

Job Number | 8411065
Revision |
Date | Aug 2014

Figure 8

Table 11 Summary of Peak Hour Intersection Level of Service Calculations - Cumulative plus Project

| Intersection | | Cumulative plus Project | | |
|--------------|-------------------------------------|-------------------------|-----------------|---------------------|
| | | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak |
| | | Delay/LOS | Delay/LOS | Delay/LOS |
| 1. | SR- 20 / SR-1 ¹ | 10.9/B | 20.0/C | 14.7/B |
| 2. | SR-20 / Project Access ² | | | |
| | <i>Eastbound Left Turn</i> | <i>0.8/A</i> | <i>0.5/A</i> | <i>0.6/A</i> |
| | <i>Southbound Approach</i> | <i>9.6/A</i> | <i>10.2/B</i> | <i>9.6/A</i> |

Notes: *Italics* = results for minor movements at unsignalized intersections

* = Intersection in downtown, no LOS threshold

Results are indicated in Delay (average seconds per vehicle)/LOS (Level of Service)

¹LOS based on HCM2010 method of analysis for Signalized intersections.

²LOS based on HCM2010 method of analysis for TWSC intersections.

5.2.3 Cumulative plus Project Signalized Intersections Queue Analysis

Cumulative plus Project traffic volumes were applied to the study area signalized intersection of SR-20 and SR-1, and the peak hour demand 50th percentile queue lengths were reviewed against the existing lane storage capacity at the intersection.

The Cumulative plus Project peak hour intersection queue analysis is summarized in Table 12. Detailed results are provided in Appendix G. Table 12 shows that peak hour 50th percentile queue lengths are within existing storage lane capacities at SR-20 and SR-1.

Table 12 Summary of Cumulative plus Project Peak Hour Intersection Queue Analysis

| Movement | Lanes / Available Storage | Queue Length - 50th (feet) | | |
|-----------------------|---------------------------|----------------------------|------|--------|
| | | a.m. | p.m. | midday |
| SR-1 / SR-20 | | | | |
| Westbound Right Turn | 1 / 120 ft | 0 | 6 | 0 |
| Northbound Through | 1 / 170 ft | 72 | 116 | 102 |
| Northbound Right Turn | 1 / 120 ft | 0 | 0 | 0 |
| Southbound Left Turn | 2 / 320 ft | 32 | 80 | 46 |

Notes: Queue shown is maximum after two cycles

Bold = results where available storage is exceeded by more than one standard vehicle, 25 ft.

5.2.4 Transit Service – Cumulative plus Project

No future planned transit improvements were assumed to be implemented to the study area roadways in the Cumulative plus Project scenario. Because cumulative level of service analyses determined that the maximum peak hour increase in average control delay experienced as a result of this project would be approximately one second, it is safe to assume that transit operations and headways within the study area would not be significantly affected by the cumulative impact of this project.

5.2.5 Pedestrians and Bicycles – Cumulative plus Project

Like the Cumulative Condition scenarios, the Cumulative plus Project scenarios analyzed with this study do not reflect any shifts in the regional use of bicycles or any associated modal shift that would potentially lower the number of motor vehicles being used by commuters. Likewise, no sidewalk or ADA improvements to the intersection of SR-20 and SR-1 were assumed to be implemented with the Cumulative plus project scenarios.

The Cumulative plus Project scenarios at the intersection of SR-20 and SR-1 were analyzed using the existing signal timing, which accommodates pedestrians and bicycles. Since no decreases in level of service beyond the applicable significance thresholds were reported with the Cumulative plus Project scenarios, it could be concluded that pedestrian and bicycle operations within the study area would not be significantly affected by the impact of regional cumulative growth anticipated in the future.

5.3 CEQA Evaluation – Cumulative plus Project

Impact TR-1: Would the Project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Based on the analysis and discussion provided in this study, the project would not contribute to a cumulative impact as all study intersections would operate acceptably in the Cumulative plus Project scenario.

Level of Significance: Less than Significant

Impact TR-2: Would the Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Based on the fact that the new improvements provide an adequate line of sight, and the existing roadway features a lower-than-average number of accidents reported, it is not anticipated that the project would cause any increase in safety hazards or introduce features that are incompatible with anticipated roadway users in the cumulative condition.

Level of Significance: Not Significant

Impact TR-3: Would the Project result in inadequate emergency access?

Because the proposed project is essentially reallocating existing trips amongst the region, it is not anticipated that the project would result in decreased accessibility for the region's critical emergency services. The project does not result in inadequate mobility for emergency vehicles as compared to existing conditions. Furthermore, no entrances or exits of nearby emergency facilities would be blocked or impeded by the proposed roadway improvements and project-generated traffic. Therefore, the project won't provide a significant contribution to any cumulative condition regarding emergency access.

Level of Significance: Less than Significant

Impact TR-4: Would the Project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

The project would not result in any conflict with the current applicable goals and policies regarding bicycle and pedestrian facilities set forth in the *Mendocino County General Plan*, as it would not prevent the future extension of the existing Class II bike lanes on State Route 20, and not conflict with the designated Pacific Coast Bike Route on State Route 1. Furthermore, it is not anticipated that the project would result in significant effects upon headways and functionality of regional public transit, also consistent with current *General Plan* policy. Therefore, the project cannot be seen as contributing to any conflict with the applicable policies and plans in the cumulative condition.

Level of Significance: Less than Significant

6. Peak Hour Traffic Signal Warrant 3

The section presents an evaluation of “rural” Signal Warrant 3 for the peak hour for unsignalized intersections in all scenarios to determine if the warrant is met. The evaluation of Signal Warrant 3 was performed in order to verify that the assumptions regarding ingress/egress at the proposed intersection of SR-20/Project Access, which were based on preliminary discussions with Caltrans, were appropriate, and no further traffic control measures should be considered.

6.1 Peak Hour Signal Warrant 3 Methodology

Traffic Signal Warrant 3 is based on the latest edition of the *California Manual on Uniform Traffic Control Devices* (CAMUTCD) (Caltrans, 2012a). It is noted that Warrant 3 should only be applied in unusual cases, such as at facilities that attract or discharge large amounts of vehicles over short periods of time.

Warrant 3 has two Parts, A and B, which must be met to justify the potential need for a signal based on the peak hour. Part A contains three conditions, which are:

1. The total delay experience by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for one lane approach, or five vehicle-hours for a two-lane approach; AND
2. The volume on the same minor street approach (one direction only) equals or exceeds 75 vph for one moving lane of traffic or 100 vph for two moving lanes (base on City of Ft. Bragg population and speed limit on major street approaches); AND
3. The total entering volume serviced during the hour equals or exceeds 800 vph for the intersection with four or more approaches or 650 vph for intersections with three approaches.

Part B of the Traffic Signal Warrant 3 contains figures that plot minor street versus major street approaches for urban and rural areas. The entire Signal Warrant 3 is included in Appendix H.

Intersection No. 2 meets the definition of “rural.”

The satisfaction of a traffic signal warrant or warrants does not in itself require the installation of a traffic signal, however, the City General Plan Policy C-1.1 states:

If volumes at an unsignalized intersection are increased to meet or exceed Caltrans rural peak hour signal Warrant [3] criteria levels and the intersection is operating at an unacceptable level of service, then signalization of the intersection is warranted.

6.2 Peak Hour Signal Warrant 3 Analysis

Table 13 summarizes the results of the Warrant 3 analysis. Part B is evaluated under “rural” conditions.

Intersection No. 2 – SR-20 / Project Access is not met presently and will not be met in the cumulative scenario, with or without the addition of project trips. Because the Warrant 3 is not met under any of the project conditions, there are no project impacts.

Table 13 Summary of Traffic Signal Warrant 3 for Various Conditions Scenarios

| Conditions | Part A | | | | Part B |
|--|-----------------------|----------------------------------|-----------------------------|-----------|-----------|
| | 1 | 2 | 3 | Met (Y/N) | Met (Y/N) |
| Intersection | Total Delay (veh-hrs) | Highest Minor Appr. Volume (veh) | Total Entering Volume (veh) | | |
| Existing Plus Project Conditions Scenario | | | | | |
| No. 2 – SR-20 / Project Access | 0.05 | 18 | 355 | N | N |
| Cumulative Plus Project Conditions Scenario | | | | | |
| No. 2 – SR-20 / Project Access | 0.05 | 18 | 371 | N | N |

Notes: **Bold** = results where Part A and Part B are met; Warrant 3 met.

7. Conclusions

This section summarizes the conclusions regarding the proposed project and its potential traffic impacts.

7.1 Existing plus Project

7.1.1 Intersection Operations

With the addition of project-related traffic volumes to the study area intersections, all of the movements within the study area intersections are expected to operate at acceptable levels of service with respect to Caltrans, county, and city significance thresholds.

7.1.2 Vehicle Queuing

The peak hour 50th percentile queue lengths are within existing storage lane capacities at SR-20 and SR-1.

7.1.3 Transit Service

Based on the traffic volumes and assumptions utilized with this study, transit operations and headways within the study area would not be significantly affected by the impact of this project.

7.1.4 Pedestrians and Bicycles

Based on the traffic volumes and assumptions utilized with this study, pedestrian and bicycle operations within the study area would not be significantly affected by the impact of this project. However, the existing facilities are limited, and future pedestrian improvements should be considered for the study area with development of associated land uses.

7.2 Cumulative plus Project

7.2.1 Intersection Operations

With the addition of project-related traffic volumes to the projected cumulative traffic volumes, all of the movements within the study intersections are expected to operate at acceptable levels of service with respect to Caltrans, county, and city significance thresholds. The intersection of SR-20 and SR-1 goes from LOS B in the cumulative condition to LOS C in the weekday PM peak hour.

7.2.2 Vehicle Queuing

The peak hour 50th percentile queue lengths are within existing storage lane capacities at SR-20 and SR-1.

7.2.3 Transit Service

Based on the traffic volumes and assumptions utilized with this study, cumulative transit operations and headways within the study area would not be significantly affected by the impact of this project in the future.

7.2.4 Pedestrians and Bicycles

Based on the traffic volumes and assumptions utilized with this study, pedestrian and bicycle operations within the study area would not be significantly affected in the cumulative condition by the impact of this project.

7.3 Summary

Table 14 summarizes the level of service calculation results for the study roadway network with and without project-generated trips. In conclusion, this study finds that the proposed Project would not be expected to contribute significantly to the potential deterioration of traffic operations, queuing levels, transit service, or non-motorized transportation in the study area for the conditions analyzed in this study.

Table 14 Summary of Peak Hour Intersection Level of Service Calculations

| Intersection | Existing | | | Existing plus Project | | | Cumulative | | | Cumulative plus Project | | |
|--|-----------------|-----------------|---------------------|-----------------------|-----------------|---------------------|-----------------|-----------------|---------------------|-------------------------|-----------------|---------------------|
| | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak | Weekday AM Peak | Weekday PM Peak | Weekend Midday Peak |
| | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS | Delay/LOS |
| 1. SR- 20 / SR-1 ¹ | 10.2/B | 15.1/B | 13.0/B | 10.4/B | 15.6/B | 13.3/B | 10.6/B | 18.9/B | 14.2/B | 10.9/B | 20.0/C | 14.7/B |
| 2. SR-20 / Project Access ² | | | | | | | | | | | | |
| <i>Eastbound Left Turn</i> | <i>N/A</i> | <i>N/A</i> | <i>N/A</i> | <i>0.8/A</i> | <i>0.5/A</i> | <i>0.6/A</i> | <i>N/A</i> | <i>N/A</i> | <i>N/A</i> | <i>0.8/A</i> | <i>0.5/A</i> | <i>0.6/A</i> |
| <i>Southbound Approach</i> | <i>N/A</i> | <i>N/A</i> | <i>N/A</i> | <i>9.6/A</i> | <i>10.1/B</i> | <i>9.5/A</i> | <i>N/A</i> | <i>N/A</i> | <i>N/A</i> | <i>9.6/A</i> | <i>10.2/B</i> | <i>9.6/A</i> |

Notes: *Italics* = results for minor movements at unsignalized intersections

Bold = results exceed acceptable level of service

* = Intersection in downtown, no LOS threshold

Results are indicated in Delay (average seconds per vehicle)/LOS (Level of Service)

¹LOS based on HCM2010 method of analysis for Signalized intersections.

²LOS based on HCM2010 method of analysis for TWSC intersections.

8. References

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- Mendocino County (2012). *2012 Mendocino County Regional Bikeway Plan*, Mendocino Council of Governments, Adopted June 2012.
- MSWMA (2013). *Memorandum regarding Projected Traffic, Highway 20 Transfer Station*, Mendocino Solid Waste Management Authority, September 2013.

Appendices

Appendix A - Intersection Turning Movement Count Data

City of Fort Bragg
 N/S: State Route 1
 E/W: State Route 20
 Weather: Sunny

File Name : FBG_SR-1_SR-20 AM
 Site Code : 99913282
 Start Date : 8/22/2013
 Page No : 1

Groups Printed- Total Volume

| Start Time | State Route 1 Southbound | | | State Route 20 Westbound | | | State Route 1 Northbound | | | Int. Total |
|-------------|--------------------------|------|------------|--------------------------|-------|------------|--------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 07:00 AM | 29 | 47 | 76 | 8 | 21 | 29 | 56 | 11 | 67 | 172 |
| 07:15 AM | 30 | 55 | 85 | 8 | 37 | 45 | 83 | 13 | 96 | 226 |
| 07:30 AM | 21 | 80 | 101 | 14 | 62 | 76 | 111 | 16 | 127 | 304 |
| 07:45 AM | 34 | 89 | 123 | 14 | 54 | 68 | 139 | 19 | 158 | 349 |
| Total | 114 | 271 | 385 | 44 | 174 | 218 | 389 | 59 | 448 | 1051 |
| 08:00 AM | 52 | 96 | 148 | 15 | 65 | 80 | 134 | 17 | 151 | 379 |
| 08:15 AM | 42 | 110 | 152 | 17 | 63 | 80 | 130 | 23 | 153 | 385 |
| 08:30 AM | 58 | 110 | 168 | 18 | 49 | 67 | 123 | 15 | 138 | 373 |
| 08:45 AM | 44 | 119 | 163 | 26 | 43 | 69 | 131 | 23 | 154 | 386 |
| Total | 196 | 435 | 631 | 76 | 220 | 296 | 518 | 78 | 596 | 1523 |
| Grand Total | 310 | 706 | 1016 | 120 | 394 | 514 | 907 | 137 | 1044 | 2574 |
| Apprch % | 30.5 | 69.5 | | 23.3 | 76.7 | | 86.9 | 13.1 | | |
| Total % | 12 | 27.4 | 39.5 | 4.7 | 15.3 | 20 | 35.2 | 5.3 | 40.6 | |

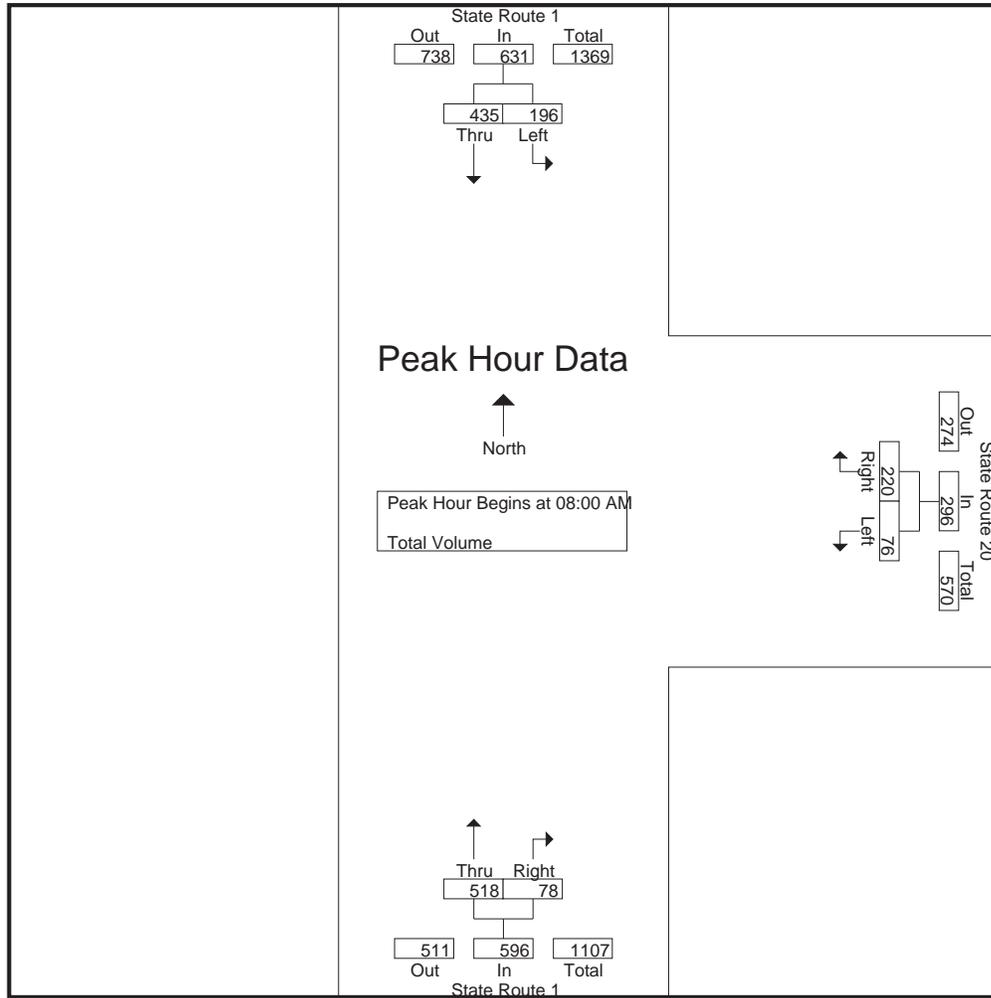
| Start Time | State Route 1 Southbound | | | State Route 20 Westbound | | | State Route 1 Northbound | | | Int. Total |
|--------------|--------------------------|------------|------------|--------------------------|-----------|------------|--------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 08:00 AM | 52 | 96 | 148 | 15 | 65 | 80 | 134 | 17 | 151 | 379 |
| 08:15 AM | 42 | 110 | 152 | 17 | 63 | 80 | 130 | 23 | 153 | 385 |
| 08:30 AM | 58 | 110 | 168 | 18 | 49 | 67 | 123 | 15 | 138 | 373 |
| 08:45 AM | 44 | 119 | 163 | 26 | 43 | 69 | 131 | 23 | 154 | 386 |
| Total Volume | 196 | 435 | 631 | 76 | 220 | 296 | 518 | 78 | 596 | 1523 |
| % App. Total | 31.1 | 68.9 | | 25.7 | 74.3 | | 86.9 | 13.1 | | |
| PHF | .845 | .914 | .939 | .731 | .846 | .925 | .966 | .848 | .968 | .986 |

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM

City of Fort Bragg
 N/S: State Route 1
 E/W: State Route 20
 Weather: Sunny

File Name : FBG_SR-1_SR-20 AM
 Site Code : 99913282
 Start Date : 8/22/2013
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

| | 08:00 AM | | | 07:30 AM | | | 07:45 AM | | |
|--------------|-----------|------------|------------|-----------|-----------|-----------|------------|-----------|------------|
| +0 mins. | 52 | 96 | 148 | 14 | 62 | 76 | 139 | 19 | 158 |
| +15 mins. | 42 | 110 | 152 | 14 | 54 | 68 | 134 | 17 | 151 |
| +30 mins. | 58 | 110 | 168 | 15 | 65 | 80 | 130 | 23 | 153 |
| +45 mins. | 44 | 119 | 163 | 17 | 63 | 80 | 123 | 15 | 138 |
| Total Volume | 196 | 435 | 631 | 60 | 244 | 304 | 526 | 74 | 600 |
| % App. Total | 31.1 | 68.9 | | 19.7 | 80.3 | | 87.7 | 12.3 | |
| PHF | .845 | .914 | .939 | .882 | .938 | .950 | .946 | .804 | .949 |

City of Fort Bragg
 N/S: State Route 1
 E/W: State Route 20
 Weather: Sunny

File Name : FBG_SR-1_SR-20 PM
 Site Code : 99913282
 Start Date : 8/22/2013
 Page No : 1

Groups Printed- Total Volume

| Start Time | State Route 1 Southbound | | | State Route 20 Westbound | | | State Route 1 Northbound | | | Int. Total |
|-------------|--------------------------|------|------------|--------------------------|-------|------------|--------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:00 PM | 75 | 156 | 231 | 54 | 65 | 119 | 138 | 38 | 176 | 526 |
| 04:15 PM | 37 | 177 | 214 | 43 | 72 | 115 | 144 | 42 | 186 | 515 |
| 04:30 PM | 64 | 153 | 217 | 71 | 39 | 110 | 160 | 35 | 195 | 522 |
| 04:45 PM | 48 | 144 | 192 | 51 | 62 | 113 | 162 | 37 | 199 | 504 |
| Total | 224 | 630 | 854 | 219 | 238 | 457 | 604 | 152 | 756 | 2067 |
| 05:00 PM | 56 | 148 | 204 | 44 | 69 | 113 | 154 | 35 | 189 | 506 |
| 05:15 PM | 64 | 185 | 249 | 53 | 58 | 111 | 156 | 45 | 201 | 561 |
| 05:30 PM | 45 | 128 | 173 | 45 | 61 | 106 | 113 | 32 | 145 | 424 |
| 05:45 PM | 52 | 131 | 183 | 41 | 44 | 85 | 109 | 31 | 140 | 408 |
| Total | 217 | 592 | 809 | 183 | 232 | 415 | 532 | 143 | 675 | 1899 |
| Grand Total | 441 | 1222 | 1663 | 402 | 470 | 872 | 1136 | 295 | 1431 | 3966 |
| Apprch % | 26.5 | 73.5 | | 46.1 | 53.9 | | 79.4 | 20.6 | | |
| Total % | 11.1 | 30.8 | 41.9 | 10.1 | 11.9 | 22 | 28.6 | 7.4 | 36.1 | |

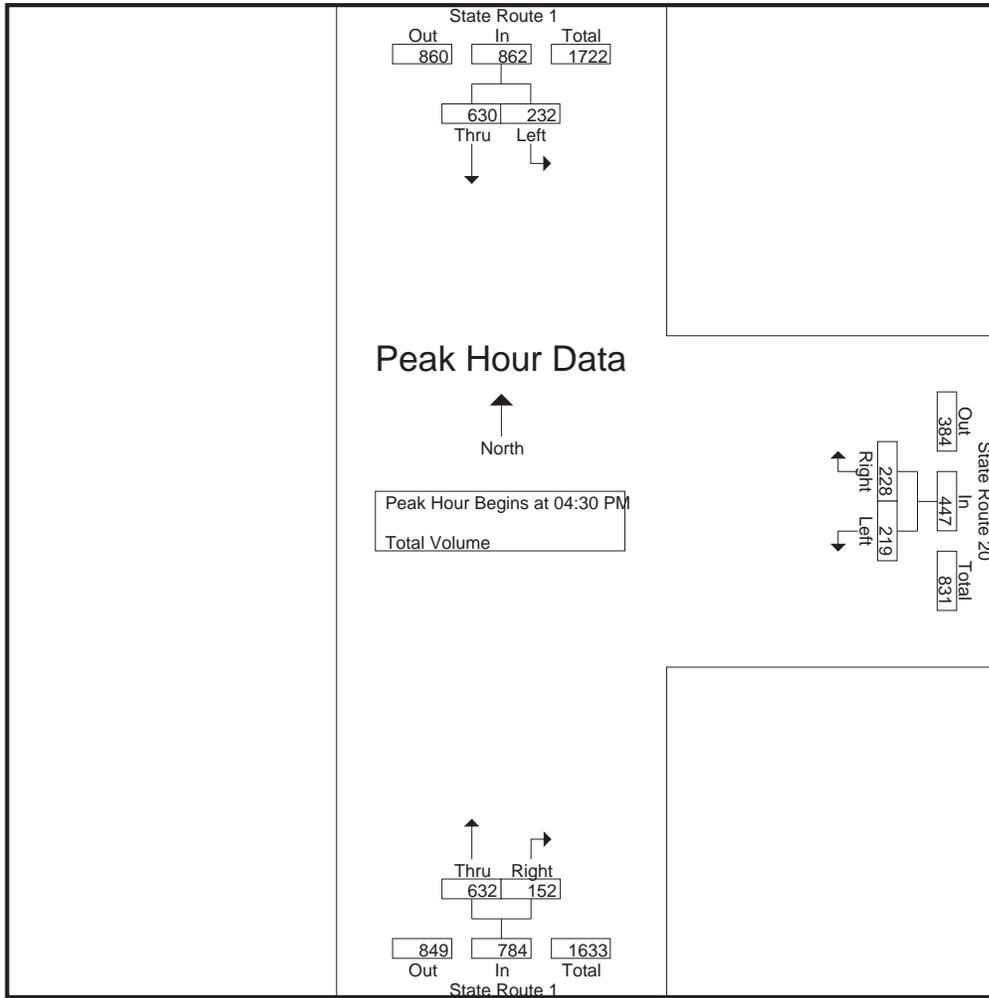
| Start Time | State Route 1 Southbound | | | State Route 20 Westbound | | | State Route 1 Northbound | | | Int. Total |
|--------------|--------------------------|------------|------------|--------------------------|-----------|------------|--------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 04:30 PM | 64 | 153 | 217 | 71 | 39 | 110 | 160 | 35 | 195 | 522 |
| 04:45 PM | 48 | 144 | 192 | 51 | 62 | 113 | 162 | 37 | 199 | 504 |
| 05:00 PM | 56 | 148 | 204 | 44 | 69 | 113 | 154 | 35 | 189 | 506 |
| 05:15 PM | 64 | 185 | 249 | 53 | 58 | 111 | 156 | 45 | 201 | 561 |
| Total Volume | 232 | 630 | 862 | 219 | 228 | 447 | 632 | 152 | 784 | 2093 |
| % App. Total | 26.9 | 73.1 | | 49 | 51 | | 80.6 | 19.4 | | |
| PHF | .906 | .851 | .865 | .771 | .826 | .989 | .975 | .844 | .975 | .933 |

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

City of Fort Bragg
 N/S: State Route 1
 E/W: State Route 20
 Weather: Sunny

File Name : FBG_SR-1_SR-20 PM
 Site Code : 99913282
 Start Date : 8/22/2013
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

| | 04:30 PM | | | 04:00 PM | | | 04:30 PM | | |
|--------------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|------------|
| +0 mins. | 64 | 153 | 217 | 54 | 65 | 119 | 160 | 35 | 195 |
| +15 mins. | 48 | 144 | 192 | 43 | 72 | 115 | 162 | 37 | 199 |
| +30 mins. | 56 | 148 | 204 | 71 | 39 | 110 | 154 | 35 | 189 |
| +45 mins. | 64 | 185 | 249 | 51 | 62 | 113 | 156 | 45 | 201 |
| Total Volume | 232 | 630 | 862 | 219 | 238 | 457 | 632 | 152 | 784 |
| % App. Total | 26.9 | 73.1 | | 47.9 | 52.1 | | 80.6 | 19.4 | |
| PHF | .906 | .851 | .865 | .771 | .826 | .960 | .975 | .844 | .975 |

City of Fort Bragg
 N/S: State Route 1
 E/W: State Route 20
 Weather: Sunny

File Name : FBG_SR-1_SR-20 MD
 Site Code : 99913282
 Start Date : 8/24/2013
 Page No : 1

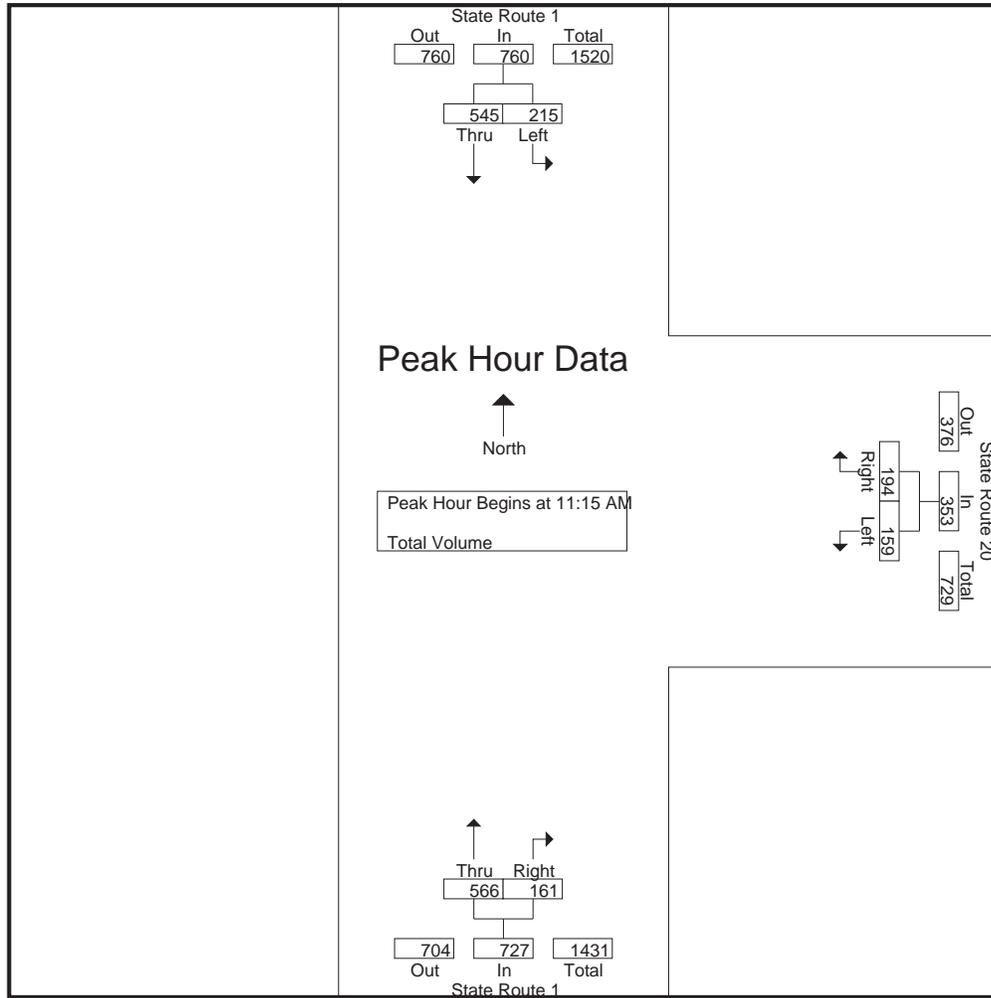
Groups Printed- Total Volume

| Start Time | State Route 1 Southbound | | | State Route 20 Westbound | | | State Route 1 Northbound | | | Int. Total |
|-------------|--------------------------|------|------------|--------------------------|-------|------------|--------------------------|-------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| 11:00 AM | 52 | 142 | 194 | 49 | 49 | 98 | 99 | 23 | 122 | 414 |
| 11:15 AM | 54 | 120 | 174 | 31 | 41 | 72 | 157 | 37 | 194 | 440 |
| 11:30 AM | 52 | 139 | 191 | 43 | 55 | 98 | 120 | 34 | 154 | 443 |
| 11:45 AM | 50 | 143 | 193 | 50 | 53 | 103 | 138 | 44 | 182 | 478 |
| Total | 208 | 544 | 752 | 173 | 198 | 371 | 514 | 138 | 652 | 1775 |
| 12:00 PM | 59 | 143 | 202 | 35 | 45 | 80 | 151 | 46 | 197 | 479 |
| 12:15 PM | 56 | 123 | 179 | 45 | 55 | 100 | 133 | 24 | 157 | 436 |
| 12:30 PM | 49 | 110 | 159 | 44 | 49 | 93 | 135 | 35 | 170 | 422 |
| 12:45 PM | 54 | 141 | 195 | 44 | 71 | 115 | 133 | 43 | 176 | 486 |
| Total | 218 | 517 | 735 | 168 | 220 | 388 | 552 | 148 | 700 | 1823 |
| Grand Total | 426 | 1061 | 1487 | 341 | 418 | 759 | 1066 | 286 | 1352 | 3598 |
| Apprch % | 28.6 | 71.4 | | 44.9 | 55.1 | | 78.8 | 21.2 | | |
| Total % | 11.8 | 29.5 | 41.3 | 9.5 | 11.6 | 21.1 | 29.6 | 7.9 | 37.6 | |

| Start Time | State Route 1 Southbound | | | State Route 20 Westbound | | | State Route 1 Northbound | | | Int. Total |
|--|--------------------------|------------|------------|--------------------------|-----------|------------|--------------------------|-----------|------------|------------|
| | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:15 AM | | | | | | | | | | |
| 11:15 AM | 54 | 120 | 174 | 31 | 41 | 72 | 157 | 37 | 194 | 440 |
| 11:30 AM | 52 | 139 | 191 | 43 | 55 | 98 | 120 | 34 | 154 | 443 |
| 11:45 AM | 50 | 143 | 193 | 50 | 53 | 103 | 138 | 44 | 182 | 478 |
| 12:00 PM | 59 | 143 | 202 | 35 | 45 | 80 | 151 | 46 | 197 | 479 |
| Total Volume | 215 | 545 | 760 | 159 | 194 | 353 | 566 | 161 | 727 | 1840 |
| % App. Total | 28.3 | 71.7 | | 45 | 55 | | 77.9 | 22.1 | | |
| PHF | .911 | .953 | .941 | .795 | .882 | .857 | .901 | .875 | .923 | .960 |

City of Fort Bragg
 N/S: State Route 1
 E/W: State Route 20
 Weather: Sunny

File Name : FBG_SR-1_SR-20 MD
 Site Code : 99913282
 Start Date : 8/24/2013
 Page No : 2



Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

| | 11:30 AM | | | 12:00 PM | | | 11:15 AM | | |
|--------------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|------------|
| +0 mins. | 52 | 139 | 191 | 35 | 45 | 80 | 157 | 37 | 194 |
| +15 mins. | 50 | 143 | 193 | 45 | 55 | 100 | 120 | 34 | 154 |
| +30 mins. | 59 | 143 | 202 | 44 | 49 | 93 | 138 | 44 | 182 |
| +45 mins. | 56 | 123 | 179 | 44 | 71 | 115 | 151 | 46 | 197 |
| Total Volume | 217 | 548 | 765 | 168 | 220 | 388 | 566 | 161 | 727 |
| % App. Total | 28.4 | 71.6 | | 43.3 | 56.7 | | 77.9 | 22.1 | |
| PHF | .919 | .958 | .947 | .933 | .775 | .843 | .901 | .875 | .923 |

Location: Fort Bragg
 N/S: State Route 1
 E/W: State Route 20



Date: 8/22/2013
 File : FBGSR1SR20

WEEKDAY

| | North Leg State Route 20 | East Leg State Route 1 | South Leg State Route 20 | West Leg State Route 1 | TOTAL |
|-----------------------|-----------------------------|---------------------------|-----------------------------|---------------------------|-------|
| | Pedestrians | Pedestrians | Pedestrians | Pedestrians | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 1 | 0 | 0 | 1 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 1 | 0 | 0 | 1 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 2 | 0 | 0 | 0 | 2 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 1 | 1 | 0 | 0 | 2 |
| TOTAL VOLUMES: | 3 | 3 | 0 | 0 | 6 |

| | North Leg State Route 20 | East Leg State Route 1 | South Leg State Route 20 | West Leg State Route 1 | TOTAL |
|-----------------------|-----------------------------|---------------------------|-----------------------------|---------------------------|-------|
| | Pedestrians | Pedestrians | Pedestrians | Pedestrians | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 |
| 4:30 PM | 1 | 1 | 0 | 1 | 3 |
| 4:45 PM | 0 | 2 | 0 | 0 | 2 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | 1 | 1 | 0 | 1 | 3 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 |
| TOTAL VOLUMES: | 2 | 4 | 0 | 2 | 8 |

SATURDAY

Date: 8/24/2013

| | North Leg State Route 20 | East Leg State Route 1 | South Leg State Route 20 | West Leg State Route 1 | TOTAL |
|-----------------------|-----------------------------|---------------------------|-----------------------------|---------------------------|-------|
| | Pedestrians | Pedestrians | Pedestrians | Pedestrians | |
| 11:00 AM | 2 | 1 | 0 | 3 | 6 |
| 11:15 AM | 0 | 0 | 1 | 0 | 1 |
| 11:30 AM | 0 | 0 | 0 | 0 | 0 |
| 11:45 AM | 1 | 0 | 0 | 1 | 2 |
| 12:00 PM | 0 | 1 | 0 | 0 | 1 |
| 12:15 PM | 0 | 3 | 0 | 0 | 3 |
| 12:30 PM | 2 | 0 | 0 | 2 | 4 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 |
| TOTAL VOLUMES: | 5 | 5 | 1 | 6 | 17 |

Location: Fort Bragg
 N/S: State Route 1
 E/W: State Route 20



Date: 8/22/2013
 File : FBGSR1SR20

| | North Leg State Route 20 | East Leg State Route 1 | South Leg State Route 20 | West Leg State Route 1 | TOTAL |
|-----------------------|-----------------------------|---------------------------|-----------------------------|---------------------------|-------|
| | Bicycles | Bicycles | Bicycles | Bicycles | |
| 7:00 AM | 0 | 1 | 0 | 0 | 1 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 3 | 0 | 0 | 3 |
| 8:00 AM | 0 | 2 | 0 | 0 | 2 |
| 8:15 AM | 0 | 2 | 0 | 6 | 8 |
| 8:30 AM | 0 | 0 | 0 | 3 | 3 |
| 8:45 AM | 1 | 0 | 0 | 0 | 1 |
| TOTAL VOLUMES: | 1 | 8 | 0 | 9 | 18 |

| | North Leg State Route 20 | East Leg State Route 1 | South Leg State Route 20 | West Leg State Route 1 | TOTAL |
|-----------------------|-----------------------------|---------------------------|-----------------------------|---------------------------|-------|
| | Bicycles | Bicycles | Bicycles | Bicycles | |
| 4:00 PM | 0 | 1 | 0 | 1 | 2 |
| 4:15 PM | 2 | 3 | 0 | 3 | 8 |
| 4:30 PM | 0 | 4 | 0 | 0 | 4 |
| 4:45 PM | 2 | 0 | 0 | 2 | 4 |
| 5:00 PM | 0 | 1 | 0 | 1 | 2 |
| 5:15 PM | 0 | 1 | 0 | 0 | 1 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 2 | 0 | 3 | 5 |
| TOTAL VOLUMES: | 4 | 12 | 0 | 10 | 26 |

SATURDAY

Date: 8/24/2013

| | North Leg State Route 20 | East Leg State Route 1 | South Leg State Route 20 | West Leg State Route 1 | TOTAL |
|-----------------------|-----------------------------|---------------------------|-----------------------------|---------------------------|-------|
| | Bicycles | Bicycles | Bicycles | Bicycles | |
| 11:00 AM | 0 | 0 | 0 | 1 | 1 |
| 11:15 AM | 0 | 1 | 0 | 0 | 1 |
| 11:30 AM | 0 | 1 | 0 | 0 | 1 |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 |
| 12:15 PM | 0 | 0 | 0 | 3 | 3 |
| 12:30 PM | 0 | 0 | 0 | 2 | 2 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 |
| TOTAL VOLUMES: | 0 | 2 | 0 | 6 | 8 |

Appendix B – Historic Collision Analysis

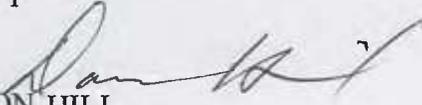
Memorandum

*Flex your power!
Be energy efficient!*

To: JOHN THURSTON
Transportation Planning
District 1

Date: November 8, 2013

File: Ft Bragg Transfer Station

From: 
DARRON HILL
Asst Traffic Safety Engineer
District 1 Office of Traffic Safety

Subject: Request for 3-Year Traffic Collision Analysis

Per your request dated November 7, 2013, a safety analysis has been conducted for the most recent 3 year time period between 01/01/2009 and 12/31/2011. The segment reviewed was 0.25 miles either side of the proposed Transfer Station entrance at PM 2.90. Exact PM limits were PM 2.65 through PM 3.15.

According to the TASAS Table B this segment has an actual total collision rate which is 48% less than the state average. The actual fatal collision rate is 0% and the actual fatal plus injury collision rate is 48% less than the statewide average.

Of the 2 Total Collisions, there was 1 Injury and 1 Property Damage Only Collisions. There was 1 multi-vehicle collisions, no collisions occurred during periods of darkness and no collisions occurred on wet pavement. There was not a predominant Primary Collision Factor with one collision listed as "Other" and one collision listed as "Speeding." The Type of Collision was listed as "Hit Object" in one collision and as "Sideswipe" in the other collision. 2 of 2 collisions were eastbound and no collisions occurred within an intersection. Both collisions occurred in the early afternoon on a week day during the summer months.

If you have any questions please contact me at (707) 964-0974.

cc:

1 - ML SUCHANEK
2 - TAARSENEAU
3 - DLHill
4 - FILE

Appendix C – Existing Conditions Scenario Level of Service and Queue Calculations

Queues
3: Hwy 1 & Hwy 20

Existing Weekday AM Peak Hour

8/11/2014



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 82 | 237 | 534 | 80 | 209 | 463 |
| v/c Ratio | 0.29 | 0.53 | 0.56 | 0.16 | 0.47 | 0.48 |
| Control Delay | 20.0 | 8.2 | 16.3 | 2.8 | 23.7 | 8.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 20.0 | 8.2 | 16.3 | 2.8 | 23.7 | 8.5 |
| Queue Length 50th (ft) | 19 | 0 | 60 | 0 | 26 | 62 |
| Queue Length 95th (ft) | 52 | 46 | 106 | 15 | 60 | 136 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 1286 | 1182 | 2170 | 993 | 445 | 1596 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.06 | 0.20 | 0.25 | 0.08 | 0.47 | 0.29 |

Intersection Summary

HCM 2010 Signalized Intersection Summary
 3: Hwy 1 & Hwy 20

Existing Weekday AM Peak Hour
 8/11/2014

| |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Volume (vph) | 76 | 220 | 518 | 78 | 196 | 435 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1696 | 1712 | 1712 | 1759 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 123 | 110 | 1122 | 502 | 339 | 1063 |
| Arriving On Green | 0.08 | 0.00 | 0.34 | 0.00 | 0.10 | 0.60 |
| Sat Flow, veh/h | 1615.6 | 1442.0 | 3337.8 | 1455.0 | 3250.4 | 1759.3 |
| Grp Volume(v), veh/h | 81.7 | 0.0 | 534.0 | 0.0 | 208.5 | 462.8 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1442.0 | 1626.1 | 1455.0 | 1625.2 | 1759.3 |
| Q Serve(g_s), s | 1.9 | 0.0 | 4.9 | 0.0 | 2.3 | 5.4 |
| Cycle Q Clear(g_c), s | 1.9 | 0.0 | 4.9 | 0.0 | 2.3 | 5.4 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 122.7 | 109.5 | 1121.9 | 501.9 | 338.7 | 1062.5 |
| V/C Ratio(X) | 0.666 | 0.000 | 0.476 | 0.000 | 0.616 | 0.436 |
| Avail Cap(c_a), veh/h | 1526.0 | 1362.0 | 2568.4 | 1149.0 | 528.7 | 1929.4 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 17.1 | 0.0 | 9.8 | 0.0 | 16.3 | 4.1 |
| Incr Delay (d2), s/veh | 6.1 | 0.0 | 0.3 | 0.0 | 1.8 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 23.2 | 0.0 | 10.1 | 0.0 | 18.2 | 4.3 |
| Lane Group LOS | C | | B | | B | A |
| Approach Volume, veh/h | 82 | | 534 | | | 671 |
| Approach Delay, s/veh | 23.2 | | 10.1 | | | 8.6 |
| Approach LOS | C | | B | | | A |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 19.05 | | 9.87 | 28.92 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.10 | | 6.20 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 6.90 | | 4.34 | 7.39 |
| Green Extension Time (p_c) | | | 6.55 | | 0.12 | 7.23 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 10.2 | | | |
| HCM 2010 Level of Service | | | B | | | |

Queues
3: Hwy 1 & Hwy 20

Existing Weekday PM Peak Hour

8/11/2014



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 221 | 230 | 645 | 155 | 267 | 724 |
| v/c Ratio | 0.57 | 0.44 | 0.59 | 0.27 | 0.76 | 0.76 |
| Control Delay | 27.3 | 6.5 | 18.4 | 4.1 | 46.7 | 17.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.3 | 6.5 | 18.4 | 4.1 | 46.7 | 17.3 |
| Queue Length 50th (ft) | 68 | 0 | 94 | 0 | 48 | 177 |
| Queue Length 95th (ft) | 150 | 49 | 160 | 33 | #132 | 344 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 1027 | 989 | 1739 | 835 | 350 | 1295 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.22 | 0.23 | 0.37 | 0.19 | 0.76 | 0.56 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Volume (vph) | 219 | 228 | 632 | 152 | 232 | 630 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1696 | 1712 | 1712 | 1759 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 280 | 250 | 1195 | 535 | 373 | 1046 |
| Arriving On Green | 0.17 | 0.00 | 0.37 | 0.00 | 0.11 | 0.59 |
| Sat Flow, veh/h | 1615.6 | 1442.0 | 3337.8 | 1455.0 | 3250.4 | 1759.3 |
| Grp Volume(v), veh/h | 221.2 | 0.0 | 644.9 | 0.0 | 266.7 | 724.1 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1442.0 | 1626.1 | 1455.0 | 1625.2 | 1759.3 |
| Q Serve(g_s), s | 6.9 | 0.0 | 8.2 | 0.0 | 4.2 | 14.9 |
| Cycle Q Clear(g_c), s | 6.9 | 0.0 | 8.2 | 0.0 | 4.2 | 14.9 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 280.3 | 250.2 | 1195.2 | 534.7 | 373.0 | 1045.8 |
| V/C Ratio(X) | 0.789 | 0.000 | 0.540 | 0.000 | 0.715 | 0.692 |
| Avail Cap(c_a), veh/h | 1106.1 | 987.2 | 1867.9 | 835.6 | 377.1 | 1398.5 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 20.8 | 0.0 | 13.1 | 0.0 | 22.4 | 7.3 |
| Incr Delay (d2), s/veh | 4.9 | 0.0 | 0.4 | 0.0 | 6.2 | 0.9 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 25.7 | 0.0 | 13.5 | 0.0 | 28.7 | 8.3 |
| Lane Group LOS | C | | B | | C | A |
| Approach Volume, veh/h | 221 | | 645 | | | 991 |
| Approach Delay, s/veh | 25.7 | | 13.5 | | | 13.8 |
| Approach LOS | C | | B | | | B |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 25.22 | | 11.93 | 37.16 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.20 | | 6.10 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 10.23 | | 6.16 | 16.92 |
| Green Extension Time (p_c) | | | 9.19 | | 0.00 | 10.20 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 15.1 | | | |
| HCM 2010 Level of Service | | | B | | | |

Queues
3: Hwy 1 & Hwy 20

Existing Weekend
Midday Peak Hour

8/11/2014



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 185 | 226 | 615 | 175 | 229 | 580 |
| v/c Ratio | 0.51 | 0.46 | 0.60 | 0.31 | 0.58 | 0.61 |
| Control Delay | 24.5 | 6.6 | 18.4 | 4.5 | 32.7 | 12.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 24.5 | 6.6 | 18.4 | 4.5 | 32.7 | 12.4 |
| Queue Length 50th (ft) | 50 | 0 | 82 | 0 | 35 | 108 |
| Queue Length 95th (ft) | 109 | 40 | 145 | 35 | #97 | 240 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 1117 | 1056 | 1879 | 902 | 393 | 1409 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.17 | 0.21 | 0.33 | 0.19 | 0.58 | 0.41 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
3: Hwy 1 & Hwy 20

Existing Weekend
Midday Peak Hour

8/11/2014

| |  |  |  |  |  |  |
|------------------------------|---|---|--|---|--|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |   |  |   |  |
| Volume (vph) | 159 | 194 | 566 | 161 | 215 | 545 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1696 | 1712 | 1712 | 1759 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 240 | 214 | 1158 | 518 | 347 | 1037 |
| Arriving On Green | 0.15 | 0.00 | 0.36 | 0.00 | 0.11 | 0.59 |
| Sat Flow, veh/h | 1615.6 | 1442.0 | 3337.8 | 1455.0 | 3250.4 | 1759.3 |
| Grp Volume(v), veh/h | 184.9 | 0.0 | 615.2 | 0.0 | 228.7 | 579.8 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1442.0 | 1626.1 | 1455.0 | 1625.2 | 1759.3 |
| Q Serve(g_s), s | 5.1 | 0.0 | 7.0 | 0.0 | 3.1 | 9.4 |
| Cycle Q Clear(g_c), s | 5.1 | 0.0 | 7.0 | 0.0 | 3.1 | 9.4 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 240.2 | 214.4 | 1157.9 | 518.0 | 346.6 | 1036.8 |
| V/C Ratio(X) | 0.770 | 0.000 | 0.531 | 0.000 | 0.660 | 0.559 |
| Avail Cap(c_a), veh/h | 1248.9 | 1114.6 | 2095.0 | 937.2 | 439.7 | 1579.0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 19.1 | 0.0 | 11.9 | 0.0 | 20.0 | 5.9 |
| Incr Delay (d2), s/veh | 5.2 | 0.0 | 0.4 | 0.0 | 2.5 | 0.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 24.2 | 0.0 | 12.3 | 0.0 | 22.4 | 6.3 |
| Lane Group LOS | C | | B | | C | A |
| Approach Volume, veh/h | 185 | | 615 | | | 809 |
| Approach Delay, s/veh | 24.2 | | 12.3 | | | 10.9 |
| Approach LOS | C | | B | | | B |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 22.48 | | 10.87 | 33.35 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.00 | | 6.30 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 9.00 | | 5.15 | 11.40 |
| Green Extension Time (p_c) | | | 7.90 | | 0.09 | 9.01 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 13.0 | | | |
| HCM 2010 Level of Service | | | B | | | |

Appendix D – Mendocino Solid Waste Management Authority
Memorandum – Projected Traffic, Highway 20
Transfer Station

Mendocino Solid Waste Management Authority

A joint powers public agency

Michael E. Sweeney
General Manager
101 W. Church St. #9
Ukiah, CA 95482

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September 24, 2013

Projected traffic, Highway 20 Transfer Station

Facility operation will be Saturday through Wednesday, 9 a.m. to 4 p.m. (same as current Caspar self-haul transfer station) for all customers and Monday through Friday, 9 a.m. to 4 p.m. for the franchised hauler trucks only.

The project trips would consist of the following components:

1. Self-haul trash & recyclables. This component can be projected using the historical data for the existing Caspar self-haul transfer station, which would be replaced by the new facility. Records are available showing the daily self-haul traffic at Caspar. The peak month for self-haul is July. The daily traffic for July, 2013 appears in Table 1 below.
2. Franchised hauler. This component can be projected data on the current trips of Empire Waste Management which now terminate at Empire's truck yard at 219 Pudding Creek Road, Fort Bragg where they are mobilized for long-haul to Willits Transfer Station. These trucks will dump instead at the new facility.
3. Recycle outhauls. This component can be projected from current experience of Caspar self-haul transfer station, which has one roll-off pickup per week on average for mixed recyclables and occasional additional trips for metal and other segregated commodities.
4. Transfer truck. During the peak month of July, 2013, there were 1,129 tons of solid waste generated in the wasteshed. If transfer trucks operated 24 days in

the month (Mon-Sat), there would an average of 47 tons per day, requiring an average of 2 trips per day.

Table 1. Caspar self-haul traffic, July 2013

| Week | Sunday | Monday | Tuesday | Wed. | Thursday | Friday | Saturday |
|------|------------|-----------|-----------|-----------|----------|--------|------------|
| 1 | | 63 | 82 | 91 | - | - | 129 |
| 2 | 101 | 76 | 70 | 84 | - | - | 138 |
| 3 | 105 | 73 | 54 | 84 | - | - | 121 |
| 4 | 112 | 76 | 55 | 80 | - | - | 126 |
| 5 | 111 | 59 | 62 | 90 | | | |

bold face = highest for day of week

Table 2. Projected peak traffic under current demand

| | Sunday | Monday | Tuesday | Wed. | Thursday | Friday | Saturday |
|------------------------------------|--------|--------|---------|------|----------|--------|----------|
| Self-haul customers | 112 | 76 | 82 | 91 | 0 | 0 | 138 |
| Franchise hauler collection trucks | 0 | 10 | 15 | 9 | 20 | 9 | 0 |
| Recycling outhaul | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Transfer truck outhaul | 0 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total traffic | 112 | 88 | 99 | 102 | 23 | 12 | 140 |

Assumptions:

1. Continue Caspar self-haul schedule Saturday-Wednesday.
2. Self-haul traffic equals highest per day of week in July 2013.
3. Franchise hauler access Monday-Friday.

Appendix E – Existing plus Project Conditions Scenario Level of Service and Queue Calculations

Queues
3: Hwy 1 & Hwy 20

Existing plus Project AM Peak Hour

8/21/2014



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 88 | 242 | 534 | 88 | 216 | 463 |
| v/c Ratio | 0.31 | 0.54 | 0.56 | 0.18 | 0.49 | 0.48 |
| Control Delay | 20.4 | 8.3 | 16.2 | 3.2 | 24.7 | 8.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 20.4 | 8.3 | 16.2 | 3.2 | 24.7 | 8.5 |
| Queue Length 50th (ft) | 20 | 0 | 60 | 0 | 27 | 63 |
| Queue Length 95th (ft) | 57 | 48 | 107 | 18 | #66 | 137 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 1278 | 1166 | 2156 | 987 | 438 | 1585 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.07 | 0.21 | 0.25 | 0.09 | 0.49 | 0.29 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Volume (vph) | 82 | 225 | 518 | 85 | 203 | 435 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1681 | 1712 | 1712 | 1743 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 128 | 113 | 1116 | 499 | 346 | 1062 |
| Arriving On Green | 0.08 | 0.00 | 0.34 | 0.00 | 0.11 | 0.60 |
| Sat Flow, veh/h | 1615.6 | 1429.2 | 3337.8 | 1455.0 | 3220.6 | 1759.3 |
| Grp Volume(v), veh/h | 88.2 | 0.0 | 534.0 | 0.0 | 216.0 | 462.8 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1429.2 | 1626.1 | 1455.0 | 1610.3 | 1759.3 |
| Q Serve(g_s), s | 2.0 | 0.0 | 5.0 | 0.0 | 2.5 | 5.4 |
| Cycle Q Clear(g_c), s | 2.0 | 0.0 | 5.0 | 0.0 | 2.5 | 5.4 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 128.1 | 113.3 | 1115.8 | 499.2 | 345.8 | 1062.1 |
| V/C Ratio(X) | 0.688 | 0.000 | 0.479 | 0.000 | 0.624 | 0.436 |
| Avail Cap(c_a), veh/h | 1511.1 | 1336.7 | 2543.3 | 1137.8 | 518.8 | 1910.5 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 17.3 | 0.0 | 9.9 | 0.0 | 16.4 | 4.1 |
| Incr Delay (d2), s/veh | 6.4 | 0.0 | 0.3 | 0.0 | 1.8 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 23.7 | 0.0 | 10.3 | 0.0 | 18.3 | 4.4 |
| Lane Group LOS | C | | B | | B | A |
| Approach Volume, veh/h | 88 | | 534 | | | 679 |
| Approach Delay, s/veh | 23.7 | | 10.3 | | | 8.8 |
| Approach LOS | C | | B | | | A |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 19.11 | | 10.03 | 29.14 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.10 | | 6.20 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 6.97 | | 4.47 | 7.44 |
| Green Extension Time (p_c) | | | 6.55 | | 0.12 | 7.23 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 10.4 | | | |
| HCM 2010 Level of Service | | | B | | | |

Intersection

Intersection Delay (sec/veh): 0.9

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|------|------|------|------|------|------|
| Volume (vph) | 14 | 112 | 110 | 4 | 3 | 11 |
| Conflicting Peds.(#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| Right Turn Channelized | None | None | Free | Free | None | None |
| Storage Length | 200 | | | 0 | 0 | 0 |
| Median Width | | 12 | 12 | | 12 | |
| Grade (%) | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles(%) | 2 | 12 | 12 | 100 | 100 | 2 |
| Movement Flow Rate | 15 | 122 | 120 | 4 | 3 | 12 |
| Number of Lanes | 1 | 1 | 1 | 0 | 1 | 0 |

| Major/Minor | Major 1 | | Major 2 | | | |
|-----------------------------|---------|---|---------|---|-----|-------|
| Conflicting Flow Rate - All | 124 | 0 | 0 | 0 | 274 | 122 |
| Stage 1 | - | - | - | - | 122 | - |
| Stage 2 | - | - | - | - | 152 | - |
| Follow-up Headway | 2.218 | - | - | - | 4.4 | 3.318 |
| Pot Capacity-1 Maneuver | 1463 | - | - | - | 548 | 929 |
| Stage 1 | - | - | - | - | 709 | - |
| Stage 2 | - | - | - | - | 684 | - |
| Time blocked-Platoon(%) | 0 | - | - | - | 0 | 0 |
| Mov Capacity-1 Maneuver | 1463 | - | - | - | 542 | 929 |
| Mov Capacity-2 Maneuver | - | - | - | - | 542 | - |
| Stage 1 | - | - | - | - | 709 | - |
| Stage 2 | - | - | - | - | 677 | - |

| Approach | EB | WB | SB |
|-----------------------|-----|----|-----|
| HCM Control Delay (s) | 0.8 | 0 | 9.6 |
| HCM LOS | A | A | A |

| Lane | EBL | EBT | WBT | WBR | SBLn1 |
|---------------------------------|-------|-----|-----|-----|-------|
| Capacity (vph) | | | | | 806 |
| HCM Control Delay (s) | 7.487 | - | - | - | 9.6 |
| HCM Lane VC Ratio | 0.01 | - | - | - | 0.019 |
| HCM Lane LOS | A | - | - | - | A |
| HCM 95th Percentile Queue (veh) | 0.032 | - | - | - | 0.058 |

Queues
3: Hwy 1 & Hwy 20

Existing plus Project PM Peak Hour

8/21/2014



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 228 | 237 | 645 | 161 | 272 | 724 |
| v/c Ratio | 0.58 | 0.45 | 0.59 | 0.27 | 0.79 | 0.76 |
| Control Delay | 27.6 | 6.5 | 18.5 | 4.2 | 49.4 | 17.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.6 | 6.5 | 18.5 | 4.2 | 49.4 | 17.6 |
| Queue Length 50th (ft) | 71 | 0 | 95 | 0 | 50 | 180 |
| Queue Length 95th (ft) | 155 | 49 | 161 | 34 | #137 | 349 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 1020 | 978 | 1727 | 833 | 344 | 1286 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.22 | 0.24 | 0.37 | 0.19 | 0.79 | 0.56 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Volume (vph) | 226 | 235 | 632 | 158 | 237 | 630 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1681 | 1712 | 1712 | 1743 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 288 | 255 | 1189 | 532 | 370 | 1041 |
| Arriving On Green | 0.18 | 0.00 | 0.37 | 0.00 | 0.11 | 0.59 |
| Sat Flow, veh/h | 1615.6 | 1429.2 | 3337.8 | 1455.0 | 3220.6 | 1759.3 |
| Grp Volume(v), veh/h | 228.3 | 0.0 | 644.9 | 0.0 | 272.4 | 724.1 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1429.2 | 1626.1 | 1455.0 | 1610.3 | 1759.3 |
| Q Serve(g_s), s | 7.2 | 0.0 | 8.3 | 0.0 | 4.3 | 15.2 |
| Cycle Q Clear(g_c), s | 7.2 | 0.0 | 8.3 | 0.0 | 4.3 | 15.2 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 288.1 | 254.9 | 1189.0 | 531.9 | 370.2 | 1041.1 |
| V/C Ratio(X) | 0.792 | 0.000 | 0.542 | 0.000 | 0.736 | 0.696 |
| Avail Cap(c_a), veh/h | 1096.1 | 969.7 | 1851.0 | 828.1 | 370.2 | 1385.9 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 20.9 | 0.0 | 13.3 | 0.0 | 22.7 | 7.5 |
| Incr Delay (d2), s/veh | 4.9 | 0.0 | 0.4 | 0.0 | 7.5 | 1.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 25.8 | 0.0 | 13.7 | 0.0 | 30.2 | 8.5 |
| Lane Group LOS | C | | B | | C | A |
| Approach Volume, veh/h | 228 | | 645 | | | 997 |
| Approach Delay, s/veh | 25.8 | | 13.7 | | | 14.4 |
| Approach LOS | C | | B | | | B |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 25.30 | | 12.00 | 37.30 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.20 | | 6.10 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 10.33 | | 6.34 | 17.15 |
| Green Extension Time (p_c) | | | 9.16 | | 0.00 | 10.16 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 15.6 | | | |
| HCM 2010 Level of Service | | | B | | | |

Intersection

Intersection Delay (sec/veh): 0.7

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|------|------|------|------|------|------|
| Volume (vph) | 11 | 157 | 166 | 3 | 4 | 14 |
| Conflicting Peds.(#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| Right Turn Channelized | None | None | Free | Free | None | None |
| Storage Length | 200 | | | 0 | 0 | 0 |
| Median Width | | 12 | 12 | | 12 | |
| Grade (%) | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles(%) | 2 | 12 | 12 | 100 | 100 | 2 |
| Movement Flow Rate | 12 | 171 | 180 | 3 | 4 | 15 |
| Number of Lanes | 1 | 1 | 1 | 0 | 1 | 0 |

| Major/Minor | Major 1 | | Major 2 | | | |
|-----------------------------|---------|---|---------|---|-----|-------|
| Conflicting Flow Rate - All | 183 | 0 | 0 | 0 | 377 | 182 |
| Stage 1 | - | - | - | - | 182 | - |
| Stage 2 | - | - | - | - | 195 | - |
| Follow-up Headway | 2.218 | - | - | - | 4.4 | 3.318 |
| Pot Capacity-1 Maneuver | 1392 | - | - | - | 470 | 861 |
| Stage 1 | - | - | - | - | 660 | - |
| Stage 2 | - | - | - | - | 650 | - |
| Time blocked-Platoon(%) | 0 | - | - | - | 0 | 0 |
| Mov Capacity-1 Maneuver | 1392 | - | - | - | 466 | 861 |
| Mov Capacity-2 Maneuver | - | - | - | - | 466 | - |
| Stage 1 | - | - | - | - | 660 | - |
| Stage 2 | - | - | - | - | 644 | - |

| Approach | EB | WB | SB |
|-----------------------|-----|----|------|
| HCM Control Delay (s) | 0.5 | 0 | 10.1 |
| HCM LOS | A | A | B |

| Lane | EBL | EBT | WBT | WBR | SBLn1 |
|---------------------------------|-------|-----|-----|-----|-------|
| Capacity (vph) | | | | | 725 |
| HCM Control Delay (s) | 7.609 | - | - | - | 10.1 |
| HCM Lane VC Ratio | 0.009 | - | - | - | 0.027 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th Percentile Queue (veh) | 0.026 | - | - | - | 0.083 |

Queues
3: Hwy 1 & Hwy 20

Existing plus Project Weekend Midday

8/21/2014



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 193 | 234 | 615 | 183 | 236 | 580 |
| v/c Ratio | 0.52 | 0.47 | 0.61 | 0.32 | 0.61 | 0.62 |
| Control Delay | 24.6 | 6.6 | 18.6 | 4.5 | 34.1 | 12.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 24.6 | 6.6 | 18.6 | 4.5 | 34.1 | 12.6 |
| Queue Length 50th (ft) | 53 | 0 | 83 | 0 | 36 | 110 |
| Queue Length 95th (ft) | 114 | 41 | 147 | 36 | #103 | 246 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 1110 | 1044 | 1866 | 900 | 387 | 1399 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.17 | 0.22 | 0.33 | 0.20 | 0.61 | 0.41 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Volume (vph) | 166 | 201 | 566 | 168 | 222 | 545 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1681 | 1712 | 1712 | 1743 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 250 | 221 | 1149 | 514 | 352 | 1033 |
| Arriving On Green | 0.15 | 0.00 | 0.35 | 0.00 | 0.11 | 0.59 |
| Sat Flow, veh/h | 1615.6 | 1429.2 | 3337.8 | 1455.0 | 3220.6 | 1759.3 |
| Grp Volume(v), veh/h | 193.0 | 0.0 | 615.2 | 0.0 | 236.2 | 579.8 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1429.2 | 1626.1 | 1455.0 | 1610.3 | 1759.3 |
| Q Serve(g_s), s | 5.4 | 0.0 | 7.1 | 0.0 | 3.3 | 9.6 |
| Cycle Q Clear(g_c), s | 5.4 | 0.0 | 7.1 | 0.0 | 3.3 | 9.6 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 250.0 | 221.1 | 1148.6 | 513.8 | 352.1 | 1033.1 |
| V/C Ratio(X) | 0.772 | 0.000 | 0.536 | 0.000 | 0.671 | 0.561 |
| Avail Cap(c_a), veh/h | 1230.1 | 1088.2 | 2063.5 | 923.2 | 429.1 | 1555.3 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 19.2 | 0.0 | 12.2 | 0.0 | 20.2 | 6.0 |
| Incr Delay (d2), s/veh | 5.0 | 0.0 | 0.4 | 0.0 | 3.0 | 0.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 24.2 | 0.0 | 12.6 | 0.0 | 23.3 | 6.5 |
| Lane Group LOS | C | | B | | C | A |
| Approach Volume, veh/h | 193 | | 615 | | | 816 |
| Approach Delay, s/veh | 24.2 | | 12.6 | | | 11.3 |
| Approach LOS | C | | B | | | B |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 22.60 | | 11.07 | 33.67 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.00 | | 6.30 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 9.14 | | 5.33 | 11.59 |
| Green Extension Time (p_c) | | | 7.88 | | 0.08 | 9.00 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 13.3 | | | |
| HCM 2010 Level of Service | | | B | | | |

Appendix F - Cumulative Conditions Scenario Level of Service and Queue Calculations

Queues
3: Hwy 1 & Hwy 20

Cumulative Weekday AM Peak Hour

8/11/2014



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 86 | 248 | 614 | 93 | 239 | 532 |
| v/c Ratio | 0.30 | 0.55 | 0.60 | 0.18 | 0.56 | 0.54 |
| Control Delay | 21.2 | 8.5 | 16.6 | 3.4 | 28.1 | 9.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 21.2 | 8.5 | 16.6 | 3.4 | 28.1 | 9.2 |
| Queue Length 50th (ft) | 21 | 0 | 72 | 0 | 31 | 76 |
| Queue Length 95th (ft) | 57 | 49 | 125 | 19 | #85 | 169 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 1235 | 1147 | 2084 | 958 | 428 | 1539 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.07 | 0.22 | 0.29 | 0.10 | 0.56 | 0.35 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
3: Hwy 1 & Hwy 20

Cumulative Weekday AM Peak Hour
8/11/2014

| |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Volume (vph) | 80 | 231 | 596 | 90 | 225 | 500 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1696 | 1712 | 1712 | 1759 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 123 | 110 | 1210 | 541 | 369 | 1106 |
| Arriving On Green | 0.08 | 0.00 | 0.37 | 0.00 | 0.11 | 0.63 |
| Sat Flow, veh/h | 1615.6 | 1442.0 | 3337.8 | 1455.0 | 3250.4 | 1759.3 |
| Grp Volume(v), veh/h | 86.0 | 0.0 | 614.4 | 0.0 | 239.4 | 531.9 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1442.0 | 1626.1 | 1455.0 | 1625.2 | 1759.3 |
| Q Serve(g_s), s | 2.1 | 0.0 | 6.0 | 0.0 | 2.9 | 6.6 |
| Cycle Q Clear(g_c), s | 2.1 | 0.0 | 6.0 | 0.0 | 2.9 | 6.6 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 122.7 | 109.5 | 1210.2 | 541.4 | 369.4 | 1105.9 |
| V/C Ratio(X) | 0.701 | 0.000 | 0.508 | 0.000 | 0.648 | 0.481 |
| Avail Cap(c_a), veh/h | 1408.4 | 1257.0 | 2370.5 | 1060.5 | 488.0 | 1780.7 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 18.6 | 0.0 | 10.0 | 0.0 | 17.5 | 4.1 |
| Incr Delay (d2), s/veh | 7.1 | 0.0 | 0.3 | 0.0 | 1.9 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 25.7 | 0.0 | 10.4 | 0.0 | 19.4 | 4.4 |
| Lane Group LOS | C | | B | | B | A |
| Approach Volume, veh/h | 86 | | 614 | | | 771 |
| Approach Delay, s/veh | 25.7 | | 10.4 | | | 9.1 |
| Approach LOS | C | | B | | | A |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 21.27 | | 10.59 | 31.86 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.10 | | 6.20 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 8.04 | | 4.91 | 8.65 |
| Green Extension Time (p_c) | | | 7.64 | | 0.11 | 8.68 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 10.6 | | | |
| HCM 2010 Level of Service | | | B | | | |



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|-------|------|
| Lane Group Flow (vph) | 232 | 241 | 742 | 179 | 307 | 833 |
| v/c Ratio | 0.66 | 0.49 | 0.52 | 0.25 | 1.07 | 0.79 |
| Control Delay | 34.4 | 7.7 | 16.5 | 3.5 | 108.5 | 18.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 34.4 | 7.7 | 16.5 | 3.5 | 108.5 | 18.7 |
| Queue Length 50th (ft) | 90 | 3 | 115 | 0 | ~75 | 233 |
| Queue Length 95th (ft) | 158 | 53 | 191 | 35 | #158 | #521 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 841 | 852 | 1424 | 725 | 286 | 1061 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.28 | 0.28 | 0.52 | 0.25 | 1.07 | 0.79 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
3: Hwy 1 & Hwy 20

Cumulative Weekday PM Peak Hour
8/11/2014

| |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Volume (vph) | 230 | 239 | 727 | 175 | 267 | 725 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1696 | 1712 | 1712 | 1759 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 290 | 259 | 1277 | 571 | 350 | 1064 |
| Arriving On Green | 0.18 | 0.00 | 0.39 | 0.00 | 0.11 | 0.60 |
| Sat Flow, veh/h | 1615.6 | 1442.0 | 3337.8 | 1455.0 | 3250.4 | 1759.3 |
| Grp Volume(v), veh/h | 232.3 | 0.0 | 741.8 | 0.0 | 306.9 | 833.3 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1442.0 | 1626.1 | 1455.0 | 1625.2 | 1759.3 |
| Q Serve(g_s), s | 7.8 | 0.0 | 10.2 | 0.0 | 5.3 | 20.1 |
| Cycle Q Clear(g_c), s | 7.8 | 0.0 | 10.2 | 0.0 | 5.3 | 20.1 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 290.2 | 259.0 | 1277.4 | 571.4 | 350.4 | 1064.0 |
| V/C Ratio(X) | 0.801 | 0.000 | 0.581 | 0.000 | 0.876 | 0.783 |
| Avail Cap(c_a), veh/h | 1027.8 | 917.3 | 1735.6 | 776.5 | 350.4 | 1299.5 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 22.2 | 0.0 | 13.5 | 0.0 | 24.9 | 8.4 |
| Incr Delay (d2), s/veh | 5.1 | 0.0 | 0.4 | 0.0 | 21.2 | 2.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 27.3 | 0.0 | 13.9 | 0.0 | 46.0 | 11.0 |
| Lane Group LOS | C | | B | | D | B |
| Approach Volume, veh/h | 232 | | 742 | | | 1140 |
| Approach Delay, s/veh | 27.3 | | 13.9 | | | 20.4 |
| Approach LOS | C | | B | | | C |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 28.13 | | 12.00 | 40.13 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.20 | | 6.10 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 12.15 | | 7.26 | 22.13 |
| Green Extension Time (p_c) | | | 10.23 | | 0.00 | 10.79 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 18.9 | | | |
| HCM 2010 Level of Service | | | B | | | |

Queues
3: Hwy 1 & Hwy 20

Cumulative Weekend Midday Peak Hour

8/11/2014



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 194 | 237 | 708 | 201 | 263 | 667 |
| v/c Ratio | 0.54 | 0.47 | 0.63 | 0.32 | 0.72 | 0.68 |
| Control Delay | 26.9 | 6.9 | 18.6 | 4.0 | 41.1 | 13.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 26.9 | 6.9 | 18.6 | 4.0 | 41.1 | 13.9 |
| Queue Length 50th (ft) | 58 | 0 | 102 | 0 | 45 | 142 |
| Queue Length 95th (ft) | 124 | 43 | 171 | 36 | #128 | 300 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 1043 | 1005 | 1754 | 866 | 367 | 1315 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.19 | 0.24 | 0.40 | 0.23 | 0.72 | 0.51 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Volume (vph) | 167 | 204 | 651 | 185 | 247 | 627 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1696 | 1712 | 1712 | 1759 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 249 | 223 | 1233 | 551 | 372 | 1070 |
| Arriving On Green | 0.15 | 0.00 | 0.38 | 0.00 | 0.11 | 0.61 |
| Sat Flow, veh/h | 1615.6 | 1442.0 | 3337.8 | 1455.0 | 3250.4 | 1759.3 |
| Grp Volume(v), veh/h | 194.2 | 0.0 | 707.6 | 0.0 | 262.8 | 667.0 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1442.0 | 1626.1 | 1455.0 | 1625.2 | 1759.3 |
| Q Serve(g_s), s | 5.9 | 0.0 | 8.9 | 0.0 | 4.0 | 12.3 |
| Cycle Q Clear(g_c), s | 5.9 | 0.0 | 8.9 | 0.0 | 4.0 | 12.3 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 249.4 | 222.6 | 1232.7 | 551.5 | 372.5 | 1070.3 |
| V/C Ratio(X) | 0.779 | 0.000 | 0.574 | 0.000 | 0.705 | 0.623 |
| Avail Cap(c_a), veh/h | 1131.3 | 1009.7 | 1897.7 | 849.0 | 398.3 | 1430.3 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 20.9 | 0.0 | 12.7 | 0.0 | 21.9 | 6.4 |
| Incr Delay (d2), s/veh | 5.2 | 0.0 | 0.4 | 0.0 | 5.2 | 0.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 26.1 | 0.0 | 13.1 | 0.0 | 27.1 | 6.9 |
| Lane Group LOS | C | | B | | C | A |
| Approach Volume, veh/h | 194 | | 708 | | | 930 |
| Approach Delay, s/veh | 26.1 | | 13.1 | | | 12.7 |
| Approach LOS | C | | B | | | B |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 25.39 | | 11.79 | 37.18 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.00 | | 6.30 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 10.88 | | 6.00 | 14.30 |
| Green Extension Time (p_c) | | | 8.94 | | 0.03 | 10.57 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 14.2 | | | |
| HCM 2010 Level of Service | | | B | | | |

Appendix G - Cumulative plus Project Conditions Scenario Level
of Service and Queue Calculations

Queues
3: Hwy 1 & Hwy 20

Cumulative plus Project AM Peak Hour

8/21/2014



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 92 | 254 | 614 | 100 | 247 | 532 |
| v/c Ratio | 0.32 | 0.55 | 0.60 | 0.19 | 0.59 | 0.54 |
| Control Delay | 21.4 | 8.4 | 16.7 | 3.7 | 29.3 | 9.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 21.4 | 8.4 | 16.7 | 3.7 | 29.3 | 9.4 |
| Queue Length 50th (ft) | 22 | 0 | 72 | 0 | 32 | 77 |
| Queue Length 95th (ft) | 60 | 50 | 126 | 22 | #90 | 171 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 1229 | 1133 | 2073 | 953 | 421 | 1532 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.07 | 0.22 | 0.30 | 0.10 | 0.59 | 0.35 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
3: Hwy 1 & Hwy 20

Cumulative plus Project AM Peak Hour
8/21/2014

| |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Volume (vph) | 86 | 236 | 596 | 97 | 232 | 500 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1681 | 1712 | 1712 | 1743 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 127 | 113 | 1204 | 539 | 375 | 1106 |
| Arriving On Green | 0.08 | 0.00 | 0.37 | 0.00 | 0.12 | 0.63 |
| Sat Flow, veh/h | 1615.6 | 1429.2 | 3337.8 | 1455.0 | 3220.6 | 1759.3 |
| Grp Volume(v), veh/h | 92.5 | 0.0 | 614.4 | 0.0 | 246.8 | 531.9 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1429.2 | 1626.1 | 1455.0 | 1610.3 | 1759.3 |
| Q Serve(g_s), s | 2.3 | 0.0 | 6.1 | 0.0 | 3.1 | 6.7 |
| Cycle Q Clear(g_c), s | 2.3 | 0.0 | 6.1 | 0.0 | 3.1 | 6.7 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 127.4 | 112.7 | 1204.2 | 538.7 | 375.5 | 1105.5 |
| V/C Ratio(X) | 0.726 | 0.000 | 0.510 | 0.000 | 0.657 | 0.481 |
| Avail Cap(c_a), veh/h | 1395.6 | 1234.6 | 2348.9 | 1050.8 | 479.1 | 1764.5 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 18.8 | 0.0 | 10.2 | 0.0 | 17.6 | 4.1 |
| Incr Delay (d2), s/veh | 7.6 | 0.0 | 0.3 | 0.0 | 2.2 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 26.4 | 0.0 | 10.5 | 0.0 | 19.8 | 4.4 |
| Lane Group LOS | C | | B | | B | A |
| Approach Volume, veh/h | 92 | | 614 | | | 779 |
| Approach Delay, s/veh | 26.4 | | 10.5 | | | 9.3 |
| Approach LOS | C | | B | | | A |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 21.33 | | 10.76 | 32.09 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.10 | | 6.20 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 8.11 | | 5.06 | 8.71 |
| Green Extension Time (p_c) | | | 7.63 | | 0.10 | 8.68 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 10.9 | | | |
| HCM 2010 Level of Service | | | B | | | |

Intersection

Intersection Delay (sec/veh): 0.9

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|------|------|------|------|------|------|
| Volume (vph) | 14 | 118 | 116 | 4 | 3 | 11 |
| Conflicting Peds.(#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| Right Turn Channelized | None | None | Free | Free | None | None |
| Storage Length | 200 | | | 0 | 0 | 0 |
| Median Width | | 12 | 12 | | 12 | |
| Grade (%) | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles(%) | 2 | 12 | 12 | 100 | 100 | 2 |
| Movement Flow Rate | 15 | 128 | 126 | 4 | 3 | 12 |
| Number of Lanes | 1 | 1 | 1 | 0 | 1 | 0 |

| Major/Minor | Major 1 | | Major 2 | | | |
|-----------------------------|---------|---|---------|---|-----|-------|
| Conflicting Flow Rate - All | 130 | 0 | 0 | 0 | 286 | 128 |
| Stage 1 | - | - | - | - | 128 | - |
| Stage 2 | - | - | - | - | 158 | - |
| Follow-up Headway | 2.218 | - | - | - | 4.4 | 3.318 |
| Pot Capacity-1 Maneuver | 1455 | - | - | - | 539 | 922 |
| Stage 1 | - | - | - | - | 704 | - |
| Stage 2 | - | - | - | - | 679 | - |
| Time blocked-Platoon(%) | 0 | - | - | - | 0 | 0 |
| Mov Capacity-1 Maneuver | 1455 | - | - | - | 533 | 922 |
| Mov Capacity-2 Maneuver | - | - | - | - | 533 | - |
| Stage 1 | - | - | - | - | 704 | - |
| Stage 2 | - | - | - | - | 672 | - |

| Approach | EB | WB | SB |
|-----------------------|-----|----|-----|
| HCM Control Delay (s) | 0.8 | 0 | 9.6 |
| HCM LOS | A | A | A |

| Lane | EBL | EBT | WBT | WBR | SBLn1 |
|---------------------------------|-------|-----|-----|-----|-------|
| Capacity (vph) | | | | | 797 |
| HCM Control Delay (s) | 7.5 | - | - | - | 9.6 |
| HCM Lane VC Ratio | 0.01 | - | - | - | 0.019 |
| HCM Lane LOS | A | - | - | - | A |
| HCM 95th Percentile Queue (veh) | 0.032 | - | - | - | 0.058 |



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|-------|------|
| Lane Group Flow (vph) | 239 | 248 | 742 | 185 | 313 | 833 |
| v/c Ratio | 0.67 | 0.51 | 0.52 | 0.25 | 1.11 | 0.79 |
| Control Delay | 34.6 | 8.2 | 16.7 | 3.5 | 120.4 | 19.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 34.6 | 8.2 | 16.7 | 3.5 | 120.4 | 19.1 |
| Queue Length 50th (ft) | 94 | 6 | 116 | 0 | ~80 | 237 |
| Queue Length 95th (ft) | 162 | 57 | 193 | 36 | #163 | #527 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 837 | 842 | 1417 | 726 | 282 | 1055 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.29 | 0.29 | 0.52 | 0.25 | 1.11 | 0.79 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Volume (vph) | 237 | 246 | 727 | 181 | 272 | 725 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1681 | 1712 | 1712 | 1743 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 298 | 263 | 1272 | 569 | 345 | 1058 |
| Arriving On Green | 0.18 | 0.00 | 0.39 | 0.00 | 0.11 | 0.60 |
| Sat Flow, veh/h | 1615.6 | 1429.2 | 3337.8 | 1455.0 | 3220.6 | 1759.3 |
| Grp Volume(v), veh/h | 239.4 | 0.0 | 741.8 | 0.0 | 312.6 | 833.3 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1429.2 | 1626.1 | 1455.0 | 1610.3 | 1759.3 |
| Q Serve(g_s), s | 8.1 | 0.0 | 10.3 | 0.0 | 5.5 | 20.4 |
| Cycle Q Clear(g_c), s | 8.1 | 0.0 | 10.3 | 0.0 | 5.5 | 20.4 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 297.7 | 263.4 | 1272.0 | 569.0 | 344.7 | 1058.5 |
| V/C Ratio(X) | 0.804 | 0.000 | 0.583 | 0.000 | 0.907 | 0.787 |
| Avail Cap(c_a), veh/h | 1020.6 | 902.8 | 1723.4 | 771.0 | 344.7 | 1290.3 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 22.3 | 0.0 | 13.7 | 0.0 | 25.2 | 8.6 |
| Incr Delay (d2), s/veh | 5.1 | 0.0 | 0.4 | 0.0 | 26.6 | 2.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 27.3 | 0.0 | 14.1 | 0.0 | 51.8 | 11.3 |
| Lane Group LOS | C | | B | | D | B |
| Approach Volume, veh/h | 239 | | 742 | | | 1146 |
| Approach Delay, s/veh | 27.3 | | 14.1 | | | 22.3 |
| Approach LOS | C | | B | | | C |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 28.19 | | 12.00 | 40.19 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.20 | | 6.10 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 12.25 | | 7.47 | 22.43 |
| Green Extension Time (p_c) | | | 10.20 | | 0.00 | 10.69 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 20.0 | | | |
| HCM 2010 Level of Service | | | C | | | |

Intersection

Intersection Delay (sec/veh): 0.7

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|------|------|------|------|------|------|
| Volume (vph) | 11 | 165 | 174 | 3 | 4 | 14 |
| Conflicting Peds.(#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| Right Turn Channelized | None | None | Free | Free | None | None |
| Storage Length | 200 | | | 0 | 0 | 0 |
| Median Width | | 12 | 12 | | 12 | |
| Grade (%) | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles(%) | 2 | 12 | 12 | 100 | 100 | 2 |
| Movement Flow Rate | 12 | 179 | 189 | 3 | 4 | 15 |
| Number of Lanes | 1 | 1 | 1 | 0 | 1 | 0 |

| Major/Minor | Major 1 | | Major 2 | | | |
|-----------------------------|---------|---|---------|---|-----|-------|
| Conflicting Flow Rate - All | 192 | 0 | 0 | 0 | 394 | 191 |
| Stage 1 | - | - | - | - | 191 | - |
| Stage 2 | - | - | - | - | 203 | - |
| Follow-up Headway | 2.218 | - | - | - | 4.4 | 3.318 |
| Pot Capacity-1 Maneuver | 1381 | - | - | - | 459 | 851 |
| Stage 1 | - | - | - | - | 653 | - |
| Stage 2 | - | - | - | - | 644 | - |
| Time blocked-Platoon(%) | 0 | - | - | - | 0 | 0 |
| Mov Capacity-1 Maneuver | 1381 | - | - | - | 455 | 851 |
| Mov Capacity-2 Maneuver | - | - | - | - | 455 | - |
| Stage 1 | - | - | - | - | 653 | - |
| Stage 2 | - | - | - | - | 638 | - |

| Approach | EB | WB | SB |
|-----------------------|-----|----|------|
| HCM Control Delay (s) | 0.5 | 0 | 10.2 |
| HCM LOS | A | A | B |

| Lane | EBL | EBT | WBT | WBR | SBLn1 |
|---------------------------------|-------|-----|-----|-----|-------|
| Capacity (vph) | | | | | 713 |
| HCM Control Delay (s) | 7.63 | - | - | - | 10.2 |
| HCM Lane VC Ratio | 0.009 | - | - | - | 0.027 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th Percentile Queue (veh) | 0.026 | - | - | - | 0.085 |

Queues
3: Hwy 1 & Hwy 20

Cumulative plus Project Weekend Midday

8/21/2014



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 202 | 245 | 708 | 209 | 270 | 667 |
| v/c Ratio | 0.55 | 0.48 | 0.63 | 0.33 | 0.75 | 0.69 |
| Control Delay | 27.1 | 7.0 | 18.7 | 4.0 | 43.8 | 14.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.1 | 7.0 | 18.7 | 4.0 | 43.8 | 14.2 |
| Queue Length 50th (ft) | 60 | 0 | 102 | 0 | 46 | 145 |
| Queue Length 95th (ft) | 130 | 44 | 173 | 37 | #136 | 306 |
| Internal Link Dist (ft) | 305 | | 167 | | | 496 |
| Turn Bay Length (ft) | | | | | 320 | |
| Base Capacity (vph) | 1035 | 993 | 1740 | 864 | 361 | 1305 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.20 | 0.25 | 0.41 | 0.24 | 0.75 | 0.51 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

| |  |  |  |  |  |  |
|------------------------------|---|---|--|---|--|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |   |  |   |  |
| Volume (vph) | 174 | 211 | 651 | 192 | 254 | 627 |
| Number | 3 | 18 | 2 | 12 | 1 | 6 |
| Initial Queue, veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Parking, Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow Rate | 1696 | 1681 | 1712 | 1712 | 1743 | 1759 |
| Lanes | 1 | 1 | 2 | 1 | 2 | 1 |
| Capacity, veh/h | 259 | 229 | 1223 | 547 | 377 | 1066 |
| Arriving On Green | 0.16 | 0.00 | 0.38 | 0.00 | 0.12 | 0.61 |
| Sat Flow, veh/h | 1615.6 | 1429.2 | 3337.8 | 1455.0 | 3220.6 | 1759.3 |
| Grp Volume(v), veh/h | 202.3 | 0.0 | 707.6 | 0.0 | 270.2 | 667.0 |
| Grp Sat Flow(s),veh/h/ln | 1615.6 | 1429.2 | 1626.1 | 1455.0 | 1610.3 | 1759.3 |
| Q Serve(g_s), s | 6.3 | 0.0 | 9.1 | 0.0 | 4.2 | 12.6 |
| Cycle Q Clear(g_c), s | 6.3 | 0.0 | 9.1 | 0.0 | 4.2 | 12.6 |
| Proportion In Lane | 1.000 | 1.000 | | 1.000 | 1.000 | |
| Lane Grp Cap(c), veh/h | 258.6 | 228.8 | 1222.9 | 547.1 | 376.8 | 1066.3 |
| V/C Ratio(X) | 0.782 | 0.000 | 0.579 | 0.000 | 0.717 | 0.626 |
| Avail Cap(c_a), veh/h | 1114.8 | 986.1 | 1870.0 | 836.6 | 388.9 | 1409.4 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.000 | 0.000 | 1.000 | 0.000 | 1.000 | 1.000 |
| Uniform Delay (d), s/veh | 21.0 | 0.0 | 13.0 | 0.0 | 22.2 | 6.5 |
| Incr Delay (d2), s/veh | 5.1 | 0.0 | 0.4 | 0.0 | 6.0 | 0.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane Group Delay (d), s/veh | 26.2 | 0.0 | 13.4 | 0.0 | 28.2 | 7.1 |
| Lane Group LOS | C | | B | | C | A |
| Approach Volume, veh/h | 202 | | 708 | | | 937 |
| Approach Delay, s/veh | 26.2 | | 13.4 | | | 13.2 |
| Approach LOS | C | | B | | | B |
| Timer | | | | | | |
| Assigned Phase | | | 2 | | 1 | 6 |
| Phase Duration (G+Y+Rc), s | | | 25.52 | | 12.00 | 37.52 |
| Change Period (Y+Rc), s | | | 5.90 | | 5.90 | 5.90 |
| Max Green Setting (Gmax), s | | | 30.00 | | 6.30 | 41.80 |
| Max Q Clear Time (g_c+I1), s | | | 11.05 | | 6.22 | 14.55 |
| Green Extension Time (p_c) | | | 8.89 | | 0.01 | 10.53 |
| Intersection Summary | | | | | | |
| HCM 2010 Control Delay | | | 14.7 | | | |
| HCM 2010 Level of Service | | | B | | | |

Intersection

Intersection Delay (sec/veh): 0.8

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|------|------|------|------|------|------|
| Volume (vph) | 14 | 162 | 138 | 2 | 2 | 14 |
| Conflicting Peds.(#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| Right Turn Channelized | None | None | Free | Free | None | None |
| Storage Length | 200 | | | 0 | 0 | 0 |
| Median Width | | 12 | 12 | | 12 | |
| Grade (%) | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles(%) | 2 | 12 | 12 | 100 | 100 | 2 |
| Movement Flow Rate | 15 | 176 | 150 | 2 | 2 | 15 |
| Number of Lanes | 1 | 1 | 1 | 0 | 1 | 0 |

| Major/Minor | Major 1 | | Major 2 | | | |
|-----------------------------|---------|---|---------|---|-----|-------|
| Conflicting Flow Rate - All | 152 | 0 | 0 | 0 | 357 | 151 |
| Stage 1 | - | - | - | - | 151 | - |
| Stage 2 | - | - | - | - | 206 | - |
| Follow-up Headway | 2.218 | - | - | - | 4.4 | 3.318 |
| Pot Capacity-1 Maneuver | 1429 | - | - | - | 485 | 895 |
| Stage 1 | - | - | - | - | 685 | - |
| Stage 2 | - | - | - | - | 642 | - |
| Time blocked-Platoon(%) | 0 | - | - | - | 0 | 0 |
| Mov Capacity-1 Maneuver | 1429 | - | - | - | 480 | 895 |
| Mov Capacity-2 Maneuver | - | - | - | - | 480 | - |
| Stage 1 | - | - | - | - | 685 | - |
| Stage 2 | - | - | - | - | 635 | - |

| Approach | EB | WB | SB |
|-----------------------|-----|----|-----|
| HCM Control Delay (s) | 0.6 | 0 | 9.6 |
| HCM LOS | A | A | A |

| Lane | EBL | EBT | WBT | WBR | SBLn1 |
|---------------------------------|-------|-----|-----|-----|-------|
| Capacity (vph) | | | | | 808 |
| HCM Control Delay (s) | 7.546 | - | - | - | 9.6 |
| HCM Lane VC Ratio | 0.011 | - | - | - | 0.022 |
| HCM Lane LOS | A | - | - | - | A |
| HCM 95th Percentile Queue (veh) | 0.032 | - | - | - | 0.066 |

Appendix H – Traffic Signal Warrant No. 3 Worksheets

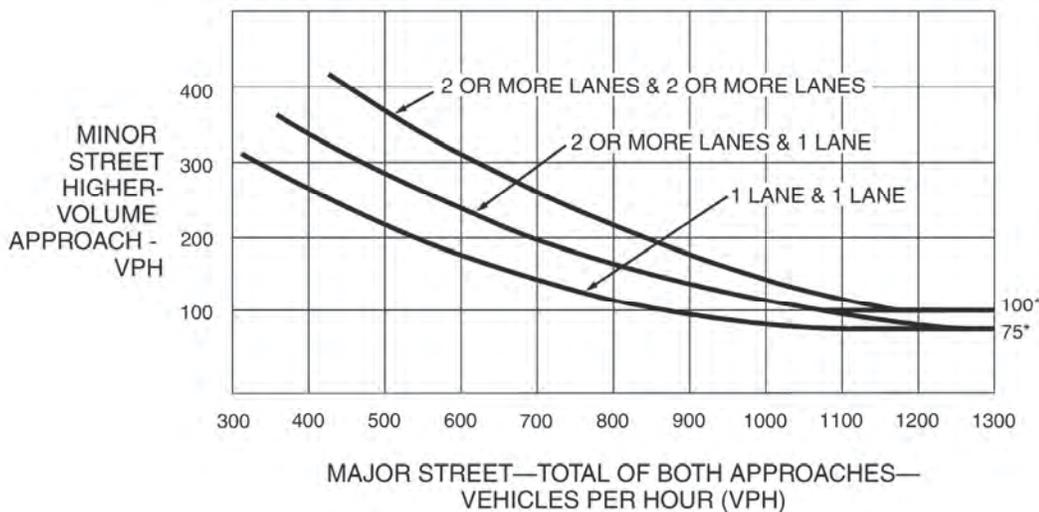
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

EXISTING PLUS PROJECT

SR-20 & PROJECT ACCESS

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume SATISFIED* YES NO

Record hourly vehicular volumes for any four hours of an average day.

| APPROACH LANES | One | 2 or More | / | / | / | / | Hour |
|--------------------------------|-----|-----------|---|---|---|---|------|
| Both Approaches - Major Street | | | | | | | |
| Higher Approach - Minor Street | | | | | | | |

| | | |
|--|------------------------------|-----------------------------|
| *All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| <u>OR</u> , All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

WARRANT 3 - Peak Hour SATISFIED YES NO
(Part A or Part B must be satisfied)

PART A SATISFIED YES NO

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

| | | |
|---|------------------------------|--|
| 1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; <u>AND</u> | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; <u>AND</u> | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches. | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |

PART B SATISFIED YES NO

| APPROACH LANES | One | 2 or More | / | / | / | Hour |
|--------------------------------|-----|-----------|---|---|---|------|
| Both Approaches - Major Street | ✓ | | | | | 337 |
| Higher Approach - Minor Street | ✓ | | | | | 18 |

WEEKDAY PM PEAK

| | | |
|--|------------------------------|-----------------------------|
| The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| <u>OR</u> , The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

CUMULATIVE PLUS PROJECT
SR-20 & PROJECT ACCESS

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume SATISFIED* YES NO

Record hourly vehicular volumes for any four hours of an average day.

| APPROACH LANES | One | | 2 or More | | Hour |
|--------------------------------|-----|------|-----------|------|------|
| | One | More | One | More | |
| Both Approaches - Major Street | | | | | |
| Higher Approach - Minor Street | | | | | |

| | | |
|--|------------------------------|-----------------------------|
| *All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| <u>OR</u> , All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

WARRANT 3 - Peak Hour SATISFIED YES NO
(Part A or Part B must be satisfied)

PART A SATISFIED YES NO

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

| | | |
|---|------------------------------|--|
| 1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches. | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |

PART B SATISFIED YES NO

| APPROACH LANES | One | | 2 or More | | Hour |
|--------------------------------|-----|------|-----------|------|------|
| | One | More | One | More | |
| Both Approaches - Major Street | ✓ | | | | 353 |
| Higher Approach - Minor Street | ✓ | | | | 18 |

| | | |
|--|------------------------------|-----------------------------|
| The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| <u>OR</u> , The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

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Appendix I

Assembly Bill #384

Assembly Bill No. 384

CHAPTER 173

An act to add Section 4659 to the Public Resources Code, relating to state forest land.

[Approved by Governor August 4, 2011. Filed with
Secretary of State August 4, 2011.]

LEGISLATIVE COUNSEL'S DIGEST

AB 384, Chesbro. State forest land: Jackson Demonstration State Forest.

Existing law authorizes the Department of Forestry and Fire Protection to engage in the management, protection, and reforestation of state forests and requires the Department of Parks and Recreation to have control of the state park system.

This bill would authorize the Director of General Services, subject to the approval of the Department of Forestry and Fire Protection, to grant an option to the City of Fort Bragg and the County of Mendocino for either entity to acquire title to certain property for the purpose of developing a solid waste transfer station. The bill would require, if this option is exercised, that the entity acquiring title to the property execute and record in favor of the Department of Parks and Recreation a covenant restricting the uses and activities at a specified Caspar Landfill property and an option to purchase a specified portion of the Caspar Landfill property. The bill would authorize the Department of Forestry and Fire Protection and the Department of Parks and Recreation to be compensated for the loss of certain property, as provided.

The bill would also authorize the Department of Parks and Recreation, with the approval of the Director of General Services, to transfer a certain portion of Russian Gulch State Park to the Department of Forestry and Fire Protection, to be included as a part of the Jackson Demonstration State Forest, if the City of Fort Bragg or the County of Mendocino exercises that option.

The bill would provide that if successful development and operation of a solid waste transfer station does not occur 10 years from the date of recordation of the transfer document, the title to the property would revert back to the Department of Forestry and Fire Protection and the entity acquiring title would be required to reimburse the state for the administrative costs incurred by the state to process the reversionary documents.

The bill would also require the city or county to indemnify the state against liability that arises from any injury caused by, or any remediation required by, any contamination on the landfill. The bill would require the Department of Parks and Recreation to authorize access to the landfill property to the county in order for the county to perform monitoring, as specified.

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares all of the following:

(a) The City of Fort Bragg and the County of Mendocino seek to improve solid waste management in the greater Fort Bragg area by developing a commercial transfer station capable of efficiently managing all solid waste generated in the vicinity.

(b) Following a comprehensive siting study, a potential site of up to 17 acres was identified for a transfer station located within a portion of the Jackson Demonstration State Forest, on its northern boundary.

(c) The State Board of Forestry and Fire Protection adopted a resolution on April 7, 2010, that stated that transfer of this site to the city or county would not cause significant adverse programmatic impacts to the Jackson Demonstration State Forest.

(d) The Department of Forestry and Fire Protection, on behalf of the state, may be compensated for loss of the up to 17-acre site by transfer from the Department of Parks and Recreation, on behalf of the state of 12.6 acres in Russian Gulch State Park, which is separated from the remainder of the state park by a county road.

(e) The Department of Parks and Recreation, on behalf of the state, may be compensated, in turn, for loss of the 12.6 acres in Russian Gulch State Park specified in subdivision (d) by the grant of a restrictive covenant on 60 acres of city and county property on the north boundary of the state park, which is currently a closed landfill and small volume transfer station, whose continued operation causes undesirable impacts on the state park, and by an option to buy 35 acres of the city and county property.

(f) The interests and welfare of the state will be advanced by granting an option to the city and the county to take title to the Jackson Demonstration State Forest site, subject to the additional terms described in subdivisions (d) and (e), if the city and the county complete a site selection process and environmental review that finds that this site shall be the selected alternative.

SEC. 2. Section 4659 is added to the Public Resources Code, to read:

4659. (a) For purpose of this section, the following definitions shall apply:

(1) "City" means the City of Fort Bragg.

(2) "County" means the County of Mendocino.

(3) "Entity acquiring title" means either the city or the county, whichever exercises the option specified in subdivision (c) to take title to the property.

(4) "Property" means the certain real property described as the easterly 17 acres, more or less, of that portion of Mendocino County Assessor's Parcel Number 019-150-05 which is north of State Highway 20, located in a portion of the Jackson Demonstration State Forest.

(5) "Solid waste transfer station" has the same meaning as transfer station, as defined in Section 40200.

(b) Notwithstanding any other law, the Director of General Services, subject to the approval of the Department of Forestry and Fire Protection, may grant an option to the city or to the county, for either entity to acquire

title to the property for the purpose of developing a solid waste transfer station.

(c) The option agreement shall have a term of five years, from the date of execution, for the city or county to exercise the option and take title to the site.

(d) Following the transfer of title, the entity acquiring title shall complete the development of, and open, a solid waste transfer station no later than 10 years from the date of recordation of the transfer document or the title to the property shall revert back to the Department of Forestry and Fire Protection and the entity shall reimburse the state for the administrative costs incurred by the state to process the reversionary documents.

(e) If the entity acquiring title to the property is successful in opening a solid waste transfer station on the site, all delivery and acceptance of solid waste shall cease at the existing Caspar Landfill property, also known as Mendocino County Assessor's Parcel Numbers 118-500-10 and 118-500-11.

(f) The Department of Forestry and Fire Protection, on behalf of the state, may be compensated for loss of up to 17 acres of the Jackson Demonstration State Forest by transfer from the Department of Parks and Recreation, on behalf of the state, of 12.6 acres in Russian Gulch State Park, which is separated from the remainder of the state park by a county road.

(g) The Department of Parks and Recreation, on behalf of the state, may be compensated, in turn, for loss of the 12.6 acres in Russian Gulch State Park specified in subdivision (f) by the grant of a restrictive covenant on 60 acres of city and county property on the northern boundary of the state park, which is currently a closed landfill and small volume transfer station, and by an option to buy 35 acres of the city and county property.

(h) If the city or county exercises the option to take title to the property pursuant to this section, the Department of Parks and Recreation, with the approval of the Director of General Services, may transfer to the Department of Forestry and Fire Protection jurisdiction over that portion of Russian Gulch State Park northeast of Mendocino County Road 409, being 12.6 acres, more or less, and being a portion of Mendocino County Assessor's Parcel Number 118-520-02, to be included as a part of the Jackson Demonstration State Forest under the direction of the Department of Forestry and Fire Protection.

(i) If the option to acquire the property is exercised, the entity acquiring title to the property shall execute and record in favor of the Department of Parks and Recreation both of the following:

(1) A covenant restricting the uses and activities at the Caspar Landfill property to prevent any significant nuisance impacts on Russian Gulch State Park. The form of this restrictive covenant shall be approved, prior to recordation, by the Department of Parks and Recreation.

(2) An option with a term of 99 years and a price of one dollar (\$1) to purchase the westernmost 35 acres of the Caspar Landfill property, described in subdivision (e), with road access to that property.

(j) The entity acquiring title to the property shall reimburse the state for the difference in the appraised value of the assets that are to be exchanged,

if the state is found to be receiving less value, and for reasonable administrative costs incurred to complete the transfer of title.

(k) The entity acquiring title of the property shall be solely responsible for compliance with the California Environmental Quality Act (Division 13 (commencing with Section 21000)) in connection with the transfer of property ownership and development of the solid waste transfer station.

(l) The exchange of lands carried out pursuant to this section shall be based on current fair market value and subject to the terms and conditions, and with the reservations, restrictions, and exceptions that the Director of General Services determines are in the best interests of the state, including the condition that the exchange shall result in no net cost or loss to the state.

(m) (1) If the state exercises the option to purchase the westernmost 35 acres of the Caspar Landfill property, pursuant to paragraph (2) of subdivision (i), the city or county shall indemnify the state against any liability that arises from any injury caused by, or any remediation required by, any contamination on the Caspar Landfill property that is transferred to the state.

(2) The Department of Parks and Recreation shall authorize access to the property described in paragraph (1) to the county in order for the county to perform monitoring, including monitoring of groundwater to ensure that there is no leakage or contamination from the landfill.

Appendix J
Forester: Jere Melo, Letter May 9, 2010

Jere Melo, Forester
 120 Jewett Street
 Fort Bragg, CA 95437
 Phone: 707 964-0676
 Cell Phone: 707 357-1671
 FAX: 707 964-4407
 E-Mail: jlmelo@mcn.org

March 9, 2010

| | |
|--|---|
| Linda Ruffing, City Manager City of Fort Bragg 416 North Franklin Street Fort Bragg, CA 95437 | Mike Sweeney, Executive Director Mendocino Solid Waste Management Authority 101 West Church Street Ukiah, CA 95482 |
|--|---|

RE: Forest Inventory, Jackson Demonstration State Forest and Department of Parks and Recreation Parcels, Solid Waste Transfer Station Re-Location.

Dear Linda and Mike:

You have requested that I provide some data for a comparison between the state-owned parcels that are under consideration for the three-way exchange of property to relocate the coastal solid waste transfer station about three miles east of Fort Bragg. On Monday, March 8, I conducted an inventory of both parcels, and I have completed the data input and calculations this morning. Based on the bottom line inventory, following is a comparison:

| <u>Owner</u> | <u>Acres</u> | <u>Number of Trees</u> | <u>Gross MBF*</u> | <u>Net MBF*</u> |
|---------------------|--------------|------------------------|-------------------|-----------------|
| JDSF, Highway 20 | 17 | 419 | 82 | 66 |
| DPR, Graveyard Road | 13 | 1,365 | 1,119 | 942 |

- Gross MBF is the calculated "thousands of board feet (MBF)" in the trees, as if there are no defects in the trees. Net MBF is the calculated "thousands of board feet (MBF)" in the trees, after allowance for defects such as fire scars, rot, broken pieces, etc. It is important to note that the "Number of Trees" includes trees 12-inches or larger in diameter, as measured at 4.5 feet above ground level. Smaller trees are not included.

JDSF, Highway 20 Parcel

This parcel is about 3 miles east of Fort Bragg. The forest tree cover is composed of Bishop Pine and Cypress, primarily. I did see one Redwood tree that was not on my sample, and there are some Beach Pine trees in the southwest corner. Under the trees is a dense cover of brush from 2 feet to 8 feet tall, and composed of huckleberry, salal, rhododendron and manzanita. There is a lot of down, dead wood on the ground, and in the current condition, the parcel is an excellent location for a hot, fast-spreading fire on

some warm summer day. It was very difficult to walk through the area on a straight line for the inventory.

The inventory shows all trees as "Pine", but about 15% are actually Cypress. My inventory program does not have Cypress as a separate species, so I simply included Cypress trees over 12-inches in diameter as pine trees. Thus, only one species is shown for this parcel.

DPR, Graveyard Road Parcel

This parcel is the far northeast portion of Russian Gulch State Park, and it is adjacent to Jackson Demonstration State Forest at the top of the ridge for the South Fork Caspar Creek Watershed Study. There is a very dense stand of young growth timber composed of Redwood, Douglas-fir, White Fir, Western Hemlock and a few Bishop Pine. Western Hemlock and White Fir are combined as a single species. The age is at a point where the Douglas-fir, White Fir and Western Hemlock trees in the larger diameter classes are showing lots of defects from rot. A number of trees have died or fallen in the past few years.

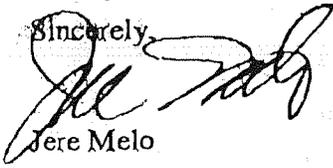
Due to the stand density, the forest floor has very little brush, and walking the parcel is easy. There is a well-used but unimproved trail that ties to the Graveyard Road that meanders through the parcel.

Detail Inventory Sheets

Attached are detail inventory sheets that show the results. For the JDSF -Highway 20 - parcel, there is a single sheet. For the DPR -Graveyard Road- parcel, there are five sheets, one for each species and a total page, labeled, "zTotal". The header title, DBH, indicates 2-inch diameter classes, a standard for timber inventories. In the field, trees were tallied by DBH, 20-foot log heights, and a defect estimate was applied to defective or broken trees. The computer program provides a weighted value for gross and net MBF for each DBH class, based on the various tree heights recorded.

You may distribute this inventory as you see fit.

Sincerely,



Jere Melo

Stand & Stock Table: 'DSF - Highway 20

All Harvest Units Combined

Acres: 17

Cruise Date: 3/8/2010

Pine

| DBH | Trees | Gross MBF | Net MBF | % Defect |
|--------------|------------|-----------|-----------|------------|
| 12 | 110 | 5 | 4 | 1% |
| 14 | 68 | 6 | 6 | 8% |
| 18 | 45 | 5 | 4 | 16% |
| 18 | 68 | 14 | 11 | 20% |
| 20 | 34 | 11 | 10 | 12% |
| 22 | 34 | 13 | 10 | 23% |
| 24 | 28 | 13 | 9 | 29% |
| 28 | 17 | 10 | 7 | 38% |
| 28 | 6 | 5 | 5 | 10% |
| Total | 419 | 82 | 66 | 20% |

zTotal

| DBH | Trees | Gross MBF | Net MBF | % Defect |
|--------------|------------|-----------|-----------|------------|
| 12 | 110 | 5 | 4 | 1% |
| 14 | 68 | 6 | 6 | 8% |
| 18 | 45 | 5 | 4 | 16% |
| 18 | 68 | 14 | 11 | 20% |
| 20 | 34 | 11 | 10 | 12% |
| 22 | 34 | 13 | 10 | 23% |
| 24 | 28 | 13 | 9 | 29% |
| 28 | 17 | 10 | 7 | 38% |
| 28 | 6 | 5 | 5 | 10% |
| Total | 419 | 82 | 66 | 20% |

Stand & Stock Table: 1 - Graveyard Road

All Harvest Units Combined

Acres: 13

Cruise Date: 3/8/2010

Douglas Fir

| DBH | Trees | Gross MBF | Net MBF | % Defect |
|--------------|-------|-----------|---------|----------|
| 14 | 5 | 1 | 1 | 0% |
| 16 | 5 | 1 | 1 | 0% |
| 18 | 11 | 4 | 3 | 6% |
| 20 | 5 | 3 | 3 | 10% |
| 22 | 5 | 4 | 3 | 10% |
| 24 | 16 | 12 | 11 | 12% |
| 26 | 33 | 33 | 29 | 10% |
| 28 | 22 | 25 | 22 | 13% |
| 30 | 5 | 8 | 7 | 10% |
| 32 | 22 | 37 | 29 | 21% |
| 34 | 16 | 31 | 24 | 22% |
| 36 | 22 | 47 | 38 | 17% |
| 38 | 22 | 51 | 40 | 21% |
| 40 | 5 | 13 | 9 | 30% |
| 44 | 11 | 32 | 21 | 35% |
| 46 | 5 | 17 | 13 | 20% |
| 48 | 5 | 18 | 15 | 20% |
| 50 | 11 | 45 | 35 | 23% |
| Total | 228 | 381 | 305 | 20% |

Stand & Stock Table: 1 - Graveyard Road

All Harvest Units Combined

Acres: 13

Cruise Date: 3/8/2010

Pine

| DBH | Trees | Gross MBF | Net MBF | % Defect |
|--------------|-----------|-----------|-----------|------------|
| 18 | 11 | 1 | 1 | 0% |
| 18 | 6 | 2 | 2 | 0% |
| 20 | 5 | 2 | 2 | 10% |
| 22 | 11 | 6 | 5 | 13% |
| 24 | 11 | 7 | 6 | 13% |
| 26 | 11 | 10 | 8 | 20% |
| Total | 54 | 28 | 24 | 14% |

Stand & Stock Table: 1 - Graveyard Road

All Harvest Units Combined

Acres: 13

Cruise Date: 3/8/2010

Redwood

| DBH | Trees | Gross MBF | Net MBF | % Defect |
|--------------|-------|-----------|---------|----------|
| 12 | 49 | 2 | 2 | 0% |
| 14 | 60 | 4 | 4 | 0% |
| 16 | 60 | 9 | 9 | 0% |
| 18 | 49 | 12 | 12 | 3% |
| 20 | 76 | 28 | 27 | 2% |
| 22 | 87 | 38 | 37 | 1% |
| 24 | 22 | 13 | 13 | 3% |
| 26 | 43 | 33 | 31 | 6% |
| 28 | 33 | 33 | 26 | 20% |
| 30 | 43 | 48 | 42 | 13% |
| 32 | 5 | 8 | 7 | 10% |
| 34 | 11 | 17 | 11 | 35% |
| 36 | 33 | 58 | 45 | 23% |
| 38 | 22 | 45 | 37 | 18% |
| 40 | 5 | 14 | 12 | 10% |
| 42 | 11 | 27 | 21 | 20% |
| 44 | 5 | 18 | 15 | 10% |
| 48 | 6 | 18 | 16 | 10% |
| 48 | 5 | 20 | 18 | 10% |
| 50 | 6 | 22 | 19 | 10% |
| Total | 828 | 463 | 404 | 13% |

Stand & Stock Table: 2 - Graveyard Road

All Harvest Units Combined

Acres: 13

Cruise Date: 3/8/2010

White Fir

| DBH | Trees | Gross MBF | Net MBF | % Defect |
|--------------|------------|------------|------------|------------|
| 12 | 22 | 2 | 1 | 13% |
| 14 | 33 | 3 | 3 | 7% |
| 16 | 48 | 8 | 8 | 0% |
| 18 | 65 | 18 | 17 | 6% |
| 20 | 85 | 28 | 24 | 14% |
| 22 | 98 | 49 | 43 | 12% |
| 24 | 33 | 22 | 19 | 18% |
| 26 | 33 | 29 | 23 | 21% |
| 28 | 22 | 23 | 19 | 15% |
| 30 | 16 | 20 | 18 | 19% |
| 34 | 11 | 21 | 17 | 18% |
| 38 | 5 | 13 | 9 | 30% |
| 40 | 5 | 13 | 10 | 25% |
| Total | 455 | 248 | 209 | 18% |

Stand & Stock Table: 1 - Graveyard Road

All Harvest Units Combined

Acres: 13

Cruise Date: 3/8/2010

zTotal

| DBH | Trees | Gross MBF | Net MBF | % Defect |
|--------------|--------------|--------------|------------|------------|
| 12 | 70 | 3 | 3 | 6% |
| 14 | 98 | 8 | 8 | 3% |
| 16 | 126 | 19 | 19 | 0% |
| 18 | 130 | 35 | 34 | 5% |
| 20 | 152 | 81 | 56 | 8% |
| 22 | 200 | 96 | 89 | 8% |
| 24 | 81 | 54 | 48 | 12% |
| 28 | 119 | 104 | 91 | 13% |
| 28 | 78 | 81 | 68 | 18% |
| 30 | 65 | 77 | 66 | 14% |
| 32 | 27 | 44 | 38 | 19% |
| 34 | 38 | 88 | 52 | 24% |
| 38 | 54 | 105 | 84 | 20% |
| 38 | 49 | 109 | 86 | 21% |
| 40 | 18 | 40 | 31 | 21% |
| 42 | 11 | 27 | 21 | 20% |
| 44 | 18 | 48 | 36 | 27% |
| 48 | 11 | 34 | 29 | 15% |
| 48 | 11 | 38 | 32 | 15% |
| 50 | 18 | 67 | 54 | 18% |
| Total | 1,385 | 1,119 | 942 | 16% |

Appendix K

Noise Data Sheets and RCNM Model Output

ILLINGWORTH & RODKIN, INC.

Acoustics • Air Quality

1 Willowbrook Court Petaluma, CA 94954 (707) 794-0400

ENVIRONMENTAL NOISE DATA SHEET

LOCATION: ENTRANCE TO HELI PAD SITE.

JOB NO. 14-016
 SITE NO. LT-1
 TECHNICIAN SM
 SLM 1A-6 CAL 114

DATE 8/13/14 DAY OF WEEK WED TIME BEGIN 1615 DURATION 24

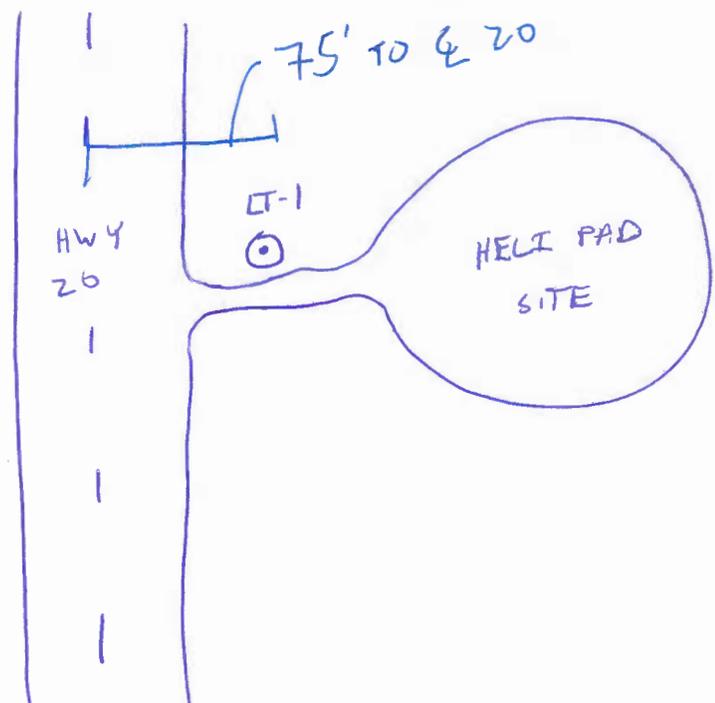
WEATHER CONDITIONS SKY: WIND: 0-1 TEMP: 65°

| Maj. | Min. | Noise Source | Typical Noise Levels | 5 min. | 10 min. | 15 min. |
|-------------------------------------|-------------------------------------|--------------|----------------------|--------|---------|---------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Trucks | | | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Cars | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Buses | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Motorcycles | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Emerg. Veh. | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Jets | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Gen. Av. | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Trains | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Constr. | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Industrial | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Other | | | | |

COMMENTS
 ~ 75' TO E OF HWY 20

SKETCH

↑
 NEAREST RESIDENCES



| MEASUREMENT | 1 | 2 |
|----------------------|---|---|
| L _{max} | | |
| L _{min} | | |
| L ₍₁₎ | | |
| L ₍₁₀₎ | | |
| L ₍₅₀₎ | | |
| L ₍₉₀₎ | | |
| L _{eq} (5) | | |
| L _{eq} (10) | | |
| L _{eq} (15) | | |

ILLINGWORTH & RODKIN, INC.

Acoustics • Air Quality

1 Willowbrook Court Petaluma, CA 94954 (707) 794-0400

ENVIRONMENTAL NOISE DATA SHEET

LOCATION: ST-1
47m FROM E OF 20, MIDDLE OF SITE.

ST-2:

JOB NO. 14-016
 SITE NO. ST-1 / ST-2
 TECHNICIAN JM
 SLM CT-1 CAL 114

DATE 8/13/14 DAY OF WEEK WED TIME BEGIN 1620/1630 DURATION 10min

WEATHER CONDITIONS SKY: cloudy WIND: 0-1 TEMP: 65

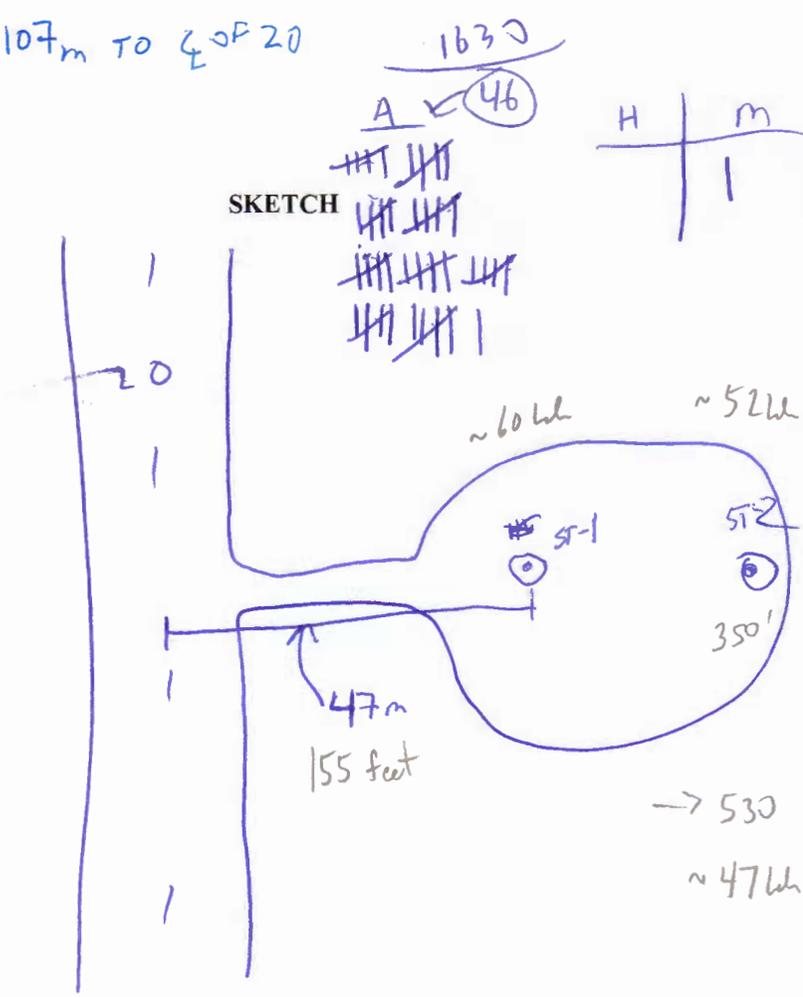
| Maj. | Min. | Noise Source | Typical Noise Levels | 5 min. | 10 min. | 15 min. |
|-------------------------------------|-------------------------------------|--------------|----------------------|-----------------------|----------|---------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Trucks | | | m H | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Cars | <u>63-65 \| 51-56</u> |  | \|\|\|\|\| \|\|\| \|\|\| \|\|\| \|\|\| |  |
| <input type="checkbox"/> | <input type="checkbox"/> | Buses | | | ↓ (42) | |
| <input type="checkbox"/> | <input type="checkbox"/> | Motorcycles | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Emerg. Veh. | | | COMMENTS | |
| <input type="checkbox"/> | <input type="checkbox"/> | Jets | | A 1630 |  | \|\|\|\|\| \|\|\| \|\| |
| <input type="checkbox"/> | <input type="checkbox"/> | Gen. Av. | | ST-1: 47m TO E OF 20 | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Trains | | ST-2: 107m TO E OF 20 | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Constr. | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Industrial | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | Other | | | | |

MEASUREMENT

| | 1 1620 <u>ST-1</u> | 2 1630 <u>ST-2</u> |
|----------------------------|--------------------|--------------------|
| L_{max} | 69.9 | 56.3 |
| L_{min} | 31.3 | 30.7 |
| L₍₁₎ | 66.5 | 55.8 |
| L₍₁₀₎ | 62.6 | 53.6 |
| L₍₅₀₎ | 48.4 | 48.2 |
| L₍₉₀₎ | 37.4 | 35.7 |
| L_{eq} (5) | | |
| L_{eq} (10) | 57.2 | 49.6 |
| L_{eq} (15) | 66.9 | 67.1 |

$\Delta = -9.7 \quad -17.5$

$69.3 \text{ Ldn} = 59.6 \quad 51.8$





Mendocino Solid Waste Management
Authority
Central Coast Transfer Station
Response To Comments
Final Environmental Impact Report
State Clearinghouse #2014012058

June 2015

**Central Coast Transfer Station
RESPONSE TO COMMENTS
Final Environmental Impact Report**

State Clearinghouse #2014012058

Prepared for:

Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482
Attention: Mike Sweeney
General Manager
(707) 468-9710

Prepared by:

GHD Inc.
718 Third Street
Eureka, CA 95501
Contact: Misha Schwarz
Project Manager
(707) 443-8326

June 2015

Project Ref#:0016201-8411065

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Appendices

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Acronyms & Abbreviations

| | |
|----------|--|
| AB | Assembly Bill |
| APN | Assessor's Parcel Number |
| AQMD | Air Quality Management District |
| BAAQMD | Bay Area Air Quality Management District |
| BMP | Best Management Practice |
| CALVEG | California vegetation |
| Caltrans | California Department of Transportation |
| CARB | California Air Resources Board |
| CEQA | California Environmental Quality Act |
| CNDDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| CRPR | California Rare Plant Rank |
| DEIR | Draft Environmental Impact Report |
| DPM | diesel particulate matter |
| EIR | Environmental Impact Report |
| EPA | Environmental Protection Agency |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| FEIR | Final Environmental Impact Report |
| GHG | greenhouse gas |
| LEA | local enforcement agency |
| LID | Low Impact Development |
| MCAQMD | Mendocino County Air Quality Management District |
| MSWMA | Mendocino Solid Waste Management Authority |
| NOP | Notice of Preparation |
| PM | particulate matter |
| RWQCB | Regional Water Quality Control Board |
| SWPPP | Stormwater Pollution Prevention Plan |

1. Introduction

1.1 Purpose of the Response to Comments Document (“RTC”)

This document provides responses to comments received on the 2015 Draft Environmental Impact Report (DEIR) for the proposed Central Coast Transfer Station Project (“Project”), and includes necessary revisions to the text and analysis in the DEIR. The DEIR identified the likely environmental consequences associated with the project, and recommended mitigation measures to reduce potentially significant impacts.

This RTC document, together with the DEIR, constitutes the Final EIR (FEIR) for the project and will be considered by the Caspar Joint Powers Agreement lead agency partners (County of Mendocino and City of Fort Bragg) for certification under the California Environmental Quality Act (CEQA).

1.2 Environmental Review Process

CEQA requires lead agencies to consult with public agencies having jurisdiction over a proposed project, and to provide the general public and project applicant with an opportunity to comment on the DEIR. This RTC has been prepared to respond to the significant environmental points raised in the oral and written comments received on the DEIR, to make modifications to the DEIR and to clarify some of the findings in the DEIR.

The DEIR was made available for public review on February 9, 2015, at the following locations: 1) Fort Bragg Public Library, 499 E. Laurel Street, Fort Bragg; 2) City of Fort Bragg, 416 N. Franklin Street, Fort Bragg; 3) City of Fort Bragg website at www.city.fortbragg.com; and 4) Mendocino Solid Waste Management Authority (MSWMA) website at www.MendoRecycle.org. The DEIR was distributed to local and State responsible and trustee agencies and the general public was advised of the availability of the DEIR by posting of a public notice in the local newspaper. A public notice was also posted by the County Clerk as required by law. A public hearing to receive comments on the DEIR was held by the City of Fort Bragg and County of Mendocino on March 19, 2015. The 45-day public comment period closed on March 26, 2015 at 5 p.m.

Copies of all written comments and summaries of all oral comments received on the DEIR are contained in this document. Responses to each comment follow the comment letter or oral comment.

This RTC document will be provided to the Fort Bragg City Council and Mendocino County Board of Supervisors, together with the DEIR, for their review prior to their consideration of resolutions certifying the EIR as a full disclosure of potential impacts, mitigations and alternatives, and approving the project. If the project is approved, recommended mitigation measures will be adopted and implemented as specified in the resolutions and an accompanying mitigation monitoring and reporting program unless the Board of Supervisors and City Council find the measures infeasible as specified in CEQA Guidelines Section 15091 (Findings).

1.3 Document Organization of the RTC

This RTC document is organized into the following chapters:

Chapter 1 – Introduction. This chapter discusses the use and organization of this RTC document, and summarizes the environmental review process to date for the project.

Chapter 2 – Revisions to the DEIR. Deletions and additions to the text of the DEIR are contained in this chapter.

Chapter 3 – List of Commenters. This chapter includes the names of agencies and individuals who commented on the DEIR, both written and oral.

Chapter 4 – Comments and Responses. This chapter reproduces all of the written comments received on the DEIR from public agencies and members of the public and provides responses to those comments both in the form of “Master Responses” (to the environmental points most frequently raised) and point-by-point responses to all other individual comments (The chapter also contains summaries of oral comments received during the Public Hearing held on March 19, 2015 at Town Hall, 363 N. Main Street, Fort Bragg and responses to the significant environmental points raised by those oral comments.

Chapter 5 – References. This chapter includes new references that were used in preparation of the RTC.

2. Revisions to the Draft EIR

This chapter includes the minor revisions to the DEIR necessary to correct minor errors or omissions in the DEIR. The changes to the DEIR are indicated by indented text. Text that has been added to the DEIR is indicated in underline font, while text that has been deleted is indicated with ~~double-strikethrough~~ font.

Project Description – Required Permits and Approvals (DEIR Section 2.6)

Add the following to the list of required approvals at page 2.0-6 of the DEIR:

- Variance from California Department of Forestry & Fire Protection for reduced setback from vegetation because of non-flammability of building.

Add the following at the end of Section 2.5.5 New Facility Description:

The motor oil recycling tank, antifreeze recycling tank, appliance recycling drop-off area, and electronics drop-off area will be roofed and graded to prevent rainwater infiltration. The facility use permit will require daily clean-up of any spills or staining.

Aesthetics (DEIR Section 3.1.5 – Impacts and Mitigation Measures)

The following text is added after the second paragraph on page 3.1-6 of the DEIR under the heading “Impact AES-2: Substantially Degrade Existing Visual Character of Site and Surroundings.”:

State Vehicle Code Section 23115 requires that all loads are properly secured to prevent litter and other articles from escaping. Although there are substantial fines for violators, some self-haulers don't comply and litter can accumulate on roadsides in the vicinity of disposal sites. Transfer station operators control this problem by warning customers or by levying penalty rates for uncovered loads, as is done in many jurisdictions. The transfer station operator will do roadside litter cleanup in the vicinity.

The City and the County will require that the contract for transfer station operations includes a provision requiring the operator to remove all roadside litter once per week in the vicinity of the transfer station and to post signs in English and Spanish at the transfer station entrance informing customers of California Vehicle Code Section 23115's requirement to cover all loads. This is an existing legal requirement and municipalities routinely apply such provisions in California either in their direct operations or through an operations contract. The contract for transfer station operations shall also authorize the operator, at its discretion, to levy a penalty surcharge of up to 100 percent on any customer who arrives with an improperly covered load. The City and County will request all law enforcement agencies patrolling in the region to ticket for violations of California Vehicle Code Section 23115.

Air Quality and Odor (DEIR Section 3.3)

The following paragraph is added to Section 3.3.2 – Regulatory Framework, after the second paragraph on page 3.3-6 of the DEIR under the heading Mendocino County Air Quality Management District:

Emissions of fugitive dust from grading operations would be subject to MCAQMD Rule 1-400(a), Rule 430(a) and Rule 430(b). The project operator would have to submit a Large Grading Operation Permit application to MCAQMD. Construction activities would be subject to District

rules (as noted above) that prohibit the handling, transportation, or open storage of materials, or the conduct of other activities in such a manner that allows or may allow unnecessary amounts of particulate matter to become airborne except when reasonable precautions are taken to prevent emissions and District-required airborne dust control measures are implemented.

The following revisions are made to Table 3.3-3 on page 3.3-7 of the DEIR:

Table 3.3-3 Air Quality Significance Thresholds is revised as follows:

| Pollutant | Construction Thresholds | Operational Thresholds | |
|--|---|---|--------------------------------------|
| | Average Daily Emissions (lbs./day) | Average Daily Emissions (lbs./day) | Annual Average Emissions (tons/year) |
| Criteria Air Pollutants | | | |
| ROG | 480 54 | 180 | None 40 |
| NO _x | 42 54 | 42 | None 40 |
| PM ₁₀ | 80 | 80 | None 15 |
| PM _{2.5} | 54 | 54 | 10 |
| CO | Not Applicable None | 9.0 ppm (8-hour average) or 20.0 ppm (1-hour average) <u>125 tons/year</u> | |
| Fugitive Dust | Construction Dust Ordinance or other Best Management Practices | None Same as above | |
| Health Risks and Hazards for New Sources | | | |
| Excess Cancer Risk | ≥10 per one million | ≥10 per one million | |
| Chronic or Acute Hazard Index | ≥1.0 | ≥1.0 | |
| Incremental annual average PM _{2.5} | 0.3 ≥3.0 µg/m ³ | 0.3 ≥3.0 µg/m ³ | |
| Health Risks and Hazards for Sensitive Receptors (Cumulative from all sources within 1,000 foot zone of influence) and Cumulative Thresholds for New Sources | | | |
| Excess Cancer Risk | 100 per one million | | |
| Chronic Hazard Index | 10.0 | | |
| Annual Average PM _{2.5} | 0.8 µg/m ³ | | |
| Odors | 5 confirmed complaints per year averaged over 3 years | | |

Sources: BAAQMD 2011; BAAQMD 2009; and MCAQMD ~~2003~~2015
(see http://www.co.mendocino.ca.us/aqmd/pdf_files/ceqa-criteria-and-ghg.pdf)
(see http://www.co.mendocino.ca.us/aqmd/pdf_files/ISR_Policy.pdf)

The following sentence is added to the second paragraph, before the last sentence, on page 3.3-11 of the DEIR under “Impact AQ-1: Violate Any Air Quality Standard or Result in Cumulatively Considerable Net Increase of Any Criteria Pollutant for which the Project Region is in Non-attainment.”:

In addition, the Project would be subject to requirements of MCAQMD Regulation 1, Rule 1-430.

The following revisions are made to Table 3.3-4 on page 3.3-10 of the DEIR:

Table 3.3-4 Construction Criteria Air Pollutant Emissions

| Facility Site | ROG | NO _x | PM ₁₀ | PM _{2.5} |
|--|------------------|-----------------|------------------|-------------------|
| Emissions in tons per year | 0.43 | 1.29 | 0.05 | 0.04 |
| Average Daily Emissions (pounds per day) | 6.5 | 19.5 | 0.8 | 0.6 |
| Threshold (pounds per day) | 48054 | 4254 | 8982 | 54 |
| Exceed Threshold? | No | No | No | No |

The following revisions are made to Table 3.3-5 on page 3.3-11 of the DEIR:

Table 3.3-5 Operational Criteria Air Pollutant Emissions

| Facility Site | ROG | NO _x | PM ₁₀ | PM _{2.5} | CO |
|--|-----------|-----------------|------------------|-------------------|---------------|
| On-Site Emissions in tons per year | 0.27 | 1.42 | 1.36 | 0.18 | <u>0.55</u> |
| Mobile Emissions in tons per year | (0.14) | (1.30) | (0.10) | (0.07) | <u>(1.02)</u> |
| Average Daily Emissions (pounds per day) | 0.7 | 0.9 | 7.2 | 0.6 | - |
| <u>Threshold (tons per year)</u> | <u>40</u> | <u>40</u> | <u>15</u> | <u>10</u> | <u>125</u> |
| Threshold (pounds per day) | 180 | 42 | 80 | 54 | - |
| Exceed Threshold? | No | No | No | No | <u>No</u> |

The following number bullet is added at page 3.3-11 of the DEIR to Mitigation Measure AQ-1: Air Quality Control Measures during Construction:

9. Include all applicable requirements contained in District Regulation 1, Rule 1-430.

The following revisions are made to the fourth and fifth paragraphs on page 3.3-12 of the DEIR under “Impact AQ-2: Expose Sensitive Receptors to Substantial Pollutant Concentrations”:

The maximum annual PM_{2.5} concentration was 0.285 µg/m³ occurring at the same location where maximum cancer risk would occur. This PM_{2.5} concentration is below the ~~BAAQMD~~MCAQMD threshold of ~~0.330~~ µg/m³ used to judge the significance of health impacts from PM_{2.5}.

Potential non-cancer health effects due to chronic exposure to diesel particulate matter (DPM) were also evaluated. The chronic inhalation reference exposure level (REL) for DPM is 5 µg/m³ (BAAQMD 2011). The maximum predicted annual DPM concentration for project construction was

0.133 $\mu\text{g}/\text{m}^3$ (see Appendix B), which is much lower than the REL. The Hazard Index (HI), which is the ratio of the annual DPM concentration to the REL, is 0.027. This HI is much lower than the ~~BAAQMD~~MCAQMD significance criterion of a HI greater than 1.0.

Biological Resources (DEIR Section 3.4)

The following revisions are made at page 3.4-44 of the DEIR to Mitigation Measure BIO-1b and to the second paragraph under the post mitigation level of significance analysis on page 3.4-45:

Mitigation Measure BIO-1b: Mitigate Impact to CRPR Listed Tree Species: Mendocino Cypress and Bolander's Pine

The impacts to individual CRPR-listed tree species associated with pygmy cypress forest (cypress intermediate and tall morphotypes) and Bolander's pine shall be mitigated through preservation at an offsite location. ~~The County and City proposes to use a portion of a 28-acre site identified as Assessor's Parcel Number (APN) 118-50-045 which is adjacent to and north of the Caspar transfer station facility and is forested including cypress, Bishop Pine, and other related species. A photograph of the proposed mitigation site is provided as Figure 3.4-3 and the location is shown on Figure 2-3. This parcel was declared surplus by the County in 2011 and listed for sale. It is zoned Rural Residential with potential for development of a single-family house. On September 22, 2014, the County Board of Supervisors rescinded the designation as surplus and reserved the parcel for conservation mitigation if required for this project and/or other projects that could have forestry impacts. The County, owner of this property, shall place a conservation easement over a portion of it to permanently preserve an area at a 3:1 ratio for areas of sensitive listed tree species (cypress and Bolander's pine) that are impacted at the new Central Coast Transfer Station site. At a 3:1 ratio, the conservation easement shall result in preservation of 1.75 acres of mixed cypress and Bolander's pine forest. Impacts to Cypress forest—tall and Cypress forest—intermediate, based on CNDDDB rank of S2 for the overall forest classification (versus status/listing of individual tree species), are mitigated as detailed in Mitigation Measure BIO-2, which requires a conservation easement of 1.8 acres (3:1 ratio for impacts to total of 0.6 acres of CNDDDB S2-ranked forest). The 1.75 acres required in Mitigation Measure BIO-1b is in addition to the 1.8 acres required in Mitigation Measure BIO-2, but are coincident to the 1.8 acres (total preservation of 3.55 acres). To mitigate for the removal of individual CRPR listed Mendocino pygmy cypress trees (approximately 229 individuals of intermediate and tall morphotypes) and Bolander's pine (approximately 38 individuals), present within 0.58 acre impact area mapped as Pygmy cypress Alliance (tall and intermediate morphotypes), as well as where individual CRPR listed trees are scattered within the Bishop Pine Alliance proposed for removal, the County will create the Caspar Pygmy Forest Preserve encompassing a 28.3 acre parcel. The County-owned parcel off Prairie Way in Caspar (APN 118-500-45) is undeveloped, is zoned Rural Residential with the potential for development of one or more single-family houses. The site has a variety of habitats present, mostly consisting of Cypress forest pygmy/forested wetland, Bishop Pine Forest Alliance, and pygmy forest morphotypes (intermediate and tall cypress trees). A photograph of the proposed mitigation site is provided as Figure 3.4-3 and the location is shown on Figure 2-3. Vegetation communities mapping conducted at the site documented 12.3 acres of intermediate and tall morphotypes (the former of which includes Bolander's pine subdominant), as well as 7.1 acres of high quality pygmy cypress (short morphotype) mixed with Bolander's pine (WRA 2015). Therefore, a total of 19.4 acres of pygmy cypress forest will be preserved. A separate evaluation~~

concluded that the proposed Caspar Pygmy Forest Preserve is composed largely of undisturbed pygmy cypress woodland (Heise 2015, Appendix B). The County will execute appropriate legal documents to guarantee that the Caspar Pygmy Forest Preserve will remain undeveloped in perpetuity and only accessible for botanical research and other activities consistent with undiminished protection of the habitat. The preservation may be accomplished by transferring title or an easement to an established conservation organization subject to a preservation covenant, or, if no such organization is found, by the County recording a covenant creating a conservation easement on behalf of the public. In that instance, the County will secure all access points to the property and post warning signs. Quarterly inspection of the Caspar Pygmy Forest Preserve will be made by County personnel along with their routine mandatory inspections of the cover of the nearby closed Caspar Landfill. The inspections of the Preserve will be to ensure gate and signage are in place, and that no vandalism occurs, trash dumping, etc., and propose remedial activities if necessary to maintain current condition of the Preserve.

Level of Significance: Less than significant with mitigation.

Mitigation Measure BIO-1b would preserve pygmy cypress (short, intermediate, and tall morphotypes) mixed with Bolander's pine at an ~~3:1 ratio~~ approximate 30:1 ratio based on acreage, to compensate for impacts to Mendocino pygmy cypress intermediate and tall morphotypes, and scattered individual Mendocino pygmy cypress and Bolander's pine within the Bishop Pine Forest map unit. Mitigation Measure BIO-1b is consistent with the intent of Mendocino County General Plan Policy RM-28 which calls for implementation of site-specific or project-specific effective mitigation strategies including preservation. Preservation will provide an immediate and permanent protection of an existing habitat similar or higher quality to that being impacted, at an appropriate mitigation ratio to compensate for the use of offsite location and the proposed activity of preservation. The impact to Mendocino pygmy cypress and Bolander's pine is less than significant with mitigation.

The following revisions are made at page 3.4-48 of the DEIR to Mitigation Measure BIO-2 and to the post mitigation level of significance analysis which begins on that same page:

Mitigation Measure BIO-2: Mitigate Impacts to Sensitive Listed Habitats with State Rank S2 Status (Cypress forest - tall and Cypress forest – intermediate).

The impacts to State Rank S2 status habitats shall be mitigated through preservation at an offsite location. ~~The applicant propose to use a portion of a site identified as Assessor's Parcel Number APN 118-50-045 which is adjacent to and north of the Caspar facility.~~ The applicant shall place a conservation easement over a portion of the site to permanently preserve an area at a 3:1 ratio to compensate for areas of impacted sensitive habitat at the proposed Central Coast Transfer Station site (Cypress forest-tall and Cypress forest – intermediate). At a minimum 3:1 ratio, the conservation easement shall include a minimum 1.8 acres and may consist of a mixture of the three cypress morphotypes; pygmy, intermediate, and/or tall cypress and Bolander's pine forest. The ~~4.8 acres~~ acreage is not in addition to the area ~~already~~ being preserved for impacts to sensitive-listed individual tree species within the cypress forest--tall and intermediate--map units, ~~but~~ and shall be coincident to the area placed under conservation easement per Mitigation Measure BIO-1b. ~~Therefore, in addition to the 1.75 acres proposed for permanent preservation as part of Mitigation Measure BIO-1b, an additional 0.05 acres shall be included in the preservation area for a minimum of 1.8 acres.~~

~~A conservation easement will be placed over a portion of the preservation site to permanently preserve an area at a 3:1 ratio to areas of impact at the proposed project site (Cypress forest tall and Cypress forest intermediate). At a 3:1 ratio, the conservation easement shall include a minimum of 1.8 acres and may consist of a mixture of the three cypress morphotypes; pygmy, intermediate, and/or tall cypress and Bolander's pine forest. The 1.8 acres is in addition to the area already being preserved for impacts to sensitive listed individual tree species within the habitats mitigated for under BIO 2 (cypress forest tall and intermediate map units), and shall be coincident to the area placed under conservation easement per Mitigation Measure BIO 1b. Therefore, in addition to the 1.75 acres proposed for permanent preservation as part of Mitigation Measure BIO 1b, an additional 0.05 acres shall be included in the preservation area for a minimum of 1.8 acres. To mitigate for the removal of 0.58 acre of Mendocino pygmy cypress (tall and intermediate morphotypes) [12.6% of onsite map units] the County will designate the Caspar Pygmy Forest Preserve encompassing a 28.3 acre parcel. The County-owned parcel off Prairie Way in Caspar (APN 118-500-45) is undeveloped, is zoned Rural Residential with the potential for development of one or more single family houses. The proposed preservation site has a variety of habitats present, including pygmy cypress forest (short morphotype), Bishop Pine Forest Alliance, and pygmy cypress intermediate and tall morphotypes. A photograph of the proposed mitigation site is provided as Figure 3.4-3 and the location is shown on Figure 2-3. Vegetation communities mapping conducted at the site documented 12.3 acres of intermediate and tall morphotypes, as well as 7.1 acres of high quality pygmy cypress (short morphotype) [WRA 2015]. Therefore, a total of 19.4 acres of pygmy cypress forest will be preserved. This mitigation in the form of preservation would result in an approximate 30:1 mitigation ratio for impacts. A separate independent evaluation of the site concluded that the proposed Caspar Pygmy Forest Preserve has "is composed largely of undisturbed pygmy cypress woodland" (Heise 2015). The County will execute appropriate legal documents to guarantee that the Caspar Pygmy Forest Preserve will remain undeveloped in perpetuity and accessible for botanical research and other activities consistent with undiminished protection of the habitat. This may be accomplished by transferring title or an easement to an established conservation organization subject to a preservation covenant, or, if no such organization is found, by the County recording a covenant creating a conservation easement on behalf of the public. In that instance, the County will secure all access points to the property and post warning signs. Periodic inspection of the Caspar Pygmy Forest Preserve will be made by County personnel at the same times as the mandatory inspections are made of the cover of the nearby closed Caspar Landfill.~~

Level of Significance: Less than significant with mitigation.

The preservation site is identified as APN 118-50-045, and is adjacent and to the north of the current Caspar facility. The preservation site has similar, if not more pygmy-forest oriented species composition, compared to the area of impact, with a mixture of true pygmy forest (stunted with both cypress and Bolander's pine present) as well as intermediate cypress and Bolander's pine areas, and some Bishop pine (per GHD May 2014 site visit, WRA 2015). Unless preserved, portions of this site could be threatened by future development and/or encroachment from adjacent uses. For potential impacts to habitats with State Rank S1 or S2, preservation is deemed an appropriate mitigative activity for these areas since attempts for direct replacement of the habitats would be linked to a unique ecosystem relationship, which in this case includes slow growing species within a setting of restrictive soil conditions. Preservation will provide an immediate and permanent protection of an existing habitat similar to that being impacted,

~~covering 30 times as much acreage as the area of impact, at an appropriate mitigation ratio (3:1) to and also compensates for the use of an offsite location (versus onsite) and the proposed activity of preservation. The 3:1 ratio is appropriate rate as it provides compensation for the use of an offsite location (versus onsite) as well as the use of preservation as opposed to other mitigation strategies such as replacement.~~ A temporal loss is not anticipated. The mitigation approach is consistent with RM-28 which allows for preservation as a mitigative approach for impacts to special-status species habitat, and RM-74 that prioritizes minimization and avoidance prior to employing replacement, protection, or enhancement measures. In conjunction with the avoidance and minimization activities conducted during project planning, and after proposed preservation/protection activities, the impact is determined to be less than significant.

Hydrology & Water Quality (DEIR Section 3.8)

The following text is added after the first paragraph at page 3.4-11 of the DEIR under the “operation” analysis under “Impact HWQ-1 Violate any Water Quality Standards or Waste Discharge Requirements”:

The motor oil recycling tank and antifreeze recycling tank planned for the recycling drop-off area are standard features used at many transfer stations. The existing motor oil tank at Caspar Transfer Station would be moved to the new facility. It has double-containment and is encased in concrete to protect it from any rupture. Likewise, the antifreeze recycling tank would have external containment to prevent any leaks from escaping. Nevertheless, public use can cause minor small spills when motor oil or antifreeze are being poured into the tanks, that could affect rain runoff. Also, appliances and electronics in recycling drop-off areas create a potential for minor transmission of contaminants if exposed to rain. Exposure to rain will be prevented by roofing these areas and grading to prevent infiltration of stormwater.

The following revisions are made at pages 3.9-17 to 3.9-18 of the DEIR to Mitigation Measure HWQ-4: Reduce Potential for Offsite Runoff:

Mitigation Measure HWQ-4 Reduce Potential for Increased Offsite Runoff

The applicant shall design and construct detention basins within the project ~~site~~area to reduce stormwater runoff volume, rates, and sedimentation in addition to allowing stormwater to infiltrate. The specific locations of these detention basins will be determined during the development of the grading and drainage plans, as required by Mendocino County. To facilitate this, the applicant shall submit a final detailed design-level hydrologic and hydraulic analysis as necessary to Mendocino County detailing the implementation of the proposed drainage plans, including detention basin facilities that will conform to the following standards and include the following components, at a minimum:

1. The project shall ensure the peak runoff for the 2-, 10-, 50- and 100-year/24-hour storm events for post-development conditions is not greater than under existing conditions. The final grading and drainage plan, including detention basin designs, shall be prepared by a California licensed Professional or Civil Engineer. All design and construction details shall be depicted on the grading and drainage plans and shall include, but not be limited to, inlet and outlet water control structures, grading, designated maintenance access, and connection to existing drainage facilities.

2. Mendocino County shall review and approve the grading and drainage plans prior to implementation to ensure compliance with County standards. The project shall incorporate any additional improvements deemed necessary by the County.
3. Once constructed, the drainage components, including detention basins and conveyance structures will be inspected by the County and maintained per the guidelines outlined in the projects SWPPP.
4. The detention basins shall be designed to completely drain within 24 to 96 hours (also referred to as "drawdown time"). The 24-hour limit is specified to provide adequate settling time; the 96-hour limit is specified to mitigate vector control concerns (e.g., mosquitoes). The project shall employ erosion control practices (i.e., temporary seeding and mulching) to reduce the amount of sediment flowing into the basin. The outlet structures shall be armored (e.g., riprap lined or equivalent) and designed to evenly spread stormwater where appropriate and slow velocities to prevent erosion and re-suspension of sediment. Specifically, the northern most detention basin shall have a vertical outlet pipe located within the detention basin that is connected to a pipe manifold that discharges stormwater in a regulated manner through a minimum of four equally spaced discharge pipes. By spacing the diffuser pipes a minimum of 25 feet from each other and discharging into an existing drainage located in the Bishop Pine Forest, stormwater infiltration will be promoted while not impacting the pygmy forest. The southernmost detention basin shall utilize a similar approach to managing stormwater, but will only consist of one outlet pipe that discharges directly to the existing drainage swale on Highway 20.

The contractor shall ensure that all disturbed areas of the project are graded in conformance with the approved grading and drainage plans in such a manner as to direct stormwater runoff to properly designed detention basins.

The DEIR changes noted above are minor/technical and do not add "Significant New Information" as defined by CEQA to require recirculation of the DEIR pursuant to Section 15088.5 of the CEQA Guidelines.

3. List of Commenters

3.1 Comments Received

During the 45-day public comment period, the County received 26 written comments (letters/emails), and 19 oral comments at the March 19, 2015 public hearing. A list of the comment letters and oral comments received, including the names and affiliations of the commenters, is shown below in Table 3-1. The written comments that were received are numbered alphabetically starting with “A” through “Z” and the oral comments are numbered alphabetically starting with “AA” through “SS.”

Table 3-1 Comments Received

| Letter | Agency/Organization | Last Name | First Name | Letter/E-mail Date |
|----------------------------------|---|-------------|----------------|--------------------|
| Written Comments Received | | | | |
| A | Local Resident | Dwyer | Eugene | February 24, 2015 |
| B | California Department of Forestry & Fire Protection | Sciocchetti | Louis | March 9, 2015 |
| C | Mendocino County Air Quality Management District | Scaglione | Robert | March 11, 2015 |
| D | California Department of Transportation | Ahlstrand | Tatiana | March 13, 2015 |
| E | Local Resident | Zekley | Mickie | March 16, 2105 |
| F | Local Resident | Thorbecke | Erik | March 18, 2015 |
| G | Local Resident | Childs | Rick | March 19, 2015 |
| H | Local Resident | Brown | Barbara | March 20, 2015 |
| I | Northcoast Environmental Center | Ehresman | Dan | March 20, 2015 |
| J | Mendocino County Department of Planning & Building | Gustavson | Andy | March 20, 2015 |
| K | Local Resident | Lemos | William & Mary | March 22, 2015 |
| L | Local Resident | Thorbecke | Charla | March 23, 2015 |

Table 3-1 Comments Received

| Letter | Agency/Organization | Last Name | First Name | Letter/E-mail Date |
|--|--|-------------------|-------------------|---------------------------|
| Written Comments Received | | | | |
| M | Local Resident | James | Jeremy | March 23, 2015 |
| N | Form letter sponsored by EPIC | Wisedagama | Don (many others) | March 24, 2015 |
| O | California Department of Fish & Wildlife | Babcock | Curt | March 24, 2015 |
| P | Local Resident | Keppeler | Elizabeth | March 25, 2015 |
| Q | California Native Plant Society | Hubbart | Lori | March 25, 2015 |
| R | Environmental Protection Information Center | DiPerna | Robert | March 26, 2015 |
| S | Local Resident | Wehren | Rixanne | Undated |
| T | Provencher & Flatt LLP | Mansfield-Howlett | Rachel | March 26, 2015 |
| U | Local Resident | Kashiwada | Leslie | March 26, 2015 |
| V | Local Resident | Berrettini | Mary | March 26, 2015 |
| W | Local Resident | Dawson | Daney | March 26, 2015 |
| X | Local Resident | Stone | Lori | March 26, 2015 |
| Y | Local Resident | Weibel | Annemarie | March 26, 2015 |
| Z | Department of Resources Recycling and Recovery | Karl | Christine | March 25, 2015 |
| Oral Comments Received at Public Hearing March 19, 2015 | | | | |
| AA | Local Resident | Thorbecke | Charla | March 19, 2015 |
| BB | Local Resident | Keppeler | Sean | March 19, 2015 |
| CC | Local Resident | LaDue | Leanne | March 19, 2015 |
| DD | Local Resident | Tavelli | Elaine | March 19, 2015 |
| EE | Local Resident | LaDue | Pat | March 19, 2015 |

Table 3-1 Comments Received

| Letter | Agency/Organization | Last Name | First Name | Letter/E-mail Date |
|----------------------------------|--|------------------|-------------------|---------------------------|
| Written Comments Received | | | | |
| FF | Local Resident | Childs | Rick | March 19, 2015 |
| GG | Local Resident | Fairall | Kelly | March 19, 2105 |
| HH | Local Resident | Pember | Kent | March 19, 2015 |
| II | Local Resident | Wehren | Rixanne | March 19, 2015 |
| JJ | Local Resident | Rice | Barbara | March 19, 2105 |
| KK | Local Resident | James | Jeremy | March 19, 2015 |
| LL | Local Resident | Fremont | John | March 19, 2015 |
| MM | Local Resident | Rennacker | Ann | March 19, 2015 |
| NN | Local Resident | Lemos | William | March 19, 2015 |
| OO | California Department of Fish & Wildlife | Leppig | Gordon | March 19, 2015 |
| PP | Local Resident | Kashiwada | Leslie | March 19, 2015 |
| QQ | Local Resident | Boecker | Sue | March 19, 2015 |
| RR | Local Resident | Gressett | Rex | March 19, 2015 |
| SS | Local Resident | Courtney | Meg | March 19, 2015 |

4. Comments and Responses

4.1 Master Responses to Comments

Review of the written and oral comments made on the DEIR indicated that some comments were made frequently, demonstrating a common concern. To allow presentation of a response that addresses all aspects of these related comments, several Master Responses have been prepared. Master Responses are intended to allow a well-integrated response addressing all facets of a particular issue, in lieu of piece-meal responses to each individual comment, which may not have portrayed the full complexity of the issue. The use of a Master Response is in no way intended to minimize the importance of the individual comments. Master Responses have been prepared for the following common issues: Mitigation for Pygmy Cypress Forest; Classification of Bishop Pine Forest; Alternatives Evaluated; Aesthetic Impacts; Mendocino County General Plan; Summers Lane Reservoir; and Hydrology and Water Quality.

Master Response #1 – Mitigation for Pygmy Cypress Forest

Pygmy cypress forest and associated tree species are not listed under the Federal Endangered Species Act or other regulation which forbids their removal. The forest as a community type is listed as special-status “imperiled” (G2 S2) by the California Department of Fish & Wildlife (CDFW). The individual tree species associated with the community type (Mendocino pygmy cypress and Bolander’s pine) are listed by CDFW as California Rare Plant Rank (CRPR) List 2 species. In both cases (as a community type as well as on the individual tree species level) projects should be designed to avoid, minimize, and/or mitigate impacts to them. The County General Plan provides guidance in Policy RM-28 and RM-84 on avoidance, minimization, and mitigation. The project design and mitigation provided in the DEIR addresses minimization and mitigation in several ways, as further elaborated and reiterated below.

The proposed project has a total 4.72-acre footprint that was selected and oriented specifically to minimize/avoid the Pygmy cypress forest to the greatest extent possible, and through project design the impacts have been minimized to 0.58 acres of Cypress forest--intermediate pygmy and tall morphotypes (reference DEIR Figure 3.4-1), and direct impacts to the more rare and sensitive Cypress forest (pygmy morphotype) / Forested Wetland (with open understory and stunted trees) have been completely avoided. The project leaves 12.26 acres of Pygmy cypress forest on the site which would be undisturbed.

To mitigate for the removal of 0.58 acre of Pygmy cypress forest and impacts to individual Mendocino pygmy cypress (intermediate and tall morphotypes) and Bolander’s pine, the County will establish the Caspar Pygmy Forest Preserve at a 28.3 acre parcel that the County owns off Prairie Way in Caspar (APN 118-500-45). As shown in Section 2 Revisions to the Draft EIR, Mitigation Measures BIO-1b and BIO-2 have been revised to reflect this increased mitigation ratio. The preservation will result in a nearly 30:1 ratio for compensation of project impacts. This parcel is undeveloped land with a variety of habitats as listed in Table 4-1, including Pygmy cypress 19.35 acres of short, intermediate and tall morphotypes. The mitigation parcel also includes areas of Bishop Pine Forest Alliance. As discussed in Master Response #2, vegetation communities mapping conducted at the site documented 12.30 acres of intermediate and tall morphotypes (the former of which includes Bolander’s pine subdominant), as well as 7.05 acres of high quality pygmy cypress (short morphotype) mixed with Bolanders pine (WRA 2015), as shown in the map in Appendix A. Therefore, a total of 19.35 acres of pygmy cypress forest will be persevered, resulting in the approximate 30:1 mitigation ratio, as shown in Table 4-1 (WRA 2015).

Table 4-1 Caspar Pygmy Forest Mitigation Site Habitat Acreages

| Habitat | Percent of Mitigation Site | Mitigation Site Acres | Project Impacts | Mitigation Percent |
|--|----------------------------|-----------------------|-----------------|--------------------|
| Cypress (short) / Bolander's | 24.9% | 7.05 | 0.00 | 30% |
| Cypress (intermediate) / Bolander's / Bishop | 30.4% | 8.60 | 0.26 | |
| Cypress (tall) / Bishop | 13.1% | 3.70 | 0.32 | |
| Subtotal | 68.4% | 19.35 | 0.58 | |
| Bishop / cypress (intermediate, tall) | 20.4% | 5.76 | 4.00 | 1.4% |
| Scrub-shrub wet area | 4.0% | 1.14 | 0.00 | 0.0% |
| Other | 7.2% | 2.05 | 0.00 | 0.0% |
| TOTAL | 100% | 28.30 | 4.58 | |

A separate independent evaluation of forest resource quality within the area proposed for preservation concluded that the proposed Caspar Pygmy Forest Preserve is composed largely of undisturbed pygmy cypress woodland (Heise 2015). This parcel had previously been declared surplus County property and slated for sale. Under law the first step in disposition of County property is offering it for auction to other government entities. This formality was completed in 2012 with no government bids made, and the next step planned by the County was listing it with a real estate broker for sale, possibly for residential development. County General Services was in the process of making this listing in 2014 when the Board of Supervisors acted to rescind the declaration of surplus and make the property available as a mitigation site. Therefore, the creation of the Caspar Pygmy Forest Preserve would substitute for a County procedure that was in process to sell off the site for development which would likely fragment the habitat, result in removal of vegetation, and foreclose future likelihood of preservation of this site.

On April 7, 2015, the Board unanimously (5-0) approved that the 28.3 acre parcel APN 118-500-45 may be designated as the Caspar Pygmy Forest Preserve. "Motion from Closed Session Item 9(f): Staff is authorized to include as an enhanced mitigation measure in the RTC for the Central Coast Transfer Station that the 28.3 acre parcel APN 118-500-45 may be designated as the Caspar Pygmy Forest Preserve and protected through arrangements with a conservation organization or by the County itself subject to recording of binding covenants on the property."

Several commenters imply that Pygmy cypress forest is unprotected and vulnerable to extinction. In 1998, California vegetation (CALVEG) mapped 4,420 acres between Ten Mile and Navarro Rivers. The CDFW is reevaluating this number and based on communications with CDFW staff, the DEIR conservatively adopts an estimate of 2,000 acres (DEIR Table 3.4-3 footnote). What is particularly noteworthy is the acreage that has been permanently protected to date. Protected Pygmy cypress forest acreage is found in Mendocino County at Jughandle State Nature Reserve (247 acres), Russian Gulch State Park), the Hans Jenny Pygmy Forest Reserve (70 acres), Van Damme State Park, Jackson Demonstration State Forest (JDSF) (613 acres), and in Sonoma County at Salt Point State Park The creation of the 28.5-acre Caspar Pygmy Forest Preserve (19.4 acres of which is pygmy cypress of various morphotypes), would

significantly expand the protected acreage of this habitat and promote its long-term survival. With Mitigation Measure BIO-2, as revised, the impact to Pygmy cypress forest remain less than significant.

Master Response #2 – Classification of Bishop Pine Forest

The four (4.0) acres of Bishop Pine Forest that would be cleared for the project have been classified according to the CDFW's Natural Communities List (September 2010) which identifies "Bishop Pine Forest Alliance" as "G3 S3" (CDFW 2014/2015). This G3 S3 is the same ranking that was determined by WRA Associates, the independent field biologists who surveyed and mapped the project site prior to commencement of the DEIR process, and the results of which were incorporated into the DEIR (DEIR Appendix D Table 1).

The "G3 S3" rank for Bishop Pine Forest Alliance means "vulnerable" but less so than, nor imperiled such as, the "S1" or "S2" rank. Whether or not removal of "S3" vegetation is a significant impact under CEQA depends on whether it would "substantially reduce the habitat" or "drop below self-sustaining levels" or "threaten to eliminate a plant or animal community" (DEIR page 3.4-47). The DEIR notes that USDA's CALVEG mapped 14,900 acres of Bishop pine in Mendocino County in 1998 (DEIR, page 3.4-47, citing the DEIR for Jackson Demonstration State Forest Management Plan, 2005, page VII.6.2-2, which further states that 622 acres of Bishop pine are found in JDSF alone). The Forest Service of the U.S. Department of Agriculture states the "Bishop Pine Alliance" is, "abundant in Mendocino and Sonoma Counties. Stands also exist in San Luis Obispo and Santa Barbara Counties, the Channel Islands and Baja California" (USFS 2008). Accordingly, the DEIR calculates that the removal of four acres of Bishop Pine Forest for the project regionally would constitute a loss of 0.03 percent of the existing species in Mendocino County, and that this is not a significant impact (DEIR p. 3.4-47).

Various commenters suggested that the DEIR "misclassified" Bishop Pine Forest as "G3 S3" when it should be classified as "Northern Bishop pine G2 S2," a more vulnerable category, and which would be based on Holland nomenclature. These claims are contradicted by the current CDFW website which states:

*"Holland types originally tracked by the CNDDDB are referenced with a code beginning with "CTT." These are provided as "legacy information" with the understanding that Holland CTT codes and community types are **no longer supported by DFG**. Instead, all new information on terrestrial natural communities should use the State's standard nomenclature as provided in the current Natural Communities List. (CDFW [2014/2015](#))"*

The Natural Communities Lists posted by CDFW show "Northern Bishop pine" with the Holland CTT code CTT 83121CA. Per CDFW, the "Northern Bishop pine" is a legacy "Holland type" category is "no longer supported" and does not have a key for classification/application for a vegetation stand. Although not deemed a significant impact to Bishop Pine Forest based on the findings of the DEIR, and as reiterated above, it should be noted that the County does propose to establish the 28.5 acre Caspar Pygmy Forest Preserve, as described in the revised Mitigation Measures BIO-1b and BIO-2 in this RTC. This parcel is undeveloped land with a variety of habitat including Mendocino pygmy cypress (short, intermediate, and tall morphotype) and 5.76 acres of Bishop Pine Forest. As part of the proposed preservation, Bishop Pine Forest Alliance will be permanently protected, as well as Bishop pine trees intermixed in areas mapped as pygmy cypress forest intermediate and tall morphotypes, resulting in 1.4:1 preservation (it is noted that

preservation of the 5.76 acres of Bishop Pine Forest is considered a secondary benefit of preserving the entire Caspar site. The Draft EIR does not consider impacts to Bishop Pine Forest as significant.)

Master Response #3 – Alternatives Evaluated

As described in the DEIR in Section 1.3.1, the process that led to the designation of the project site as the preferred alternative began in 2006 with a wide survey of possible sites and proceeded systematically to narrow consideration down to sites that were both feasible and would meet the project objectives as summarized in DEIR Section 2.3.

The DEIR Section 4.1 discusses the CEQA requirements for analysis of alternatives to the project. There is no requirement to analyze every conceivable alternative, or alternatives which aren't feasible due to such factors as physical barriers, excessive cost beyond the available funds, legal barriers or lack of availability. The lead agency must choose what alternatives to analyze using a "rule of reason" (CEQA Guidelines 15126.6(a)). "The EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project" (CEQA Guidelines Section 15126.6(f)).

Accordingly, the DEIR analyzed two alternatives in addition to the proposed project, and then discussed five alternatives that were considered but not carried forward in the DEIR. These five alternatives that were considered but not carried forward in the DEIR, in addition to the alternatives analyzed in the DEIR, are the alternatives the City and County identified during their rigorous, multi-year site selection process from dozens of potential locations that were considered starting in 2007.

The Guidelines state that alternatives need to be analyzed only to the extent necessary to provide "sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project" (CEQA Guidelines Section 15126.6(d)).

The City and County considered the Caspar self-haul transfer station site as the principal alternative and it is compared in detail to the project in 12 categories. Five other alternatives that were considered but not carried forward in the DEIR (the "semi-finalists" in the selection process) are listed and analyzed in sufficient detail to identify the reasons why these sites are infeasible or inferior to the project on specific environmental grounds. This involves choices as to which environmental considerations are most important. The City and County have the authority to make such choices provided that the reasons are clearly disclosed, as they are in the DEIR in Section 4.0.

Cost considerations are relevant under CEQA only insofar as they dictate the feasibility of an alternative; that is, whether or not the cost is so great that the lead agency would be unable to pay for it. While some comparative cost information is mentioned in the Alternatives discussion, none of the Alternatives are rejected because of excessive cost (insofar as costs are known). Rather, five alternatives considered but not carried forward in the DEIR were rejected because of specific environmental problems that are stated in DEIR Section 4.0. The following reiterates the critical issues associated with the No Project Alternative, the Caspar Site Alternative and the alternatives considered but not carried forward in the DEIR:

Alternatives Analyzed in Draft EIR

- Alternative 1 No Project: existing hauling inefficiency would continue, resulting in the benefits of implementing the project being lost (reduced GHG emissions and air pollutants, improved traffic distribution).

- Alternative 2 Caspar Site: greater visual resource impacts than the proposed project; greater energy use and greenhouse gas (GHG) emissions; and inadequate turn pocket off Highway 1 (DEIR Section 4.2.2).

Alternatives Considered but not Carried Forward in DEIR

- Georgia-Pacific Woodwaste Landfill: need for 3,000 feet of new road construction; unsuitability of access by narrow Summers Lane; and need for extensive removal of pygmy forest (DEIR Section 4.4.1).
- Empire Waste Management Pudding Creek Road: traffic congestion at Highway 1 downtown “choke” point and close proximity to large residential development. In addition, this site is not available for public ownership and therefore would not meet a basic project objective (DEIR Section 4.4.2).
- California Western (Skunk) Railroad: rail haul does not remove the need for a transfer station facility to receive waste and consolidate it into large trailers or containers, a transfer station near the Skunk Train depot would be incompatible with dense surrounding residential and commercial neighborhoods, and would cause traffic congestion at the Highway 1 downtown “choke” point (DEIR Section 4.4.3). It should also be noted that no proposal was ever received from the California Western Railroad to use it for trash transfer, although the railroad was invited to do so.
- Leisure Time RV Park: unacceptably close proximity to many residences; as close as 20 feet from the site (DEIR Section 4.4.4). Another consideration not mentioned in the DEIR is that using this site would require eviction of a significant number of long-term recreational vehicle tenants.
- Mendocino Parks & Recreation District property: unacceptably close proximity to many residences; as close as 20 feet from the site; and unavailability due to asking price substantially exceeding appraised fair market value, which is the maximum that public entities may pay (DEIR Section 4.4.5).

Master Response #4 – Aesthetic Impacts

The conceptual site plan for the project appears in DEIR Figure 2-2. It shows that substantial setbacks would exist on all sides of the facility. The DEIR Aesthetics Section 3.1 explains that these setbacks are filled with dense forest vegetation ranging from tall Bishop pine to shorter trees and dense bushes, which will hide all facilities from view except for the entrance driveway. Representative photos of this dense vegetative screen appear on DEIR pages 3.1-2 and 3.1-3. Visitors to Fort Bragg who are driving past the project site will not be aware of the presence of a transfer station except for the entrance sign and driveway.

A different aesthetic issue was raised by commenters who predicted increased blown litter along Highway 20 from improperly secured self-haul trash loads. While no commenter presented any evidence that aesthetic impacts associated with blown litter from self-haul trash loads will result from this Project, additional language has been added to Impact AES-2 regarding, and addressing this issue by noting that the existing Vehicle Code section 23115 already prohibits such trash spills caused by inadequately secured/covered loads. Refer to Section 2 Revisions to the Draft EIR.

Master Response #5 – Mendocino County General Plan

Mendocino County General Plan Policy RM-28 states that impacts to special-status species shall be avoided “to the maximum extent feasible.” Other General Plan policies echo this priority of protecting special-status species and mitigating impacts, but none impose an absolute prohibition on taking sensitive habitat under any circumstances.

Regarding definitions of sensitive habitat, and to address Policy RM-31, see Master Response #1 – Mitigation for Pygmy cypress forest and #2 – Classification of Bishop Pine Forest, as well as Response U-2 which addresses mapping and definition of pygmy forest.

Numerous features of the project are designed to avoid (to the maximum extent feasible), minimize, or mitigate impacts to special-status Pygmy cypress forest and coast lily. The facility’s 4.72-acre footprint was selected and oriented specifically to avoid the Pygmy cypress forest almost completely, impacting only 0.58 acre identified as Cypress forest (tall and intermediate morphotypes). This leaves 12.26 acres which will be undisturbed, including all the Cypress forest (short/dwarfed morphotype) that occurs coincident with USACE Forested Wetland, the more sensitive and unique habitat. In addition, 19.5 acres of similar habitats at the offsite 28.3 acre Caspar Pygmy Forest Preserve will be permanently preserved instead of being sold and possibly developed (amended DEIR Mitigation Measures BIO-1b and BIO-2). As explained in DEIR BIO-2, offsite mitigation through preservation is consistent with both the spirit and letter of General Plan Policies RM-28 and RM-74.

The majority of the area occupied by coast lily will be protected with protective fencing. Five individual plants (five) scattered outside of the area to be protected but within the project footprint will be transplanted or replaced within the area to be protected and fenced (DEIR Mitigation Measure BIO-1a).

To meet intent of RM-24 and RM-25, through the project planning phase, the site development was placed so that direct impacts to sensitive habitat (minimized to 0.58 acres) do not fragment remaining habitat, and impacts are generally along the fringe of mapped habitats and do not dissect sensitive habitats.

Regarding RM-74 and no net loss of sensitive resources, while the project does result in a loss of 0.58 acres, the CDFW (personal communication 2014) and the County have indicated that preservation is a preferred method for mitigation for loss of Pygmy cypress forest due to the unique association of vegetation structure with soil series, which may be difficult to replicate. The substantial mitigation ratio of 30:1 would provide permanent protection of the species in perpetuity, following CDFW and County guidance, and mitigates the impact to less than significant. In alignment with Policy RM-29, impacts to wetlands have been avoided.

RM-75 does not prohibit offsite replacement, and the project has prioritized onsite avoidance during the project planning phase, which has minimized impacts to 0.58 acres.

RM-78 is addressed through establishment of the Caspar Pygmy Forest Preserve, which permanently protects 19.5 acres of Cypress Pygmy forest (includes dwarfed pygmy forest, transitional/intermediate, and tall cypress trees) as well as documented habitat for at least five sensitive listed species (including pygmy cypress trees). This addresses, “conserve native vegetation, critical habitat and soil resources through...technical and financial assistance, cooperative endeavors, etc.”

The project incorporates the intent of RM-79 to protect sensitive environments through establishment and protection/preservation of the Caspar Pygmy Cypress Preserve.

The project would follow RM-84 through establishment of the Caspar Pygmy Cypress Preserve, which permanently protects 19.5 acres of Cypress Pygmy forest (includes dwarfed pygmy forest, transitional/intermediate, and tall cypress trees), 5.76 acres of Bishop Pine forest, as well as documented habitat for at least five sensitive listed species (including pygmy cypress trees) [Heise 2015]. This area will be protected by a conservation easement that does not allow native vegetation removal, and maintains vegetation continuity with surrounding/adjacent natural areas. This also protects this area from subdivision and potential for residential development, the introduction of water and nutrients, sewage disposal, animals and agricultural use.

There are other Mendocino County General Plan policies which support the balancing of environmental impacts of a proposed project. Policy RM-50 states: "Mendocino County acknowledges the real challenge of climate change and will implement existing strategies to reduce GHG emissions and incorporate future measures that the State adopts in the coming years." Action Item RM-50.3 requires: "Reduce Mendocino County's GHG emissions by adopting measures that reduce the consumption of fossil fuel energy resources." The project complies with this General Plan mandate by reducing truck miles by 279,271 miles per year (DEIR Figure 3.7-1) and reducing GHG emissions by 139.97 metric tons per year (DEIR Figure 3.7-2). Of all the alternatives analyzed in the DEIR, the proposed project would result in the greatest GHG emissions savings because of its location on the exit route from the City/County towards the landfill.

Other Mendocino County General Plan mandates include Policy DE-204 which states: "As one of the largest consumers of energy and other resources, the County shall make efficiency and total lifecycle cost accounting a priority for structural, vehicular, and equipment purchases and operation." The proposed project is the most efficient alternative because of its location.

Master Response #6 - Summers Lane Reservoir

The City of Fort Bragg plans to build a 6.5-acre water storage reservoir at a site almost one mile northwest of the proposed transfer station project. According to the City's planning documents, the reservoir would be surrounded by a high berm that would prevent any surface water infiltration (Agenda Summary Report, Grading Permit 2013-08, City of Fort Bragg, September 12, 2013, and undated report, "Summers Lane Reservoir Project"). Instead, the reservoir would be fed by an existing City pipeline from Waterfall Gulch which lies in a different watershed. Accordingly, there is no reason to believe that the transfer station project would impact the reservoir in any way.

The Summers Lane Reservoir project would require the removal of 72 pygmy cypress trees that are subdominant (less than 10% of the canopy) to the predominantly redwood dominated coastal mixed coniferous forest at the reservoir project site which was most recently logged in 1993 (City of Fort Bragg 2014). The individual pygmy cypress trees are not stunted and as described in the Initial Study/Mitigated Negative Declaration (MND) for the project, are not growing in a typical natural habitat of Pygmy cypress forest. This habitat, individual non-stunted pygmy cypress trees in a redwood dominated coastal mixed coniferous forest, is a different habitat from the habitat at the proposed project site which consists of Bishop Pine forest and a variety of Cypress forest. The individual trees (CRPR List 1B) at the Summers Lane Reservoir would be replaced at a ratio of 3:1 along with an invasive plant removal component, as

detailed in the mitigation and monitoring plan adopted by the City (Attachment 4 of the MND). The project impacts to individual pygmy cypress trees at the Summers Lane Reservoir site were found to be less than significant after mitigation, and were not found to be cumulatively considerable (City of Fort Bragg 2014). Additionally, the impacts to Pygmy cypress trees at the Summers Lane Reservoir are to individual trees (CRPR List 1B). The Summers Lane Reservoir site does not include Pygmy cypress Forest (S2), which is the habitat being impacted at the transfer station site.

The proposed transfer station project would mitigate impacts to Pygmy cypress forest (S2) at a ratio of 30:1 through preservation, mitigating the project impact to less than significant. In addition, the project would not result in a cumulatively considerable contribution to a cumulative impact on Pygmy cypress forest (S2), as explained on page 3.4-49 of the DEIR. With the revised mitigation (see Section 2 Revisions to the Draft EIR), and increased ratio, the project's contribution to the cumulative impact is more than fully mitigated.

Master Response #7 – Hydrology and Water Quality

The project would incorporate all necessary drainage and stormwater management systems, and would comply with all stormwater system design, construction, and operational requirements mandated by DEIR Mitigation Measures HWQ-1a, HWQ-1b, and HWQ-4, and Mendocino County and Regional Water Quality Control Board (RWQCB) regulations. In combination, the project's stormwater management components, and compliance with mitigation measures and regulatory requirements act to preclude potentially adverse drainage and stormwater runoff impacts.

More specifically, the project drainage concepts would maintain the site's primary drainage patterns, and would modify and enhance drainage areas in order to adequately convey and discharge stormwater from new impervious surfaces on the project site. The project would provide connection to existing systems to the south in the least invasive manner possible. Stormwater conveyance capabilities and capacities provided by the project would ensure that post-development stormwater runoff flow rate and velocities do not substantively exceed pre-development conditions.

Stormwater discharges from the project, during both construction and operations, are required to comply with applicable provisions and performance standards stated in the National Pollutant Discharge Elimination System (NPDES) permit. As required by the NPDES permit, County and RWQCB requirements, waste materials would not be discharged to drainage areas. Compliance with these and other state and regional water quality permitting requirements would ensure the control of pollutants entering the stormwater system and thereby receiving waters.

Stormwater on the project site would be collected by bioswales that surround the proposed transfer station facility, and are included in the project footprint for impact calculations. Bioswales are a shallow depression created in the earth to accept and convey stormwater runoff. They use natural means, including vegetation and soil, to treat stormwater by filtering out contaminants being conveyed in the water. Bioswales lined with grass or other vegetation require channel velocities below five feet per second (fps), in order to prevent detrimental scouring of the channel. According to the hydrologic analysis that was performed for the project site, the bioswales need to be at least two feet deep, relatively flat, and would experience channel velocities of approximately three fps for the design storms that were analyzed. The bioswale analyses assumed no stormwater infiltration.

Once stormwater is collected in the bioswales it is then conveyed to the project's two detention basins. Detention basins are a common Best Management Practice for managing stormwater runoff. They are used to temporarily detain sediment-laden stormwater under quiescent conditions, allowing sediment to settle out before the runoff is released. The detention basins would be designed to completely drain within 24 to 96 hours (also referred to as "drawdown time"). The 24-hour limit is to provide adequate settling time; the 96-hour limit is specified to mitigate vector control concerns (e.g., mosquitoes). Properly designed and maintained detention basins can trap a significant amount of the sediment that flows into them. However, traditional basins do not remove all inflowing sediment. Therefore, the project would also employ erosion control practices (i.e., temporary seeding and mulching) to reduce the amount of sediment flowing into the basin. A key component to a properly functioning detention basin is the outlet structures, which are designed to prevent erosion and scouring of the embankment and receiving water way. The outlet structures would be armored (e.g., riprap lined or equivalent) and would be designed to evenly spread stormwater where appropriate and slow velocities to prevent erosion and re-suspension of sediment (see revised Mitigation Measure HWQ-4, in Section 2 Revisions to the Draft EIR). Specifically, the northern most detention basin would have a vertical outlet pipe located within the detention basin that is connected to a pipe manifold that discharges stormwater in a regulated manner through a minimum of four equally spaced discharge pipes. By spacing these diffuser pipes a minimum of 25 feet from each other and discharging into an existing drainage located in the Bishop Pine Forest, stormwater infiltration will be promoted while not impacting the pygmy forest. The southernmost detention basin will utilize a similar approach to managing stormwater, but will only consist of one outlet pipe that discharges directly to the existing drainage swale on Highway 20. To be conservative, the detention basin analyses performed in the hydrologic report assumed no infiltration.

The design of the facility's stormwater management system would also incorporate Low Impact Development (LID) strategies including minimization of the amount of stormwater generated and treated, detention in vegetated bioswales, rain gardens, and an oil/water separator acting to further reduce the rate and quantity of stormwater discharges, while providing treatment of stormwater flows and elimination/reduction of pollutant discharges.

The Local Enforcement Agency's Solid Waste Facilitates permit for the proposed project would prohibit the discharge of drainage containing solids, wash water, or leachate from solid wastes (14 CCR Article 6). Possible stormwater and facility water quality contaminants would be controlled by the transfer station's design features (e.g., fully enclosed facility, leachate collection and containment, and bioswales and detention basins) and by the implementation of a Stormwater Pollution Prevention Plan for both construction and operations as described in Mitigation Measure MWQ-1. The construction of a septic tank and leachfield is subject to the Mendocino County Department of Public Health review and approvals. So, as not to impact groundwater quality or contribute to pollutant loads in stormwater discharges from incidental wastewater resulting from floor clean-up activities, all contact water would be managed and stored in a wastewater tank. In addition, the Transfer Station load-out tunnel would be equipped with an internal plumbing system to collect stormwater runoff or liquids that may migrate to the sub-grade portion of the project area. This drainage would be stored on-site and hauled away by a qualified waste handler in accordance with the project's Industrial Waste Discharge Permit requirements.

4.2 Written Comments and Response to Individual Comments

This section includes responses to specific comments received during the comment period. Included are copies of the written comments received by the MSWMA through March 26, 2015, including oral comments (summarized) received at the public hearing held on March 19, 2015. Comment letters are listed from “A” to “Z,” then oral comments from “AA” through “SS,” and each comment within each comment letter is numbered (e.g., A-1 is comment letter A, comment 1). Responses to each comment follow the comment letter, with the letter and number corresponding with the comment letter and number. Comments which do not raise environmental issues or comment on the adequacy of the DEIR, but merely provide information, or are introductory or conclusory statements receive “comment noted” in the response.

February 24,2015

Mendocino Solid Waste Management
3200 Taylor Drive, Ukiah,CA 95482
Att. Mike Sweeney

My concerns regarding the proposed relocation on Highway 20 for a new solid waste transfer area are as follows:

1. The location, if established, shall have and maintain such safety measures that are required to insure the purity of all existing ground water.
2. Such measures are to be continually maintained and evaluated and the results reported to the public on a regular basis.
3. These measures shall be enforced for as long as the proposed transfer station remains in operation.
4. During the operation of the transfer station any negative effects disclosed regarding ground water quality shall be immediately corrected or operation of the transfer station shall be stopped.

A-1


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Letter A – Eugene Dwyer - Response to Comments

Response A-1

Like any transfer station, this project would be strictly prohibited from releasing water that has come into contact with solid waste, as described in the DEIR on page 3.9-11, which will result in protection of groundwater resources. Transfer stations are regularly inspected by the County Environmental Health Division to ensure compliance. The solid waste handling activities would be performed under a fully enclosed building limiting rainwater contact with waste handling activities. In addition, Mitigation Measure HWQ-1b Industrial Storm Water General Permit, would protect water quality by regulating the sources of pollution that affects the quality of industrial storm water discharges. Groundwater information collected at the site, as required by the County or State, would be submitted to the regulatory agencies and would be available to the public.



DEPARTMENT OF FORESTRY AND FIRE PROTECTION

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Ref: 5000 Resource Management
Date: March 9, 2015

Mr. Mike Sweeney
Caspar JPA of County of Mendocino & City of Ft. Bragg
Mendocino Solid Waste
3200 Taylor Drive
Ukiah, Ca 95482

Project Name: Central Coast Transfer Station
SCH #: 2014012058
Document Type: Draft Environmental Impact Report
Potential Area of Concern: Fire Protection, Timberland Conversion

CAL FIRE Mendocino Unit Comments:

Fire Protection: The project area is located in State Responsibility Area (SRA). Ref.: <http://www.arcgis.com/home/webmap/viewer.html?webmap=6807e4fff9024e35bf88a189560d2538>. Fire protection services are currently provided by CAL FIRE & the Ft. Bragg Volunteer Fire Department. No change is expected as a result of proposed transfer station construction.

B-1

Timber Harvest Plan (THP) & Timberland Conversion Permit (TCP): A portion of the transfer station project area is located on timberland [Ref. Public Resources Code (PRC) 4526], requiring timber operations for the cutting and removal of timber [PRC 4527]. A THP for the harvesting of timber [PRC 4581] and associated TCP [Title 14 CA Code of Regulations (CCR) 1103] must be submitted to CAL FIRE. Both the THP and TCP must be prepared by a registered professional forester (RPF) [Ref. PRC 4581].

B-2

If you have any questions, please contact Louis Sciocchetti at (707) 961-1494.

Christopher P. Rowney, Chief
Mendocino Unit

by: Louis F. Sciocchetti
Division Chief, Forest Practice
Registered Professional Forester #2368

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Letter B – CalFire – Response to Comments

Response B-1

Comment noted.

Response B-2

Comment noted. A Timber Harvest Plan and Timberland Conversion Permit are listed in Section 2.6 Required Permits and Approvals, of the DEIR.

ROBERT A. SCAGLIONE
Air Pollution Control Officer

DONNA ROBERTS NASH
Program Coordinator



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Ukiah, California 95482
(707) 463-4354 Fax: 463-5707
mcaqmd@co.mendocino.ca.us
www.mendoair.org

MENDOCINO COUNTY
AIR QUALITY MANAGEMENT DISTRICT

March 11, 2015

Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

Subject: Central Coast Transfer Station Draft Environmental Impact Report,
Dated February 2015

Dear Mr. Sweeney,

The District has reviewed the Draft EIR for the proposed Central Coast Transfer Station, SCH# 2014012058, and has the following comments:

- | | |
|--|-----|
| <p>1. Section 2.6 contains a list of required permits for the proposed project. Please be advised that grading and site preparation operations that involve areas greater than 1 acre or 1 mile of road will require that an application for a Large Grading Operation Permit from the District in accordance with District Regulation 1, Rule 1-200. (District Application Form # 207.27)</p> | C-1 |
| <p>2. Section 3.3.3, Evaluation Criteria and Significance Thresholds, refers to the Districts recommended use of the Bay Area Air Quality Management District's CEQA guideline thresholds adopted in 2010 for projects in Mendocino County. That recommendation is no longer applicable. Please refer to and use the MCAQMD Interim CEQA Criteria and GHG Pollutant Thresholds advisory (copy enclosed) and the Reference Table for Adopted CEQA Thresholds of Significance (copy enclosed) which may differ from the Bay Area AQMD guidelines. The enclosed referenced documents are also available at www.mendoair.org/planning/ceqa.</p> | C-2 |
| <p>3. Impact AQ-1: Impacts and Mitigation Measures. Section 3.3.5, refers to the Bay Area Air Quality Management District's recommendations for "basic construction mitigation measures," which may not meet the requirements of District. Any and all dust mitigation measures must meet the requirements of District Regulation 1, Rule 1-430 (copy enclosed).</p> | C-3 |
| <p>4. Mitigation Measure AQ-1: Air Quality Control Measures During Construction. The Best Management Practices outlined under this section do not meet the minimum requirements of District Regulation 1, Rule 1-430 (copy enclosed).</p> | C-4 |

Mike Sweeney, General Manager Page 2
Mendocino Solid Waste Management Authority

March 11, 2015

5. **Mitigation Measure AQ-2: Select Equipment during Construction to Minimize Emissions.** The Mitigation measure calls for all diesel powered off-road equipment larger than 50 horsepower and operating at the site for more than two days continuously shall meet U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent. The California Air Resources Board (CARB) requires that all self-propelled off-road diesel vehicles 25 horsepower or greater used in California are subject to the Regulation for In-Use Off-Road Diesel Fueled Fleets. This includes vehicles that are rented or leased. Therefore, all off-road vehicles used for the construction or operation at this facility, regardless of time spent on site, must be registered with CARB and display the appropriate registration Equipment Identification Number (EIN) on the vehicle. Additionally, portable diesel powered equipment that is 50 horsepower or greater, or if less than 50 horsepower, 90 horsepower in aggregate, used during the construction of the facility, must be either registered with the CARB Portable Equipment Registration Program (PERP) or obtain a permit from the District.

C-5

If you have any questions or comments concerning these items, please call the District office at 707/463-4354.



Robert A. Scaglione
Air Pollution Control Officer



ADVISORY

DISTRICT INTERIM CEQA CRITERIA AND GHG POLLUTANT THRESHOLDS

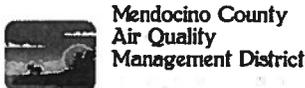
Previously, Mendocino County Air Quality Management District has issued a recommendation that agencies use adopted Bay Area CEQA thresholds for projects in Mendocino County. In an effort to resolve any conflicts or issues between Bay Area standards and MCAQMD rules, the following clarifications are offered:

- ◇ **Indirect Source Rule** – The Districts Indirect Source Rule [Regulation 1, Rule 1-130(i)(1)] has established a definition of an “Indirect Source” which sets a higher standard than the Bay Area Threshold for ROG and NOx emissions. It is more appropriate to use this local standard although it was not adopted as a CEQA threshold. These standards should be used for “indirect operational emissions” such as vehicle trips.
- ◇ **Stationary Source Emissions Levels** – MCAQMD has higher allowable emissions from stationary sources because local air quality meets all Federal Standards. The BAAQMD standards for NOx and ROG were directly based on Federal Standards for permitting in the Bay Area. Projects in Mendocino County should use the MCAQMD figures for NOx and ROG of 40 TPY.
- ◇ **CO Standards** – MCAQMD’s indirect and permitting rules allow 125 TPY of CO. Local hot spots of CO resulting from traffic congestion must still be accounted for using a health based screening level approach.
- ◇ **Greenhouse Gas** – No GHG or Risk Reduction Plans have been adopted using CEQA, therefore no local projects can use those documents to support a CEQA determination.
- ◇ **Risk Exposure** – Modeling of Risk Exposure should be conducted using EPA, ARB, or CAPCOA approved screening level modeling software. The District has no freeways or high volume roadways which need buffer zones at this time.
- ◇ **Odor** – The odor significance findings used by the BAAQMD do not conform to the District’s enforcement policy for odor complaints. Please contact the District for an evaluation for odor significance from existing facilities.

See the District’s website www.mendoair.org or phone 707-463-4354 for more information

C-5
Cont

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| Adopted Air Quality CEQA thresholds of Significance – June 2, 2010 | | |
|---|--------------------------------|---|
| POLLUTANT | CONSTRUCTION RELATED | OPERATIONAL RELATED |
| Risk & Hazards – New Source (Cumulative Thresholds) | Same as Operational Thresholds | Cancer > 100 in million (from all local sources) Non-Cancer >10.0 Hazard Index (chronic) (from all local sources) PM _{2.5} >0.8 µg/m ³ annual average (from all sources) <u>Zone of Influence:</u> 1,000-foot radius from fence line of source or receptor |
| Risk & Hazards – New Receptor (Cumulative Thresholds) | Same as Operational Thresholds | Cancer > 100 in million (from all local sources) Non-Cancer >10.0 Hazard Index (chronic) (from all local sources) PM _{2.5} >0.8 µg/m ³ annual average (from all sources) <u>Zone of Influence:</u> 1,000-foot radius from fence line of source or receptor |
| Accidental Release of Acutely Hazardous Air Pollutants | None | Storage or use of acutely hazardous materials located near receptors or receptors located near stored or used acutely hazardous materials considered significant |
| Odors | None | District determination |
| Plan Level | | |
| Criteria Pollutants & precursors | None | 1. Consistency with current Air Quality Plan control measures 2. Projected VMT or vehicle Trip increase is projected population increase ≤ |
| GHG's | None | Compliance with Qualified Greenhouse Gas Reduction Strategy (or similar criteria included in General Plan) OR 6.6 MT Co ₂ e/SP/yr (Residents + employees) |
| Risks & Hazards | None | Overlay zones around existing and planned sources of TACs |
| Odors | None | Identify locations of odor sources in general plan |
| Accidental Release of Acutely Hazardous Air Pollutants | None | None |
| Regional Plans (Transportation & Air Quality Plans) | | |
| GHG's, Criteria Air Pollutants and Precursors, and Toxic Air Contaminants | None | No net increase in emissions |

C-5
Cont

CO= carbon monoxide CO₂e= carbon dioxide equivalent GHGs= greenhouse gases, lb/day= pounds per day, MT= metric tons, NO_x= oxides of nitrogen PM_{2.5}= fine particulate matter with aerodynamic resistance diameter of 2.5 microns or less, PM₁₀= respirable particulate matter with aerodynamic resistance diameter of 10 microns or less PPM= parts per million ROG= reactive organic gases, SP= service population, tpy= Tons per year yr= year



| Adopted Air Quality CEQA thresholds of Significance – June 2, 2010 | | | |
|--|----------------------------------|---|---|
| POLLUTANT | CONSTRUCTION RELATED | OPERATIONAL RELATED | |
| Criteria Polutants and Precursors (Regional) | Average Daily Emissions (lb/day) | Indirect Average Daily Emissions (lb/day) | Stationary Maximum Annual Emissions (tpy) |
| ROG | 54 (Bay Area AQMD) | 180 | 40 |
| NOx | 54 (Bay Area AQMD) | 42 | 40 |
| PM ₁₀ | 82 | 82 | 15 |
| PM _{2.5} | 54 | 54 | 10 |
| Fugitive Dust - PM ₁₀ /PM _{2.5} | Best Management Practices | Same as Above | |
| Local CO | None | 125 tpy | |
| GHG's Projects other than Stationary Sources | None | 1,100 Metric Tons of CO ₂ e/yr OR 4.6 Metric Tons CO ₂ e/SP/yr (residents + employees) | |
| GHG's Stationary Sources | None | 10,000 MT/yr | |
| Risk & Hazards – New Source | Same as Operational Thresholds | Increased cancer risk >10 in a million Increased non-cancer risk >1.0 Hazard Index (Chronic or Acute) Ambient PM _{2.5} increase >3.0 µg/m ³ annual average <u>Zone of Influence:</u> 1,000-foot radius from fence line of source or receptor | |
| Risk & Hazards – New Receptor (Individual Project) | Same as Operational Thresholds | Increased cancer risk >10 in a million Increased non-cancer risk >1.0 Hazard Index (Chronic or Acute) Ambient PM _{2.5} increase >3.0 µg/m ³ annual average <u>Zone of Influence:</u> 1,000-foot radius from fence line of source or receptor | |

C-5
Cont

Air District policy is that adopted thresholds apply to projects for which a Notice of Preparation is published, or environmental analysis begins, on or after the applicable effective date. The adopted CEQA thresholds – except for the risk and hazards thresholds for new receptors – are effective June 2, 2010. The risk and hazards threshold for new receptors are effective January 1, 2011.

The District recommends that for construction projects that are less than one year duration, Lead Agencies should annualize impacts over the scope of actual days that peak impacts are to occur, rather than the full year.

CO= carbon monoxide, CO₂e= carbon dioxide equivalent, GHGs= greenhouse gases, lb/day= pounds per day, MT= metric tons, NOx= oxides of nitrogen, PM_{2.5}= fine particulate matter with aerodynamic resistance diameter of 2.5 microns or less, PM₁₀= respirable particulate matter with aerodynamic resistance diameter of 10 microns or less, PPM= parts per million, ROG= reactive organic gases, SP= service population, tpy= Tons per year, yr= year

RULE 1-430 - FUGITIVE DUST EMISSIONS

This Rule prohibits the handling, transportation, or open storage of materials, or the conduct of other activities in such a manner that allows or may allow unnecessary amounts of particulate matter to become airborne except under the following circumstances:

- (a) Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to, the following provisions:
 - (1) Covering open bodied trucks when used for transporting materials likely to give rise to airborne dust.
 - (2) Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials.
 - (3) The screening of all open-outdoor sandblasting and similar operations.
 - (4) The use of water or chemicals for the control of dust during the demolition of existing buildings or structures.
- (b) The following airborne dust control measures shall be required during all construction operations, the grading of roads, or the clearing of land
 - (1) All visibly dry disturbed soil road surfaces shall be watered to minimize fugitive dust emissions.
 - (2) All unpaved surfaces, unless otherwise treated with suitable chemicals or oils, shall have a posted speed limit of 10 miles per hour.
 - (3) Earth or other material that has been transported by trucking or earth moving equipment, erosion by water, or other means onto paved streets shall be promptly removed.
 - (4) Asphalt, oil, water or suitable chemicals shall be applied on materials stockpiles, and other surfaces that can give rise to airborne dusts.
 - (5) All earthmoving activities shall cease when sustained winds exceed 15 miles per hour.
 - (6) The operator shall take reasonable precautions to prevent the entry of unauthorized vehicles onto the site during non-work hours.
 - (7) The operator shall keep a daily log of activities to control fugitive dust.
- (c) During recreational activities adequate dust control shall be maintained to prevent dust from migrating off the property where the activity is occurring.

C-5
Cont

[Amended 5/6/03]

Letter C – Mendocino County Air Quality Management District - Response to Comments

Response C-1

The lead agencies are aware that a Large Grading Operation Permit from the Mendocino County Air Quality Management District (AQMD) is required. Section 3.3.2 (page 3.3-6) of the DEIR has been revised to include a discussion of this requirement.

Response C-2

The DEIR used the AQMD's interim thresholds published on their website at http://www.co.mendocino.ca.us/aqmd/pdf_files/ceqa-criteria-and-ghg.pdf. These thresholds are still published on the website and the thresholds provided in the comment letter cannot be found in the web link provided. The hard copy thresholds that the AQMD provided in their comment letter have been incorporated into this RTC through modifications to Table 3.3-3 on page 3.3-8, Table 3.3-4 on page 3.3-11, and Table 3.3-5 on page 3.3-12, as originally found in the DEIR. Refer to Section 2 Revisions to the Draft EIR, of this Final EIR.

Response C-3

Additional text has been added to DEIR page 3.3-11, and Mitigation Measure AQ-1 has been revised to include requirements under AQMD Regulation 1, Rule 1-430 on 3.3-12 of the DEIR. Refer to Section 2 Revisions to the Draft EIR, of this Final EIR.

Response C-4

Please see Response C-3.

Response C-5

The construction period emissions were modeled using CalEEMod version 2013.2.2, which is assumed to include the latest CARB OFFROAD model assumptions. The unmitigated emissions are assumed to include the effect of the CARB requirements. Mitigation Measure AQ-2 is a stricter requirement that, in lieu of the CARB requirements, requires that all equipment larger than 50 horsepower meet U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent. All off-road vehicles used for construction or operation would be registered with CARB and would display vehicle identification numbers. Additionally, depending on horsepower, portable diesel powered equipment would either be registered with CARB or obtain a permit from the District.

DEPARTMENT OF TRANSPORTATION

DISTRICT 1, P. O. BOX 3700
 EUREKA, CA 95502-3700
 PHONE (707) 441-4540
 FAX (707) 441-5869
 TTY 711



*Serious drought.
 Help Save Water!*

March 13, 2015

Mike Sweeney
 General Manager
 Mendocino Solid Waste Management Authority
 3200 Taylor Drive
 Ukiah, CA 95482

1-MEN-20-2.90
 Fort Bragg Transfer Station
 DB # 19336

Dear Mr. Sweeney,

Thank you for the opportunity to comment on the Draft Environmental Impact Report (DEIR) and associated Traffic Impact Study (TIS) for the proposed Central Coast Transfer Station in Mendocino County. The DEIR has been prepared by the Mendocino Solid Waste Management Authority (MSWMA) on behalf of the Caspar Joint Powers Agreement, the County of Mendocino and the City of Fort Bragg.

The project proposes to develop four acres along State Route (SR) 20, approximately three miles east of SR 1 in Mendocino County (1-MEN-20-2.90) for a municipal solid waste transfer station to serve the City of Fort Bragg and the surrounding coastal area. The property would contain an enclosed waste transfer building, a scale house, an outdoor recycling drop-off area, and a water well. The DEIR package includes a Traffic Impact Study (TIS) which notes that vehicular trips generated by the new facility will utilize SR 20 for access.

Caltrans has had the opportunity to work with the Mendocino Solid Waste Management Authority during the pre-development phase of this proposal and comment on the Notice of Preparation (NOP) application (letter sent February 12, 2104). We reiterate the comments in that letter and have the following comments for preparation of the next phase of this project:

D-1

Traffic Operations:

We concur with the recommendations outlined in Section 2.5.8 of the DEIR which reads, "SR 20 would be widened from the roadway to the centerline north to accommodate the acceleration and deceleration lanes, and for the new eastbound left-turn pocket and westbound right-turn pockets at the proposed access point" (page 2.0-6). However, the TIS states that "no mitigation is necessary" (Section 3.12.6, page 3.12-14). Construction of these improvements are a requirement for opening day.

The acceleration/deceleration dimensions listed below are based on Index 405.2 of the *Caltrans Highway Design Manual* (Chapter 400: Intersections At Grade), which can be found on our

Mike Sweeney
3/13/2015
Page 2

website at: <http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm>

- The left turn lane should be a minimum of 583-ft. (storage=100-ft., deceleration=483-ft.)
- The right turn lane should be a minimum of 375-ft. (storage=100-ft., deceleration=275-ft.)

D-2

Environmental:

Environmental staff have not yet completed their review of the document. It is possible that Caltrans will have additional comments regarding environmental concerns within our right of way during the encroachment permit process.

Encroachment Permits:

As noted in Section 2.6 of the DEIR, the applicant must acquire an approved encroachment permit for all work within the state right of way. Encroachment permit applications are reviewed for consistency with state standards and are subject to approval by the Department. Request for Caltrans encroachment permit application forms can be sent to Caltrans District 1 Permits Office, P.O. Box 3700, Eureka, CA 95502-3700, or requested by phone at (707) 445-6389. For additional information, the Caltrans Permit Manual is available online at: <http://www.dot.ca.gov/traffops/developserv/permits/>

D-3

We look forward to continue working with you as this project develops. If you have questions regarding the comments outlined in this letter or need further assistance, please contact me at (707) 441-4540 or tatiana.ahlstrand@dot.ca.gov.

Sincerely,



Tatiana Ahlstrand
Associate Transportation Planner
District 1 Office of Community Planning

Letter D – Caltrans – Response to Comments

Response D-1

The lead agencies appreciate the Department's comments on the EIR Notice of Preparation and on the DEIR. Roadway improvements to Highway 20 identified by Caltrans during the EIR scoping process have been fully incorporated into the design of the project. The proposed roadway improvements include widening Highway 20 near the subject site to accommodate acceleration and deceleration lanes per Caltrans standards, as well as the installation of a new eastbound left-turn pocket and a westbound right-turn pocket at the proposed site's access point. Because such improvements have been fully incorporated into the design of the project, they were evaluated as part of the project in the Traffic Impact Study, and were not identified as compensatory mitigation measures. Additionally, because these improvements were incorporated into the project design, they were analyzed throughout the entirety of the EIR for potential environmental impacts, and mitigated, where necessary.

Response D-2

No additional comments regarding environmental concerns within the Department's right of way have been provided. Therefore, a detailed response cannot be provided.

Response D-3

As noted in DEIR Section 2.6 (Required Permits and Approvals), page 2.0-8, an Encroachment Permit from Caltrans for improvements to Highway 20 has been identified as an applicable permit for the proposed project. The lead agencies appreciate the information about the application procedures, acknowledge the need for close coordination of the project with Caltrans staff, and will continue the coordination already initiated for the proposed project.

3/16/15

Dear Fort Bragg City Council, Board Of Supervisors & Mendocino Solid Waste Management

Unfortunately I will not be able to attend the meeting.

I strongly feel that the location of a new Transfer Station to a new location that is closer to the large population base is the right way to go.

It should be on a major road with the closest access to the major population center and to access to the shortest route to location that the refuse will be finally transferred to.

I have attended meetings and the site under consideration on Highway 20 was clearly the best choice to move into the future. We are seeing more growth in Fort Bragg with the possibility of a major shopping center being built. We need the proper infrastructure.

The county has spent hundreds of thousands of dollars to identify this location over 9 years.

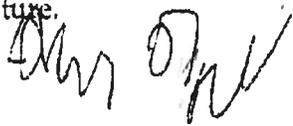
The state has agreed after much legislation to make the land transfer happen.

The site should not be on a small rural road that comes off the highway at a turn off that Cal Trans has said they will not approve for the new station.

The traffic added to Highway 20 will be negligible and will be safe.

I personally have almost been killed 3 times over the years by refuse vehicles because the transfer station is in the wrong place on small rural roads.

I am trusting that the Fort Bragg City Council, Board Of Supervisors & Mendocino Solid Waste Management have done their homework and have made the best choice for our future.

Mickie Zekley 

43020 Road 409

Mendocino, CA 95460

707 964 4826

mickiezekley@gmail.com

E-1

00011

Letter E – Mickie Zekley – Response to Comments

Response E-1

Comment noted. The commenter expresses opinions that the location of the project on Highway 20 is the best site for the proposed project.

Statement by Erik Thorbecke, February 19, 2014 Presented to the Mendocino County Board of Supervisors, members of the Fort Bragg City Council and Mike Sweeney **amended on March, 18, 2015 after reading EIR.**

Allow me to introduce myself. I am Erik Thorbecke and reside half the year on my wife's Cherry Cove Ranch which borders the proposed transfer station on Highway 20. Cherry Cove Ranch has been in Charla's family ever since her grandfather who had emigrated from Norway bought the property in 1892 (we still have the deed signed by President Benjamin Harrison). Charla grew up on the ranch and we were married on the ranch 60 years ago. It is one of the few remaining private redwood forests in the area (the oldest redwood tree on our ranch is over one thousand year old).

F-1

Charla and I tried hard over the years to enhance the natural beauty of the ranch even when we were away at Cornell University where I was a professor of economics. When Charla came back to settle permanently here in 2000, her goal was to continue to try to beautify the ranch. Your own mayor lived with his family on the ranch for a few years when he first moved back to Fort Bragg. He and his family contributed to develop the ranch and can testify to its natural beauty. The reward for all these efforts is the proposal to place a dump next to our land.

While the proposed transfer station would strongly negatively affect the ranch, we are also very concerned about the potential negative environmental impact on Fort Bragg residents. Our principal concerns are: (i) the destruction of a part of the unique Pygmy forest; (ii) the impact on the municipal water supply which might be polluted because of possible seepage from the transfer station, (iii) increased traffic congestion that could lead to a higher incidence of accidents at a vulnerable section of Highway 20 marked by a sharp turn a couple of hundred yards east of the proposed station, and iv) the unfavorable impression on visitors and tourists of seeing a dump at the gateway of Fort Bragg on a highway which is a candidate to be a scenic highway.

F-2

F-3

F-4

We fully understand that the city needs a transfer station. We are convinced that there are better, less expensive, more environmentally-friendly alternatives such as Pudding Creek combined with the trash being moved by rail to Willits (both the

F-5

manager of the Pudding Creek station and the manager of the local train company are supportive of this option).

F-5
cont

As a professional economist (Ph.d. University of California, Berkeley; Professor of Economics, Cornell University) I feel strongly that the comparative study of the many potential sites for a transfer station was inadequate. What was needed was a cost-benefit analysis of each of the different potential sites. Although it is not easy to estimate the benefits and all the costs, this methodology allows one to select the alternative with the highest benefit-cost ratio. Without such a study the selection of the two ultimate sites (Caspar and Highway 20) was quite arbitrary. The Mendocino Waste Management Authority was remiss in not undertaking such a cost-benefit study.

F-6

Therefore, and in view of the fact that the EIR does not mitigate a number of unfavorable negative effects of proposed transfer station (such as the destruction and negative impact on the unique Pygmy forest and the possible pollution of the aquifer serving the Fort Bragg municipal water system), I recommend that the Mendocino Board of Supervisors and the Fort Bragg City Council postpone a decision on the site of the transfer station until such a study is completed.

F-7

Erik Thorbecke,

Cherry Cove Ranch, 29901 Highway 20, Fort Bragg CA, 95437

Letter F – Erik Thorbecke – Response to Comments

Response F-1

The initial part of this comment is introductory and does not raise any specific environmental points or issues. The DEIR concludes that surrounding property would not be substantially impacted after implementation of proposed project mitigation measures. Please see Master Response #1 – Mitigation for Pygmy Cypress Forest. Impacts to Pygmy cypress forest have been minimized and avoided where possible. The project avoids the more rare Pygmy cypress forest (short morphotype) / forested wetlands, and provides mitigation in the form of permanent preservation for impacts to individual pygmy cypress trees.

Response F-2

Please see Master Response #6—Summers Lane Reservoir. Also, The Noyo River is located more than one mile away from the project site. The intervening terrain is covered by dense forest vegetation which would block, absorb and/or filter any surface flow from the project site. There are no creeks on the project site, which is relatively flat. The topography of the site together with the design features outlined in the DEIR (Section 2) and the stormwater runoff mitigation measures in DEIR Section 3.9, support the conclusion that the project would not have any impact on the Noyo River or the municipal water supply.

Response F-3

As discussed in DEIR Section 3.12 (Transportation), pages 3.12-8 and 3.12-9, the proposed project would increase the number of vehicles traveling along Highway 20 on a daily basis. The majority of these trips would be self-haul customer trips, which along with franchise hauler trucks, are expected to arrive and depart from the west of the proposed site. Transfer truck outhaul traffic is anticipated to arrive and depart from the east of the project site. As noted in Table 3.12-5 on page 3.12-8 of the DEIR, approximately two transfer truck outhaul trips are anticipated to occur per day which would traverse the portion of Highway 20 mentioned by the commenter.

As discussed in DEIR Appendix H (Traffic Impact Study), Caltrans District 1 performed a safety analysis for the quarter-mile segments of Highway 20 located on either side of the proposed project site. The analysis covered a three year time period between 2009 and 2011. The analysis identified two collisions within the three year period, which corresponded to a total collision rate within the segment analyzed of 48 percent less than the statewide average.

As discussed in DEIR Section 3.12 (Transportation), page 3.12-10, Highway 20 is currently traversed by similarly sized haul trucks as would occur under the proposed project, and the new improvements would provide an adequate line of sight. The project would not introduce vehicles that are incompatible with current or anticipated roadways.

Response F-4

Please see Master Response #4 – Aesthetics Impacts.

Response F-5

Please see Master Response #3 – Alternatives Evaluated and DEIR Sections 4.4.2 and 4.4.3 which provide clarification on the various alternatives.

Response F-6

The City and County could seek a cost-benefit analysis as a separate inquiry from the EIR. Cost-benefit analyses are not required or necessarily relevant to an EIR, which exists to analyze environmental impacts associated with the proposed project rather than financial issues. Costs are relevant insofar as they might render an alternative infeasible. As discussed in Master Response #3 – Alternatives Evaluated, costs are not known to render any of the two alternatives as infeasible.

Response F-7

Please see Response F-2 and Master Responses #1 – Mitigation for Pygmy cypress forest and #7 – Hydrology and Water Quality.

RICK CHILDS

DOLLAR SAVINGS FROM NEW HWY 20 TRANSFER SITE IN TRANSPORTATION COSTS

Self-Haul Savings

| | |
|-----------------------------|----------------|
| Annual Miles to Caspar Site | 290,000 |
| Annual Miles to Hwy 20 | <u>128,000</u> |
| # Reduced Miles | 162,000 |

@ \$.50/mile = \$81,000 annually -- to self-haul customers in reduced driving costs

Large Garbage Truck Savings

| | |
|---|----------------|
| Current Miles (from Caspar and Pudding Creek) | 278,000 |
| New Truck Miles (from Hwy 20) | <u>161,000</u> |
| Reduced garbage truck miles* | 117,000 |

G-1

117,000 truck miles, divided by 30 mph = 3900 fewer truck-driving hours

3900 hours @ \$90/hour = **\$350,000 reduced transportation costs**

| | |
|---|------------------------------------|
| Transfer Site Operational Expenditures: | \$1,800,000 |
| Transportation Expense Savings | \$ 350,000 = 20 % reduction |

* 137,000 total reduced garbage truck miles from Caspar/Pudding Creek/ Albion for all garbage truck operations, less 20,000 increased miles for curbside trucks to go to Hwy 20 Transfer Site instead of Pudding Creek = 117,000 net fewer miles
(source: page 157 of EIR)

Letter G – Rick Childs’ Estimate of Cost Savings - Response to Comments

Response G-1

Comment noted. This informative letter simply identifies the dollar savings from the Highway 20 transfer station site in transportation costs.

Mike Sweeney

From: "Barbara and David Brown" <dbb@mcn.org>
Date: Friday, March 20, 2015 9:07 AM
To: <sweeney@pacific.net>; <dturner@fortbragg.com>; <lpeters2@fortbragg.com>; <sdeitz@fortbragg.com>; <dhammerstrom@fortbragg.com>; <mcimolino@fortbragg.com>
Subject: Proposed Hwy 20 Transfer Station

Dear Mike Sweeney and Fort Bragg City Council Members,
I was not well last night and missed the meeting, but I wanted to voice my concerns:

I live on Benson Lane and my concern is this proposed industrial plant will lower the water table in our residential area once the Transfer Station starts digging wells. I am also concerned about the possible contamination of well water.

We are in a SEVERE DROUGHT - why would the city council propose this. It seems as if the transfer station should be using "Fort Bragg" water and be located at the current Waste Management site. Also, why ruin a lovely residential area with an Industrial Water Treatment Station :(

H-1

Waste Management will probably get the contract and they want to do it at their current location, which is also close to the Skunk for transportation.

H-2

I cannot vote for City Council, but for some reason, the City Council can alter my living conditions.

Who represents my concerns?

Thank you for your time,

Barbara Brown

Letter H – Barbara and David Brown - Response to Comments

Response H-1

Water will be needed for one employee restroom, to fill the on-site fire protection storage tank, and occasional washdown of dump areas (the normal cleaning procedure will be sweeping). Water demand for the project should be no more than a typical single-family residence. Assuming the transfer station will be operated by 6 employees and a conservative water demand of 100 gallons per person per day the project would require approximately 600 gallons per day. Therefore, the anticipated water demand for the project is expected to be less than 1,000 gallons per day, mainly for employee use. This is considered conservative given that the facility is only operated during the day and does not have a kitchen, showers, or the need for landscape irrigation.

As described in Section 3.9 of the DEIR, under Impact HWQ-2, a groundwater study was performed for the proposed Mendocino Coast Regional Park and Golf Course project adjacent to, and north of the project site. Prepared by Lawrence and Associates (March 2005), the study included the installation of a pumping and observation well. The wells were drilled to a maximum depth of 91 feet below ground surface (bgs), where bedrock was encountered. The pumping and observation wells were constructed approximately 1,800 feet north of the project site and within the same geologic unit (Lower Caspar Orchard marine terrace sediments) underlying the project site. Testing of the wells determined groundwater was approximately 20 feet bgs and produced a long term yield of four to five gallons per minute (gpm) for a 2-inch diameter well with a 40-foot well screen. In the geotechnical survey in 2012 by LACO Associates, groundwater was encountered at a depth of only 10 feet. (DEIR, Appendix E, p. 7).

The study area of the Mendocino Coast Regional Park and Golf Course, while considerably larger than the project area included the location of the proposed project. A total of 24 wells, pumping at an average rate of 10 gpm were evaluated to access the possible impacts to groundwater. It was determined that neither the direction nor magnitude of the groundwater gradient changed significantly with pumping. The groundwater model predicted that the water pumped was approximately 92 percent from aquifer storage and about eight percent from a reduction in stream flow from Newman Gulch. It was determined that the reduction in flow was less than the standard significance of 10 percent. In addition, the groundwater model showed that pumping from the wells would not cause the standards of significance for groundwater level or quantity to be exceeded. Since water demands for the proposed transfer station would be provided from a two gpm well (half of the demand from the above mentioned analysis) impacts to the underlying aquifer are considered to be negligible.

The well that supplies water to the project would be constructed according to California Well Standards and would be designed by an appropriately licensed professional, such as a licensed professional engineer. The well design would be in compliance with current regulations (e.g., requiring a sanitary seal) and would be submitted to the County for review and approval. Construction quality assurance oversight by an appropriately licensed professional would be performed during construction to ensure that the well is constructed correctly, so as to protect human health and the environment. The project does not include an industrial water treatment station.

Response H-2

Comment noted.

March 20, 2015



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Mendocino Solid Waste Management Authority
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**Central Coast Transfer Station Draft Environmental Impact Report
(SCH #2014012058), Mendocino County, California**

Dear Mr. Sweeney,

On behalf of the members, board, and staff of Humboldt Baykeeper and Northcoast Environmental Center, I respectfully submit these comments on the Draft Environmental Impact Report (DEIR) for the Central Coast Transfer Station.

The Northcoast Environmental Center works to promote understanding of the relations between people and the biosphere and to conserve, protect, and celebrate terrestrial, aquatic, and marine ecosystems of northern California and southern Oregon.

The NEC's principal concerns with the DEIR are how it fails to adequately address and mitigate significant impacts to rare natural communities, specifically Mendocino Pygmy Cypress Woodland and Northern Bishop Pine Forest.

The preferred alternative for this project is located on a 17-acre parcel on Highway 20, currently owned by Jackson Demonstration State Forest. This parcel is dominated by the two above-mentioned natural communities. Both of these natural communities are exceedingly rare and threatened – in California and globally – and are in much greater need of protection than Mendocino County is currently affording them, especially outside of the Coastal Zone.

The California Natural Diversity Database (CNDDDB) has assigned Mendocino Pygmy Cypress Woodland a ranking of G2:S2, meaning it is a rare and threatened natural community both state-wide and globally. Northern Bishop Pine Forest also has a CNDDDB ranking of G2:S2.

The Project, as proposed, would remove over four acres of Northern Bishop Pine Forest. The DEIR however, mistakenly identifies much of the forest at the proposed project site as the more common "Bishop Pine Forest," which as a lower CNDDDB rank of G3:S3. Consequently, the DEIR does not propose mitigations for this rare and threatened Northern Bishop Pine Forest that would be lost if this project were situated at this location. This oversight of a significant environmental impact constitutes a substantial error in the DEIR's impact analysis. The California Environmental Quality Act (CEQA) Appendix G specifically identifies impacts to sensitive natural communities as a potentially

I-1

significant impact needing to be disclosed and mitigated for in environmental documents such as DEIRs.

↑ I-1
cont

For impacts to Mendocino Pygmy Cypress Woodland, the DEIR proposes only a small conservation easement of about three-and-one-half acres on a parcel partially in the Coastal Zone and with apparently little development threat. The DEIR includes little information on the conservation easement, such as who would hold the easement, the size of the endowment to manage the easement, and what the land management plan and use restrictions would be.

I-2

The NEC finds that the DEIR does not adequately mitigate for the loss of these two rare natural communities, and that the impacts to them are cumulatively considerable, pursuant to CEQA Sections 15065 and 15130.

For these reasons, the NEC believes the DEIR is substantially flawed, both in its analysis and determination of significant impacts from the proposed project and because the mitigations for these significant impacts are clearly inadequate, or in the case of Northern Bishop Pine Forest, entirely absent. Consequently, the NEC strongly recommends the DEIR be substantially revised and recirculated.

We also recommend that the revised DEIR give greater consideration to other project alternatives at sites that are already developed or disturbed and outside of rare and threatened natural communities such as Mendocino Pygmy Cypress Woodland and Northern Bishop Pine Forest.

I-3

Please keep us informed of future opportunities to review and comment on this proposed project.

Thank you for the opportunity to comment on the Central Coast Transfer Station Draft Environmental Impact Report.

Sincerely,

Dan Ehresman
Executive Director

Letter I – Northcoast Environmental Center – Response to Comments

Response I-1

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest and Master Response #2 – Classification of Bishop Pine Forest.

Response I-2

The mitigation area has been enlarged to a 28.3 acre parcel that is zoned Rural Residential, 19.5 acres of which are mapped as Cypress Pygmy Forest (short, intermediate, and tall morphotypes), as well as Bishop Pine Forest and other habitats, resulting in an overall mitigation ratio of 30:1 for pygmy forest and associated sensitive-listed tree species. Please see Master Response #1 – Mitigation for Pygmy Cypress Forest. Section 3.4.6 of the DEIR discusses cumulative impacts to pygmy cypress trees as well as regional significance of impacts to Bishop Pine Forest, and Master Response #6 – Summers Lane Reservoir additionally responds to the portion of this comment on cumulative impacts to natural communities.

Response I-3

The City and County must weigh not only environmental considerations concerning vegetation, but also other considerations such as transportation, GHG emissions, and separation from other land uses. One environmental consideration cannot be prioritized to the exclusion of all others. The EIR needs only to disclose environmental information, not make the difficult choices that are the purview of the City Council and Board of Supervisors. Please see also Master Response #3 – Alternatives Evaluated.



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March 20, 2015

Mike Sweeney
 Mendocino Solid Waste Management Authority
 3200 Taylor Drive
 Ukiah, CA 95482

Subject: Mendocino Solid Waste Management Authority
 Central Coast Transfer Station
 Mendocino County Planning and Building Services Comments

Mr. Sweeney:

Thank you for providing Mendocino County Planning and Building Services (PBS) the opportunity to review the Draft Environmental Impact Report (EIR) for the Central Coast Transfer Station. Please consider the following comments in your analysis of the project:

Project Description: Acreage

EIR Section 2.5.5 describes the proposed transfer station project. The description states that "for the purposes of evaluation and analysis in this EIR, a total of 4.72 acres is assumed to be disturbed by the project—approximately 3.76 acres within the project footprint, and 0.96 acres for a 10-foot buffer (construction temporary)."

J-1

Mendocino County General Plan Resource Management Policy RM-80 requires that "vegetation removal should be reviewed when involving five (5) or more acres," assessing several impacts as described further in the policy. If the project area and associated vegetation removal exceeds five acres, the project must comply with Policy RM-80.

Hours of Operation and Noise

EIR Section 2.5.6 states "the exact hours of operation would be determined by the operations contracts; however, it is anticipated to be between 8:00 a.m. and 5:00 p.m." Similarly, EIR Section 3.11.4, which describes the methodology used to assess noise impacts, states "all operations were assumed to occur between the hours of 8:00 a.m. and 5:00 p.m."

EIR Section 2.5.10 addresses energy usage, but includes additional language relating to the hours of operation, and asserts that "except in unusual or emergency circumstances, all operations would take place during daylight hours...."

J-2

Mendocino County General Plan Development Element Policy DE-100 specifies the County's standards for maximum exterior noise levels for residential land uses. The maximum exterior noise level not to be exceeded more than 30 minutes in any hour for single-family homes from 10:00 p.m. to 7:00 a.m. is 50 dB(A).

EIR Figure 3.11-3 depicts L_{eq} Noise Levels greater than 50 dB(A) extending beyond the residential property boundary to the west. While operations are assumed to occur between 8:00 a.m. and 5:00 p.m., operations occurring during "unusual or emergency situations" between 10:00 p.m. and 7:00 a.m. may create noise exceeding the levels permitted on the neighboring residential properties during nighttime hours.

Additionally, the noise analysis for the project appears to reflect noise impacts from a "point source" located in the center of the proposed industrial building. Existing noise impacts from Highway 20 are modeled using a linear source along the road axis. Should the project noise analysis evaluate noise impacts from the ingress and egress driveways on the eastern edge of the project, nearest the residential uses, using a linear source, similar to the analysis performed along Highway 20?

J-2
cont

As stated on page 2.0-8, the proposed project requires a Major Use Permit from Mendocino County to permit the use in the Timberland Production (TP) Zoning District. The Planning Commission may place conditions on a Major Use Permit to ensure consistency with General Plan and Zoning Ordinance policies. These conditions may include limits on hours of operation or other measures necessary to ensure noise levels do not exceed those permitted by these and other County policies.

Structure Height

EIR Section 2.5.5 describes the proposed transfer station project. In the project description, no reference is made to the proposed height of the structure. EIR Section 3.1.5 addresses aesthetic impacts of the project, including the statement that "the proposed transfer station building would have a peak height of approximately 50 feet." The discussion on aesthetics also states, "light poles would not be taller than necessary to provide appropriate lighting for security and safety."

EIR Section 3.10.5 analyzes project consistency with applicable land use plans, policies or regulations, and concludes, "the proposed project would not conflict with the Mendocino County General Plan or Zoning Code."

J-3

Mendocino County Zoning Code (MCZC) Section 20.068.060 sets the maximum building height for structures the TP District at 35 feet. MCZC Section 20.152.025 provides four exceptions to height limitations; however, the proposed transfer station does not appear to qualify for the listed exceptions.

If the transfer station building or light poles are to exceed the 35-foot maximum permitted height in the TP District, a variance will be required. Information on obtaining a zoning variance can be found in MCZC Section 20.200.

Biological Resources: Impact Mitigation

EIR Section 3.4.5 discusses impacts the proposed project may have on biological resources, and proposes mitigation measures to offset the impacts. Mitigation includes a conservation easement on a parcel adjacent to the existing Caspar transfer station.

The following General Plan policies, among others, relate specifically to project impacts on existing biological resources (emphasis added):

RM-28: All discretionary public and private projects that identify special-status species in a biological resource evaluation...shall avoid impacts to special-status species and their habitat to the maximum extent feasible. Where impacts cannot be avoided, projects shall include the implementation of site-specific or project-specific effective mitigation strategies developed by a qualified professional in consultation with state or federal resource agencies with jurisdiction...

J-4

General Plan Resource Management Policy RM-28 only allows projects to impact special-status species and their habitats when impacts cannot be avoided. Review of the project must indicate how impacts to special-status species cannot be avoided, in comparison with alternative project designs and locations.

RM-73: The design of new development should emphasize the avoidance of sensitive resources and environments rather than their removal and replacement.

RM-75: Protection of existing sensitive resources is the highest priority. Onsite replacement or offsite replacement, protection or enhancement is less desirable.

J-5

Mitigation of project impacts should emphasize avoidance of sensitive resources, whereas the proposed

mitigation measures emphasize conservation of resources on a parcel in Caspar. While Policies RM-73 and RM-75 do not prohibit offsite conservation and replacement of sensitive resources, it is not considered the preferred method of mitigation by the General Plan.

J-5
cont

Thank you for the opportunity to provide comments on this important project. Please contact myself or Scott Perkins at 707-964-5379 if you have any questions.

Sincerely,



Andy Gustavson,
Chief Planner

cc: Steve Dunicliff, PBS Director
Dan Gjerde, Fourth District Supervisor

AG/sp

Letter J – County Planning Department – Response to Comments

Response J-1

Comment noted. The footprint was carefully planned to provide the necessary space needed for a modern transfer station, but minimize vegetation removal. As noted in the DEIR on page 2-4, a total of 4.72 acres is assumed to be disturbed by the project, approximately 3.76 acres within the project footprint, and 0.96 acre for a 10-foot buffer (construction/temporary); therefore, Policy RM-80 is not applicable to the project because project grading footprint is less than 5 acres.

Response J-2

Transfer stations don't operate at night unless ordered to do so in the event of a public emergency or natural disaster. If the operator seeks approved hours of operation beyond the DEIR's specified hours of operation of 8 a.m. to 5 p.m., the operator would need to make the request as part of the Major Use Permit which would be carefully reviewed, mitigated as necessary, and subject to discretionary approval or disapproval by the Board of Supervisors.

The project noise analysis evaluates impacts from both the point sources (front-end loaders) and line sources (haul trucks). Like the existing noise impact from Highway 20, line sources are labeled as "emission line" on the noise contour maps and include proposed ingress and egress driveways as line sources.

Response J-3

Comment noted. Prior to building design, it is unknown whether a variance for building height greater than 35 feet will be sought. The forest screen surrounding the proposed transfer station exceeds 35 feet in height. With the forest screening the proposed transfer station, and the distance to the closest residential uses (approximately 600 feet), the proposed transfer station would not be visible to adjacent residential uses.

Response J-4

The project has avoided impacts to special-status species "to the maximum extent feasible," which is consistent with RM-28. The project planning/siting of the proposed project has avoided the most sensitive habitat on the site, the pygmy cypress – short morphotype, and incorporates mitigation that will provide for permanent preservation of Pygmy cypress forest for compensation of impacts to 0.58 acres of Cypress Pygmy Forest (intermediate and tall morphotypes). Also consistent with RM-28, preservation and protection of habitat that has connectivity with surrounding natural areas has been included as part of the project. Overall, the project has been planned to minimize and avoid impacts where possible, and mitigates for those impacts.

Response J-5

See response above to J-4 which discusses the project minimization and avoidance efforts, which also applies to this comment concerning RM-73. Avoidance is a primary achievement of the project design, which avoids impacts to the more sensitive and rare pygmy cypress (short morphotype), and minimizes overall impacts to other cypress morphotypes to 0.58 acres. The off-site preservation and permanent protection constitutes a high mitigation ratio (30:1) for compensation for these minimized impacts to Pygmy cypress forest. Species replacement is proposed onsite for five individual coast lily plants which

would be impacted (reference DEIR Mitigation Measure BIO-1a). The replacement would occur onsite within existing habitat for this species where other individuals have been mapped. Additionally, this species has been noted to be present at the Caspar Pygmy Forest Preserve site (Heise 2015), which will provide additional compensation of impacts beyond the replacement proposed in the DEIR.

PO Box 944
Mendocino, CA 95460

March 22, 2015

Mr. Michael Sweeney
Mendocino County Solid Waste Management Authority
Ukiah, CA 95482

Re: Central Coast Transfer Station DEIR

Dear Mr. Sweeney:

We support the placement of the Central Coast Transfer Station at the proposed Highway 20 site. The cost savings to the County and the reduction in carbon emissions due to less fuel being used to transfer coastal waste are the main reasons we support the finding of the Draft Environmental Impact Report.

Further, we believe the trade-off of developing the four-acre Highway 20 site is more than adequately compensated by the addition of over 60 acres of similar biological terrain when the California Department of Parks gains ownership of the former Caspar landfill site. Allowed to reseed and regenerate, the Caspar site will return to its former transitional pygmy condition with a generation or two.

Finally, the reduction of traffic at the Highway One and Road 409 intersection will reduce the likelihood that prevails there for serious traffic accidents.

We appreciate the work that was done to create this document and urge the City Council and Board of Supervisors to adopt its findings and begin creating the state-of-the-art transfer station that we believe will, overall, benefit the environment and provide the most efficient way to handle the Coast's waste.

Sincerely,

William and Marilyn Lemos

K-1

00021

Letter K – William & Marilyn Lemos – Response to Comments

Response K-1

Comment noted. The commenter expresses support for the location on Highway 20 as the best site for the proposed project.

Cherry Cove
Ranch.

March 23, 2015

Dear Mr. Sweeney

It is important for us, the public, to know the cost of the different alternative places that were turned down for the transfer station.

L-1

The costly lily is directly in the path of the transfer station to mitigate by re-planting the lily else where is not sufficient.

L-2

The third problem is the danger to the Fort Bragg water supply. It is threatened by the run off FROM the transfer station. Holding tanks are not enough mitigation for the dangerous problem.

L-3

00022

Vincent

Letter L – Charla Thorbecke – Response to Comments

Response L-1

Cost estimates are not a required section of an EIR under CEQA Statute (Public Resources Code 21000-21177) and the CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000– 15387). Projected costs would be different between the alternatives but the designation of the preferred project site was made on environmental grounds, not cost.

Response L-2

The design avoids and protects all coast lily except for five plants which would be relocated or replaced (reference DEIR Mitigation Measure BIO-1a). The replacement is proposed onsite within existing habitat for this species where other individuals have been mapped. Additionally, this species has been noted to be present at the Caspar Pygmy Forest Preserve site (Heise 2015), which will provide additional compensation of impacts beyond the replacement proposed in the DEIR.

Response L-3

Please see Response F-2 and Master Response #7 – Hydrology and Water Quality. A holding tank for management of leachate is a standard feature for solid waste transfer stations and there is no reason to consider it inadequate, particularly since waste handling activities would be performed in a fully-enclosed building.

3/23/2015

To the Mendocino County Board of Supervisors, Fort Bragg City Council, and Mike Sweeney.

We all want what's best for the coast. In order to determine what this is there are a multitude of agencies that exist to help make informed decisions and that can help save the County time and money. Unfortunately it appears that one of the most powerful agencies guidelines and manuals was overlooked by our very own waste authority.

I encourage everyone to read the EPA's guidelines for a waste transfer station titled, Waste Transfer Stations: A Manual for Decision-Making. <http://www.epa.gov/osw/nonhaz/municipal/pubs/r02002.pdf>

This document superbly outlines the proper decision making processes and the proper methodology of building a transfer station.

There are 61 pages and the main importance we seem to find on page 14, Exclusionary Siting Criteria, and I quote:

Exclusionary Siting Criteria

Siting a waste transfer station, or any type of facility, with preclusive siting criteria is often prohibited by Federal, State, or local laws or regulations, or requires facilities to incorporate special engineering design and construction techniques. Even when siting in excluded zones is allowed, the added engineering designs or strong public opposition can significantly increase construction costs. In general, it is best to avoid siting in these areas. Exclusionary criteria might include areas such as:

Wetlands and flood planes

Endangered and protected flora and fauna habitats

Protected sites of historical, archeological or cultural significance.

Prime agricultural land

Parks and preserves

:End quote

M-1

What we have in this situation on the proposed Hwy 20 location is plethora of these Exclusionary criteria that somehow has gone over looked by the Mendocino County Waste authority.

State Parks classifies Pygmy as a wetland

It contains Endangered and protected Flora and Fauna

With 1600 acres remaining in the world it has a strong likelihood of becoming a National Preserve in the near future.

Being a lifelong resident of Fort Bragg I too thought the Pygmy was of very little use and suitable for trash. This unfortunately is the same mentality that past generations used to justify deforestation and clear cutting. There is an answer.... One more point below.

There is no mention of expansion in the DEIR and how the existing pygmy will be protected.

Ability for Expansion, Starting on page 16 and I quote:

When selecting a site, consider the potential for subsequent increase in the daily tonnage of waste the facility will be required to manage, or added to the processing capabilities for recycling and diversion. It is frequently less expensive to expand an existing transfer station than to develop a new site due to the ability to use existing staff, utility connections, traffic control systems, office space and buildings.

:end quote

The above was never a consideration in the DEIR and according to the EPA there should have been a future waste increase consideration and plant expansion study. Since the concern of the DEIR was to show the plants proposed footprint and its non-impact on pygmy areas where is the allowance for future expansion?

As was stated in the DEIR by the California Native Plant Society(CNPS) "transitional pygmy" is not a correct term. It is pygmy species that have broke through the hardpan layer and are receiving nutrients from below. In light of this and the recommendation by CNPS, the over lays show the proposed transfer station right in the heart of the protected pygmy forest. So once again we find that the Waste authority has neglected to address this with proper mediation and perhaps a slide of hand hoping no one would notice?



M-1
cont

M-2

M-3

In Summary

These items and this guideline should have been presented to the County board of Supervisors and to the Fort Bragg City council by the head planner of this transfer station. This way all members of the panel could have been adequately informed of the dangers and potential cost run up of choosing a site that did not meet EPA standards or requirements.

Another consideration of grave importance is the likely hood of pollution from runoff into the proposed Summers lane runoff water/rain collection holding pond which is downstream. The potential for liability and future class action lawsuits could jeopardize not just the proposed transfer station but also the financial wellbeing of those allowing this highly possible hazard to come to fruition. 68% was the number given as to the percentage of captured pollutants, so in all likelihood a suit will occur involving the residents of Fort Bragg who are impacted by City water.

M-4

In Conclusion

There is a better solution that would cost less money to the county. Leisure time campground, not located in the Noyo water shed and on topographical terrain that has no waterways/creeks is for sale. The current owner would accept \$750,000 for it. It has the Hwy20 corridor, no pygmy forest, wide established turning lanes near, large shoulders for traffic easements, power and septic already in place. The benefits mentioned would already offset the cost of initial purchase.

M-5

It has also come to our attention that Fort Braggs own trash collector Waste Management has just been approved for their own transfer pit and is in the process of building it. This would incorporate the large style, trash hauling, carbon footprint saving trucks. This is the same pit minus the covered enclosure that is proposed for Hwy 20. Does Fort Bragg really need 2 recycling locations and 2 transfer stations? The EPA manual answers this question....

M-6

Sincerely,

Jeremy James

Retired Sniper US ARMY 2nd Ranger Battalion

Letter M – Jeremy James – Response to Comments

Response M-1

The first part of this comment identifies the Environmental Protection Agency's (EPA's) website for their guidelines for a waste transfer station and sites their exclusionary siting criteria, which "in general, it is best to avoid" and what these "exclusionary criteria might include" (quoted from EPA). The siting criteria also state that some locations may be prohibited by Federal, State, or local laws or regulations, none of which apply to the proposed project site since although impacts are noted and disclosed in the DEIR, mitigation that is allowable under local regulations is also provided as part of proposed project, and included in the DEIR (reference DEIR Mitigation Measure BIO-1). With the creation of the 28.3-acre Caspar Pygmy Forest Preserve, the project will permanently protect 19.5 acres of Pygmy cypress forest, and significantly contribute to preservation of this unique habitat and associated sensitive species (as documented by Heise 2015). Regarding the comment that "a plethora of these exclusionary criteria" have been overlooked, again the only item listed in the EPA manual as a possible exclusionary item is sensitive flora, impacts to which are addressed by the inclusion of mitigation in the DEIR. The project completely avoids impacts to wetlands on the project site, which have been mapped and approved by the US Army Corp of Engineers, and occur coincident with the Pygmy cypress forest – short morphotype. The proposed project does not result in impacts to cultural resources, prime agricultural lands nor parks. Also see Master Response #1 – Pygmy cypress forest. With regard to the proposed transfer station capacity, please see Response M-2 below.

Response M-2

The 30,000 square-foot enclosed transfer station is proposed to have a waste handling area (pit) to be approximately 200 by 45 feet with a depth of three feet. This would allow for approximately 27,000 square feet of waste handling space. Assuming a conservative solid waste density of 150 pounds per cubic yard (e.g., the higher the density the less the volume required) and an average daily solid waste throughput of 35 tons, the proposed waste handling area is approximately 47 percent of capacity. Assuming a peak throughput of 50 tons per day with the previously mentioned assumptions, the waste handling area would be approximately 67 percent of capacity. While the project assumes that solid waste would be loaded onto end-dump trailers by a grappling crane, the transfer station design detail and operation would be dictated by the future operator. By modifying the geometry of the tipping floor and using solid waste compactors (bailers), the future operator could improve the proposed transfer stations efficiency allowing for a greater throughput capacity than previously assumed. If such an increase in throughput capacity were ever considered, the increase, and any associated improvements, would be subject to CEQA and a revised Major Use Permit.

As noted in DEIR Section 2.5.7, the project is designed so that the proposed 30,000 square foot transfer station building is large enough to accommodate larger tonnage through more intensive use of the same infrastructure without the need for physical expansion. Reference Section 2.5.7 for more information regarding capacity.

Response M-3

The independent field biologist correctly mapped three morphotypes of sensitive pygmy cypress trees at the project site, which are individually considered a sensitive species (CRPR 1B) (WRA 2013). It is generally agreed that different trees from the identical species (e.g., Mendocino cypress or Bolander's

pine) would grow to different heights dictated by the presence, depth, and/or limiting factors of a hardpan, if present, and other soil characteristics, further elaborated on in Response U-1. The DEIR does not dispute that the larger cypress trees that are identified as “tall” and “intermediate” based on their height are still a sensitive species, and the DEIR therefore provides mitigation for the amount of individual trees impacted. The designation of different morphotypes is important from a habitat perspective in that pygmy cypress short morphotype individual trees can be decades old (some passing the century mark) [Jenny 1973] yet appear as saplings, and are the rarest and most unusual of the three morphotypes because they are associated with the more developed soil characteristics, including spodic-like hardpan and Blacklock Soil Series. As described in the DEIR, the intermediate (or transitional) and tall morphotypes, do not appear to be limited by underlying soil conditions, likely because a limiting hardpan has not yet formed through soil development processes, or is only partially cemented. Also, as described in the DEIR, the pygmy cypress - intermediate morphotype includes Bolander’s pine within this map unit, which is a defining tree species assemblage commonly observed within Mendocino pygmy cypress forest (in this case it appears that although the plant association is present, the soils may not be developed to the point of being a limiting factor in plant growth). The site design centers the facilities in the area mapped by the biologists as Bishop Pine Forest Alliance, (DEIR, Figure 3.4.1). The site design has also been placed to avoid fragmenting pygmy cypress forest habitat, and the impacts to individual pygmy cypress trees are either on the fringe of the tall and intermediate morphotypes, or impacts are to individual trees scattered within the Bishop pine map unit. The pygmy cypress – short morphotype (dwarfed) has been completely avoided. No matter the differentiation into morphotype, which was helpful from a planning perspective to minimize impacts, the project proposes to mitigate for the total impacts to pygmy cypress forest (minimized to 0.58 acres across the various morphotypes) through establishment of the Caspar Pygmy Forest Preserve.

Response M-4

Please see Master Responses #6 - Summers Lane Reservoir, and #7 - Hydrology and Water Quality.

Response M-5

Please see Master Response #3 – Alternatives Evaluated.

Response M-6

Empire Waste Management is not in the process of building a “transfer pit.” The proposed project would be the only transfer station serving the Central Coast. Empire Waste Management has, however, implemented a new truck-loading system. Their exiting “pod” system has worn out and the company recently secured approval from the City to substitute the Wilkens truck transfer system, which allows a collection compactor truck to back up to a ramp and push its contents into the back of a specialized semi-trailer. Unfortunately, the payload achieved with the Wilkens is no better than the pod system due to the difficulty in filling the trailer. Also, a substantial portion of the region’s wastestream is collected in roll-off boxes (big square dumpsters) of 20 to 50 cubic yards in size, which are hauled to Willits two-at-a-time with an even smaller payload. With the demise of the pods, roll-off boxes would handle all the wastestream from the Caspar self-haul transfer station, reducing the overall average payload delivered to the Willits Transfer Station. In summary, the region is still facing a haul efficiency that is about 40 percent less than could be achieved with fully-loaded “possum belly” transfer trailers, which is what is proposed to be used for the proposed project

The Environmental Protection Information Center in Garberville, CA posted this form letter on its website. Several hundred copies of the identical message were emailed, bearing the names of different signers.

Mike Sweeney

From: "Don Wisedagama" <fonzy1@gmail.com>
Date: Tuesday, March 24, 2015 6:02 AM
To: <sweeney@pacific.net>
Subject: Notice of Preparation for the Central Coast Transfer Station Draft Environmental Impact Report (SCH# 2014012058) Mendocino County, California

Dear Mr. Sweeney,

I am writing to voice my opposition to the preferred alternative as articulated in the Draft Environmental Impact Report for placement of a solid waste transfer facility on property currently occupied by Mendocino Pygmy Cypress Forest and Northern Bishop Pine Forest. The preferred alternative, if implemented, will likely have a significant adverse impact on these rare forest types, and the mitigations thus far identified are not adequate to offset these significant adverse impacts.

N-1

The DEIR does not provide an adequate evaluation of potentially significant impacts of the preferred alternative. Furthermore, the DEIR fails to provide adequate analysis or information related to feasible, less-damaging alternatives, and fails to adequately address why the alternatives not chosen do not constitute equally feasible, less-damaging alternatives to the proposed project.

N-2

The proposed action as articulated in the DEIR is in direct conflict with several land management directives contained in the Mendocino County General Plan, and is in direct conflict with the Jackson Demonstration State Forest Management Plan.

N-3

I urge you to reject the preferred alternative as described in the DEIR, as this alternative is certain to have significant adverse impacts on a rare and highly vulnerable vegetation type that cannot be replaced, and for which mitigation is not possible. Equally feasible, less-damaging alternatives must be articulated and considered in order for the project to fully comply with the letter and spirit of CEQA.

Thank you for your consideration.

Sincerely,

Don Wisedagama
10 Lavender Close
Thornlie, ot 6108

Letter N – Don Wisedagama & many others – Response to Comments

Response N-1

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest and Master Response #2 – Classification of Bishop Pine Forest.

Response N-2

The DEIR has been prepared per CEQA Guidelines and provides an appropriate analysis of alternatives. Please see Master Response #3 – Alternatives Evaluated.

Response N-3

Please see Master Response #5 – Mendocino County General Plan. Also, the Jackson Demonstration State Forest Management Plan does not control uses of the project site because AB 384, enacted by the Legislature with approval of the State Board of Forestry and the JDSF Advisory Council, authorizes the removal of the project site from the jurisdiction of JDSF. It should be noted; however, that while the JDSF Management Plan generally supports protection and avoidance of listed species, this was not interpreted by JDSF to prohibit incidental clearing of habitat for essential public utilities. In the past JDSF cleared approximately one acre next to the project site for a helipad, and has previously considered moving the entire JDSF headquarters building and associated facilities to the project site evaluated in the DEIR (reference DEIR page 3.2-2).



State of California - Natural Resources Agency
 DEPARTMENT OF FISH AND WILDLIFE
 Northern Region
 601 Locust Street
 Redding, CA 96001
 (530) 225-2300
<http://www.wildlife.ca.gov>

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director



March 24, 2015

Mr. Mike Sweeney, General Manager
 Mendocino Solid Waste Management Authority
 3200 Taylor Drive
 Ukiah, CA 95482

**Subject: Review of Draft Environmental Impact Report for the Proposed
 Central Coast Transfer Station in Fort Bragg
 (SCH #2014012058) Mendocino County, California**

Dear Mr. Sweeney:

On February 11, 2015, the California Department of Fish and Wildlife (CDFW) received from the State Clearinghouse a Draft Environmental Impact Report (DEIR) for the proposed Central Coast Transfer Station project (Project) in Fort Bragg, Mendocino County. The Lead Agency for the project is the Caspar Joint Powers Authority of the County of Mendocino (County) and City of Fort Bragg (City). CDFW has jurisdiction over the conservation, protection and management of fish, wildlife, native plants and their habitat. As a responsible and trustee agency, CDFW administers the California Endangered Species Act and other provisions of the Fish and Game Code (FGC) that conserve the State's fish and wildlife public trust resources. CDFW provides the following comments and recommendations in our role as a trustee agency pursuant to the California Environmental Quality Act (CEQA; California Public Resources Code (PRC) §21000 *et seq.*).

CDFW's primary concerns regarding the DEIR and proposed Project include:

1. Significant impacts to Mendocino Pygmy Cypress Woodland (MPCW) Sensitive Natural Community, and inadequate mitigations for these impacts.
2. Significant impacts to Northern Bishop Pine Forest (NBPF). The DEIR misclassifies this Sensitive Natural Community, therefore it did not recognize its rarity or State rank and thus did not identify project impacts as significant or propose mitigations.
3. Inadequate analysis of indirect impacts to wetlands, downstream surface water, and Sensitive Natural Communities.
4. Inadequate analysis of cumulative impacts.

O-1



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- 5. Inadequate analysis of feasible Project alternatives that would substantially reduce or eliminate most of the significant environmental impacts of the Project.

Project Description

As detailed in Section 2.5 of the DEIR, the proposed Project includes three related components:

- 1. Land transfer and acquisition. The County and City would acquire the Project site, consisting of 17 acres of Jackson Demonstration State Forest (JDSF); JDSF would acquire 12 acres of Russian Gulch State Park; and the California Department of Parks and Recreation (California State Parks) would be granted the option of taking ownership of 35 acres of the closed Caspar landfill.
- 2. Construction of a solid waste transfer facility, including: a 30,000 square foot waste transfer building, an outdoor recycling drop-off area, an office, paved driveways, parking areas, two stormwater detention basins, a groundwater well, septic tank, leach field, and perimeter fencing. The Project footprint would be 4.72 acres. Site preparation would include vegetation removal, grading, excavation, and trenching, with a net import of 1,000 cubic yards of soil and 1,200 cubic yards of asphalt.
- 3. Operation of a solid waste transfer facility.

O-1
cont

In addition to the proposed Alternative, Alternative 1(No Project) and Alternative 2 (Caspar Site) were identified. Alternative 1 would continue operation of a self-haul transfer station at the existing Caspar site, with no modification of facilities. Alternative 2 would construct the proposed commercial transfer station within the existing developed area at the self-haul transfer station in Caspar.

O-2

General Comments

Before and during the review period for the Notice of Preparation (NOP) of the DEIR, CDFW staff made several requests to meet with Project proponents. On March 7, 2014, CDFW staff met in person with representatives from GHD, Inc. (DEIR preparer) and yourself (M. Sweeney) via telephone. During that discussion, and in prior e-mail correspondence, CDFW staff offered to consult with the County and City to assist in designing a project which would avoid, minimize or mitigate potential environmental impacts. CDFW's February 28, 2014, letter regarding the NOP also underscored the importance of effective avoidance, minimization and mitigation strategies. CDFW staff were not consulted by the County, City, or GHD, Inc. staff regarding these issues during DEIR preparation.

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Several of the recommendations made in CDFW's February 28, 2014 letter were either not addressed, or inadequately addressed in the DEIR, including: the need for an adequate cumulative impacts analysis; preparation of a detailed mitigation plan; disclosure of all probable costs of the proposed Project; and preparation of a detailed erosion control plan and low-impact development (LID) strategy. This letter focuses on CDFW recommendations that were not incorporated into the DEIR, as well as other major inadequacies in the DEIR.

O-2
cont

Vegetation Classification and Sensitive Natural Communities

Vegetation association nomenclature used in the DEIR to classify MPCW and NBPF does not follow accepted or published scientific sources and should be revised. The use of inaccurate information in the DEIR has resulted in flawed conclusions regarding significant impacts, and failure to develop adequate mitigation measures.

Although Sawyer et al. (2009) is cited as the information source in DEIR Section 3.4.1 and Table 3.4-2, the descriptions used to divide MPCW into height categories do not appear in that source. The rarity of MPCW (and associated species) is not determined by the height of trees. MPCW is recognized as a Sensitive Natural Community, with global and State conservation rankings of G2 and S2, respectively. A G2 ranking defines a natural community that is imperiled, at high risk of extinction due to a very restricted range, very few populations (often 20 or fewer), steep declines, or other factors. An S2 ranking defines a habitat that is imperiled in the State because of rarity due to a very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the State.

O-3

The DEIR erroneously classifies the vegetation association containing Bishop pine (*Pinus muricata*) on the Project site as Bishop Pine Forest, with a conservation ranking of G3 S3. As identified in the Biological Assessment (WRA 2013), the association occurring on the Project site is Northern Bishop Pine Forest, which is ranked G2 S2.2 (CDFW 2010). This is the association and rank currently recognized by CDFW. The DEIR further inappropriately divides NBPF into "high quality" and "low quality" categories, providing no quantitative measures or other objective criteria for this distinction. Perceived quality does not influence its global and State rankings; all NBPF is ranked G2 S2.2.

O-4

The Project proposes to permanently remove four acres of NBPF. Section 3.4.3 of the DEIR defines the threshold of significance for adverse effects to "Imperiled Sensitive Habitats (State Rank S1 and S2 per CDFW criteria)" as removal of more than zero (0) acres of sensitive habitat at the Project site. Yet no mitigation measures are proposed in the DEIR to compensate for this significant impact to NBPF. Pursuant to CEQA section 15088.5, this new significant environmental impact resulting from the Project would require recirculation of the DEIR.

O-5

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Ecological Significance of Mendocino Pygmy Cypress Woodland

MPCW is a Sensitive Natural Community with unique physical and biological characteristics. Conditions under which this Sensitive Natural Community developed include geological processes that are atypical in western North America. In Mendocino County, marine terrace uplift occurred without significant warping or faulting, resulting in five distinct, flattened terraces (Sholars 1982). The oldest terraces are estimated to be up to several hundred thousand years of age (Sholars 1982). Soil types on the terraces are sandy, nutrient-poor and acidic. In some locations, physical and chemical processes have developed a clay and/or iron-cemented "hardpan" which inhibit root penetration and create a perched water table. Saturated and low-nutrient soil conditions, combined with high aluminum levels, create the specific conditions under which MPCW exists. These conditions foster the symptomatically stunted appearance of MPCW vegetation. This combination of soil and vegetation type only occurs in Mendocino County, between Pudding Creek and the Navarro River, with scattered stands of similar vegetation communities in Sonoma County (Sawyer et al. 2009).

In addition to soil type and condition, MPCW is identified by the presence of specific plant species. The two defining tree species are pygmy cypress (*Hesperocyparis pygmaea*) and Bolander's pine (*Pinus contorta* ssp. *bolanderi*). Both pygmy cypress and Bolander's pine are rare plants, with a State Rank of S2 and a California Rare Plant Rank of 1B.2 (rare, threatened or endangered in California and elsewhere; moderately threatened in California - 20-80% of occurrences threatened/ moderate degree and immediacy of threat). MPCW also has exceptional lichen diversity with over 50 species, and is habitat for many California Rare Plant Ranked species, including pygmy manzanita (*Arctostaphylos nummularia* ssp. *mendocinoensis*: 1B.2), small groundcone (*Kopsiopsis hookeri*: 2B.3), swamp harebell (*Campanula californica*: 1B.2), California sedge (*Carex californica*: 2B.3), hair-leaved rush (*Juncus supiniformis*: 2B.2), coast lily (*Lilium maritimum*: 1B.1), and white beaked-rush (*Rhynchospora alba*: 2B.2).¹

As the DEIR notes, CDFW estimates that as few as 2,000 acres of MPCW habitat may currently exist, based on the best available spatial data². Most of this acreage is vulnerable to fragmentation, clearing, development, and other impacts that has or will further degrade this Sensitive Natural Community.

¹ Additional California Rare Plant Rank definitions: 1B.1: rare or Endangered in California and elsewhere; seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat), 2B.2: rare or Endangered in California, but more common elsewhere , (Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat), 2B.3 (Rare or Endangered in California, but more common elsewhere; not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

² California Natural Diversity Database, CDFW; Soil Survey Geographic database (SSURGO), Natural Resources Conservation Service, USDA; Robert E. Sholars, Ph.D. 1983 mapping (digitized by Planwest Partners, Inc.); Google Earth imagery; CalFire historic 1996 and 1999 aerial photos; reconnaissance data from Rhiannon Korhummel, botanist; data from Mendocino Redwoods Company, LLC; and plot data from Will Russell, Ph.D., San Jose State University.

O-5
 cont

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Land use activities that remove vegetation, destroy the fragile lichen crust (i.e., cryptogamic earth), alter hydrologic patterns, break the soil hardpan, or affect soil nutrient levels will degrade or destroy MPCW. Given its highly unusual soil and hydrological conditions, CDFW is doubtful that MPCW can be created and is unaware of any examples. It is also extremely difficult to restore degraded MPCW to its original condition after substantial disturbance has occurred. Thus, developing effective and feasible mitigations for loss of MPCW is extremely difficult.

O-5
cont

Mitigation Measures – Impacts to Mendocino Pygmy Cypress Woodland

Mitigation Measures BIO-1b and BIO-2 in the DEIR propose to mitigate for the loss of pygmy cypress and Bolander’s pine by placing a conservation easement at a 3:1 ratio (total area of approximately 3.55 acres) on a portion of a 28-acre parcel (APN 118-500-45) currently owned by the County.

A September 9, 2014 memorandum to the Mendocino County Board of Supervisors described the proposed mitigation land as a County surplus property *“...acquired by the County in 1994 to settle a lawsuit by its owner... concerning groundwater contamination from the nearby Caspar landfill”* (Sweeney 2014). Public records show that the County listed the property for sale in 2011, but no offers were received.

O-6

The memorandum further states that *“About one-half of the parcel lies inside the Coastal Zone, which would be an obstacle for any development because of rules about pygmy forest protection.... Presumably there would be potential for development for one single-family residence, if on-site water and sewer could be created and regulatory obstacles could be overcome.”* Although the DEIR contends that portions of the proposed preservation site could be threatened by future development and/or encroachment from adjacent uses, the memorandum states that *“The parcel is fairly remote and protected from trespass by a locked gate about ¼ mile away on Prairie Way.”* CDFW finds the MPCW mitigations proposed in the DEIR are inadequate, will not reduce impacts to less than significant, and do not include other potentially feasible mitigation measures.

O-7

Furthermore, the DEIR provides little information on the nature of the proposed conservation easement, including justification for the low mitigation ratio, allowable uses in the easement lands and on adjacent lands, the amount and nature of the endowment to monitor and manage the easement, financial assurances the easement is viable, and what entity would hold the conservation easement. Simply placing a conservation easement on the land may not prevent encroachment or degradation of the site, and without more information, it is not possible to determine what level of protection and preservation the conservation easement would provide, or to what degree the proposed easement land is already sufficiently protected from development, thus diminishing its mitigation value.

O-8

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Although the DEIR focuses on two tree species (pygmy cypress and Bolander's pine), MPCW consists of a specific combination of soils, hydrology and vegetation. No biological assessment or meaningful analysis is provided to evaluate the suitability of the proposed mitigation site. Without quantification or supporting documentation, the DEIR states subjectively that: "The preservation site has similar, if not more pygmy-forest oriented species composition, compared to the area of impact, with a mixture of true pygmy forest (stunted with both cypress and Bolander's pine present) as well as intermediate cypress and Bolander's pine areas, and some Bishop pine (per GHD May 2014 site visit)." A full biological assessment and inventory should be completed on any prospective mitigation site.

O-9

Defensible Space

The DEIR focuses on direct impacts within the Project footprint, but largely does not analyze the potential for indirect impacts of the Project. According to the DEIR, the Project site is located within "a Very High Fire Hazard Severity Zone as mapped by CalFire." Public Resources Code (PRC) section 4291 requires that 100 feet of defensible space is maintained from the front, rear, and each side of structures. Maps of the Project impact area in the DEIR do not depict where defensible space vegetation removal or thinning would be required to comply with State law, nor does the DEIR analyze the impact of ongoing Project-related vegetation removal. The DEIR should be revised to disclose all areas where vegetation management will be required to comply with PRC section 4291, and provide analysis of this increased impact. A conservative estimate based on Project maps is an increase in the Project footprint of approximately 1.5 acres, consisting of approximately 0.40 acre of MPCW, with the remainder comprised mostly of NBPF. When clearing for defensible space is considered, it appears that vegetation clearing for the project could extend into sensitive MPCW forested wetlands to the north of the Project.

O-10

Analysis of Potential Impacts to Wetlands, Downstream Surface Water, and Adjacent Sensitive Natural Communities

The Project proposes minimal buffers between the Project footprint and delineated wetlands. According to the DEIR, proposed associated road work on State Route 20 would occur 25 feet from an identified palustrine emergent wetland, and a stormwater detention basin would be constructed 50 feet from a forested wetland. Although the Project avoids direct removal of wetlands, indirect adverse effects from development adjacent to wetland habitats include altered hydrology, diminished water quality from the discharge of pollutants, disturbance to wildlife from human activities, altered microclimate, increased potential for invasive species introduction, and other impacts (CDFW 2014). In addition, the scientific literature indicates that to maintain viable habitat for many of California's riparian and wetland dependent bird, amphibian, and reptile populations, an undeveloped upland habitat buffer of at least 50 meters wide (154 feet), and often considerably wider, would likely be necessary. The appropriate buffer width for a project should be based on project-specific direct and indirect impacts

O-11

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and habitat needs (CDFW 2014). Based on CDFW's extensive review of the scientific literature (CDFW 2014), it is highly unlikely that the minimal wetland buffer proposed in this Project are enough to mitigate potentially significant impacts, especially considering the protective buffer will be cleared to comply with fire safe boundaries (PRC §4291).

O-11
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Although the DEIR acknowledges that substantial adverse effects to wetlands could include direct removal, filling, hydrological interruption, or other means, a threshold was only established for fill in wetlands, waters of the U.S., or waters of the State. Potential hydrological interruption was not disclosed or analyzed in the DEIR, and no threshold was identified for what would constitute a significant effect from hydrological alteration as a result of the Project.

CDFW's February 28, 2014 letter recommended the DEIR include a detailed erosion control plan and LID strategy that details site-specific measures for reducing erosion, maintaining on- and off-site water quality and encouraging on-site retention of storm flow runoff. CDFW also recommended that the DEIR include a hydrological-based assessment that addresses potential impacts to surface water including small watercourses and down-slope connecting streams/rivers.

O-12

The DEIR acknowledges that development of the Project could lead to increased runoff due to removal of vegetation and the creation of impervious surfaces and includes information on permit requirements and general design considerations. Despite the acknowledgement of this potentially significant impact, the DEIR provides few site-specific details with regard to stormwater management or methods that would be used to reduce the potential for impacts to wetlands, remaining Sensitive Natural Communities, downstream surface water, or groundwater. For example, the DEIR states that *"the detention basin analysis presented in this report does not consider the outlet structure or the other drainage features (e.g., emergency spill way) that would be necessary for a detention basin"* and that *"specific locations of these detention basins will be determined during the development of the grading and drainage plans..."* Given the Project's proximity to wetlands, proposed placement within Sensitive Natural Communities, specific information on the exact location and design of Project components (including detention basins and outlet structures) are essential to determine Project impacts, their significance, and potential mitigation if needed.

O-13

MPCW is a nutrient-poor ecosystem with unusual and narrow hydrological and water quality parameters. Thus, hydrological and water quality changes from runoff from this Project could have significant negative effects on the adjacent MPCW Sensitive Natural Community.

Hydrology and water quality thresholds of significance and mitigation measures provided in DEIR Section 3.9 generally rely on permit requirements and future permitting processes, without analysis of potential Project- and site-specific environmental effects. CEQA section 15126.4 states that formulation of mitigation measures should not be deferred until some future time. However, measures may

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specify performance standards which would mitigate the significant effect of the project. Seeking permits from other agencies without identifying specific minimum performance standards to reduce impacts does not constitute adequate impact analysis or mitigation.

O-13
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Cumulative Impacts

CEQA section 15130 states that an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in § 15065 (a)(3). As defined in section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. The DEIR inadequately discloses related projects, as well as cumulative impacts of the proposed Project.

For example, the DEIR does not disclose the City's proposed Summers Lane Reservoir Project within the "List of Relevant Projects." A Mitigated Negative Declaration and a Timber Harvesting Plan were prepared for the Summers Lane Reservoir project, which would permanently remove and convert approximately eight acres of redwood-dominated mixed coniferous forest, including 72 Mendocino pygmy cypress trees.

O-14

The DEIR also fails to disclose or analyze ongoing impacts to MPCW through ministerial permits issued by the County for single family residences and other developments occurring within MPCW in the absence of environmental review. The majority of existing MPCW (approximately 75 percent) is located outside of the coastal zone. Areas of MPCW that are considered protected because of public and/or conservation organization ownership only account for approximately 25 percent of the total existing acreage. Therefore, most remaining MPCW is at risk for conversion, degradation, or other land use activities that pose a significant threat to this rare and threatened Sensitive Natural Community.

O-15

The DEIR acknowledges that the land swap that would facilitate the acquisition of the subject property by the County and City is a component of the proposed Project, but fails to analyze the potential impacts of the land transfer and foreseeable changes in land use. Assembly Bill No. 384 (AB 384) passed in 2011, granting authorization for the transfer of land between the County/City, California State Parks, and JDSF, which is managed by the California Department of Forestry and Fire Protection (CalFire). The legislation specifically states that *"The entity acquiring title of the property shall be solely responsible for compliance with the California Environmental Quality Act (Division 13 commencing with Section 21000) in connection with the transfer of property ownership and development of the solid waste transfer station."*

The DEIR does not analyze potential impacts of the land transfer of 12 acres of redwood forest from California State Parks to JDSF. This change would allow the potential for future timber harvest, which does not exist under California State Parks management. In addition, according to the DEIR, the future ownership of the closed Caspar landfill site is still undetermined, with California State Parks having "the option of

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taking ownership. The DEIR provides a perfunctory description of the procedure for closing the Caspar Transfer Station in Section 2.5.14, however, the future managing entity should be determined, and a detailed management plan should be prepared for inclusion in the DEIR. The required analysis of the impacts of this substantial Project component constitutes significant new information, requiring DEIR recirculation pursuant to CEQA section 15088.5.

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 O-16
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Feasible Alternatives

CEQA section 15126.6(f)(2) states: "The key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location." According to the DEIR, the Project would have impacts to air quality, odors, biological resources, cultural resources, geology and soils, hydrology, and transportation. Despite these disclosed impacts, the DEIR concludes that the Project, as proposed, is the "Environmentally Superior Alternative." In addition to the No Project Alternative, and Alternative 2, five alternative locations were "Considered but not Carried Forward in this EIR." Of these locations, at least two otherwise feasible alternatives are dismissed, with cost as one consideration.

Our February 28, 2014 letter specifically recommended that the DEIR should analyze and disclose all probable costs of the proposed CCTS including costs for land acquisition, restoration and maintenance that will likely be required to, in part, adequately mitigate for Project-related impacts. CDFW also recommended that the discussion should focus on alternatives to the Project or its location which are capable of avoiding or substantially lessening any significant effects of the Project, even if these alternatives would impede to some degree the attainment of the Project objectives, or would be more costly [CEQA Section 15126.6(b)].

O-17

Cost and cost-effectiveness figure prominently in both the stated goals of the Project, and in arguments against rejected alternatives. However, the DEIR provides no comparison or analysis of the total cost of the proposed Project or any of the alternatives. For example, the alternative described in DEIR Section 4.4.4 would require removal of little or no forest since a substantial area is already cleared. The DEIR acknowledges for that site, *"No major streams or waterways are located on the property and approximately 12 acres are flat and useable. A seven-acre portion of the property is already cleared of forest. Private sewer and water systems are in place."* The DEIR further states that the property would have some of the same advantages as the proposed project site. According to the DEIR, the acquisition cost would be 1.2 million dollars, concluding that this would significantly increase the capital expense of development of a transfer station. No estimate or analysis is provided in the DEIR to account for the potential cost offset of selecting a developed site (for example, mitigation measures that may not be required due to avoidance of environmental impacts, site preparation that would not need to occur, and existing sewer and water that would not need to be installed).

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CEQA section 15126.6 (f) states the range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making. Without disclosing a comprehensive analysis of the total costs of all alternatives, it cannot be determined from the DEIR whether the "increased expense" of one alternative over another is significant over the life of the Project.

O-17
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The DEIR is also inconsistent in how it analyzes the impacts of various alternatives. For example, DEIR sections 4.4.4 and 4.4.5 provides analysis results of the potential distances of two alternatives to existing residences. For these two alternatives, the DEIR concludes, based on that information, that it would be less successful in meeting the project objective of isolation from other land uses. However, the DEIR used different analysis criteria to determine the distance of the Project to residence for the preferred alternative. The DEIR should utilize the same analysis for all proposed alternatives, including the preferred alternative to determine the impacts and adequacy of all the Project alternatives.

O-18

In 2007, a *Mendocino Central Coast Commercial Transfer Station Siting Study – Report of Findings* was prepared for the County by Winzler & Kelley Consulting Engineers (now GHD, Inc.). This report, previously available on the Mendocino Solid Waste Management Authority website, identified 25 potential project sites, provided cursory analysis of the top ten, and selected five sites for additional study. The report estimated site-specific costs for ten potential project sites. However, this report is not included or referred to in the DEIR, nor is it cited in the list of references.

The conclusions reached in the DEIR regarding feasible alternatives are poorly substantiated and do not meet the substantive mandates of CEQA to avoid or minimize environmental impacts unless doing so is not feasible (PRC §20112; Guidelines §§ 15002, 15021). CDFW does not agree that the Project is the Environmentally Superior Alternative, and that further analysis would lead to a different conclusion. CDFW supports an alternative that avoids NBPF and MPCW Sensitive Natural Communities.

O-19

Inconsistency with Mendocino County General Plan

The Resource Element of the Mendocino County General Plan defines sensitive habitats as those *"that are of special concern to resource agencies or those that are protected under CEQA, Section 1600 of the California Fish and Game Code, the California Coastal Act, California Department of Forestry and Fire Protection Directives, and Section 404 of the Federal Clean Water Act."* The Resource Element also specifically identifies MPCW as a sensitive habitat. Pygmy cypress, Bolander's pine, and other plants occurring in MPCW are also listed in the General Plan's table of special status species. In the Open Space section, the General Plan states that *"Some ecological communities in the county provide unique scenic value, most notably the pygmy forests."*

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The General Plan Resource Management Policies describe the County's goal of *"protection, enhancement and management of the biological resources of Mendocino County and the resources upon which they depend in a sustainable manner."* Implementation of the Project at the proposed location is inconsistent with the following Mendocino County General Plan Policies:

RM-24: Protect the county's natural landscapes by restricting conversion and fragmentation of timberlands, oak woodlands, stream corridors, farmlands, and other natural environments.

RM-25: Prevent fragmentation and loss of our oak woodlands, forests, and wildlands and preserve the economic and ecological values and benefits.

RM-28: All discretionary public and private projects that identify special-status species in a biological resources evaluation (where natural conditions of the site suggest the potential presence of special-status species) shall avoid impacts to special-status species and their habitat to the maximum extent feasible...

RM-29: All public and private discretionary projects shall avoid impacts to wetlands if feasible. If avoidance is not feasible, projects shall achieve no net loss of wetlands, consistent with state and federal regulations.

RM-31: For the purposes of implementing this General Plan, the County defines "special status species" and "sensitive biotic communities" to include all species and habitat identified as such by the California Department of Fish and Game, U.S. Fish and Wildlife Service, or NOAA Fisheries.

RM-73: The design of new development should emphasize the avoidance of sensitive resources and environments rather than their removal and replacement.

RM-74: Discretionary development shall be designed or conditioned to achieve no net loss of sensitive resources.

RM-75: Protection of existing sensitive resources is the highest priority. Onsite replacement or offsite replacement, protection or enhancement is less desirable.

RM-78: Conserve native vegetation, critical habitats and soil resources through education, technical and financial assistance, cooperative endeavors, best management practices, and soils and vegetation management plans for development and resource uses.

RM-79: Encourage farmers, land owners and property managers to protect sensitive environments, and minimize the effects of recreation, tourism, agriculture and development on these resources.

O-19
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Promote techniques and features such as:

- Habitat contiguity,
- Wildlife corridors,
- Maintaining compatibility with adjacent uses,
- Maintaining habitat for sensitive plant and animal species.

RM-84: Protect “pygmy” ecosystems (“pygmy” and “transitional pygmy” vegetation and soils) through the use of measures that include minimizing:

- Vegetation removal,
- Disruption of vegetation continuity, and
- The introduction of water and nutrients due to human activity, sewage disposal systems, animals or agricultural uses.

Also:

- Limit subdivision of land on agricultural lands adjacent to “pygmy” ecosystems, and
- Promote best management practices to minimize impacts.

As proposed, CDFW finds the preferred Project location does not comport with the Mendocino County General Plan because the preferred Project site occurs within rare and threatened MPCW and NBPf Sensitive Natural Communities.

Inconsistency with Jackson Demonstration State Forest Management Plan

Despite the DEIR's statement that AB 384 removes the project site from the JDSF and therefore the JDSF Management Plan is no longer applicable, transfer of the land under authority of AB 384 would be a discretionary action - authorized but not required by the bill - and would therefore be subject to CalFire review and policies. The legislation states that AB 384 would authorize the Director of General Services, subject to the approval of the Department of Forestry and Fire protection, to allow for the land transfer.

The DEIR also states that JDSF does not consider the project site as valuable for timber production. The JDSF Management Plan (2008) outlines several goals and dozens of objectives, many related to ecosystem processes and forest restoration, protection and enhancement, not merely timber production. One objective in the JDSF Management Plan, under Goal #3 – Watershed and Ecological Processes, is to “Provide protection to listed species, to species of concern, and to their occupied habitats. Avoid disturbance to uncommon plant communities such as meadows and pygmy forest.” In the Protection of Unique Habitats section, the JDSF Management Plan specifically states: “Pygmy forest: JDSF will maintain the current distribution and species composition of this plant community and protect it from harmful human disturbance, while continuing to allow compatible recreational activities.”



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The preferred Project Alternative is in direct conflict with the JDSF Management Plan, which would likely have protected these MPCW and NBPF Sensitive Natural Communities in perpetuity.

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Summary of Comments

In summary, CDFW has the following substantial concerns regarding the DEIR:

1. As proposed, the Project would have significant direct and indirect impacts to MPCW. The DEIR's proposed mitigations for these impacts are insufficient and not described in adequate detail to assess effectiveness. Further, based upon published research, the DEIR does not accurately characterize this Sensitive Natural Community.
2. As proposed, the Project would have significant direct and indirect impacts to NBPF Sensitive Natural Community. Because the DEIR misclassifies this natural community, it does not recognize its rarity or State rank, therefore, it did not describe impacts as significant or propose mitigations. The DEIR must propose feasible and adequate mitigations for significant impacts to the NBPF Sensitive Natural Community.
3. The cumulative impacts analysis of MPCW and NBPF Sensitive Natural Communities is inadequate and does not recognize the on-going threat to them, especially the potential for their future loss, fragmentation, and degradation. CDFW finds the impacts of the Project to both MPCW and NBPF are cumulatively considerable pursuant to CEQA section 15065(a)(3).
4. The three-way land transfer is defined as part of the Project in the DEIR. However, the DEIR is absent of any environmental impact analysis on the ultimate disposition of the other two parcels in the land transfer.
5. The DEIR does not disclose the location and type of stormwater outfall structures, where polluted stormwater will be delivered once it leaves the proposed storm water detention system, and what effect the polluted stormwater will have on adjacent sensitive MPCW and NBPF Sensitive Natural Communities.
6. Despite significant impacts to the environment, the DEIR concludes that the proposed Project is the Environmentally Superior Alternative. The DEIR dismisses other Project sites without giving them full environmental analysis. Some Project alternatives were at developed/disturbed sites, with only negligible environmental concerns, thus requiring minimal mitigations. The DEIR alternatives analysis should give full environmental analysis to other site alternatives identified in the DEIR, which occur outside of threatened natural communities.

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For the above reasons, CDFW finds the DEIR needs substantial revisions, a more thorough review of potential significant environmental impacts, and more effective and fully-described mitigations for significant impacts. Based upon the substantial evidence included in this letter, CDFW finds this DEIR should be recirculated pursuant to CEQA section 15088.5.

CDFW appreciates the opportunity to provide comments on the DEIR and is available to meet with you to further discuss our concerns. If you have questions, please contact Environmental Scientist Angela Liebenberg at (707) 964-4830 or angela.liebenberg@wildlife.ca.gov, or Senior Environmental Scientist Supervisor Gordon Leppig at (707) 441-2062 or gordon.leppig@wildlife.ca.gov.

Sincerely,



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Letter O – California Department of Fish & Wildlife – Response to Comments

Response O-1

The first part of this comment is introductory in nature, followed by a summary of the CDFW's primary items of concern regarding the DEIR, and ending with a reiteration of the project description components as detailed in Section 2.5 of the DEIR. For item 1 in this list, please see Master Response #1 – Mitigation for Pygmy cypress forest. Regarding item 2, please see Master Response #2 – Classification of Bishop Pine Forest. Regarding item 3, please see Master Response #7 – Hydrology and Water Quality, for discussion of dissipation, treatment, and redirection of stormwater associated with the project that reduces impacts to downstream areas to less than significant level. Refer to Section 2 Revisions to the Draft EIR, for revisions to Mitigation Measure HWQ-4. Also associated with item 3, is potential indirect impacts to wetlands and what is referred to in this comment as "sensitive natural communities," such as remaining pygmy cypress forest, which is addressed in Response Q-4. Regarding item 4, "inadequate analysis of cumulative impacts," it is unclear what the inadequacies are, but this comment is addressed below where CDFW provides more specific details. For item 5, please see Master Response #3 Alternatives Analyzed.

For additional information that addresses CDFW's comment on the Project Description topic, "Land transfer and acquisition," it should be noted that California State Parks also is being offered a conservation easement on the entire 61-acre Caspar Landfill property giving California State Parks control over any future uses at the site, and limiting those uses that might be a nuisance for adjacent Russian Gulch State Park.

Response O-2

During DEIR preparation, a consultation call was conducted with CDFW on March 7, 2014, to discuss the project and potential impacts. Per this call, the Lead Agency and consultant project team received direction from CDFW regarding the analysis of potential biological impacts from project and the manner to avoid, minimize, and/or mitigate the impacts (through preservation) (CDFW 2014). During this call, CDFW pointed to the County General Plan policies for regulatory guidance and compliance for pygmy cypress forest protection. As such, the applicable General Plan policies were incorporated into the thresholds and analysis under Impact BIO-1, BIO-2, and BIO-5.

Cumulative impacts were analyzed for each resource category in sufficient detail per CEQA Guidelines (Section 15130 and 15355). Cumulative impacts are also addressed herein in Response to Comments I-2, Q-5, T-13, T-15, and T-29.

The DEIR includes appropriate mitigation measures for resource categories with potentially significant impacts. Based on comments received on the DEIR, Mitigation Measures BIO-1b and BIO-2 have been revised to include information regarding designation of the Caspar Pygmy Forest Preserve for compensation for impacts to individual pygmy cypress and Bolander's pine trees, as well as on an acreage basis for impacts to Pygmy cypress forest. The revised version provides conceptual mitigation details at the site including mechanism of preservation through conservation easement, and access limitation. Further details on the pygmy cypress mitigation is provided in Master Response #1 Mitigation for Pygmy Cypress Forest.

Cost-benefit analyses are not required or necessarily relevant to an EIR, which exists to analyze environmental issues associated with the proposed project rather than financial issues. Costs are relevant insofar as they might render an alternative infeasible.

In accordance with Mitigation Measure HWQ-1a, the Construction SWPPP would identify and specify the use of erosion sediment control BMPs for control of pollutants in stormwater runoff during construction related activities, and would be designed to address water erosion control, sediment control, off-site tracking control, wind erosion control, non-stormwater management control, and waste management and materials pollution control. In accordance with Mitigation Measure HWQ-1b, Stormwater discharges from operation of the project would be required to comply with applicable provisions and performance standards stated in the National Pollutant Discharge Elimination System (NPDES) permit. As required by the NPDES permit, County and NCRWQCB requirements, waste materials would not be discharged to drainage areas. Because the Central Coast Transfer Station has the potential to discharge pollutants from a point source (e.g., leaking oil from hauling trucks), the facility would be required to obtain an Industrial SWPPP under California Water Code Section 13260. Refer to Master Response #7 – Hydrology and Water Quality for additional information regarding use of LID strategies..

Response O-3

The description of the Pygmy cypress forest areas on the project site based on the typical height of the trees (reflecting different soil conditions) does not affect the DEIR's analysis of their ecological sensitivity nor the adequacy of the mitigation measures. The use of morphotypes as descriptive categories by the independent field biologist is further addressed in Response to Comments M-3 and U-2. The implication in this comment that these Rank S2 habitats have "very few populations (often 20 or fewer)" is peculiar since the best available estimates are that there are between 2,000 and 4,000 acres of Pygmy cypress forest in Mendocino County (reference DEIR Table 3.4-8 footnote). Also CDFW has stated that mapping of current extent is underway, and was incomplete at the time of the DEIR, and acknowledges challenges with mapping due to gradients and diverse habitat assemblages.

Response O-4

Please see Master Response #2 – Classification of Bishop Pine Forest. The general characterization of quality of Bishop pine forest at the project site follows criteria on CDFW's webpage (https://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_background.asp) for "Addressing High Priority Vegetation Types" using the following criteria (as referenced and further described in the DEIR on page 3.4-47):

1. Lack of invasive exotic species,
2. No evidence of human-caused disturbance such as roads or excessive livestock grazing, or high-grade logging,
3. Evidence of reproduction present (sprouts, seedlings, adult individuals of reproductive age), and
4. No significant insect or disease damage, etc.

The characterization of forest quality does not change the habitat status that was applied in the DEIR to generally assess the habitat present (note that it was determined to likely be moderate to high quality at the project site in the DEIR based on the above CDFW criteria, the comment that it was divided into low and high quality categories is not accurate).

Response O-5

Please see Master Response #2 – Classification of Bishop Pine Forest. Mitigation is proposed in the DEIR for removal of S1 and S2 habitats, and has been revised herein to include additional acreage permanently preserved as a result of establishment of the Caspar Pygmy Cypress Preserve (refer to Section 2 Revisions to the Draft EIR). Also, the biological assessment of the Caspar Pygmy Forest Preserve identified approximately 5.76 acres of Bishop pine forest that would receive permanent protection within the Preserve.

It is agreed that soil “conditions foster the symptomatically stunted appearance of Mendocino Pygmy Cypress. This combination of soil and vegetation type only occur in Mendocino County” (Sawyer et. al. 2009). It is also agreed, as stated in the DEIR, that Bolander’s pine and pygmy cypress have CRPR 1B status, and habitat that has these “two defining trees” (per comment letter) dominant or co-dominant within the habitat are listed State Rank S2.

Because of the uncertainty of success in creating replacement habitat for impacts to pygmy cypress forest, CDFW indicated that preservation was the preferred method where impacts were minimized yet could not be fully avoided (CDFW 2014). As such, the DEIR does not propose mitigation to create pygmy cypress forest. Please see Master Response #1 – Mitigation for Pygmy Cypress Forest, for discussion of establishment of the Caspar Pygmy Forest Preserve and permanent protection for 19.5 acres of pygmy cypress forest.

Response O-6

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest for a discussion of the history of the Caspar Pygmy Forest Preserve property.

Response O-7

Mitigation Measure BIO-1a, as revised in Section 2 of this RTC, would establish the Caspar Pygmy Forest Preserve. The revisions also increase the mitigation acreage from 3.5 acres to 28.5 acres (19.5 acres of which are mapped as pygmy cypress forest). Although part of the site is indeed in the Coastal Zone and although that portion of the site has mechanism for County review and possible requirements for protection of pygmy forest, the part that is not in the Coastal Zone could have residential development through ministerial permit process with no mechanism for review of impacts to pygmy cypress forest (personal communication Mendocino County 2015b).

Response O-8

The information requested with regard to the nature of the proposed conservation easement, who would hold the easement, and justification for the mitigation ratio (which has been increased) is provided in Master Response #1 – Mitigation for Pygmy Cypress Forest. Regarding financial assurance the easement is viable and there would be an endowment to monitor and manage the easement, the County already owns the property and the Authority has the means to conduct annual maintenance and set aside funds for long-term maintenance.

Response O-9

The information requested in this comment regarding quantity and quality of the proposed mitigation site is provided in Master Response #1 – Mitigation for Pygmy Cypress Forest.

Response O-10

The site plan (DEIR Figure 2-2) shows the building to be completely surrounded by paved driveways of approximately 36 feet in width. Surrounding the driveways is a bioswale of indeterminate width wherein no vegetation would be allowed to grow to any significant height. Since all structures on site would be made of non-flammable steel and concrete, there would be compelling grounds for CalFire to grant a non-flammability variance for reduced setback pursuant to Public Resources Code Section 4291(7)(c)(1), or to allow minimal thinning of adjacent vegetation, or both. DEIR Section 2.6 has been amended to add this variance to the list of required approvals. CalFire has shown a consistently reasonable and amiable attitude regarding the Legislative mandate in AB 384 which recognizes the project as a necessary public service improvement that would benefit not only the general public but also the extensive State operations in the region.

Response O-11

Regarding altered hydrology and diminished water quality, please see Master Response #7 – Hydrology and Water Quality.

Regarding the comment as to project footprint along Highway 20 as close as 25 feet from palustrine emergent wetland and potential for indirect hydrology impacts, the following supplemental information is provided. The setback and impact area is mapped as the Shinglemill-Gibney complex, it should be noted that the upland setback and impact area is more likely the Gibney Series based on absence of hydric soil conditions. The Gibney Series would be less likely to have a fully cemented hardpan based on NRCS soil descriptions. The footprint of the highway 20 work would therefore not result in punching through a hardpan, which might result in indirect hydrology impacts to nearby wetlands if that were to occur. Wetland buffer is discussed further in paragraph below.

Regarding impacts to wildlife, this is discussed in the DEIR under Impact BIO-4. The habitat in the area of the project site is already fragmented to the south by the adjacent to Highway 20, and the proposed development does not further fragment habitat or bisect habitats that would directly intercept wildlife corridors.

Regarding altered microclimate from impacts, this comment is not clear how this would be an impact of the project; no project impacts are expected in this regard.

Increased potential for invasive species is not expected since the facility footprint would be mostly developed, and non-developed areas would remain vegetated with existing native plant material. The adjacent pygmy cypress forest that will remain to the north and northeast of the site, are mapped as having restrictive Blacklock soil series which limits establishment of invasive plant species (based on NRCS mapping, as reported by WRA 2013, and site visit observations of plant stature within the Cypress forest - pygmy and –intermediate morphotypes)..

Regarding wetland setback, it should be noted that the two palustrine emergent wetlands mapped to the east of the project footprint are isolated and will have an approximately 200 foot buffer from the main project footprint. The one wetland that is associated with pygmy cypress short morphotype will also have an approximately 60 foot setback to the northernmost construction footprint. The smaller isolated palustrine wetland currently has a variable buffer to highway 20 of approximately 35 to 50 feet, which will be reduced in some areas to as close as 25 feet, yet overall the average buffer width is higher due to wavy wetland boundary. The small decrease in wetland setback here will not significantly alter the

remaining wetland as this area is already close to highway 20 and will continue to have remaining intact and dense vegetation surrounding it as a buffer. The forested wetland to the north would have impacts closer, quoting the comment letter “with a detention basin...constructed 50 feet from a forested wetland.” The impacts of the detention basin on water quality and indirect impacts to wetlands are addressed in Master Response #7 – Hydrology and Water Quality. In all cases where wetland setback to development is being reduced, the existing dense vegetation will remain and provide a natural visual, light, and noise buffer to the project site. The fencing will ensure the remaining vegetation stays intact and serves as a natural barrier that separates proposed uses from the surrounding natural landscape. CDFW suggests that some wetlands would require up to 50 meters (154 feet) to provide buffer for riparian and wetland dependent birds, amphibians, and reptiles, yet also notes that “buffer width would be project-specific based on habitat needs.” Given the project site does not host wetland-dependent sensitive-listed amphibians, birds, or reptiles that would designate a species-specific buffer, and given that mitigation is provided to avoid impacts to sensitive-listed animal species, a species-specific wetland buffer does not apply to these areas.

Regarding clearing for firesafe boundaries, and potential effects beyond the project footprint associated with clearing or maintaining fire safe boundaries, please refer to Response O-10.

Response O-12

Please see Master Response #7 – Hydrology and Water Quality. Potential water quality impacts from the project, for both construction and operations, would be controlled by the implementation of an approved Stormwater Pollution Prevention Plan as described in Mitigation Measures HWQ-1a and HWQ-1b. Also refer to the revisions made to Mitigation Measure HWQ-4 in Section 2 Revisions to the Draft EIR.

Response O-13

Please see Master Response #7 – Hydrology and Water Quality and Response Q-4 for hydrologic and indirect impacts to Pygmy cypress forest.

Response O-14

The comment suggests that there are cumulative projects missing from the cumulative analysis, but then only mentions the Summers Lane Reservoir project. Please see Master Response #6 – Summers Lane Reservoir, for the relationship of this project to the cumulative impacts analysis. Reference Section 3.0 starting on page 3-2 for more detailed information regarding the approach to the cumulative impact analysis and list of relevant projects.

Response O-15

CEQA Guidelines Section 15268 Ministerial Projects states: Ministerial projects are exempt from the requirements of CEQA. With the establishment of the Caspar Pygmy Forest Preserve, the impact of the project on Pygmy cypress forest habitat and individual trees species will be fully mitigated.

DEIR Impact LU-1 on pages 3.10-4 and 3.10-5 analyzes the potential impacts of the land transfer at an appropriate level per CEQA Guidelines. If at some point the JDSF decides to change the land use, this action would require review under CEQA. Additionally, please see Response O-16 below.

Response O-16

The 12.6 acres from Russian Gulch State Park that would be transferred to JDSF would become part of JDSF's Caspar Creek Experimental Watershed Study Area, which is a research project for evaluating the effects of timber management on streamflow, sedimentation and erosion. The study area was established in 1961 and would continue at least through 2099 pursuant to a memorandum of understanding with the U.S. Forest Service (reference DEIR Section 2.5.1). There is no timber harvesting currently contemplated, and if harvesting was planned as part of the Demonstration Forest Management, such activities would be subject to a Timber Harvest Plan (verbal conversation, March 24, 2015 with Pam Linstead, Manager, JDSF). Under California law, a Timber Harvest Plan performs the functions of and substitutes for review under CEQA. The DEIR does not analyze possible impacts to the land transfer site, because it is not known, other than adding the site to experimental watershed study area, what JDSF will do with the site, and therefore any speculation on future activities is hypothetical at this point in time.

The project would give State Parks control over 35 acres of the 61-acre Caspar Landfill site, either through the conservation easement or by direct ownership (excludes the 26-acre closed landfill which would stay under County and City ownership and post-closure management). This would realize a goal that State Parks has sought for decades: to eliminate activities on the property which detract from the adjoining Russian Gulch State Park. State Parks has not indicated any other potential plans for the property. While the City and County cannot "prepare a management plan" to reflect potential future intentions of State Parks, there is no reason to believe that any development, change in use, or other alteration would take place on the 35 acres. With regard to the 26-acre portion of the site to remain in County and City ownership, the DEIR correctly states that the project would have no impact on the Caspar Site property except for the beneficial environmental impact of removing the equipment and the few temporary structures (reference DEIR Section 2.5.14).

Response O-17

None of the sites are deemed infeasible because of cost, except for the Mendocino Parks and Recreation District property where the price is known to exceed the appraised value, which is the maximum public agencies are allowed to pay. Rather than cost, the analysis of alternatives is based on environmental considerations as reiterated in Master Response #3 – Alternatives Evaluated. A capital cost estimate of \$4.79 million was made for the project and \$3.86 million for the Caspar Site Alternative.

Response O-18

Leisure Time RV Park, described in Section 4.4.4, and Mendocino Parks & Recreation District Property, described in Section 4.4.5, are not alternatives evaluated in the DEIR. They are alternatives considered during the siting study process that were not carried forward in the DEIR for reasons described under Master Response #3 – Alternatives Evaluated. The discussion provided in Sections 4.4.4 and 4.4.5 is appropriate for the context. The 2007 site search report was useful in identifying the entire "universe" of potential sites, but with the passage of time much of the site-specific information in that document became inaccurate or incomplete so it was not listed as a reference.

Response O-19

Please see Master Response #3 – Alternatives Evaluated, and Master Response #5 – Mendocino County General Plan.

Response O-20

Please see Master Response #5 – Mendocino County General Plan.

Response O-21 and O-22

The State Board of Forestry and Fire Protection, the policy-making entity for CalFire, approved the property transfer/swap on April 7, 2010. AB 384 states that “the interests and welfare of the state will be advanced by granting an option to the city and the county.” Department of General Services has accepted the comparative property appraisal submitted by the City and County. Based on these facts, the City and County believe that they can exercise the option at any time. The JDSF Management Plan does not apply to the proposed transfer site because if the option is exercised the site is no longer in JDSF.

In any case, the JDSF Management Plan would not bar the project if it did apply. It urges protection and avoidance and maintenance of listed species, which the project has accomplished as described in Master Response #1 – Mitigation for Pygmy Cypress Forest. It should also be noted that the JDSF Management Plan has not been interpreted by JDSF to prohibit incidental clearing of habitat for essential public utilities. JDSF cleared about one acre next to the project site for a helipad, and was considering moving the entire JDSF headquarters building and associated facilities to the project site itself (reference DEIR page 3.2-2). The commenters’ assertion that “the JDSF Management Plan...would likely have protected these MPCW and NBPF Sensitive Natural Communities in perpetuity” is contradicted by history.

Response O-23

Comment noted. This comment merely summarizes the comments made previously and includes a conclusion statement.

March 25, 2015

Proposed solid waste transfer station at 30075 Highway 20, Fort Bragg: Draft EIR Comments

I applaud your efforts to provide cost-effective and environmentally-sound waste management services to the Mendocino coast. Unfortunately, the DEIR document does not adequately address several key environmental issues.

Although I submitted comments at the March 19th public hearing, I have revised and added to my list of concerns as follows.

- 1) **Transportation.** Reduced transportation costs and Greenhouse Gas emissions seem to be the primary and overwhelming benefits of the proposed site. I do not argue that the proposed alternative would reduce overall mileage as shown in Table 3.7-1 Annual Vehicle Miles Traveled – Existing and Project Conditions, however this table is misleading. A comparison of GHG emissions by vehicle type is needed. Such an analysis would undoubtedly show a more limited reduction in GHG than the VMT suggests. I think Mike Sweeney’s prominent display of the VMT analysis may have been an intentional attempt to exaggerate the benefit. Other impacts received considerably less focus. P-1
- 2) **Fire Safety.** Where is the analysis of wildland fire risk? Although “100 Feet of Defensible Space is the Law” (California, 2005), I do not see that this mandatory vegetation removal has been considered in the proposed foot print. P-2
- 3) **Recreation.** The document fails to acknowledge the dispersed recreation that occurs within the JDSF parcel proposed for development. Numerous trails exist on the parcel indicating it is used by the public for hiking and nature studies. It is a significant omission to claim that pedestrians and bicyclists would not be affected by the increased heavy truck and self-hauler traffic. P-3
- 4) **Aesthetics.** The document fails to mention increased litter and trash along the Highway 20 corridor as a result of self-haulers. No mitigations are proposed. P-4
- 5) **Forest Resources.** Although the forest resources on-site are not of commercial value, they do have value not addressed in the EIR. The 2008 JDSF management plan maps the site as Pygmy forest and Cypress Group “Special areas of Concern” and states these lands “will not be subject to harvest”. This land has been preserved by JDSF for conservation value, ecosystem function, and carbon sequestration. The 12 acres of Russian Gulch park lands along Rd 409 proposed for land swap have been preserved for more than a century. If the proposed land swap occurs, this parcel will most likely be brought into timber production in the near future and its carbon sequestration and biological resource values impacted. This impact was not considered. P-5
- 6) **Biological Resources.** The protection measures proposed in the document will not prevent the reduction and disturbance of the rare and threatened plant communities of the pygmy and pygmy transition ecosystems. The existing Caspar and Pudding Creek sites are already developed and do not impact biological resources to the same extent. Transplanting species of concern does not ensure their survival. No analysis of sites mycology was demonstrated. Consultation with the mycological research community is warranted. P-6

- 7) **Geology.** By the documents own admission, the preliminary assessment does not fully describe the hazards and risks. I spoke with two registered professional geologists who expressed concern about the existence of bedrock fractures providing preferential pathways to the Noyo's water ways. While a design-level geotechnical study for the project is essential, a more detailed independent investigation of site conditions is "imperative" (according to LACO report included in the EIR) to adequately characterize the site and soil before proceeding with development . This is critical given its proximity to our city's municipal water supply. P-7

- 8) **Hazards and hazardous materials.** Scrap metal, appliances, concrete rubble, used motor oil, used antifreeze would be collected along with other household hazardous waste items, including electronics, fluorescent lights, and batteries. There is significant non-compliance with proper disposal of hazardous materials amongst the lay public. Storage and transportation of these materials present a risk because there is no guarantee that they can be properly contained at all times. I contest Sweeney's statement that there would be "no runoff from the facility, only rainwater" given that there is an outdoor drop off area for used motor oil, etc. P-8

- 9) **Hydrology.** The hydrology report, while loaded with engineering and hydraulics, fails to use best available science. This is not surprising. No hydrologist was listed in the "List of Preparers" (section 6). P-9
 - a. **Mitigation Measures: Managing Storm Water.** There is insufficient analysis to demonstrate the effectiveness of the proposed bioswales and detention basins at this site. Bioswales (used to remove pollutants) and detention basins must be designed properly. Specifically,
 - i. **Separation between the detention basins and groundwater is essential.** The proposed project site was evaluated by LACO and Associates (LACO) in June 2012. At that date, the groundwater was 10 feet below ground surface, but the possible seasonal presence of shallow groundwater was noted. Mid-winter ground water levels are known to reach the surface in these Blacklock and Shinglemill soils leaving the soil with no capacity to infiltrate and percolate additional runoff. (I submitted photos of the saturated conditions in February 2014). P-10
 - ii. Detention basin analysis was admittedly approximate relying on short duration 24-hr rainfall intensities and textbook runoff coefficients. We all know that it is prolonged rainfall that produces the saturated conditions, storm flows, and runoff-related problems in our area. While the basins may be able to hold a 24-hr rainfall, **there is no evidence that the storm water will infiltrate within the 72 hr period reported.** Data from the 52-year Caspar Creek Experimental Watersheds show that the highest unit area discharges and sediment loads are produced from the pygmy-pygmy transition areas. These data were not referenced. P-11
 - iii. There is no mention of **preferential pathways** that function like natural "french drains" to rapidly route soil water to streams. Such features **could compromise the effectiveness of the bioswales and result in rapid delivery of sediment and pollutants to the Noyo river and groundwater aquifer.** Again, several P-12



publications from the Caspar Creek Experimental Watersheds describe these subsurface flow paths, but none were referenced.

- iv. There is no mention of the proposed Summers Lane reservoir in the hydrology or cumulative effects section of the document. **Potential hydrological linkages between the proposed transfer station and reservoir site must be analyzed and duly considered.**
- v. More extensive field and lab testing of porosity/permeability /transmissivity are necessary before determining if this mitigation for controlling storm water runoff will be effective or even possible.
- vi. Additional subsurface exploration to delineate the extent of perched groundwater at the site is necessary (according to LACO report).

↑ P-12
cont
P-13
P-14

In sum, the draft EIR is rife with inadequacies. It fails to use best available science and does not assess a full range of environmental impacts. I encourage you to reject this document and pursue improvement and utilization of either of the Mendocino Coast's existing waste management facilities or the contaminated former G-P mill site.

Thank you,

Elizabeth Keppeler, hydrologist
802 N. Main St. Fort Bragg, CA 95437

Letter P – Elizabeth Keppeler - Response to Comments

Response P-1

The first part of this comment is introductory. Regarding “1) Transportation,” the commenter is correct in that vehicle types influence the amount of GHG emissions. Consequently, vehicle type was taken into account in the analysis as discussed in DEIR Section 3.7 (Greenhouse Gas Emissions and Energy), pages 3.7-4 and 3.7-5. The following assumptions were made regarding the vehicle types associated with the VMT reduction: 1) self-haul vehicles were assumed to be a mix of light-duty, medium-duty, and light heavy-duty trucks; 2) franchise trucks were assumed to be a Solid Waste Collection Truck type; and 3) solid waste transfer trucks were assumed to be T6 heavy-duty for existing VMT, and T7 heavy-duty for project VMT.

Response P-2

Please see Response O-10.

Response P-3

There is no authorized recreation use at the project site. During site visits there was no indication of unauthorized recreation use either. The vegetation at the project site is quite dense, making access difficult. Some portions of the site are so dense, pedestrian access is nearly impossible. Any previous trails that may have existed are now overgrown. The only evidence of human activity is some homeless encampment trash adjacent to Highway 20. Bicycle and pedestrian traffic on Highway 20 is discussed in DEIR Section 3.12. Bicycle and pedestrian use on this part of Highway 20 is rare. In numerous visits to the project site by County and City staff, no pedestrians or bicycles have ever been observed. The DEIR Section 3 states that the incremental traffic of the project is insignificant compared to existing traffic on Highway 20.

Response P-4

Please see Master Response #4 – Aesthetics Impacts, and Section 2.2 - Revisions to the Draft EIR.

Response P-5

The DEIR does indeed address the project site value based on sensitive listing status of individual trees and forest habitats. Refer to section 3.4.5 of the DEIR, specifically the analysis under Impact BIO-2. The site was mapped on a detailed level by a biologist independently of the DEIR, and to a finer scale than that of the JDSF management plan. The DEIR does acknowledge the sensitive nature of the pygmy cypress trees present on the project site. Please see Master Response #1 – Mitigation for Pygmy Cypress Forest regarding the proposed project site and proposed mitigation measure to create a Caspar Pygmy Forest Preserve. Please see Response O-16 regarding the land swap and hypothetical impacts at the Russian Gulch property.

Response P-6

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest for a discussion of impacts to the Pygmy cypress forest and individual tree species. Regarding Caspar and Pudding Creek sites, please see Master Response #3 – Alternatives Evaluated. Regarding transplanting species of concern, the only impact to a species being mitigated through direct replacement involves coast lily (five individuals), and those plants are to be placed in an area where other individuals of the same species have been mapped,

therefore soil mycorrhizal associations for this species are assumed to be present and/or adequate due to existing presence of the plant. Additionally, this species has been noted to be present at the proposed Caspar Pygmy Forest Preserve which will provide permanent protection and preservation for this species.

Response P-7

A Preliminary Geotechnical and Engineering Evaluation of the site was prepared by LACO in 2012 (DEIR Appendix E). Among the findings of the study were:

- “Based on the results of this evaluation, it is feasible to develop this site as conceptually planned. Our preliminary evaluation found no identifiable geologic hazards that would preclude use of the site for the proposed development.”
- “No active faults are known to extend through the site. Since surface fault rupture generally follows the trace of pre-existing active faults, the risk of future surface rupture at this site is considered to be low to non-existent.”
- “The soils encountered at depth in our test borings drilled at the site are not considered to be liquefiable during strong ground shaking due to their density.”

The LACO report establishes that the project can be built safely. The specific building design requirements (e.g., soil preparation, foundation design, tie-downs, etc.) do not have to be set forth in the DEIR. They would be determined after a “site-specific geotechnical investigation” called for both by the LACO report and the DEIR, and would meet current structural design codes.

It is not currently known if bedrock fractures (preferential paths) exist under the proposed project site. However, possible stormwater and facility contaminants entering groundwater are controlled and mitigated by the transfer stations design features (e.g., fully enclosed facility, leachate collection and containment, and bioswales and detention basins) and by the implementation of a Stormwater Pollution Prevention Plan for both construction and operations as described in Mitigation Measures HWQ-1a and HWQ-1b. Also see Response H-1.

Response P-8

Please see clarifying text added to Impact HWQ-3: Substantial Additional Sources of Polluted Runoff or Otherwise Substantially Degrade Water Quality, and the addition to the Project Description to specify that certain recycling areas will be roofed and graded to prevent contact with rain or runoff

Response P-9

A detailed hydrologic analysis was performed (by GHD [Dagan Short]) to evaluate the size and type of stormwater controls necessary for the proposed project. Please see Master Response #7 – Hydrology and Water Quality for a more detailed explanation of the analysis performed and the corresponding results.

Response P-10

The purpose of the detention basins is to detain or slow down and temporarily contain stormwater to allow for sediment to drop out and to mitigate peak flowrates. The sizing of the detention basins assumes that there would be no infiltration to the underlying soil and that the basins would completely drain. Please see Master Response #7 – Hydrology and Water Quality for a more detailed explanation of the detention basins.

Response P-11

Please see Master Response #7 – Hydrology and Water Quality.

Response P-12

The geotechnical investigation by LACO did not identify any preferential pathways. Please see Response P-7. It should be noted, that before the final design is complete for the facility, including the stormwater collection system, additional geotechnical investigations would be performed (e.g., soil strength analyses) per Mitigation Measure GEO-1. If preferential pathways are identified during this process, the design components would be modified accordingly.

Response P-13

Please see Master Response #6 – Summers Lane Reservoir.

Response P-14

Please see Response P-12.



CALIFORNIA
NATIVE PLANT SOCIETY
Dorothy King Young Chapter
P.O. Box 577 - Gualala, CA 95445

March 25, 2015

Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

Marie Jones, Dir. Community Development
City of Fort Bragg
416 N. Franklin St.
Fort Bragg, CA 95437

Re: Comments, Draft Environmental Impact Report (DEIR), Central Coast Transfer Station, Fort Bragg

Dear Mr. Sweeney and Ms. Jones,

These comments are submitted on behalf of the Dorothy King Young Chapter of the California Native Plant Society (CNPS). CNPS requests that this letter, and the CNPS letter dated February 27, 2014, be entered into the record for this project.

Alternatives – potential project sites

CNPS considers the Preferred Alternative site to be inappropriate, as the project would permanently impact extremely rare Mendocino Cypress Woodland, also known as “Mendocino Pygmy Forest,” as well as rare Northern Bishop Pine Forest.

Q-1

Some potential project sites were rejected and not presented as Alternatives, yet the DEIR does not provide adequate justification for the decision to reject those sites. There is no thorough analysis comparing the costs for those sites with those of the Preferred Alternative. Costs for acquisition are discussed, but there are no comparative analyses of costs for mitigation, installation of utilities, handling of water runoff or impacts to nearby wetlands.

Q-2

If all impacts associated with the Preferred Alternative site are analyzed and adequately mitigated, the rejected sites may turn out to be more cost effective. In particular, CNPS would like to see the old RV park site revisited, as well as the Pudding Creek transfer station.

Impacts to rare vegetation alliance not addressed

The DEIR contains no mitigation measures for loss of four acres of Northern Bishop Pine Forest, for which the DEIR incorrectly assigns a ranking of G3 S3. In fact this rare vegetation alliance is ranked as G2 S2, and under the California Environmental Quality Act (CEQA), “significant impact” is any amount of removal of the plant community. This is a significant flaw in the DEIR and must be addressed.

Q-3

Impacts to “pygmy forest” not accurately analyzed

The DEIR proposes mitigation measures only for the damage caused by the actual project footprint. However, it is well-known that when pygmy forest is subjected to grading, trenching, nutrient input and altered hydrology, the negative impacts extend far beyond the immediate project footprint.

The map in Figure 3.4-2 shows considerable Mendocino cypress/Bolander pine on the north and northeastern portion of the property. Reasonably foreseeable future impacts to this portion of the forest would result from construction, permanent alteration of the landscape and ongoing activities at the facility. Therefore, the DEIR must analyze such impacts (see section below).

Q-4

Cumulative impacts analysis needed

Mendocino Cypress Woodland is a rare and ecologically significant vegetation alliance, so the DEIR must include a thorough assessment of cumulative impacts. CEQA defines cumulative impacts as the collective impacts of any number of known and reasonably foreseeable projects or actions.

Pygmy forest in our region has already been impacted by the building of waste transfer sites, to the detriment of this plant community. There are other degraded pygmy sites in the area, with the ongoing damage at Little River Airport being one egregious example. Regional cumulative effects must be analyzed and disclosed in the DEIR.

Q-5

Analysis of foreseeable cumulative impacts should include future impacts of the proposed land swap, including impacts to Northern Bishop Pine Forest the ecologically significant "Mushroom Corners."

Inadequate mitigation

In addition to the lack of required mitigation measures for Northern Bishop Pine Forest, the DEIR does not demonstrate the adequacy of its proposed mitigation for impacts to pygmy forest.

The county surplus parcel presented as appropriate mitigation for loss of pygmy forest is a degraded site, containing and surrounded by noxious weeds, including gorse, broom and jubata grass. The DEIR does not discuss restoration potential, what entity would hold the conservation easement, explain how the management of surrounding, weedy lands could impact the site, nor otherwise demonstrate the mitigation value of this site at present or into the future.

Q-6

Also missing are a comparative biological assessment of the preferred project site and the proposed mitigation parcel, and a biological survey for the mitigation parcel. The DEIR fails to demonstrate that putting this parcel under a conservation easement would adequately mitigate the losses and foreseeable, ongoing impacts of the project, since an easement alone will not prevent further degradation or damage on the mitigation parcel.

The DEIR presents this parcel as being in danger of development and thus in need of protection. In fact, a memo from Mike Sweeney to the Board of Supervisors, dated September 9, 2014, indicates that the parcel contains pygmy forest and is partly in the coastal zone, both barriers to development.

Land Swap – Inadequate Analysis

The Preferred Alternative site would be removed from the Jackson Demonstration State Forest (JDSF) and CA Dept. of Forestry and Fire Protection (CalFire) management. In return CalFire would acquire land that is better suited for timber harvest. That land would lose its protected status under State Park ownership and become subject to timber harvest. The DEIR fails to provide mitigation for this.

Q-7

It is unclear why the CA Department of Parks and Recreation would be a willing participant in this land transfer. Our local state parks would not be improved by the transfer, and the public would also not receive any park-related benefits. In fact, putting all of the "Mushroom Corners" area under CalFire management threatens to deprive the public of an important recreation and research site.

Q-8

The public must see all these issues resolved before the DEIR can be certified. The intent of CEQA is to disclose and analyze all relevant project information, yet the DEIR fails to meet that mandate.

Applicability of JDSF Management Plan

The land swap was enabled by a piece of legislation, AB 384, yet we believe the land transfer, as a discretionary action, would still be subject to the policies and review by CalFire. This is contrary to statements in the DEIR, and must be clarified.

Q-9

JDSF's Management Plan includes a goal to "Provide protection to listed species, to species of concern, and to their occupied habitats. Avoid disturbance to uncommon plant communities such as meadows and pygmy forest." This language is found under Goal #3, Watershed and Ecological Processes.

Q-10

Another section, Protection of Unique Habitats, the Plan states: "Pygmy forest: JDSF will maintain the current distribution and species composition of this plant community and protect it from harmful human disturbance, while continuing to allow compatible recreational activities." Thus, the land swap to acquire the Preferred Alternative site is contrary to JDSF's goals of protecting rare plant species and communities.

DEIR Not Consistent With County General Plan

Q-11

This project is inconsistent with Mendocino County's General Plan's Resource Management Policies. The DEIR fails to take every possible action to conserve and protect natural resources, as required in the General Plan. A brief outline of relevant County policies:

RM-24: Protect the county's natural landscapes by restricting conversion and fragmentation of timberlands, oak woodlands, stream corridors, farmlands, and other natural environments.

RM-25: Prevent fragmentation and loss of our oak woodlands, forests, and wildlands and preserve the economic and ecological values and benefits.

RM-28: All discretionary public and private projects that identify special-status species in a biological resources evaluation (where natural conditions of the site suggest the potential presence of special-status species) shall avoid impacts to special-status species and their habitat to the maximum extent feasible...

RM-29: All public and private discretionary projects shall avoid impacts to wetlands if feasible. If avoidance is not feasible, projects shall achieve no net loss of wetlands, consistent with state and federal regulations.

Policy RM-31: For the purposes of implementing this General Plan, the County defines "special status species" and "sensitive biotic communities" to include all species and habitat identified as such by the California Department of Fish and Game, U.S. Fish and Wildlife Service, or NOAA Fisheries.

Policy RM-73: The design of new development should emphasize the avoidance of sensitive resources and environments rather than their removal and replacement.

RM-74: Discretionary development shall be designed or conditioned to achieve no net loss of sensitive resources.

RM-75: Protection of existing sensitive resources is the highest priority. Onsite replacement or offsite replacement, protection or enhancement is less desirable.

RM-78: Conserve native vegetation, critical habitats and soil resources through education, technical and financial assistance, cooperative endeavors, best management practices, and soils and vegetation management plans for development and resource uses.

RM-79: Encourage farmers, land owners and property managers to protect sensitive environments, and minimize the effects of recreation, tourism, agriculture and development on these resources.

Promote techniques and features such as:

- Habitat contiguity,
- Wildlife corridors,
- Maintaining compatibility with adjacent uses,
- Maintaining habitat for sensitive plant and animal species.

RM-84: Protect "pygmy" ecosystems ("pygmy" and "transitional pygmy" vegetation and soils) through the use of measures that include minimizing:

- Vegetation removal,
- Disruption of vegetation continuity, and



- The introduction of water and nutrients due to human activity, sewage disposal systems, animals or agricultural uses
- Limit subdivision of land on agricultural lands adjacent to “pygmy” ecosystems, and
- Promote best management practices to minimize impacts.

↑
Q-11
cont

Flawed definition of “pygmy forest

The DEIR makes a distinction between pygmy forest with taller trees and pygmy forest with more stunted trees. The vegetation alliance that includes both Mendocino Cypress (*Hesperocyparis pygmaea*) and Bolander pine (*Pinus contorta ssp. bolanderi*) is extremely rare, regardless of tree size. The size of the trees has absolutely no bearing on the rarity or value of the vegetation alliance.

While the DEIR’s authors do not consider their arbitrarily named “Intermediate Cypress Forest” to be “True Pygmy” they do include it with the pygmy forest for which project impacts require mitigation.

Q-12

However, CNPS requests deletion from the DEIR of all references to such arbitrary and meaningless designations and all implications that stunted pine and cypress are rarer or have more ecological value than taller trees. The DEIR’s artificial categories are not consistent with good science.

Agency input

Perhaps the most valuable comments on this project will come from two state agencies, the CA Department of Fish and Wildlife and the CA Department of Parks and Recreation. CNPS urges the lead agency to openly and publicly engage these agencies in a discussion of the true ecological values of the properties in question, for both the land swap and the proposed transfer station development, and carefully consider and abide by the recommendations of these agencies.

Conclusion

These comments identify a number of deficiencies in the DEIR, some significant enough to require recirculation of the DEIR. CNPS requests that these issues be addressed and the project re-evaluated.

CNPS, other nonprofit organizations and local concerned citizens will be paying close attention to the responses to our comments. CNPS does not question the need for a transfer station of some kind, but wants such a project to be as environmentally responsible as possible.

Sincerely,



Lori Hubbard, Chapter Conservation Chair
Dorothy King Young Chapter,
California Native Plant Society

- CC: CA Dept. Forestry & Fire Protection: Pam Linstedt, Jackson Demo. State Forest Manager
City of Fort Bragg: Linda Ruffing, City Manager
Mendocino County: Supervisors
State Parks: Liz Burko Loren Rex, Renee Pasquinelli, Jay Chamberlin, Division Chief, Natural Resources
CA Dept. of Fish & Wildlife: Gordon Leppig, Michael van Hattem, Rick Macedo, Curt Babcock, Angela Liebenberg
CNPS: Greg Suba, CNPS State Conservation Director

Letter Q – California Native Plant Society – Response to Comments

Response Q-1

Comments regarding selection of a project alternative are not comments on the adequacy of the Draft EIR, but comments on the approval of the project, a process that will occur after the EIR is certified. Please see Master Response #1 – Mitigation for Pygmy Cypress Forest and Master Response #2 – Classification of Bishop Pine Forest.

Response Q-2

Please see Master Response #3 – Alternatives Evaluated, Response F-6, and Response L-1.

Response Q-3

Please see Master Response #2 – Classification of Bishop Pine Forest.

Response Q-4

It is acknowledged that pygmy forest can be impacted by grading, trenching, nutrient input, altered hydrology, and nutrient inputs, which is further addressed here. The project includes a 10-foot contingency construction “buffer” (i.e. additional calculated impact area around project footprint) around the facility totaling approximately 0.96 acres that was included in the project impacts to account for potential temporary construction impacts, yet is treated as a permanent impact area in the impact and mitigation calculations in Impact BIO-1 and Impact BIO-2. The facility footprint itself is approximately 3.76 acres, with a total impact area calculated as 4.72 acres (reference DEIR, Figure 3.4-2). The buffer, together with techniques mandated for construction activities such as the protective fence around the remaining/avoided coast lily area and implementation of the SWPPP requirements, would prevent additional impacts during construction beyond the 4.72 acres (DEIR Mitigation Measure BIO-1a, HWQ-1a, and HWQ-1b). Fencing around the site described in the DEIR will reduce operational impacts to offsite areas, specifically as noted here by the commenter, to separate operational uses from natural areas such as the cypress and Bolander’s pine remaining to the north and northeast of the project footprint.

It is not clear what source of “nutrient input” the commenter is concerned about. However, nutrient input to adjacent areas is not expected given the project does not include activities such as fertilization (there is no landscaping proposed) that would be more typical for a traditional residential or commercial development. The permitting of a leachfield is under the authority of the Health Department which has oversight of design and implementation of such infrastructure to ensure nutrient loading does not occur. The leachfield is located on the southwest corner of the facility in the farthest location away from Pygmy cypress forest. Discharge of wastewater in the leachfield would be subsurface and would not affect Pygmy cypress forest surface hydrology.

Although the site is quite flat, the cypress forest pygmy morphotype / USACE wetlands (i.e., short hydric pygmy) is away from where current hydrology/flow is directed, and would not be impacted from a hydrologic standpoint as a result of the proposed project. Please see Master Response #7 – Hydrology and Water Quality for information on how stormwater runoff would be managed at the project site. Because stormwater from the site will be dissipated through detention basin and bioswales providing treatment and directing stormwater downgradient of the site and away from remaining forest, a hydrologic impact (increase or decrease in hydrology) is not expected within the remaining Pygmy cypress forest, particularly as the stormwater will be diffused out of the detention basin and allowed to discharge in the

Bishop Pine Forest area, which should allow for substantial infiltration per design parameters. As stated in the biological study of the project site, the areas with Bishop Pine Forest and pygmy cypress forest – tall morphotype are mapped as being located on the Shinglemill-Gibney soil complex, and “appear to permeate somewhat rapidly, with the lower portions in transitional and extreme pygmy cypress forest in the eastern portion [of the site] experiencing extended saturation and inundation” (outside of project footprint) [WRA 2013]. Based on the Shinglemill-Gibney soil complex as mapped by NRCS soil survey for the south and southwest portions of the project site (WRA 2013), it is determined that it is more likely the Gibney Series is present within project footprint, since the wetland delineation conducted at the site did not indicate hydric soils on the south and southwest portion of the site which would be associated with the Shinglemill Series (hydric). A cemented and spodic hardpan therefore is not likely present based on soil survey as well as observations of tree stature, species assemblage within the project footprint area, and wetland delineation results. Also since the majority of the project site footprint is likely on the mapped Gibney series (hydric Shinglemill is not within project footprint), surface flow from the proposed project site currently flows north and northwest, thus the footprint area is not considered to be a significant source of surface water contribution to the Cypress Forest (Pygmy) Forested Wetland mapped units. Therefore the project site would not result in hydrologic changes to the remaining forest since currently infiltration occurs within the proposed project footprint; a hardpan is not being interrupted; and site runoff will be treated, dissipated, and redirected away from the remaining Cypress Forest (Pygmy) Forested Wetland mapped units and wetlands. Limited stormwater may flow across (to the northwest) Cypress Forest (Intermediate), but half of the site’s stormwater would be directed to the south into a roadside ditch and a significant portion directed to the north would be directed and expected to infiltrate into the Gibney Series soils. The project footprint is setback from existing wetlands and short hydric pygmy (pygmy cypress – short morphotype map unit) by approximately 50 to 100 feet to the north, and over 200 feet to the east.

Response Q-5

Cumulative impacts per CEQA guidelines were included in the DEIR and determined to be individually less than significant as well as not cumulatively considerable along with recent past, present, and reasonably foreseeable future projects. It is not clear what “waste transfer sites” the commenter is referring. However, there is an explanation of the Albion and Caspar Transfer sites in Response T-13, if this is of interest to the commenter.

Regarding the portion of this comment dealing with Little River Airport and potential impacts to Pygmy cypress forest, this comment states an opinion on an existing facility and does not comment on the adequacy of the DEIR. However, Master Response #6 – Summer’s Lane Reservoir, does provide updated information on regional impacts, from known projects, to pygmy cypress forest which may be of interest to the commenter. With the revised mitigation of the 28.5-acre Caspar Pygmy Forest Preserve, the project would permanently protect habitat that includes 19.5 acres of pygmy cypress trees as well as 5.76 acres of Bishop pine (see Section 2 Revisions to the Draft EIR)..

The land swap would not result in foreseeable impacts on the property being transferred to JSDF as they do not have plans to harvest that property and any suggestion to that nature, and analysis of future potential management activities on that site, would be hypothetical at this point in time and cannot reasonably be evaluated in an EIR. Please refer to Response O-16 for additional information on the land swap.

Cumulative impacts to Bishop pine were deemed less than significant on an individual basis, and regionally were considered less than significant with 0.03% impact regionally to the overall area mapped with this habitat type. See Master Response #2 – Classification of Bishop Pine Forest. It is unclear what the commenter is referring to with regard to “Mushroom Corners.” No further response can be provided

Response Q-6

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest which discusses the application and details of the conservation easement for the proposed Caspar Pygmy Forest Preserve. A biological evaluation of the mitigation parcel has been conducted by two independent biologists. The habitats at the preserve site were mapped (WRA 2015) and found that the site consists mostly of undisturbed pygmy cypress forest (Heiss 2015). Although the mitigation site has Pygmy cypress forest, the zoning would allow residential development on the portion outside of the coastal zone under a ministerial permit, which would not require evaluation of impacts to Pygmy cypress forest as the County does not have a mechanism in place for such review under building permits outside of the coastal zone (personal communication County of Mendocino 2015b). The area within the coastal zone would require Coastal Development Permit (CDP) from the County which does provide a mechanism for County review and oversight of potential impacts to Pygmy cypress forest. Please also see Master Response #2 – Classification of Bishop Pine Forest. Please refer to Response O-8 for long-term management goals (i.e., conservation easement).

Response Q-7

Please see Response O-16.

Response Q-8

Please see Response O-16. Additionally, the land transfer was conceived by the Mendocino District Superintendent of State Parks who wanted to eliminate the nuisance created by the Caspar self-haul transfer station and who suggested giving JDSF the 12.6-acre corner of Russian Gulch State Park, which she stated had no value to the State Park because it was isolated from the rest of Russian Gulch State Park by County Road 409; had no facilities; was a burden to State Parks to monitor; and was not generally known by the public to be part of the State Park (Oral communications with Superintendent Marilyn Murphy 2010).

Response Q-9

Please see Response O-16.

Response Q-10

Please see Response O-16. The JDSF Management Plan goals would be upheld during the land swap through creation of the Caspar Pygmy Forest Preserve, which includes 19.5 acres of pygmy cypress forest and 5.76 acres of Bishop Pine Forest which will be permanently protected as a result of the proposed project. The project has avoided impacts to the most sensitive part of the project site, and therefore is in alignment with JDSF management goals, and minimized impacts to 0.58 acres to pygmy cypress forest.

Response Q-11

Please See Master Response #5 – Mendocino County General Plan and Response T-39.

Response Q-12

Please See Master Response #1 – Mitigation for Pygmy Cypress Forest as well as Response U-2 that addresses the use of morphotypes as additional descriptive map units based on tree stature and habitat structure. Please also see Response M-3. It is agreed that the intermediate/transitional morphotype category does include the plant association of Bolander's pine with pygmy cypress, which is a typical plant association of the pygmy cypress forest, and is described as such in the DEIR. The basis for using morphotypes is further described including scientific basis in Response U-2. The DEIR provides mitigation for impacts to pygmy forest (minimized to 0.58 acres) at a preservation ratio of 30:1 no matter the morphotype.

It is agreed that agency comments are valuable for project planning. The CDFW was consulted during the scoping process for the DEIR, during which time the observations/results of their agency site visit were incorporated into the DEIR (personal communication CDFW 2014). Agency recommendations such as minimization and use of preservation for impact mitigation where impacts cannot be avoided have been incorporated into the project. Please see Response O-2 for additional information regarding agency communication with CDFW.

Deficiencies have not been identified that would require recirculation of the DEIR at this time. Changes that have been incorporated are minor/technical changes and do not add "Significant New Information" as defined by CEQA to require recirculation of the Draft EIR pursuant to the standards in Guidelines Section 15088.5.



Keeping Northwest California wild since 1977

Sent via electronic mail on date shown below

March 26, 2015

Mr. Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

Re: Comments Regarding Draft Environmental Impact Report for the Proposed Central Coast Transfer Station in Fort Bragg (SCH #2014012058) Mendocino County, California

Dear Mr. Sweeney:

The Environmental Protection Information Center (EPIC) presents the following comments on the Draft Environmental Impact Report (DEIR) for the proposed Central Coast Transfer Station in Fort Bragg, Mendocino County, California (hereafter referred to as the “project”). EPIC greatly appreciates the opportunity to provide comments on this project.

Summary

The DEIR for this project is deficient in several key areas of concern. These areas include: 1) inadequate analysis of potentially significant adverse impacts to Mendocino Pygmy Cypress woodlands (Pygmy Forests) and Northern Bishop Pine Forests; 2) inadequate mitigation for potentially significant adverse impacts to these forest types; 3) inadequate analysis of equally feasible and less-damaging alternatives to the proposed action; and 4) inadequate assessment of significant adverse cumulative effects that may result from the project as proposed.

The Mendocino County Solid Waste Management Authority (MCSWMA) must go back to the drawing board and give further consideration to the potentially significant adverse impacts of the project and to feasible, less-damaging alternatives to the project as proposed in order to fully comply with the letter, and indeed the spirit of the California Environmental Quality Act (CEQA).

Inadequate Analysis of Potentially Significant Adverse Impacts of the Project as Proposed

The DEIR for the project fails to adequately analyze the potentially significant adverse impacts of the proposed action on Pygmy Forests and Northern Bishop Pine Forests. Firstly, the DEIR has erroneously misclassified the Bishop Pine Forest community ranking. Secondly, the DEIR refers to so-called “transitional Pygmy Forest.” This concept has no scientific basis or validity. Thirdly, and similarly, the DEIR erroneously attempts to classify Pygmy Forests in terms of the

R-1

size of individual trees. There is no scientific basis or validity to this approach either. The DEIR therefore relies on information that is either inaccurate, or that has been presented without scientific basis or validity. Reliance upon this information for the assessment of potentially significant adverse impacts to Pygmy Forests and Northern Bishop Pine Forests leaves the DEIR lacking in substantial evidence in light of the whole of the record to support a finding of no significant adverse impacts. The DEIR therefore must be substantially revised.

R-1
cont

Inadequate Mitigation of Potentially Significant Adverse Impacts

Because the DEIR is based on information that is clearly erroneous and is based on statements with no scientific basis or validity, it is not possible to develop adequate mitigation measures that would avoid or substantially lessen the potentially significant adverse impacts of the project. The mitigations identified in the DEIR are largely based on false presumptions and faulty analysis. The concept that Pygmy Forests and Northern Bishop Pine forests can be recruited elsewhere and that this factor is deemed to be a mitigation of potentially significant adverse environmental impacts is not based in either science or reality. The DEIR fails to identify mitigation measures that would actually serve to offset the potentially significant adverse impact of the project's preferred alternative. Indeed, the ecological and scientific realities regarding the rarity and sensitivity of the forest types to be affected only lead to the conclusion that mitigation of the significant adverse environmental impacts of the project may not actually be possible. The DEIR must therefore reconsider the mitigations proposed in the light of the best available science and reality, and must evaluate whether or not mitigation of any potentially significant adverse impacts is even possible.

R-2

Inadequate Alternatives Analysis

The DEIR itself acknowledges several potentially significant adverse environmental impacts of the project's preferred alternative, but then goes on to state that the preferred alternative is the environmentally superior alternative. In addition to the No Project Alternative, and Alternative 2, five alternative locations were "Considered but not Carried Forward in this EIR." Of these locations, at least two otherwise feasible alternatives are dismissed, with cost as one consideration. The discussion of feasible alternatives to the project should focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly [CEQA Section 15126.6(b)]. Clearly, the most obvious and most feasible alternative to the project and its preferred alternative is to consider alternative locations for the project to occur. The DEIR should therefore conduct and disclose an economic analysis of the proposed alternative, and should consider the potential costs and benefits of alternate sites for the project.

R-3

Inadequate Assessment of Cumulative Impacts

CEQA section 15130 states that an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in § 15065 (a)(3). As defined in section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. The DEIR is deficient in its cumulative impacts analysis because it fails to disclose or identify other projects that, when combined with the proposed action, could result in a significant adverse and cumulative impact on the environment. In particular, the DEIR does not

R-4

adequately evaluate the potentially significant adverse cumulative impacts of the land swap with Jackson Demonstration State Forest in light of the larger landscape issues facing Pygmy Forests and Northern Bishop Pine forests. The DEIR essentially considers the project's preferred alternative in a vacuum without adequately addressing the potentially significant adverse cumulative impacts of the project in light of past management, and related projects that may serve to combine with the impacts of the project's preferred alternative. The DEIR should therefore be revised to include consideration of all related projects in the surrounding area, and to consider the impacts of the proposed action in light of past, present, and reasonably foreseeable related projects.

R-4
cont

Conclusion

The DEIR for the project as proposed is currently incomplete, materially misleading, and is inadequate to allow for meaningful assessment by the public and the reviewing agencies. The DEIR must therefore be revised to consider information that is actually based on science and not unsubstantiated narrative argument, as is presented in the document. The DEIR must be revised to address potentially significant adverse impacts of the project's preferred alternative, must consider feasible less-damaging alternatives to the project's preferred alternative that includes a meaningful economic and environmental analysis, and must be revised to consider the true cumulative impacts of the project's preferred alternative.

R-5

EPIC appreciates the opportunity to provide comments on the DEIR. Please do not hesitate to contact me at the number provided below in the event that there are questions.

Sincerely,



Rob DiPerna
California Forest and Wildlife Advocate
Environmental Protection Information Center
145 G Street, Suite A
Arcata, CA 95521
(707) 822-7711
rob@wildcalifornia.org

Letter R- Environmental Protection Information Center – Response to Comments

Response R-1

Please see Master Response #1 – Mitigation for PygmyCypress Forest, Master Response #2 – Classification of Bishop Pine Forest, Master Response #3 – Alternatives Evaluated, Response M-3, and Response U-1.

Regarding use of the term transitional or intermediate pygmy forest, the DEIR does not contest the listing of the individual pygmy cypress trees as sensitive, no matter the terminology of morphotypes. Nor does the DEIR doubt the unique chronosequence of the ecosystems present on the various terraces. The terminology was provided by the independent field biologist as a way to further define and characterize the habitat present, rather than a blanket vegetation type. This information on various morphotypes and habitat structure presented in the DEIR is a finer level description on how the plant communities are occurring on the landscape. The project still mitigates for impacts to pygmy forest (G2 S2) on an acreage basis as a habitat, as well as on individual tree basis (CRPR list 1B for pygmy cypress and Bolander's pine). The assertion that there is no scientific basis or validity for characterization based on morphotype overlooks the important information that can be garnered from the documentation provided by the field biologist. Regarding use of terminology and discussion of tree height, please refer to Response U-1.

Response R-2

The assertion that forest impacts cannot be mitigated by off-site preservation is contradicted by the CDFW, which recommended in its letter dated February 28, 2014: "Should the approved project result in adverse impacts to sensitive habitats, the mitigation plan should include proposals for acquiring, restoring, managing and protecting in perpetuity nearby, high quality habitats including Mendocino Pygmy Woodland Forest, Northern Bishop Pine and wetland." The project follows this recommendation through its creation of the 28.5-acre Caspar Pygmy Forest Preserve and does not base mitigation, nor depend on, recruitment or replanting as this comment incorrectly indicates. The DEIR also characterizes the habitat present at the impact area correctly with pygmy forest being listed as G2 S2 and individual pygmy cypress trees and Bolander's pine indicated as CRPR list 1B (no matter what habitat type these individual trees are growing in, and no matter the additional descriptive characterization using tree morphotype), contrary to this commenter's assertion that the DEIR is based on "erroneous" information. The revised mitigation (see Section 2 Revisions to the Draft EIR) is for preservation of 19.5 acres of Pygmy cypress forest, that has been characterized by an independent party as largely consisting of undisturbed pygmy forest. This is a viable mitigation option, based on guidance from CDFW as well as the County General Plan, and provides a mechanism for the project proponent to mitigate biological impacts and weigh other potential impacts such as reduction in greenhouse gases which have drastic offsite long term impacts.

Response R-3

Please see: Master Response #3 – Alternatives Evaluated; Response F-6; and Response L-1.

Response R-4

The commenter suggests that not all cumulative projects were accounted for in the cumulative analysis, but does not indicate what projects are missing. The DEIR Authors have been made aware of the Summers Lane Reservoir project by another commenter. Please refer to Master Response #6 Summers

Lane Reservoir, for a discussion of this project's impact on the cumulative analysis. With regard to the potential future impacts of the land swap, please refer to Response O-16 and Response Q-5.

Response R-5

The DEIR was prepared in accordance with CEQA Statute (Public Resources Code 21000-21177) and the CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387).

Rixanne Wehren
27401 Albion Ridge Rd.
Albion, CA 95410

Mendocino Solid Waste Management Authority
Mike Sweeney, General Manager
3200 Taylor Drive
Ukiah, CA 95482
Email: sweeney@pacific.net

Thank you for the opportunity to comment on the Mendocino Solid Waste Management Central Coast Transfer Station (Project) Draft EIR (DEIR) prepared for the Mendocino Solid Waste Management Authority.

DEIR Comments (“ “ marks indicated quotes from the DEIR)

Section 1 “Environmental effects of the project that must be addressed include the significant effects of the project, growth-inducing effects of the project, and significant cumulative effects of past, present, and reasonably anticipated future projects.”

“The purpose of an EIR is to provide a clear understanding of the environmental impacts associated with the construction and operation of a project and the EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the Notice of Preparation (NOP) is published, from both a local and regional perspective.””

Section 2 Project Location and Description

“The proposed project site for the new transfer station is located in unincorporated Mendocino County approximately 3.5 miles southeast of downtown Fort Bragg. The 17-acre site will be removed from Jackson Demonstration State Forest (JDSF) at 30075 State Route 20 (Figure 2-1 - Vicinity Map), and includes a portion of Assessor’s Parcel Number (APN) 019-150-05 (Figure 2-2 - Site Plan). The removal of the site from JDSF was mandated by AB 384 (2011), the text of which is included as Appendix I.”

The text of AB 382 does not include the word “mandated”, but only “may” grant an option for transfers of properties, and that the various agencies “may” be compensated for differences in value, and for ongoing remediation required by contamination from the Caspar landfill.

1.3 Biological Resources

“CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2012) methodology (see Table 3.4-1), with those alliances ranked globally (G) or statewide (S) with status of 1 through 3 considered to be of special concern as well as imperiled (CDFG 2007; CDFW 2014b).

S-1

S-2

The Bishop Pine Forest was incorrectly indicated as rank G3S3, when in fact it is considered a rare vegetation alliance ranked G2S2. In addition, the CNDDDB does not divide the Pygmy Forest alliance in to “tall, intermediate and pygmy” but is all considered Mendocino Pygmy Forest and ranked G2S2. The divisions disguise the fact that there are 12.44 acres of Pygmy Forest habitat on the project biological study area, not just the 3.11 acres listed as “pygmy”.



The Pygmy Forest is an extremely rare habitat existing only in Mendocino County and a few other places in the world. Of the 4000 acres originally described, only 2000 acres still exist, a reduction of 50%. The County has been responsible for allowing the degradation through subdivisions, residential building, and directly through siting two other transfer stations on pygmy soils.

S-2
cont

The County Policy RM-74 “Protect “pygmy” ecosystems (‘Pygmy and “transitional Pygmy” vegetation and soils) through the use of measures that include minimizing vegetation removal, disruption of vegetation continuity, and introduction of water and nutrient

S-3

4.0 Alternatives Description and Analysis

“This chapter presents the alternatives analysis for the project. Section 15126.6(a) of the CEQA Guidelines requires EIRs to “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project”

“Section 15126.6(b) of the CEQA Guidelines also identifies the purpose of an EIR’s discussion and analysis of project alternatives which is to identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), ...”

S-4

We object to the limited range of the Alternatives selected for the EIR. The selection should result from the Siting Study, which identified the five most reasonable sites for the Transfer Station. The current Caspar TS was NOT one of the selected sites, and is obviously not under active consideration. In fact it was eliminated during the first round due to Residential Nature of Access Road, an absolute requirement.

In addition the highest-ranking sites, Mendocino Coast Park & Recreation and Leisure Time RV Park, were not included in the DEIR, nor were the two other recommended sites. By not including these sites, the Jackson north site could be chosen as the only proposed site.

Questions:

1. Why was the Mendocino Coast Parks & Recreation site not included in the DEIR?
2. Why was the Leisure Time RV Park not included in the DEIR?

S-5

("the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.")

("In 2011, the City and County named two of these sites as finalists for more intensive investigation, and on August 13, 2013, designated 30075 Fort Bragg-Willits Road (SR 20) as the preferred project site.")

3. What were the two sites chosen as finalists from the siting study?
4. Why were both of these finalists not included in the DEIR?
5. The water supply, wastewater, road systems and land clearing are considerably less expensive at the Leisure Time RV site. Why is this not considered a considerable advantage?

S-6

Additional questions are included in the Sierra Club, Mendocino Group's comment letter.

Sincerely,

Rixanne Wehren

Rixanne Wehren

Letter S – Rixanne Wehren – Response to Comments

Response S-1

The first part of this comment includes introductory and general comments that reiterate some of the requirements and purpose of an EIR, as well as a number of quotations from the DEIR. The EIR Authors agree that “mandate” may not be the best descriptive of AB 382. Perhaps “approved” would have been more accurate. Nonetheless, a change in this single word would not result in any change of the impact analysis, mitigation measures, or conclusions made in the DEIR regarding impacts.

Response S-2

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest and Master Response #2 – Classification of Bishop Pine Forest. The DEIR does indeed rank the pygmy cypress forest similar to this commenter, as G2 S2. No matter the morphotype (short, intermediate, or tall), mitigation has been proposed. The division into morphotypes was conducted by an independent field biologist as a way to further characterize the habitat present, to provide the reader and project reviewers a finer scale description of how the plant communities are occurring on the landscape at the project site, and to assist in identifying and tailoring mitigation to those precise plant communities; important detail and focus that would be lost by use of a blanket classification. This additional descriptive effort was in no means meant to mask disclosure of impacts, and again the areas were classified as G2 S2 with minimization of impacts prioritized, and mitigation provided where impacts could not be avoided.

Response S-3

Please See Master Response #5 – Mendocino County General Plan. The project prioritizes avoidance and minimization of impacts to pygmy forest. As such, impacts have been reduced to 0.58 acres through siting design, or just over 12% of the pygmy cypress onsite, and complete avoidance of the pygmy cypress short morphotype where trees are dwarfed and plant growth pattern/structure is limited by unique association by climax spodic soil conditions (or spodic-like hardpans).

Response S-4

The 2007 Siting Study was a preliminary “sweep” that successfully identified the whole universe of possibilities, but in its comparative evaluations it reflected the subjective weight given by one consultant to different siting considerations. It contained some errors and omissions. Site-specific information changed over time. In the following years, City and County staff had to build on that study by looking more closely at its information and assumptions. In particular, staff concluded that the existing use of the Caspar transfer station site for solid waste disposal (since 1967) was an important consideration which outweighed the rural residential nature of the access road. The City Council and Board of Supervisors endorsed this judgment. Therefore, Caspar was restored to active consideration. The Mendocino Parks & Recreation District and Leisure Time RV Park sites were analyzed in the DEIR (reference DEIR Sections 4.4.4 and 4.4.5).

Response S-5

Please refer to Master Response #3 Alternatives Evaluated, as to why the Mendocino Parks & Recreation District and Leisure Time RV Park sites were not carried forward in the DEIR (also discussed in DEIR Sections 4.4.4 and 4.4.5).

Response S-6

The 2007 Siting Study recommended five sites “for additional study” which constituted the “finalists” from that study. The project site was included in those five. Please refer to Master Response #3 Alternatives Evaluated as to why some sites were carried forward for analysis in the DEIR and others were not. The infrastructure advantages of the Leisure Time RV Park are noted in DEIR Section 4.4.4; however, the site was not carried forward in the DEIR because of close substantial surrounding residential land use.

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March 26, 2015

Mendocino Solid Waste Management Authority
Mike Sweeney, General Manager
3200 Taylor Drive
Ukiah, CA 95482
Email: sweeney@pacific.net

Via hand delivery and email

**Re: Comments on the Mendocino Solid Waste Management Central Coast
Transfer Station Draft EIR**

Dear Mr. Sweeney,

On behalf of the Mendocino Group of the Sierra Club, thank you for the opportunity to comment on the Mendocino Solid Waste Management Central Coast Transfer Station (Project) Draft EIR (DEIR).

The DEIR failed to, among other things, conduct an adequate alternatives analysis; evaluate one single alternative that substantially reduce or avoid removal of critically imperiled habitat, as required by CEQA; and to correctly categorize or propose mitigation for the removal of Northern Bishop Pine Forest, a critically imperiled natural community at risk for extinction. The substantive information concerning these issues was submitted during the Notice of Preparation (NOP) by the California Native Plant Society (CNPS) and the California Department of Fish and Wildlife (CDFW) but was ignored. (NOP comment letters attached as Exhibit A and B.)

It is my considered legal opinion, having litigated many of these types of cases, the Solid Waste Management Authority has several legally compelling reasons to reject the DEIR as inadequate and incomplete and require the DEIR to be amended and re-circulated pursuant to the comments and requests made by the California Department of Fish and Wildlife (CDFW) and the following.¹ (March 24, 2015 comment letter from

¹ My law practice focuses exclusively on the enforcement of CEQA. I acted as lead counsel for Petitioners in several successful CEQA cases: *Ross Creek Neighbors v. Town of Los Gatos*, (2009) Santa Clara Superior Court Case No. 108-CV-106461 [Petitioners were successful in obtaining injunctive relief, issuance of a writ, and rejection of the Return to the Writ]; *Save San Juan Valley v. Caltrans*, (2010) Contra Costa Superior Court Case No. CU-08-00176; *Healdsburg Citizens for Sustainable Solutions v. City of Healdsburg* (2010) Sonoma County Superior Court Case No. SCV-243748; *Friends of Historic Hangtown v. City of Placerville* (2012) El Dorado County Superior Court Case No. PC-20110145; *Sierra Club v. County Of Sonoma, Sonoma*

T-1

Comments on the Mendocino Solid Waste Management Central Coast Transfer Station Draft EIR

March 26, 2015

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CDFW, attached as Exhibit C.) A DEIR must be re-circulated for an additional round of public and agency comment and responses before it is certified if significant new information is added relating to a new environmental impact or a substantial impact in the severity of an environmental impact, or if a feasible project mitigation measure or alternative considerably different from others previously analyzed would clearly lessen environmental impacts and is not acceptable to the project proponents, or if the Draft EIR was so fundamentally inadequate that meaningful public review and comment were precluded. (*Laurel Heights Improvement Association v. UC Regents (Laurel Heights II)* (1993) 6 Cal.4th 1112; Guideline §15088.5.)

Failure to adequately describe the correct ranking and rarity of the Northern Bishop Pine Forest constitutes 1) an inadequate “existing setting” regarding a necessary component of the Project description and 2) a failure to establish the correct “baseline” under which environmental impacts are correctly adjudged. The EIR must describe the environmental resources on the project site and in the vicinity that may be adversely affected by a project. (*San Joaquin Raptor /Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713.) The EIR must describe the setting existing at the time the Notice of Preparation (NOP) is published. (*Save Our Peninsula Committee v. Monterey County Board of Supervisors* (2001) 87 Cal.App.4th 99.) The environmental setting normally constitutes the baseline by which a lead agency determines whether a new impact will be significant. Knowledge of the regional setting is critical to the assessment of environmental impacts. Resources that are rare or unique to the region and would be affected by the project warrant special emphasis. (Guideline §15125; *Galante Vineyards v. Monterey Peninsula Water Management District* (1997) 60 Cal.App.4th 1109; *Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal.App.4th 859.)

T-1
cont

Here, we and the CDFW request the addition of significant new information regarding a new impact (to Northern Bishop Pine Forest) and the severity of impacts (to critical habitats, cumulative impacts, area plan consistency, indirect impacts, wetlands, adjacent sensitive natural communities and downstream surface water); and consideration of alternatives and mitigation measures considerably different from those analyzed in the DEIR such that re-circulation is required. (Attached Exhibits A-C.) “Comments from responsible experts or sister agencies that disclose new or conflicting data or opinions that cause concern that the agency may not have fully evaluated the project” may not be ignored. (*Berkeley Keep Jets over the Bay Committee v. Board of Port Cmr’s.* (2001) 91 Cal.App.4th 1344, 1367 quoting *Cleary v. County of Stanislaus*, (1981) 118 Cal.App.3d 348, 357.)

T-2

1. Why were the substantive comments made during the NOP process ignored?

County Board of Supervisors (2012) Sonoma County Superior Court Case No. SCV 248271; *Healdsburg Citizens for Sustainable Solutions v. City of Healdsburg* (2012) 206 Cal. App. 4th 988; *Los Gatos Citizens for Responsible Development v. City of San Jose* (2012) Santa Clara Superior Court Case No. 111-CV-209214.

Comments on the Mendocino Solid Waste Management Central Coast
Transfer Station Draft EIR

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Legal Criteria for Assessing the Adequacy of the DEIR

Importance of the EIR

In enacting the California Environmental Quality Act (Public Resources Code §§ 21000 *et seq.*) in 1970, the California Legislature declared the maintenance of a quality environment to be a matter of ongoing statewide concern. (Public Resources Code § 21000(a).) Public agencies considering approval of both public and private projects must therefore give "major consideration ... to preventing environmental damage, while providing a decent home and satisfying living environment for every Californian." (Public Resources Code § 21000(g).)

Under CEQA, public agencies cannot "approve projects as proposed if there are feasible alternatives or feasible mitigation measures available that would substantially lessen the environmental effects of such projects." (Public Resources Code § 21002.)

The Legislature designed CEQA's review processes to publicly disclose environmental effects and identify feasible project alternatives and mitigations. The goal is to protect California's environment by informing the discretionary land use decisions of elected officials. (Public Resources Code § 21002.) CEQA furthers California's environmental policies through its *procedural* mandates, requiring agencies to prepare and consider environmental documents within prescribed public review processes, *and substantive* mandates, requiring agencies to impose feasible mitigation measures and alternatives to projects that might otherwise cause significant adverse environmental effects.

Alternatives

Section 15126.6(a) of the CEQA Guidelines requires EIRs to "describe a range of reasonable alternatives to the project, *or to the location of the project*, which would feasibly attain most of the basic objectives of the project but would *avoid or substantially lessen* any of the significant effects of the project, and evaluate the comparative merits of the alternatives. Reasonable alternatives must be considered "*even if they substantially impede the project or are more costly.*" (*San Bernardino Valley Audubon Society v. County of San Bernardino* (1984) 155 Cal.App.3d 738, 750; Guideline §15126(d)(1); *Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336; emphasis added.)

Range of Alternatives

An EIR must consider a "range of reasonable alternatives." *Citizens of Goleta Valley v. Board of Supervisors (Goleta II)* (1990) 52 Cal.3d 553; *Residents AdHoc Stadium Committee v. Board of Trustees* (1979) 89 Cal.App.3d 274; Guideline §15126.6(c). The range must be sufficient "to permit a reasonable choice of alternatives so far as environmental aspects are concerned"; *San Bernardino Valley Audubon Society v. County of San Bernardino, supra*, 155 Cal.App.3d at 750-751; Guideline §§15126.6(c), (f).

Alternate Sites

An EIR should consider alternate sites for both public and private development projects. (*Citizens of Goleta Valley v. Board of Supervisors (Goleta II)* (1990) 52 Cal.3d 553,

T-2
cont

Comments on the Mendocino Solid Waste Management Central Coast Transfer Station Draft EIR

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574-575; *Citizens of Goleta Valley v. Board of Supervisors (Goleta I)* (1988) 197 Cal.App.3d 1167, 1179-1180.) EIRs “must consider a reasonable range of alternatives to the project, or to the location of the project.” (Guideline §15126.6(f)(2.); emphasis added.)

Agency Jurisdiction

An alternate site’s location outside the lead agency’s jurisdiction is “simply a factor to be taken into account” and not a reason for an outright rejection of alternatives. (*Citizens of Goleta Valley v. Board of Supervisors (Goleta II)* (1990) 52 Cal.3d 553, 575, n7.)

Economic Analysis

Laurel Heights Improvement Association v. UC Regents (Laurel Heights 1) (1988) 47 Cal.3d 376, while not specifically addressing economics, held that an agency’s reasons for finding an alternative to be infeasible must be explained in the EIR. (*Id.* at 407.) Many EIRs analyze the relative economic feasibility of alternatives, since economic factors are emphasized by CEQA as primary factors in determining an alternative’s feasibility. (*Foundation for San Francisco’s Architectural Heritage v. City and County of San Francisco* (1980) 106 Cal.App.3d 893, *City of Fremont v. SF Bay Area Rapid Transit District* (1995) 34 Cal.App.4th 1780, *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App.3d 692.) The EIR in *Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal.App.4th 1437 was rejected for failure to adequately analyze the economic feasibility of alternatives. In *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, an EIR’s economic analysis of feasible alternatives to a composting facility was also ruled inadequate. However, Guideline section 15131(c) provides, without statutory authority, that economic analysis of the feasibility of alternatives may be in the EIR or may be added to the record “in some other manner.” *Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336 reiterated that any evidence presented by an applicant as to purported infeasibility of an alternative must be independently analyzed by the lead agency.

Indirect Impacts

A project may affect the environment directly or indirectly. A project includes “an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.” §21065; *Kaufman & Broad-South Bay v. Morgan Hill Unified School District* (1992) 9 Cal.App.4th 464, 470, and *City of Livermore v. Local Agency Formation Commission* (1986) 184 Cal.App.3d 531, 537-538. Indirect impacts relating to the disposal of sewage sludge, including increased truck hauling and associated emissions and the removal of farmland from production, were held to be potentially significant environmental impacts in *County Sanitation District No. 2 v. County of Kern* (2005) 127 Cal.App.4th 1544, 1581.

Section 4.0 Alternatives Analysis

Aside from the required No Project Alternative, the DEIR reviewed only one alternative, the Caspar Site Alternative. The DEIR states biological impacts would be avoided with the Caspar Site Alternative because the site has already been cleared and



T-2
cont

T-3

Comments on the Mendocino Solid Waste Management Central Coast Transfer Station Draft EIR

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developed but found the alternative infeasible due to Caltrans' determination that the intersection of Highway 1 and County Road 409 is substandard and has limited potential for improvement, and it therefore has sufficient physical transportation limitations to preclude its consideration.

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T-3
cont

As noted, CEQA requires the DEIR to describe and analyze a reasonable range of *feasible* alternatives. The selection of alternatives for analysis should have been chosen from those identified in the Siting Study conducted for the Project; the Caspar site was not even considered as one of the potential sites in the study; it was eliminated during the first round of review due to the residential nature of the access road.

T-4

In addition the highest-ranking sites, Mendocino Coast Park & Recreation and Leisure Time RV Park, were not reviewed in the DEIR, nor were two other recommended sites, due to their purported infeasibility. In order to be considered feasible, an alternative is required to meet most project objectives; it doesn't have to meet every objective. And as noted, reasonable alternatives must be considered "even if they substantially impede the project or are more costly."

T-5

The DEIR failed to consider a reasonable range of feasible alternatives. Analysis of one alternative, aside from the required No Project Alternative, cannot be deemed a reasonable range. By selecting an infeasible alternative as the only alternative for analysis the entire analysis is rendered inadequate and incomplete.

2. Why was Caspar Transfer Station included in the DEIR when it had already been eliminated and deemed infeasible in the Siting Study?
3. Why didn't the DEIR include an environmentally superior alternative in its analysis?

T-6

The DEIR removed feasible sites from consideration without sufficient justification.

The **Pudding Creek Road** site was considered an attractive alternative because it is already used by Empire Waste Management for recycling and heavy truck operation; it has existing compatible utilities, paved access, and other services; and there is room to accommodate the Project at the site. But it was removed from consideration because it did not meet one objective, that the Project be publicly owned, and secondly, because the site is "less successful" in meeting another objective, that it be isolated from other land uses. (4.0-5.) However CEQA considers alternatives feasible if they meet most Project objectives. The alternative should have been considered in the analysis.

T-7

The DEIR states the **Mendocino Coast Recreation District site** is for sale and is otherwise appropriate for consideration; the Recreation District is currently in bankruptcy and owes 2.3 million dollars; the City of Fort Bragg tried to buy the site for an unstated price but was turned down; and public entities are precluded from purchasing properties for above the appraised value. The listed price for the site, however is not 2.3 million, it is 1.3 million dollars. The site was appraised at \$800,000 in

T-8
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Comments on the Mendocino Solid Waste Management Central Coast Transfer Station Draft EIR

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2014 but was not evaluated for utilization as a transfer station. If the site were reappraised for this purpose it may well appraise at a higher value. As cost alone is not a determinative reason for infeasibility, the DEIR's claim that the site may cost more than the Project site is not a valid reason to exclude the alternative from study.

T-8
cont

Similarly, the **Leisure Time RV Park** was not considered in the alternatives analysis and should have been. Each of these alternatives would avoid impacts to rare and threatened habitats, consistent with CEQA's substantive requirement for consideration of alternatives.

It is arguably proper for Mendocino Waste Management to reject an alternative as economically infeasible, but only *after* the alternative has been thoroughly analyzed in the EIR and only *when* the determination of economic infeasibility is based upon a valid economic study that shows the alternative renders the Project "*impractical to proceed.*" (*Citizens of Goleta Valley v. Board of Supervisors (Goleta I)* (1988) 197 Cal.App.3d 1167, 1181, emphasis added.) It is quite another thing entirely to preemptively remove alternatives from consideration for economic reasons without any economic study whatsoever.

T-9

Feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, technological, and legal factors. (Public Resources Code §21061.1; Guideline §15364.) But increased costs of an environmentally superior alternative do not equate to economic infeasibility: "[t]he fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability are sufficiently severe as to render it *impractical to proceed with the project.*" (*Citizens of Goleta Valley v. Board of Supervisors (Goleta I)* (1988) 197 Cal.App.3d 1167, 1181; emphasis added; see also *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 736; *City of Fremont v. San Francisco Bay Area Rapid Transit District* (1995) 34 Cal.App.3d 1780 [addition of \$60 million in costs rendered subterranean alternative for BART extension infeasible].)

4. Considering this information, shouldn't the DEIR be amended to include evaluation of the alternatives that substantially lessen or avoid impacts to sensitive habitat?
5. How do the Project's costs, such as removal of vegetation and other site preparations, and the costs of implementation of mitigation measures compare with the savings derived from alternatives that have already been cleared and do not entail removal or mitigation of sensitive habitat?
6. If costs are the reason why alternatives are determined to be feasible, shouldn't an economic analysis be prepared to compare the total costs of each alternative?

T-10

The Department of Fish and Wildlife (CDFW) wrote in its comment letter on the Notice of Preparation that the proposed Project site currently maintains exceptionally high

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quality Mendocino Pygmy Cypress Woodland and good Northern Bishop Pine Forest Habitats. Both habitats are rated as "highly imperiled or "rare and threatened in California." The Mendocino County Plan Policy RM-84 also calls for protecting this habitat by minimizing "vegetation removal" and the "disruption of vegetation continuity." And the Jackson Demonstration State Forest's 2008 EIR/Management Plan states the intent to "maintain the current distribution and species composition of Mendocino Pygmy Cypress Woodland habitat and protect it from harmful human disturbance. For these reasons, CDF stated the Project would result in significant biological impacts and requested inclusion of at least one feasible alternative Project location that would avoid or substantially lessen the impacts to rare vegetation types. "The alternative should include locations that are void or have a minimum amount of sensitive species and/or habitats." (Exhibit A.)

T-10
cont

As noted, "Comments from responsible experts or sister agencies that disclose new or conflicting data or opinions that cause concern that the agency may not have fully evaluated the project" may not be ignored. (*Berkeley Keep Jets over the Bay Committee v. Board of Port Cmr's*, (2001) 91 Cal.App.4th 1344, 1367 quoting *Cleary v. County of Stanislaus*, (1981) 118 Cal.App.3d 348, 357.)

T-11

7. Considering this information, shouldn't the opinion of CDWF be heeded, and alternatives that are void or have a minimum amount of sensitive species and/or habitats be considered?

The proposed Project was selected as the environmentally superior Alternative. However, selection of the Project as the preferred alternative countermands CEQA's imperative to review alternatives to the Project that substantially avoid or lessen the impacts of the Project. The DEIR therefore failed to identify an environmentally superior alternative pursuant to Guideline Section 15126.6(e).

8. What CEQA provision allows for choosing the Project as the preferred alternative?

T-12

Section 1 "Environmental effects of the project that must be addressed include the significant effects of the project, growth-inducing effects of the project, and significant cumulative effects of past, present, and reasonably anticipated future projects." (DEIR 1.0-1.)

"The purpose of an EIR is to provide a clear understanding of the environmental impacts associated with the construction and operation of a project and the EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the Notice of Preparation (NOP) is published, from both a local and regional perspective."" (DEIR 1.0-2.)

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- 9. What are the effects of the past projects of the Joint Powers Authority on the entire Pygmy Forest, including the siting of the Albion transfer station and the Caspar Landfill and Transfer station on Pygmy Forest habitat? T-13
- 10. What is the ongoing effect of the Caspar landfill on the groundwater resources of the Caspar area? T-14
- 11. What are the effects on the future projects in the area of the proposed Central Coast Transfer Station, such as the development of the Regional Park, Newman Reservoir and new Summers Lane reservoir and GP bark dump? T-15

Section 2 Project Location and Description

“The proposed project site for the new transfer station is located in unincorporated Mendocino County approximately 3.5 miles southeast of downtown Fort Bragg. The 17-acre site will be removed from Jackson Demonstration State Forest (JDSF) at 30075 State Route 20 (Figure 2-1 - Vicinity Map), and includes a portion of Assessor’s Parcel Number (APN) 019-150-05 (Figure 2-2 - Site Plan). The removal of the site from JDSF was mandated by AB 384 (2011), the text of which is included as Appendix I.” (DEIR 2.0-1.) T-16

The text of AB 384 does not include the word “mandated”, but states it “may” grant an option for transfers of properties, and that the various agencies “may” be compensated for differences in value, and for ongoing remediation required by contamination from the Caspar landfill.

Section 2.5.1 “Further, under the land swap authorized by AB 384, twelve acres of redwood forest at the northeastern corner of Russian Gulch State Park (Figure 3), comprising the entire Park northeast of County Road 409, would be transferred to Jackson Demonstration State Forest (JDSF). The purpose of this transfer would be to offset the loss of forest resources caused to JDSF at the Central Coast Transfer Station site.” (DEIR 2.0-3.) T-17

- 12. What is the appraised value of the 17-acre proposed Transfer Station site?
- 13. What is the appraised value of the 12.66 acres of Russian Gulch State Park (RGSP) that may be traded to Jackson Demonstration State Forest?
- 14. Is the RGSP property appraisal based on the trees remaining protected or on their timber value as unprotected?
- 15. Would the trees on the 12.66 acres continue to be protected from harvest or become a timber resource for JDSF?

Section 2.5.1 “Under AB 384, the 60-acre Caspar site (Figure 3 - Project Land Exchange Parcels), including the footprint of the closed landfill, would be the subject of a conservation easement granted to the California Department of Parks & Recreation (DPR). DPR would have the option of taking ownership of the 35 westernmost acres of the site (Figure 3).” (DEIR 2.0-2.) T-18

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|---|------|
| 16. Has an appraisal been done for the current Caspar Transfer station property? What was the resulting valuation? Was that valuation based on residential value or brownfields value? | T-19 |
| 17. Has the current Caspar Transfer station property been evaluated for toxic contamination from the landfill? What are the results of that evaluation and anticipated monitoring and remediation cost? | T-20 |
| 18. What is the estimated difference in value between the loss of the Russian Gulch State Park forested property and the gain of the "restrictive covenant" on 60 acres of Caspar property to the RGSP? | T-21 |

Section 2.5.4 "Closure of existing facilities

| | |
|--|------|
| <p>"With the opening of the new transfer station, the existing Caspar self-haul transfer station would cease operations and Empire Waste Management would cease its direct-haul transfer to Willits Transfer Station and instead use the new transfer station. The Albion self-haul transfer station would continue to operate but its solid waste would be redirected to the new Central Coast Transfer Station." (DEIR 2.0-3.)</p> | T-22 |
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- | | |
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| 19. Is there a rehabilitation plan for the Caspar transfer station property from industrial use? What does that plan consist of and what is the estimated cost to the JPA? | |
| 20. Will the Albion waste stream continue to be transferred from 'pods' to the long haul system? How will this be accomplished? Would it be inside the enclosed building? | T-23 |
| 21. Was this merging included in the cost savings estimates? | |

2.5.7 Capacity

| | |
|--|------|
| <p>"Based on the current waste stream, documented by transfer station records, the solid waste throughput would average 35 tons per day year-round, with a peak day of 50 tons per day. The facility could handle a larger waste stream by more intensive utilization of the same infrastructure. The future size of the waste stream is speculative. There has been no growth (an actual decrease has occurred) in the region's disposal waste stream over the last six years as shown by Table 2-1, and City and County annual population growth projections are less than one percent." (DEIR 2.0-5.)</p> | T-24 |
|--|------|

- | | |
|--|------|
| 22. Why does the scoping information state that the project should be sized for twice the capacity when growth projections are for far less growth? | |
| 23. Does the EPA mandate any specific size increase or property expansion size? Will the rest of the property eventually be used to expand this project? | T-25 |

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Energy Usage

"The amount of diesel used annually for the delivery of transfer trailers to the Willits Transfer Station under existing conditions is approximately 54,630 gallons per year. The amount of diesel used annually for the delivery of transfer trailers to a destination landfill under project conditions is unknown at this time." (DEIR 2.0-6.)

T-25
cont

24. If the amount of diesel needed for transfer trailers is unknown, what is the basis for comparison for the cost savings for long haul delivery?

T-26

25. What is the cost of buying new long-haul trailer/trucks for the project?

T-27

2.5.14 Caspar Transfer Station Closure

"Closure of the Caspar self-haul transfer station would involve shutting the gate and ceasing acceptance of solid waste. This would occur within one week of the opening of the new transfer station. It is anticipated that removal of small and portable existing structures, including the gate house, lockers and stationary compactors, would occur at some point after the Caspar transfer station closes. At this time there is no requirement or intention to demolish any of the existing structures at the Caspar facility. Any future demolition would depend on funding and future use of the site by DPR." (DEIR 2.0-7.)

T-28

26. The State Parks staff has indicated that the Parks will not accept a conservation easement on the old Caspar property without funding to do weed abatement. What is the budget and plan for supporting this effort?

27. What are the ongoing impacts of toxics from the landfill?

3.0 Environmental Setting, Impacts and Mitigation Measures

Section 3.0 List of Relevant Projects

"Table 3.0-1 (Projects Considered for Cumulative Impacts) provides a list of the past, present, and reasonably foreseeable future projects within and near the project area, including a brief description of the projects and their anticipated construction schedules (if known)." (DEIR 3-3.)

CEQA requires that an EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the Notice of Preparation (NOP) is published, from both a local and regional perspective.

T-29

In this case, the entire Pygmy Forest is located along the Mendocino Coast and must be considered as part of an adequate cumulative impact and indirect impact analysis.

Questions:

28. What is the effect on the Pygmy Forest regionally of the conversion of the Pygmy Forest on the proposed Central Coast Transfer Station?

29. What are the specific effects of the siting of the Albion and Caspar transfer stations on Pygmy Forest in the past and in conjunction with the current

T-30

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- proposal?
30. What are the anticipated effects of the Newman Reservoir, new Summers Lane reservoir and the development of the Regional Park on the project?

T-31

1.2 Agriculture and Forest Resources

“This section evaluates the potential impacts related to agriculture and forest resources with implementation of the project.” (DEIR 3.2-1.)

This section fails to mention the status of the trees on the Russian Gulch property, which, by inclusion of the AB 384 document in the EIR, and reliance on the trade to facilitate the project, is a part of the Project. JPA claims that the trees will become a timber asset for JDSF.

T-32

31. Will the trees on the Russian Gulch State Park property continue to be protected from harvest?
32. Is the value of the living trees considered part of the value of the trade property?
33. What is the JDSF policy on protection of non-timber resources, specifically Mendocino Pygmy Forest?

T-33

T-34

1.3 Biological Resources

“CNDDDB [California Natural Diversity Data Base] vegetation alliances are ranked 1 through 5 based on Nature Serve’s (2012) methodology, with those alliances ranked globally (G) or statewide (S) with status of 1 through 3 considered to be of special concern as well as imperiled (CDFG 2007; CDFW 2014b)”. (DEIR 3-4.1)

The Bishop Pine Forest is incorrectly indicated as rank G3 S3, when in fact it is considered a rare vegetation alliance ranked G2 S2. (3.4-3.) In addition, as noted by the California Native Plant Society in its comments on the Notice of Preparation, the CNDDDB does not divide the Pygmy Forest alliance into “tall, intermediate and pygmy” but has one characterization, Mendocino Pygmy Forest, ranked G2 S2. (Attached, Exhibit B, pg. 1.) The Pygmy Forest is an extremely rare habitat existing only in Mendocino County and a few other places in the world. Of the 4000 acres originally described, only 2000 acres still exist, a reduction of 50%. The County has been responsible for allowing the degradation through subdivisions, residential building, and directly through siting two other transfer stations on pygmy soils.

T-35

The Department of Fish and Game details the mischaracterization of the vegetation at issue in their comment letter on the DEIR. (Attached Exhibit C, pg. 3.) As noted above, comments made by a sister agency may not be disregarded.

The DEIR’s arbitrary and unsupported divisions disguise the fact that there are 12.44 acres of Pygmy Forest habitat on the project biological study area, not just the 3.11 acres listed as “pygmy.” (DEIR 3.4-5.)

T-36

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|--|------|
| 34. When all divisions of Pygmy Forest are combined, what is the new acreage of Pygmy Forest impacted by the project? | T-37 |
| 35. The DEIR doesn't mention the CA Dept. of Fish & Wildlife's recommendation of a 100' buffer around sensitive habitats. Is this buffer included in the biological resources evaluation? | T-38 |
| 36. How does the planning for removal of any pygmy vegetation follow County Policy RM 73 "The design of new development should emphasize the avoidance of sensitive resources and environments rather than their removal and replacement"? | |
| 37. How does the planning for removal of any pygmy vegetation follow County Policy RM-74 "Discretionary development shall be designed or conditioned to achieve no net loss of sensitive resources."? | |
| 38. How does the planning for removal of any pygmy vegetation follow County Policy RM-75? "Protection of sensitive resources is the highest priority. Onsite replacement or offsite replacement, protection or enhancement is less desirable." | T-39 |
| 39. How will the removal of any pygmy vegetation follow County Policy RM-84? "Protect "pygmy" ecosystems ("Pygmy and "transitional Pygmy" vegetation and soil ...)" | |
| 40. How will the corrected ranking change the evaluation of the impacts and mitigations to Bishop Pine forest? | |
| 41. How does the removal of any Bishop Pine Forest follow the County Policies RM-73, RM-74, and RM-75? | |
| 42. Why were sites 40 Leisure Time RV and 41 Jackson Forest south from the Siting Study eliminated from consideration in the DEIR even though they had less impact to sensitive resources and similar scores on the Evaluation Matrix? | T-40 |
| 43. Why was impact to sensitive resources not one of the criteria for site selection, as is required by the County Policies on Resource Management listed above? (See Table 3 Site Selection Criteria Matrix) | T-41 |
| 44. The Leisure Time RV parcel is already bulldozed and all vegetation removed. Why is this site not considered the feasible, less environmentally damaging alternative to be evaluated in the EIR? | T-42 |

1.4.5 Impacts and Mitigation Measures

"Impact BIO-1: Substantial Adverse Effect on Special-Status Species

The County and City minimized the amount of impacts to sensitive-listed tree species through adjustment of the project footprint, and eliminated impact to the most sensitive area that is stunted and mapped as cypress forest-pygmy. This minimization and avoidance effort was conducted during the project planning phase and project layout/ design per guidance of RM-74 that suggests prioritizing minimization and avoidance prior to a replacement or enhancement approach. (3-4-41.)

The project would permanently impact approximately 0.58 acre of Mendocino cypress and Bolander's pine (both CRPR List 1B) (within areas categorized as cypress forest-tall

T-43

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and cypress forest-intermediate)." (DEIR 3-4-42.)

"Mitigation Measure BIO-1b: Mitigate Impact to Mendocino Cypress and Bolander's Pine. The impacts to CRPR listed tree species Mendocino cypress and Bolander's pine (a 0.58 acre area) shall be mitigated through preservation at an offsite location. The County and City proposes to use a portion of a 28-acre site identified as Assessor's Parcel Number (APN) 118-50-045 which is adjacent to and north of the Caspar transfer station facility and is forested including cypress, Bishop Pine, and other related species." (DEIR 3-4-43.)

T-43

The County Policy RM-74 "Protect "pygmy" ecosystems (Pygmy and "transitional Pygmy" vegetation and soils) through the use of measures that include minimizing vegetation removal, disruption of vegetation continuity, and introduction of water and nutrients due to human activity, sewage disposal systems, animal or agricultural uses." (DEIR 3.4-38.)

45. How does choosing a site requiring the destruction of pygmy forest, as opposed to a site that has no pygmy forest, follow County Policy RM-74?

46. How does destroying even .58 acres of Pygmy forest, in a region that has had 50% of the Pygmy Forest habitat already degraded meet Policy RM - 73 (avoidance) RM 74 (no net loss) and RM 75 (protecting existing sensitive resources as the highest priority)?

T-44

47. Has any evaluation of the biological resources of the proposed mitigation site been done?

48. What was the outcome of that evaluation?

T-45

49. Was contaminated groundwater included in the evaluation of the mitigation site?

50. What mitigation is proposed for the clearing of 8.39 acres of Bishop Pine Forest?

T-46

1.4.6 Cumulative Impacts

The cumulative impacts section is fundamentally compromised by the mis-ranking of the Bishop Pine Forest; and by the separation of Pygmy Forest into tall, intermediate and pygmy Pygmy forest, although all are classified together by CNDDES as G2S2. This entire section must be rewritten after the questions asked about other parts of Section 3.0 are answered.

We do not consider mitigation instead of avoidance to be a reasonable adherence to the County Resource Management Policies, as there are alternative sites that avoid impact to Pygmy Forest.

T-47

51. How do the environmental effects of the land swap including Russian Gulch State Park forest and the Caspar dump and Transfer station also affect the Cumulative Effects?

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52. If the Russian Gulch parcel is opened to logging, what are the effects of erosion and hydrology and their addition to cumulative effects?

T-48

3.9 Hydrology of the Pygmy Forest

The County standards for hydrology analysis were developed for average grassland or forest properties and are not appropriate for Pygmy Forest hydrology. Any development on pygmy soils that breaks the crust or penetrate the underlying clay layers alters the wetland hydrology unique to the Pygmy Forest. Special consideration of this unique habitat should be included in the hydrological study and specific criteria developed to evaluate the impacts.

T-49

The following comments were prepared by Hydrologist, Tim Bray.

The DEIR cites to a groundwater study conducted on a nearby parcel, the proposed site of a golf course. No water report (Proof of water or hydrological study) appears to have been completed for the proposed project. (DEIR 3.9-13, 14.)

53. Why wasn't a groundwater study performed for the subject site?

The DEIR does not identify any nearby existing water wells. Mendocino County's groundwater ordinance requires that a hydrological study "... contain specific assessments of the impacts of pumpage on all wells within the drawdown cone or within 300 feet, whichever is greater."

T-50

54. Why weren't nearby existing wells documented in the DEIR?

The DEIR does not address water use during construction. Expected demand for dust control, soil conditioning, etcetera, should be estimated, and a source identified. The DEIR concludes that the anticipated water use (up to 1,000 gallons per day, during operation) will not lead to a significant impact, however, the cumulative effects of the proposed project plus the proposed golf course are not addressed. While the golf course would likely consume a far larger amount of water than the transfer station, the DEIR does not address what the cumulative effects of both projects might be on nearby water wells (if any) or surface water bodies.

T-51

55. What is the Project's construction water demand?

T-52

Construction of impervious areas will not only increase runoff as discussed here, but also reduce infiltration and groundwater recharge. The EIR should address this potentially significant impact to groundwater. Infiltration through constructed features (e.g. bio-swales, storm-water basins) may be greatly reduced by the hydrologic characteristics of pygmy soils and by the documented existence of shallow (possibly perched) groundwater at the project site. (DEIR 3.9-15.)

T-53



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56. How do the hydrologic characteristics of pygmy soils affect the efficacy of bio-swales and storm-water basins?

T-53

DEIR section 3.9.6 states (without evidence) that no significant cumulative hydrology impacts will occur, but as noted above, it is not clear whether the golf course development was considered as a potential development in this analysis. Nor is it clear whether the combined effects of reduced infiltration and groundwater withdrawal for this project were evaluated.

57. Considering this information, what are the cumulative impacts to hydrology and water?

T-54

Consistency with Area Plans

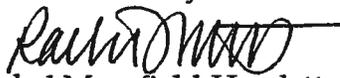
The CDFW states that the Project is inconsistent with the General Plan and the Jackson Demonstration State Forest Plan, citing specific sections of each plan. (Exhibit C; page 11-13.)

58. How can the Project be considered consistent with these Plan provisions?

T-55

Thank you for the opportunity to comment on the DEIR prepared for this Project.

Sincerely,



Rachel Mansfield-Howlett

Attorney representing Mendocino Group of the Sierra Club

Enclosures: Attached Exhibits A-C

Letter T – Rachel Mansfield-Howlett – Response to Comments

Response T-1

Please see Master Response #3 – Alternatives Evaluated, for a summary of the project alternatives and alternatives considered but not carried forward in the DEIR, justification for the analysis, and inclusion of information that at least one project alternative would require substantial removal of pygmy forest.

See Master Response #1 – Mitigation for Pygmy Cypress Forest and Master Response #2 – Classification of Bishop Pine Forest which address the portion of this comment dealing with sensitive “natural community.” It is agreed that environmental setting should take into consideration the regional context, and therefore as included in the DEIR, information on Bishop Pine and regional setting was provided, and this topic is further addressed in the Master Response section of this RTC.

Regarding comments on the NOP and consultation with resource agency(s), the DEIR did take into consideration comments on the NOP and conference calls did occur with CDFW to address their site visit, project concerns, and pygmy forest mapping efforts (personal communication CDFW 2014). The DEIR prioritized avoidance and minimization of impacts, and incorporated mitigation in the form of preservation as guided by CDFW and based on verbal discussion and written comments received during the scoping process.

The RTC document is not introducing new environmental impact or mitigation such that would require recirculation, but the comment is noted.

Response T-2

Comments received in response to the NOP were not ignored and were useful contributions to the preparation of the DEIR. Letters received in response to the NOP are included in the DEIR as Appendix A. Refer to Master Response #2 – Classification of Bishop Pine Forest, with regard to the suggestion that “information regarding a new impact (to Northern Bishop Pine Forest)” be provided. As outlined in the Master Response, no significant new information has been added to or new impact identified in this RTC document that would warrant recirculation.

The remainder of the comment cites the “legal criteria for assessing the adequacy of an EIR” including the importance of the EIR, alternatives, range of alternatives, alternative sites, agency jurisdiction, economic analysis and indirect impacts, with no comment on the adequacy of the Central Coast Transfer Station DEIR. No further response is necessary.

Response T-3

The DEIR analyzed the impacts of two alternatives, and identified five alternatives considered but not carried forward in the DEIR in compliance with CEQA, as described in Section 4.0 – Alternatives Description and Analysis and Master Response #3 – Alternatives Evaluated.

Response T-4

Please see Response S-4, Response S-6, and Master Response #3 – Alternatives Evaluated.

Response T-5

These sites were discussed in DEIR Sections 4.4.4 and 4.4.5. Please also see Master Response #3 – Alternatives Evaluated.

Response T-6

Please see Response S-4 as to why the Caspar Transfer Station was included in the DEIR. The environmentally superior alternative is the proposed project as mitigated, given it would achieve greater reductions in various environmental resource categories including aesthetics, air quality, energy consumption, greenhouse gas emissions, and transportation. See Master Response #3 – Alternatives Evaluated and Section 4.4 of the DEIR for justification for not carrying forward five alternatives in the EIR.

Response T-7

The Pudding Creek site was also rejected because access would be through the Fort Bragg downtown “choke point” on Highway 1. Please see DEIR Section 4.4.2 and Master Response #3 – Alternatives.

Response T-8

The Mendocino Parks & Recreation District site was also rejected because of its lack of isolation from nearby residential land uses. For example, as noted in the DEIR, the closest neighbor’s building is approximately 20 feet from the northern boundary of the site. Please see DEIR Section 4.4.5 and Master Response #3 – Alternatives Evaluated.

Response T-9

Leisure Time RV Park was discussed in DEIR Section 4.4.4. Please also see Master Response #3 – Alternatives Evaluated, and Response T-10 below.

Response T-10

The DEIR did evaluate an alternative that would have fewer impacts to sensitive habitat: Alternative 2 Caspar Site. However, sensitive habitat was not the only potential environmental impact of the project and alternatives. In addition, the DEIR considered but did not carry forward in the evaluation, five alternative sites, four of which already have had much of the vegetation removed, but were not carried forward for other environmental reasons. Please see Master Response #3 – Alternatives Evaluated.

Regarding cost comparisons, please see Response O-17. Since no site is declared infeasible due to costs (except Mendocino Parks & Recreation District regarding the purchase price), and comparative costs are not the basis for selection of any one site over another, the DEIR does not need to provide hypothetical cost comparisons. This could be requested by the City Council and Board of Supervisors if they believed it would be useful. Total capital cost estimates were made of \$4.79 million for the project site and \$3.86 million for the Caspar transfer station site.

With regard to Mendocino County Plan Policy RM-84, please see Master Response #5 – Mendocino County General Plan. See response above to J-4 that discusses the project minimization and avoidance efforts as they relate to General Plan guidance. As guided by RM-84, vegetation removal has been minimized and the most unique habitat onsite, the dwarfed pygmy cypress forest, has been avoided as well as impacts to wetlands. Regarding vegetation continuity, this was also discussed in the DEIR, and the project has been sited so that where impacts do occur to the pygmy cypress trees (0.58 acres), impacts are on the edge of the pygmy cypress map units (intermediate and tall morphotypes) and does not dissect these habitat.

Response T-11

Such alternatives were considered. Please see Response T-10 and Master Response #3 – Alternatives Evaluated as well as Master Response #1 – Pygmy Cypress Forest. The project site was mapped by an independent biologist who identified the locations of Bishop Pine Forest and Pygmy Cypress Forest, as referred to as present at the site by CDFW.

Response T-12

CEQA Guidelines Section 15021(d): “CEQA recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors and in particular the goal of providing a decent home and satisfying living environment for every Californian...” The statement that “the DEIR failed to identify an environmentally superior alternative pursuant to Guidelines Section 15126.6(e)” is inaccurate. The environmentally superior alternative was identified in Section 4.3 of the DEIR. Please see Response T-6. The proposed project as mitigated was found to be the environmentally superior alternative based on numerous environmental considerations.

The DEIR did include a description of the physical environmental conditions from both a local and regional perspective at the time the NOP was published (baseline conditions). See DEIR Sections 3.1 through 3.12.

Response T-13

The Albion and Caspar Transfer Stations sites were developed more than 50 years ago and it is not known whether this was done by logging companies or others prior to their acquisition by the County. At that time there was no recognition of future vulnerability of Pygmy cypress forest habitat or sensitive-species listing by the State. A discussion of cumulative impact on Pygmy cypress forest was provided in the DEIR, which takes into consideration past, present, and probable future projects, as listed in the DEIR. There is no way to track the historic effect the Albion and Caspar Transfer sites may have had on pygmy forest (personal communication County of Mendocino 2015b). With the establishment of the Caspar Pygmy Forest Preserve, the project’s impact are less than significant for pygmy cypress habitat and individual tree species, with a 30:1 preservation ratio.

Response T-14

This is not a comment on the adequacy of the DEIR. However, the Caspar Landfill was closed in 1992 and given a final closure impermeable cover several years later. Subsequently, the extensive network of monitoring wells has shown that water quality downgradient from the landfill is the same as upgradient water quality above the landfill, therefore the landfill is not impacting groundwater quality. Historical groundwater analytical data for the Caspar Landfill are not related to nor have any bearing on the proposed Project.

Response T-15

The DEIR analyzes cumulative impacts from other projects listed in Table 3.0-1. The project is not growth-inducing and will have no effect on other projects. The Regional Park project was abandoned. Regarding the Summers Lane Reservoir, please see Master Response #6 – Summers Lane Reservoir. There is no known project concerning the closed GP bark dump.

Response T-16

Please see Response O-21.

Response T-17

The 17-acre project site was appraised at \$563,000. There is no appraisal known to the DEIR Authors for the 12.6-acre Russian Gulch State Park site.

Response T-18

Please see Response O-16.

Response T-19

The 35 acres of the Caspar site (doesn't include closed landfill) that would be optioned to State Parks for \$1 was appraised at \$685,000, based partially on public facilities use and partially on rural residential use. There is no "brownfields" use because the 35-acre Caspar site is not contaminated.

Response T-20

Please see Response T-14. There is no impact on the Caspar Transfer Station site from the closed landfill except for the presence of leachate collection tanks.

Response T-21

In evaluating the restrictive covenant for Caspar, the appraiser estimated the market value of the property as "passive recreation/open space" at \$105,000. This does not represent the actual value of the covenant to State Parks, which has sought elimination of nuisance uses at the property for decades because it detracts from the public recreation value of the adjoining Russian Gulch State Park. There is no appraisal known to the DEIR Authors for the 12.6-acre piece of Russian Gulch State Park.

Response T-22

The Caspar self-haul facility would be closed down and all solid waste, recyclables, equipment and temporary structures removed from the site. No other activity is planned by the City and County, although State Parks, or a conservation organization, would have the option of taking ownership and carrying out any rehabilitation it desired.

Response T-23

The Albion Transfer Station collects solid waste into roll-off boxes under a protective roof. Presently, the boxes are hauled to Willits Transfer Station. They would be redirected to the new transfer station (proposed project). The redirection of Albion Transfer Station solid waste to the new facility would save truck miles, energy use, and GHG emissions. This is included in the analysis in DEIR Section 3.7.

Response T-24

The quote from the DEIR is accurate. The information regarding doubling capacity from the Notice of Preparation was not carried forward in the DEIR, as it was not supported by any fact such as need or anticipated growth (as was noted by the commenter). Also see Response M-2 as to how the tipping floor and operations could be modified to improve the proposed transfer stations efficiency allowing for a greater throughput capacity if such a need ever arises.

Response T-25

As noted in Response M-2, the project would be able to operate at a higher capacity without additional construction. No development of the remaining 12 acres of the site is anticipated. The U.S. EPA does not mandate size of transfer stations.

Response T-26

The destination landfill is unknown but any destination would require the transfer trucks to drive past the existing Willits Transfer Station destination. Therefore, the diesel savings was calculated for making fewer trips between Fort Bragg and Willits.

Response T-27

A rough cost estimate for a heavy-duty truck with transfer trailer is \$250,000, with a wide range possible depending on whether the equipment is new or used. The number of trucks/trailers required for the project would depend on the operator. Solid Wastes of Willits could incorporate the operation into its existing transfer activities based in Willits, possibly without purchasing any new vehicles. Empire Waste Management might utilize vehicles already owned by Waste Management Inc.

Response T-28

MSWMA has received no communication from State Parks along these lines. The County and City would fulfill their obligation under AB 384 by executing the easement documents. State Parks could conceivably ignore the conservation easement, however, there is no requirement for the City and County to fund weed abatement at the Caspar site. The conservation easement would impose no obligations or duty of care on State Parks but would give it a veto over any use of the Caspar site that it deemed a nuisance to the adjoining Russian Gulch State Park..

Response T-29

Please see Response T-14 above, with regard to “toxics from the landfill.”

The DEIR discusses the physical environment at both a local and regional perspective in Section 3.4.1 and 3.4.6 of the DEIR. Please see Response Q-4 with regard to indirect impacts to Pygmy Cypress Forest.

The DEIR acknowledged that overall regional pygmy cypress forest mapping currently faces challenges and that multiple communications with CDFW affirms that the true extent of current habitat and species is not known at this time while mapping is still underway, and differentiation between the many gradations of habitat assemblages, and soils, in the area is difficult from a large scale mapping perspective. At one time, it was thought that 4,000 acres existed, and for the purposes of the DEIR, it was assumed that this number could be as little as 2,000 acres, as a conservative approach. The impacts to pygmy forest were minimized to 0.58 acres, and calculated in the DEIR Table 3.4-8 to be approximately 0.03 percent regionally. The regional impact has been mitigated by establishment of the 28.5-acre Caspar Pygmy Forest Preserve that includes permanent preservation of 19.5 acres of is largely of undisturbed pygmy cypress woodland, as well as habitat for at least five other sensitive listed plant species indicated to be present at the site (Heiss 2015). See Master Response #6 – Summers Lane Reservoir, for a discussion of this new cumulative project and its relation the cumulative analysis in the DEIR.

Response T-30

Please see Response T-13.

Response T-31

The Regional Park project was abandoned. Please also see Master Response #6 – Summers Lane Reservoir. There is no known project underway for the Newman Gulch Reservoir.

Response T-32

The 12.6 acres from Russian Gulch that would be transferred to JDSF would become part of JDSF's Caspar Creek Experimental Watershed Study Area, which is a research project for evaluating the effects of timber management on streamflow, sedimentation and erosion. The study area was established in 1961 and will continue at least through 2099 pursuant to a memorandum of understanding with the U.S. Forest Service (reference DEIR Section 2.5.1). There is no timber harvesting currently contemplated for the site, and if harvesting was planned, it would be subject to a Timber Harvest Plan (verbal conversation March 24, 2015 with Pam Linstead, Manager, JDSF). Under California law, a Timber Harvest Plan performs the functions of and substitutes for review under CEQA.

Response T-33

Please see Response Q-8 and Response T-21. No appraisal is known as to the value of living trees associated with the land swap at the time of preparation of the DEIR.

Response T-34

The JDSF Management Plan urges protection and avoidance and maintenance of listed species.

Response T-35

See Master Response #2 – Classification of Bishop Pine Forest for a discussion of listing status of this habitat.

Please see Response U-2 for a discussion of reasoning and scientific basis for inclusion of the qualitative descriptions of pygmy forest morphotypes observed at the project site. The pygmy forest morphotypes described in the DEIR, were used by project field biologists who conducted the independent study of the project site, to further define the habitat present and give readers and reviewers more information rather than a blanket classification of pygmy forest. Although CNDDDB does not define these characteristics to this level of detail, it is supported by the literature that structural differences in tree heights exist depending on soil type/series and soil development, with the more developed and restrictive soils having spodic conditions, hardpan, low macro and micronutrients, among other plant growth limiting conditions. Additionally, no matter the descriptive morphotypes, the DEIR includes all morphotypes under the ranking status for the habitat as G2 S2, and provides mitigation for impacts both on a habitat level as well as to individual tree species (CRPR 1B).

Regarding the comment that the County has been responsible for reduction in pygmy forest from 4,000 acres to current estimate of 2,000 acres through landfill siting and residential development, this is not a comment on the adequacy of the DEIR. No further response is necessary.

Response T-36

Please see Response U-2 for a discussion of reasoning and scientific basis for inclusion of the qualitative descriptions of pygmy forest morphotypes observed at the project site. This additional characterization was not provided to obscure impacts to pygmy forest as the commenter indicates. Differentiation by tree height and species assemblage is used and discussed in the literature. For example there is information

on tall trees of various species within the pygmy forest range, and the diversity of species assemblages including tall-hydric, short-hydric, and extreme pygmy (Westman 1973). Additionally, no matter the morphotypes, the DEIR includes all morphotypes under the ranking status for the habitat as G2 S2, and provides mitigation for impacts both on a habitat level as well as to individual tree species (CRPR 1B).

Response T-37

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest. The DEIR discloses in Table 3.4-8 that 0.58 (rounded up to 0.6) acres of pygmy cypress forest would be impacted (tall and intermediate morphotypes), and no impacts to pygmy cypress forest – short / wetlands map unit. There is no change to that calculation whether or not morphotype descriptors are used for various areas on the site.

Response T-38

The DEIR clearly states that there are 12.44 acres on the project site consisting of different types of Mendocino Pygmy cypress forest habitat, and the project is carefully designed to avoid all but 0.58 acres of the sensitive habitat. The rest would remain unchanged (reference DEIR Figure 3.4.1 and Section 3.4.5). The project impact calculations include footprint impact (direct impact) as well as a 10 foot construction impact around edge of project footprint, as discussed in Response to Comment Q-4. Q-4 also discusses project buffers. Where impacts are occurring within portions of sensitive habitat map units, the project could be as close to 10 feet of the remaining habitat given the nature of layout of how impacts have been minimized and where they are unavoidable. Indirect impacts are further discussed in Q-4.

Response T-39

The project has followed guidance from Policy RM-73 to prioritize avoidance. Project impacts to Pygmy cypress forest have been minimized. Approximately 0.58 acre of Pygmy cypress forest habitat would be removed at the project site, mitigated by the preservation of 28.5 acres at the Caspar Pygmy Forest Preserve, 19.5 acres of which is undisturbed Pygmy cypress forest (30:1 preservation ratio).

Regarding RM-74 and no net loss of sensitive resources, while the project does result in a loss of 0.58 acres, the CDFW (Pers. Com. 2014) and the County have indicated that preservation is a preferred method for mitigation for Pygmy cypress forest due to the unique association of vegetation structure with soil series, which may be difficult to replicate. The substantial mitigation ratio of 30:1 will provide permanent protection of the species in perpetuity, following CDFW and County guidance, and mitigates the impact to less than significant.

RM-75 does not prohibit offsite replacement, and the project has prioritized onsite avoidance during the project planning phase, which has minimized impacts to 0.58 acres.

The project does follow RM-84 through establishment of the Caspar Pygmy Forest Preserve, which permanently protects 19.5 acres of Pygmy cypress forest (includes dwarfed pygmy forest, transitional/intermediate, and tall cypress trees) as well as documented habitat for at least five sensitive listed species (including pygmy cypress trees) [Heise 2015].

Please see Master Response #5 – Mendocino County General Plan.

See Master Response #2 – Classification of Bishop Pine Forest for discussion of ranking of Bishop Pine Forest. Also, regardless of ranking, the Caspar Pygmy Forest Preserve includes 5.76 acres of Bishop

Pine Forest that will be permanently preserved, and if this were considered a mitigative element of the project, this would be a 1.4:1 mitigation ratio (not currently claimed as mitigation).

Response T-40

Please see: Master Response #3 – Alternatives Evaluated; Response S-4; and Response S-6.

Response T-41

Please see Master Response #5 – Mendocino County General Plan. The lead agencies weighed the various environmental impacts through the DEIR process, which includes analysis of sensitive resources.

Response T-42

Please see: Master Response #3 – Alternatives Evaluated; Response S-4; and Response S-6.

Response T-43

Impact to sensitive species was a siting consideration throughout the selection process that followed the 2007 Siting Study. The project site was selected only after it was determined that the facility could be located to avoid almost all Pygmy cypress. The project footprint did employ guidance of RM-74 through the siting process to include “minimizing vegetation removal (reduced down to 0.58 acres) and, “disruption of vegetation continuity” by siting the project so that impacts are on the periphery of the sensitive habitats and do not dissect sensitive habitats. The Georgia-Pacific Woodwaste site was rejected partly because it would require large removal of Pygmy cypress.

Response T-44

Please see Master Response #3 – Alternatives Evaluated. This comment is duplicative and has been addressed in Response T-39 regarding RM-73 through RM-75. Also see Master Response #5 – Mendocino County General Plan and Master Response #1 – Mitigation for Pygmy Cypress Forest.

Response T-45

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest for a biological evaluation of the proposed mitigation preservation parcel, as well as outcome of that evaluation.

Possible groundwater contamination concerns have been addressed, see Response T-14. Please see Master Response #3 – Alternatives Evaluated and Master Response #7 – Hydrology and Water Quality.

Response T-46

The comment incorrectly states acreage of impacts to Bishop Pine Forest, which are actually 4.0 acres for the project. Although mitigation is not proposed, it should be noted that the proposed Caspar Pygmy Forest Preserve includes 5.76 acres of similar Bishop Pine Forest to the area of impact, which if this were considered mitigation would provide a 1.4:1 mitigation ratio through preservation.

Response T-47

The comment notes that although Pygmy cypress forest was divided into descriptive morphotypes of tall, intermediate, and short, that the DEIR still classifies them together as provided by CNDDDB as G2 S2 and includes this status both in the individual project impacts analysis as well as the cumulative impacts analysis. It is unclear how and why the commenter feels the differentiation of morphotypes, which was a qualitative determination provided by the field biologist, would require redoing the cumulative impacts

analysis. Bishop Pine impacts were not considered individually significant and discussion of regional implications was calculated to be 0.03 percent regionally and would be cumulatively less than significant.

It is an opinion that mitigation instead of avoidance does not adhere to policies in the County General Plan, since policies in the County General Plan do not specifically forbid the removal of sensitive habitat. The General Plan encourages avoidance and minimization, and lays out mitigation measures where impacts cannot be avoided.

The land swap does not affect cumulative effects on forest species except insofar as the project would benefit sensitive species through permanent protection with the creation of the Caspar Pygmy Forest Preserve.

Response T-48

Please see Response T-32. While no logging on that site is presently contemplated by JDSF, any future harvest would be controlled by a Timber Harvest Plan which substitutes for CEQA under California law and mitigates erosion, hydrology and cumulative impacts.

Response T-49

The hydrologic analysis used conservative runoff coefficients for grassy and woody areas and not average values. While there are no specific runoff coefficients specifically for Pygmy forests, the runoff coefficients used for woody areas is conservative. To be representative of actual conditions, composite runoff coefficients were developed for both pre- and post- development scenarios by a weighted average method. When selecting the various inputs to perform the hydrologic analysis, a conservative judgment was used. For example, the entire footprint of the Transfer Station facility was assumed to have a nearly impervious runoff coefficient. This is considered to be highly conservative (i.e., produces more stormwater) given that the site would be utilizing LID strategies for managing stormwater. Please see Master Response #7 – Hydrology and Water Quality.

With regard to the groundwater analysis, please see Mitigation Measure HWQ-2 in the DEIR and Response H-1. Also see Response Q-4 with regard to indirect impacts to Pygmy Cypress Forest.

Response T-50

The location of the proposed potable water well resides approximately in the middle of the project site. There are no wells within a 300-foot radius of the proposed well site based on a well inventory review. The LACO geotechnical study (DEIR Appendix E) included a groundwater analysis and confirmed the feasibility of an on-site well for the small water needs of the project. In addition, a groundwater assessment was performed next to the project site for the proposed Mendocino Coast Regional Park and Golf Course project. Prepared by Lawrence and Associates (March 2005), the study included the installation of pumping and observation wells. A total of 24 wells, pumping at an average rate of 10 gpm were evaluated to access the possible impacts to groundwater. It was determined that neither the direction nor magnitude of the groundwater gradient changed significantly with pumping. The groundwater model predicted that the water pumped was approximately 92 percent from aquifer storage and about 8 percent from a reduction in stream flow from Newman Gulch. It was determined that the reduction in flow was less than the standard significance of 10 percent. In addition, the groundwater model showed that pumping from the wells would not cause the standards of significance for groundwater level or quantity to be exceeded.

While it was unknown what the magnitude of drawdown was from existing domestic wells, it was inferred that, for individual wells, it would be less than that from the Golf Course Project pumping because domestic pumping is, on average, about one gallon per minute (versus about 12 gpm for the Golf Course Project wells and 2 gpm for the proposed transfer station). At lower pumping rates, it was inferred that interference effects from neighboring wells would not be as large as the Golf Course Project pumping rates, which would be higher. Based on the results of groundwater modeling, impacts from neighboring pumping was determined to not extend to the area east of Newman Gulch. Thus, it was determined that there would be no adverse impact from combining neighboring and the Golf Course Project pumping, including impacts to wetlands west of Newman Gulch. The proposed transfer station would use an insignificant amount of water compared to the abandoned Golf Course project.

Response T-51 and T-52

Water demands for construction of the facility would predominately be related to dust suppression and soil conditioning (e.g., compaction). For a conservative estimate, using one water truck with a capacity of 1,500 gallons making three trips a day for three weeks (not including weekends) is approximately 67,500 gallons. The temporary water needs of the construction work could be met by the City water system which has a storage facility less than three miles away on Highway 20. As noted in the comment, water use in construction would not be a significant impact. In regard to cumulative impacts, the Golf Course project was abandoned.

Response T-53

While the Project will cause an increase in runoff from additional impervious areas, the design of the facility will manage stormwater runoff through bioswales and detention basins, which are not located on or constructed out of Pygmy soils. In addition, the use of LID strategies utilized at the facility would promote infiltration (e.g., permeable pavers and rain gardens) and control water quality contaminants. Please see Master Response #7 – Hydrology and Water Quality.

Response T-54

The Golf Course project was not considered as a potential development in the cumulative analysis since the project was abandoned. The use of bioswales, detention basins, and LID strategies will promote groundwater infiltration. The impact to groundwater from the Project is discussed in Response H-1.

Response T-55

Please see Master Response #5 - Mendocino County General Plan, and Response T-39.

March 26, 2015

To: Mike Sweeney, General Manager
 Mendocino Solid Waste Management Authority
 From: Leslie Kashiwada

In reviewing the draft EIR for the proposed Central Coast Transfer Station to be sited in Jackson Demonstration State Forest (JDSF) land on the north side of Hwy 20, I find that it inadequately addresses a number of important issues, and leaves me with many questions.

First, I want to preface my comments by emphasizing that the Caspar transfer station must be closed as soon as possible. Yet, this cannot happen until a new transfer station is built to serve the Mendocino Coast. I find it unfortunate that, after an exhaustive search for an alternative site, the City chose this one. I have carefully reviewed the 2007 Report of Findings, which exhaustively evaluated all potential sites for a transfer station and narrowed the candidates down to 5. I think some decisions were made early in the process that eliminated one or potential sites from consideration, and that this site was chosen using criteria that this draft EIR show to be faulty. I am disappointed to say this, but my conclusion is that the City needs to go back to some of the alternative sites and re-evaluate their viability. This must be done as quickly as possible because the end goal is to open the new transfer station and close the Caspar transfer station as quickly as possible.

U-1

Impact on Pygmy Forest: The DEIR states that the impact on pygmy forest environment on the project site will be minimal because the footprint of the project was carefully chosen to minimize removal of pygmy forest, but it is difficult to determine exactly how much will be removed due to a variety of forest type classifications that are not supported in the literature. For instance, what the DEIR classifies as intermediate cypress forest and tall cypress forest is just a morphotype of pygmy forest and leads me to believe that the authors are trying to obscure the true impact on pygmy forest. In addition, this habitat is very easily disturbed by nearby construction, soil disruption, water runoff, nutrient input from leach lines, etc, but the DEIR did not address these potential disturbances. The DEIR also did not account for loss of this habitat due to the need to clear or thin trees and brush to maintain defensible space around the project for fire safety. Will the DEIR be revised to include a more accurate assessment of the acreage of all pygmy forest (in all its varieties) that will be removed or disturbed beyond recovery? Will the proposed offsite set aside be increased to accommodate this more accurate accounting of habitat removal and disturbance (see next paragraph)?

U-2

Proposed mitigation for loss of habitat: The DEIR proposes that loss of pygmy and cypress forest habitat, and loss of special status trees within the Bishop pine forest at the site be mitigated with a pygmy forest set aside elsewhere (identified as a 3:1 replacement), but Calif Department of Fish and Wildlife states that this is much less desirable than protecting existing pygmy forest. In addition, the DEIR states the set aside will be located on county property just next to the Caspar Transfer Station. This property was purchased from a private owner in compensation for water contamination caused by the Caspar landfill. The DEIR did not specify exactly where the set aside would be located within this 28-acre property and did not adequately evaluate the quality of the proposed set aside. Instead there was a subjective statement that it is a suitable mitigation for what has been variously described as relatively undisturbed or pristine pygmy forest at the proposed transfer station site. The mitigation apparently consists of a conservation easement, but there was no description of what that means exactly. What is the quality of the Caspar pygmy forest habitat on this property and how has it been affected by its proximity to the Caspar transfer station? Who determines that the amount of acreage that will be set

U-3

aside on this property, and whether it is equal in quality to that lost by the proposed project? What kind of protection will be placed on it so that it will be preserved in perpetuity?

U-3
cont

Misclassification of Northern Bishop Pine Forest: Though the DEIR does mention the Bishop pines in the Bishop pine forest as the northern variety, it is not correct in listing this habitat as Bishop pine forest with a rank of G3 S3 (Table 3.4-8). Northern Bishop pine forest is ranked similarly to pygmy forest habitat (G2 S2.2) and, as such, removal and disturbance of this resource is significant and must be mitigated. Will the DEIR be amended to correct the status of the Northern Bishop pine forest, and will appropriate mitigation measures be proposed?

U-4

No analysis of bioswale and detention basin design: Because the EIR was completed before the design of the bioswales and detention basins were determined, no analysis of the efficacy of the design of this important aspect of the proposed project was done. In addition, there is a wetland in close proximity to one of the detention basins and to the proposed widening of Hwy 20. What assurance is there that these stormwater runoff measures and highway widening will be adequate and not result in significant disturbance to a habitat and soil type that is easily impacted by the physical effects and nutrient/chemical compounds in runoff?

U-5

Land swap: The proposed land swap looks superficially elegant, but brings up additional issues that were not addressed in the DEIR. The section above labeled "Proposed mitigation for loss of habitat" already brought up some questions with regards to the county land near the Caspar transfer station regarding the suitability of the habitat for offsite mitigation and implementation. The Russian Gulch State Forest land that will be transferred to Jackson Demonstration State Forest is located up road 409 at the end of the paved road, and is in close proximity to a public charter school and residential properties. The DEIR contains an analysis of timber value for both the proposed transfer station site on Hwy 20 and the proposed Russian Gulch property to be transferred to JDSF. This property has not been subject to logging since it became part of the Russian Gulch State Park and is utilized daily for recreation and education. Will this swap result in the loss of use of this property by the public? Will this property be logged? Where is an analysis of the impact of noise, dust, soil disturbance, sediment load, runoff, and possibly herbicides on this site, especially as it relates to the adjacent properties? What mitigations are being proposed for these impacts?

U-6

Traffic Impacts: The DEIR estimates 20 trash collection trucks delivering trash and 2 large transfer trucks leaving the proposed site (not including self-haul trips) daily, most of which will have to turn left. I am not convinced that the proposed turn lanes and highway widening will be sufficient to prevent traffic tie ups and accidents. The traffic report spends most of its verbiage on the analysis of impacts to the intersection of Hwy 1 and Hwy 20 and traffic impacts during construction. These are important, but I feel the analysis of traffic impact during the operational phase of the transfer station to be superficial and unconvincing. In addition, there is no analysis of the impact of the large transfer trucks to flow of traffic on Hwy 20 between the transfer site and Willits, or moving through Willits on their way out of town. These trucks will not be able to access the Willits bypass road as it is currently constructed.

U-7

Proposed Summers Lane reservoir: The proposed transfer station is located near the Noyo River and is in even closer proximity to the proposed Summers Lane reservoir. However, the EIR, while listing other projects in the area, fails to even mention this proposed reservoir. Seepage and accidental release of toxins is bound to occur, yet the D EIR merely stated that required permits would be obtained and all regulations would be adhered to. There needs to be a fuller analysis of the various ways the detention basins and/or containment systems may fail, the types of toxins that might enter the Fort Bragg's water

U-8

supply, analysis of potential scope of contamination, contingency plans to contain unanticipated releases, and modes of remediation, including alternate sources of water should the town's water supply become unusable (refer to recent disasters in the mid-west). What is the potential for contaminated runoff to reach either the Noyo River or the Summers Lane Reservoir? What mitigations will be put in place to address any contamination that may occur to these sources of municipal water?

↑
U-9
cont

Alternative Sites: The 2007 Report of Findings exhaustively evaluated all potential sites for a transfer station and narrowed the candidates down to 5. As I mentioned in my introductory comments, I think some decisions were made early in the process that eliminated one or potential sites from consideration, and that this site was chosen using criteria that this draft EIR show to be faulty. The DEIR analysis of some of those alternate sites was superficial and incomplete. Will the City and County re-evaluate the criteria used to select this site? In particular, will the possibility of using the RV Leisure Park, the Pudding Creek site, and/or the potential for transport by train be more fully explored?

U-9

I have only mentioned some of the most egregious inadequacies of the DEIR prepared for the proposed site of the transfer station. What is the timeline for a revised EIR and will there be a public comment period for that revision?

Leslie Kashiwada, PhD, Oceanography
(707) 964-7653
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Letter U – Leslie Kashiwada – Responses to Comments

Response U-1

Please see Master Response #3 – Alternatives Evaluated.

Response U-2

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest, as well as Response M-3. Additionally regarding the comment on the pygmy forest morphotypes defined and described in the DEIR, these were applied by project field biologists who conducted the independent study of the project site, to further define the habitat present and give readers and reviewers more information rather than a blanket classification of pygmy forest. This additional characterization was not provided to somehow obscure impacts to pygmy forest as the commenter indicates, differentiation by tree height and species assemblage is used and discussed in the literature, for example there is information on tall trees of various species within the pygmy forest range, and the diversity of species assemblages including tall-hydric, short-hydric, and extreme pygmy (Westman 1973). Elsewhere it is noted that a variety of conifer species within the pygmy range can grow on gulch slopes and elsewhere on the terraces not affected by limiting soil conditions of specific soil Series or where there is only weak formation of a hardpan, in comparison to other portions of the area where culmination of soil and ecosystem development results in spodic-like conditions which effects plant growth/habitat structure/diversity, with hardpan, low pH, leached macro and micro nutrients, etc. (Jenny 1973). To quote another author, “The acid-producing vegetation has strongly influenced the formation of the soil. The nature of the soil has, in turn, had a profound effect on the nature of the vegetation. Dwarfed cypresses contrast strikingly with giant redwoods growing within meters of one another” (Sholars 1982). Again, the project biologist felt it would be an oversight not to characterize habitat at the site based on structural differences and unique assemblages of dominant and subdominant species, as included in the DEIR. To reiterate, the underlying science to why certain areas would have the short morphotype versus the more vigorous plant growth pattern of the intermediate and tall morphotypes (and their associated vigorous shrub layer), lies in the unique soil association of the dwarfed trees and their response to podsolization and other limiting conditions such as pH, lack of soil nutrients due to leaching, and perched water table. These areas again, per Jans Jenny, “are the culmination of ecosystem development ongoing for many hundreds of years” (Jenny 1973; Sholars 1982). The categories provided by Westman (1973) likely do not fully apply to the project site, since they are mostly hydric pygmy assemblages, and the majority of the current project site is not hydric except where the pygmy cypress short morphotype is mapped coincident with USACE wetlands. Westman also describes “mesotrophic” pygmy and applies this to, “pygmy type [vegetation] in a relative sense, to suggest a contrast in stature with the “extreme” form (Westman 1973). The Westman paper also provides categories where pygmy cypress trees are present in conjunction with a range of other dominant forest species, indicating that the individual pygmy cypress trees have a range on the terraces from true pygmy (dwarfed) into the more standard forest structure/heights where growing in conjunction with other conifers and a diverse understory.

It should be noted that the project avoids the pygmy cypress– short morphotype (hydric), and provides mitigation for impacts to pygmy cypress, both on an acreage basis for habitat (G2 S2), no matter the morphotype differentiation, as well as for impacts to individual trees (CRPR List 1B). The mapping of morphotypes was helpful from a project planning standpoint so that the project applicant could adjust project footprint to avoid sensitive species where possible, and in this case the project has completely

avoided the most sensitive short morphotype as well as the coincident wetland areas. As quoted above, the dwarfed cypress (short pygmy) are growing as a unique ecosystem where the nature of the soil has a profound effect on the structure of the vegetation. Please see Response Q-4 with regard to indirect impacts to Pygmy Cypress Forest.

Please also see Response O-10.

Response U-3

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest for discussion of preservation area, baseline conditions, and quality of this habitat. The commenter contradicts CDFW statements in support of preservation whether that is at an onsite or offsite location, which is the same as “protecting existing forest,” just the project proposes protection at an offsite location. The project will also protect onsite acreage by minimizing impacts to just 12.6 percent of the onsite pygmy forest habitat (impacts are 0.58 acres), and completely avoiding the most sensitive dwarfed Pygmy cypress forest area. The project will also permanently preserve 19.5 acres at an offsite location. In project planning discussions with CDFW, it was stated that preservation is the preferred mechanism for mitigation due to uncertainty in success of replanting pygmy trees, particularly in situations where forest ecosystem is present with unique relationship with limiting soil conditions, which may be challenging to replicate (personal communication CDFW 2014).

Response U-4

Please see Master Response #2 – Classification of Bishop Pine Forest.

Response U-5

A bioswale and detention basin analysis was performed for the project. Please see Master Response #7 – Hydrology and Water Quality. Also see Response U-2.

Response U-6

Please see Response O-16, Q-5, T-47 and II-5.

Response U-7

As discussed in DEIR Section 3.12 (Transportation), pages 3.12-8 and 3.12-9, the proposed project would increase the number of vehicles traveling along Highway 20 on a daily basis. The majority of these trips would be self-haul customer trips, which along with franchise hauler trucks, are expected to arrive and depart from the west of the proposed site. Transfer truck outhaul traffic is anticipated to arrive and depart from the east of the project site. As noted in Table 3.12-5 on page 3.12-8 of the DEIR, approximately two transfer truck outhaul trips are anticipated to occur per day which would traverse the portion of Highway 20 east towards Willits.

The proposed roadway improvements, including the widening of Highway 20 near the subject site to accommodate acceleration and deceleration, and the installation of an eastbound left-turn pocket and a westbound right-turn pocket at the proposed site's access point, would be designed in compliance with Caltrans standards, including, but not limited to, the Caltrans Highway Design Manual. Based on preliminary discussions with Caltrans staff, the proposed turning lanes would be of sufficient length and width to accommodate acceptable vehicle storage and deceleration.

In addition to vehicular analysis, the traffic impact study provides an evaluation of project impacts related to vehicle queuing, public transit routes, and pedestrian and bicycle movements. As further discussed in DEIR Appendix H (Traffic Impact Study), Caltrans District 1 performed a safety analysis for the quarter-mile segments of Highway 20 located on either side of the proposed project site. The analysis covered a three year time period between 2009 and 2011. The analysis identified two collisions within the three year period, which corresponded to a total collision rate within the segment analyzed of 48 percent less than the statewide average.

As discussed in DEIR Section 3.12 (Transportation), page 3.12-10, Highway 20 is currently traversed by similarly sized haul trucks as would occur under the proposed project, and the new improvements would provide an adequate line of sight. The project would not introduce vehicles that are incompatible with current or anticipated roadways.

The Willits bypass project would include a new segment of US 101 that would bypass the City of Willits. Phase 1 of the bypass project is currently under construction. Transfer trucks travelling east from the project site along Highway 20 to the City of Willits would continue to travel through the City of Willits to access new interchanges to US 101 to the north and south of the City.

Response U-8

While it is possible that a structural failure of the detention basins could result from a large earthquake, it is highly unlikely due to the impoundment (berm) of the basin being constructed according to engineering standards. For example, the berms would be constructed of suitable soil placed in 6-inch layers (lifts) with appropriate compaction (e.g., 95 percent modified proctor). The detention basins will also be constructed with emergency spillways designed to pass a 100-year storm event in order to not compromise the integrity of the berm structure.

To address the comment of a containment system failure, the leachate (wastewater) containment structure will be of double wall construction and located within the fully enclosed facility and situated on a secondary containment structure. The design of the main indoor drainage control system would direct liquids from the waste and unloading areas to flow through a clarifier to remove solids, then to an on-site 500-gallon above ground storage tank. Liquids would not be allowed to leave the site and stormwater would not be allowed to enter the building. Facility and equipment inspections, combined with monitoring of the storage tank containment area, allow for the detection of potential sources of leachate leaks to the environment and early corrective actions to be implemented if necessary. The amount of wastewater generated is expected to be of such minimal quantity that most of the water is anticipated to evaporate. Facility operations would include removal of the wastewater by a licensed waste hauler with disposal at a permitted wastewater treatment facility when appropriate.

Potential water quality contaminants from the project have been identified, for both construction and operation, and are discussed under Impact HWQ-1 and HWQ-3, in Section 3.9 Hydrology and Water Quality.

Please see Master Response #6 - Summers Lane Reservoir and Master Response #7 – Hydrology and Water Quality. Based on the above response it is unlikely that the quality of the municipal water supply would be compromised by the Project.

Response U-9

Please see Master Response #3 – Alternatives Evaluated.

Mike Sweeney

From: "Mary Berrettini" <merribee@usa.net>
Date: Thursday, March 26, 2015 10:26 AM
To: <sweeney@pacific.net>
Subject: HWY 20 transfer station

We used to dump our garbage in the ocean. Now we pay to have it trucked to a land fill in Solano County. What happens when these residents no longer want our garbage? How much farther will we then have to haul it? A bigger transfer station with larger trucks making fewer trips is a shortsighted solution. In the meantime it would destroy several acres of Bishop pine and a patch of unique Pygmy forest. It would put Fort Bragg's water source at risk. Larger trucks would create congestion on Hwy 20, a road that already has it's share of accidents. What will the air quality be like inside the enclosed building that hides the transfer process and smell from the neighbors? Add truck exhaust to the occasional toxic containers and hot ash that folks illegally dump. What if a fire occurs in the building? Will the workers be safe? We need to find a better solution to our garbage problem. Other communities have created methods of converting garbage to energy. We could do the same. It would be a better use of our money and resources. Mary Berrettini, Fort Bragg

V-1

Letter V – Mary Berrettini – Response to Comments

Response V-1

Please see: Master Response #1 – Mitigation for Pygmy Cypress Forest; Master Response #2 – Classification of Bishop Pine Forest; Response BB-1; and Master Response #6 - Summers Lane Reservoir. The project would reduce the number of transfer truck trips on Highway 20. Per standard fire department conditions, the transfer station would have equipment and procedures to extinguish any fires in the trash or the building. Due to the nature of solid waste being collected at the facility, the air quality would not be toxic or harmful to the public or employees of the transfer station. Since prevailing winds are from the west to the east, and the transfer station is fully enclosed with odor control measures as necessary, offsite odors are not expected to be a nuisance to the surrounding neighbors. Indoor air quality would comply with Cal/OSHA Worker Safety requirements.

Mike Sweeney

Page 1 of 1

From: <daneyd@mcn.org>
Date: Thursday, March 26, 2015 2:05 PM
To: <sweeney@pacific.net>
Cc: <mjones@fb.com>
Subject: Waste Trasfer Station

Question Re: the proposed waste transfer station:

>Ten years ago my land partner and I wanted to replace an old, rotting (existing) garage with a new building. Since we live adjacent to pygmy/transitional, before getting the building permit we had to have a botanist certify that the building would not be within 100 feet of ANY pygmy/transitional species. Not one single plant! Fortunately, we qualified, and I was happy to comply with this regulation to protect an endangered habitat. So why is a project of this magnitude held to such a different standard? Is the pygmy protected or not? Is the protection selective?

PS. Apparently, the Pygmy forest cannot be "replanted."

W-1

Thank you

Daney Dawson

00076

Letter W – Daney Dawson – Response to Comments

Response W-1

Without more information about the commenter's location and project details, a direct comparison to the currently proposed project and project mitigative elements/project requirements in regards to pygmy cypress cannot be provided. If the residential project the commenter is referring to is in the Coastal Zone, then it would make sense that a 100 foot setback was requested, as the County has the ability to provide additional requirements for ministerial projects in the coastal zone. If the project is outside of the Coastal Zone, the County states they have no mechanism for review of ministerial permits in regards to pygmy forest (personal communication County of Mendocino 2015b). In regards to the comment as to whether pygmy trees are protected, the commenter is referred to the DEIR where it is disclosed that two pygmy tree species as well as their habitat within which they dwell, are listed by the state as sensitive, and thus avoidance and minimization of impacts has been prioritized where these species occur, and where impacts cannot be avoided (0.58 acres), the project proponent has included mitigation to compensate for loss of tree species and their habitat. Regarding the comment that pygmy trees cannot be replanted, it should be noted, as addressed in Response Y-3, preservation is supported as a viable option for mitigation (and as indicated by resource agencies, personal communication CDFW 2014), although replanting is not excluded from consideration (yet is not proposed as part of this project due to unpredictable nature regarding success of replanting).

Mike Sweeney

From: "Lori Stone" <loristone19@gmail.com>
Date: Thursday, March 26, 2015 10:19 AM
To: <sweeney@pacific.net>; "Jones, Marie" <mjones@fortbragg.com>; "Deitz, Scott" <sdeitz@fortbragg.com>; "Dave Turner" <dturner@fortbragg.com>; <LPeters2@fortbragg.com>; <MCimolino@fortbragg.com>; <dhammerstrom@fortbragg.com>
Subject: Solid Waste Transfer Station

City of Fort Bragg, CA:

I am opposed to the proposal for the Solid Waste Transfer Station . We really need to be investing in sustainable endeavors - not damaging nature further.

There is a better location for this project, one where unused, existing infrastructure exists and/or where destruction to plant life isn't a part of the equation.

If neither are possible, than maybe this isn't a good idea right now?

Thank you,
Lori-Rachel Stone
Fort Bragg, CA 95437

X-1

Letter X – Lori-Rachel Stone – Response to Comments

Response X-1

Comments noted.

Mike Sweeney

From: <aweibel@mcn.org>
Date: Thursday, March 26, 2015 4:56 PM
To: <sweeney@pacific.net>
Cc: <mjones@fortbragg.com>

To whom it may concern,

As I was very involved studying the Hare Creek Center project I have not had time to study the Transfer Station proposal sufficiently, but I have a few questions to ask you.

Why are we using another site to end up with the pollution that happened to 409? Y-1

Why using pygmy forest that is protected and a unique feature? Y-2

Do you believe that you can relocate pygmy successfully? Y-3

What means successful in your book? Y-3

Was the public notified and how and when about this project? Y-4

Has anyone thought to use the Skunk train to transport the goods? If not, why not? Y-5

What do the studies say about additional traffic? How will it influence the tourist traffic? How many additional truckloads a day, a week, a month, a year if not transported by train? How old is your traffic study? How many days, weeks did you monitor the traffic in this area? Y-6

Looking forward to hear from you.

Sincerely, Annemarie Weibel

I live in the pygmy and realize how fragile that environment is.
Land owner, tax payer, 37 year resident of the coast

3-26-2015

00078

Letter Y – Annemarie Weibel – Response to Comments

Response Y-1

The commenter references “409” which is assumed to be the Caspar self-haul transfer station site on County Route 409. There has been no pollution identified from the Caspar self-haul transfer station operations. The groundwater contamination discovered in the early 1990’s from the Caspar Landfill has disappeared following closure and capping of the landfill.

Response Y-2

The project has avoided and minimized where feasible, impacts to pygmy forest. Please see Master Response #1 – Mitigation for Pygmy Cypress Forest.

Response Y-3

The DEIR does not propose relocation of pygmy species and states no opinion on its efficacy. In general, preservation is supported by resource agencies as a viable mitigation option as it avoids potential issues with replanting this habitat which in many cases has a unique association between the vegetation and the various phases of soil development in the project area, which may be difficult to replicate. A focus on preservation has been supported by CDFW in project planning meeting (personal communication CDFW 2014), CDFW comment letter on the NOP, and as guided by the County General Plan. Please see Master Response #1 – Mitigation for Pygmy Cypress Forest, as well as revised Mitigation Measure BIO-1b for further outline of the proposed mitigation.

Response Y-4

Extensive public notice of the siting process and EIR preparation was made through press releases, legal notices, posting on-site, and direct mail and email to interested parties. All mandatory CEQA public notice requirements were met or exceeded.

Response Y-5

Please see Master Response #3 – Alternatives Evaluated and DEIR Section 4.4.3.

Response Y-6

The DEIR evaluates potential traffic, circulation, and transportation impacts associated with the project. Please refer to DEIR Section 3.12 (Transportation) and DEIR Appendix H (Traffic Impact Study). The traffic impact study prepared for the project provides an evaluation of operating conditions for select intersections during weekday and weekend peak periods. The existing condition scenarios were based on intersection turning movement collected on Thursday, August 22, 2013 and Saturday, August 24, 2013. The traffic impact study analyzed existing conditions, existing conditions plus the project, cumulative conditions, and cumulative conditions plus the project. In addition to vehicular analysis, the traffic impact study provides an evaluation of project impacts related to vehicle queuing, public transit routes, and pedestrian and bicycle movements.

Table 3.12-5 on page 3.12-8 of the DEIR summarizes the vehicular trips that would be generated by the new transfer facility. The project would result in approximately 118 weekday daily traffic trips, and approximately 144 weekend daily traffic trips. Impact TR-1, on pages 3.12-7 through 3.12-10 and Impact TR-C-1 on pages 3.12-12 through 4.12-14 of the DEIR, evaluates the potential for both project and

cumulative traffic impacts associated with the project, and identifies no significant impacts related to congestion from additional project-related traffic.



DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY

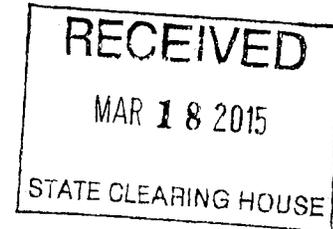
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P.O. BOX 4025, SACRAMENTO, CALIFORNIA 95812

March 25, 2015

*clear
3/25/15*

Mr. Mike Sweeney
Mendocino County & City of Fort Bragg
c/o Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482



Subject: SCH No. 2014012058—Draft Environmental Impact Report for the Central Coast Transfer Station, SWIS No. 23-AA-0050, Mendocino County

Dear Mr. Sweeney:

Thank you for allowing the Department of Resources Recycling and Recovery (CalRecycle) staff to provide comments for this proposed project and for your agency's consideration of these comments as part of the California Environmental Quality Act (CEQA) process.

PROJECT DESCRIPTION

The Mendocino Solid Waste Management Authority, acting as Lead Agency, has prepared and circulated a Draft Environmental Impact Report in order to comply with CEQA and to provide information to, and in consultation with, Responsible Agencies in the approval of the proposed project.

The project is the construction and operation of a municipal solid waste transfer station, which will serve the incorporated City of Fort Bragg and the surrounding unincorporated coastal area of Mendocino County extending from the town of Westport to the Navarro River. The proposed transfer station location is in a 17 acre portion of the Jackson Demonstration State Forest adjacent to State Highway 20 at 30075 Highway 20 near Fort Bragg, California, and is 3 miles east of the intersection of State Highway 1 and State Highway 20.

The Central Coast Transfer Station facility would include a solid waste transfer building (with loading bay and unloading and waste areas), an outdoor recycling drop-off area, two scales and office (scalehouse), paved driveways, parking areas for the public and transfer trailers, two stormwater detention areas, a groundwater well, a septic tank and leachfield, and perimeter fencing immediately outside the developed project footprint. A single gate on SR 20 would accommodate all vehicle entries and exits. The transfer building would be approximately 30,000 square feet and enclosed. The enclosure would reduce or prevent off-site noise, odors, and dust. In addition, the design would be compatible with installation of control measures such as negative-pressure ventilation with biofiltered exhaust,

Z-1



Mr. Sweeney
CCTS
March 25, 2015

automated roll-up doors, and/or doorway air curtains, should they be necessary to prevent off-site transmission of odor.

Some vehicles would operate outdoors in the recycling area, most likely a single loader and occasional roll-off trucks to change-out debris boxes as necessary. These vehicles would use "white-sound" OSHA-approved backup alarms such as the Brigade which replaces the typical loud "ping" with a directional buzzing sound with much less range. All solid and green waste would be deposited inside the transfer building. These materials would be loaded into transfer trailers using a method to be determined by the operator, such as a grapple crane. When a transfer trailer is fully loaded, it would be driven directly to a destination landfill to be specified under the operator's contract.

Solid waste would typically be removed within 24 hours; however, it is possible that in some situations, such as weekends/holidays, waste could remain for up to 48 hours. Among the fully-permitted regional landfills that might receive the solid waste are Potrero Hills in Suisun City, Redwood in Novato, Sonoma Central in Petaluma, Anderson in Anderson, Ostrom Road in Wheatland, Lake County in Clearlake, Recology Hay Road in Vacaville, and Keller Canyon in Pittsburg. Green waste would be hauled to Cold Creek Compost in Potter Valley or another fully permitted compost facility. All hazardous wastes would be prohibited at the facility, and customers would be referred to the periodic HazMobile household and small business hazardous waste mobile collection system.

Z-1
cont

For the purposes of evaluation and analysis in this EIR, a total of 4.72 acres is assumed to be utilized by the project-- approximately 3.76 acres within the project footprint, and 0.96 acre for a 10-foot buffer (construction/temporary).

The transfer station would operate five days per week for self-haul customers and the franchised hauler, and two additional days per week for the self-haul customers only. The exact hours of operation would be determined by the operations contracts; however, it is anticipated to be between 8:00 a.m. and 5:00 p.m. There would be approximately four employees on site.

Based on the current wastestream, documented by transfer station records, the solid waste throughput would average 35 tons per day year-round, with a peak of 50 tons per day.

CalRecycle Staff Comments
Solid Waste Facilities Permit

The project will be required to apply for a registration permit as a medium volume transfer/processing facility. Please work with the local enforcement agency (LEA) regarding permit application requirements. The LEA is Philips Chou, Mendocino County Public Health Department, Division of Environmental Health at 707-234-6625.

Z-2

Mr. Sweeney
CCTS
March 25, 2015

Traffic

The project description did not include a peak traffic amount. Table 3.12-5 (page 3.12-8), Summary of Projected Peak Hour Project Trips indicated a peak traffic volume of 144 vehicles per day.

Z-3

County Integrated Waste Management Plan

The Central Coast Transfer station will need to be identified in the Non-Disposal Facility Element of the County Integrated Waste Management Plan prior to the operator submitting a Registration Permit Application.

Z-4

CONCLUSIONS

CalRecycle staff thanks the Lead Agency for the opportunity to review and comment on the environmental document and hopes that this comment letter will be useful to the Lead Agency in carrying out their responsibilities in the CEQA process.

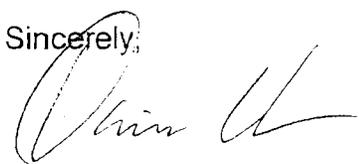
CalRecycle staff requests copies of any subsequent environmental documents, copies of public notices and any Notices of Determination for this project are sent to the Permitting and Assistance Branch.

Z-5

If the environmental document is adopted during a public hearing, CalRecycle staff requests ten days advance notice of this hearing. If the document is adopted without a public hearing, CalRecycle staff requests ten days advance notice of the date of the adoption and project approval by the decision-making body.

If you have any questions regarding these comments, please contact me at 916.341.6405 or by e-mail at Christine.Karl@calrecycle.ca.gov.

Sincerely,



Christine Karl, Environmental Scientist
Permits & Assistance, North Central Unit
Permitting & Assistance Branch

for /

cc: Susan Markie, CalRecycle
Jon Whitehill, CalRecycle
Trey Strickland, LEA

Letter Z – Annemarie Weibel – Response to Comments

Response Z-1

This comment includes introductory comments and project description information taken from the DEIR. Comments noted.

Response Z-2

The County and City will work with the local enforcement agency (LEA), Mendocino County Public Health Department, Division of Environmental Health, regarding all applicable application requirements.

Response Z-3

Please see Response Y-6.

Response Z-4

The County and City will contact the LEA to be identified in the Non-Disposal Facility Element of the County Integrated Waste Management Plan prior to submitting a Registration Permit Application.

Response Z-5

This comment includes a conclusion statement, request for subsequent environmental documents and notices, and advanced notice of the public hearing. MSWMA thanks CalRecycle for their comments, will forward subsequent environmental documents and notices to CalRecycle, and will notify CalRecycle of the public hearing date.

4.3 Response to Oral Comments

Oral comments on the DEIR were made at a Public Hearing on March 19, 2015 at Town Hall, 363 N. Main Street, Fort Bragg. The remarks of each person that pertain to the project are summarized and broken into individual comments for response.

Oral Comments AA - Charla Thorbecke

Comment AA-1

Pygmy forest will be compromised. Pygmy forest is a gift. Two thousand acres is all that is left in the world. We are abusing it. It is unique. The transfer station is not going to protect it. It is going to harm it. Pygmy holds water in a different way.

Response AA-1

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest.

Comment AA-2

There should be a pygmy forest park as we enter Fort Bragg. It's a short-sighted approach to save money and put the trash here.

Response AA-2

There already are several public facilities dedicated to public viewing of Pygmy Cypress Forest:

- Hans Jenny Pygmy Forest Reserve, Ukiah-Comptche Road, Mendocino
- Jughandle State Reserve, Highway 1, Caspar, with the Ecological Staircase Trail
- Van Damme State Park, Highway 1, Little River, with a self-guided nature trail built entirely on an elevated walkway that forms a short loop through the site.

In addition, JDSF has 613 acres of Pygmy Cypress Forest outside of Jughandle State Reserve which is protected and accessible to the public.

Oral Comments BB – Sean Keppeler

Comment BB-1

You're talking about the Noyo River watershed, the water source for the City of Fort Bragg. Be careful about putting something there that can be damaging to the Noyo River. Oil flows. Toxics flow. Antifreeze is one of the worst elements you can put in the ground. Paint thinner goes right through any type of soil. Fractures in soil go all the way to the Noyo River watershed.

Response BB-1

The Noyo River is more than one mile distant from the project. The intervening terrain is covered by dense forest vegetation which would block, absorb and/or filter any surface flow from the project site. There are no creeks on the project site, which is relatively flat. These topographical facts, together with the design features outlined in the DEIR (Section 2) and the stormwater runoff mitigation measures in DEIR Section 3.9, make it unrealistic to assert that the project could have any impact on the Noyo River.

Comment BB-2

Transfer station would harm tourist industry by putting it on road into Fort Bragg. Bought his property on Highway 20 without knowing transfer station would be put there. Eighty percent of the people on Road 409 bought properties after 1967. You will go down in history if the worst-case scenario happens.

Response BB-2

Please see Master Response #4 – Aesthetic Impacts, and Master Response #3 – Alternatives Evaluated.

Oral Comments CC- Leanne LaDue

Comment CC-1

Lives on Prairie Way. Because (Caspar) transfer station isn't very secure litter along Russian Gulch State Park is incredible. The trash along our road is terrible. It's a small road that can't handle the traffic. The new site looks wonderful. To me it makes sense to have it close to where it needs to go. The highway is safer. The turn lane into Road 409 is really dangerous and there have been a lot of accidents.

Response CC-1

Comment noted.

Oral Comments DD - Elaine Tavelli

Comment DD-1

Impact Air Quality 1 - Without mitigation there are violations in air quality pollutants, due to motor vehicle traffic, construction and wind erosion of the disturbed area during construction. There are mitigations proposed such as turn off of idling machinery and other best management practices, but there is no enforcement other than posting a sign giving a phone number to call and report violations. As offered in one other section of the DEIR, trained observers could be on-site at all times during construction to monitor and enforce mitigation measures. This would slightly increase the projected \$5 million price tag.

Response DD-1

The mitigation measures set forth in DEIR AQ-1 will be a condition of the construction contract that will be mandatory for all contractors and subcontractors. The construction work would be subject to frequent oversight by County building inspectors and project management personnel from the City and County. There is no precedent for requiring full-time on-site inspectors for a relatively small-scale construction project like this one. The CEQA-required Mitigation Monitoring and Reporting Program would further describe how implementation of the mitigation measures would be ensured.

Comment DD-2

Impact Air Quality 2 - Expose sensitive receptors (people) to substantial pollutant concentrations. Create objectionable odors affecting a substantial number of people. The project is anticipated to include features to reduce odors. The control features are not available at this time and a building design for the enclosed system is not included in the DEIR. As no building design is in the draft there is no mitigation presented that offsets the significant impact of objectionable odors.

Response DD-2

There is no requirement under CEQA to produce the actual building blueprints for a project. Rather, a conceptual design and specifications are appropriate and sufficient in detail to establish that mitigation measures for any potential impacts are practical and feasible. The DEIR (Section 3.3 – Air Quality and Odor) analyzed potential odor impacts and determined that the proposed project would have a less than significant impact. The DEIR has done so by specifying a fully-enclosed transfer building with limited roll-up door openings that are compatible with installation of air curtains, negative ventilation and biofiltered exhaust (reference DEIR pages 3.3-14 – 3.3.15). The odor control systems are identified in the DEIR and they are proven to abate offsite odors by extensive experience of the solid waste industry.

Comment DD-3

Biological Impact 1. There are substantial adverse effects on special status species. The mitigation method again applies "best management policies" but enforcement is absent. Without enforcement there is no mitigation, so as mentioned in the DEIR, the role of 2 full time trained observers during construction can be used. Also, the County and City have minimized the amount of impacts by adjusting the footprint of this project from 5 acres to 4.72 acres thereby avoiding other protections which could be applied to this proposed project.

Response DD-3

Inspection by qualified biologists as necessary regarding impacts to sensitive species during construction would take place as would be specified in the Mitigation Monitoring and Reporting Program. There was no adjustment of the project footprint to make it a particular size.

Comment DD-4

Biological Impact 2. There is substantial adverse effect on sensitive natural community. Destruction of the cypress forest, or pygmy as we know it, is to be mitigated by preservation of trees at an off-site location north of the current Caspar facility. The pygmy forest on Highway 20 will be lost and inaccessible. The mitigation method offers no protection for that adverse effect.

Response DD-4

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest. Additionally, almost all of the Pygmy Cypress Forest on the 17-acre project site would be undisturbed by the project and would lie outside the perimeter fence of the transfer station; therefore, there would be no change in the accessibility of the public to the forest.

Comment DD-5

Impacts Geology and Soils Geo 1. Expose people or structures to potential substantial adverse effects involving strong seismic ground shaking or ground failures. Geo 3 - location on soil that is unstable as a result of the project or would become unstable. The mitigation method for the two Geo significant impacts is to conduct a geotechnical study of the soils yet a study has not been done of the soil & the geology. These studies must be prepared and offered to the public before the EIR can be certified.

Response DD-5

A Preliminary Geotechnical and Engineering Evaluation of the site was prepared by LACO in 2012 (DEIR Appendix E). Among the findings of the study were:

- “Based on the results of this evaluation, it is feasible to develop this site as conceptually planned. Our preliminary evaluation found no identifiable geologic hazards that would preclude use of the site for the proposed development.”
- “No active faults are known to extend through the site. Since surface fault rupture generally follows the trace of pre-existing active faults, the risk of future surface rupture at this site is considered to be low to non-existent.”
- “The soils encountered at depth in our test borings drilled at the site are not considered to be liquefiable during strong ground shaking due to their density.”

The LACO report establishes that the project can be built safely. The specific building design requirements (e.g., soil preparation, foundation design, tie-downs, etc.) do not have to be set forth in the DEIR. They would be determined after a “site-specific geotechnical investigation” called for both by the LACO report and the DEIR.

Comment DD-6

Impact Geo 2 - substantial soil erosion or loss of topsoil. The mitigation method for erosion and loss of topsoil is to prepare a SWPPP for the project. A SWPPP has not been prepared so there has not been any mitigation measures offered to prevent soil erosion.

Response DD-6

A SWPPP is a routine filing with the Regional Water Quality Control Board that specifies a variety of well-known control measures to prevent erosion during construction, such as mitigated truck-entry surfaces, ground covers, and sediment berms. Preparation of the SWPPP prior to certification of the RTC is not required by CEQA.

Comment DD-7

Impact Geo 4 - the project is located on expansive soil creating substantial risk to life and property. The extent of expansive soil is not known at this time or addressed in the DEIR as a geotechnical study has not been done and presented.

Response DD-7

Please see Response DD-5 above.

Comment DD-8

Conclusion: There are still studies and plans to be completed on this proposed project including the building plan design, the geotechnical and soil studies, and the SWPPP along with more refined mitigation measures.

Response DD-8:

Please see Responses DD-5 and DD-6 above.

Oral Comments EE - Pat LaDue

Comment EE-1

EIR is thoroughly researched. Potential impacts are either not significant or can and will be mitigated to no significant impact. The Road 409 (Caspar) alternative is not feasible due to inadequate Road 409-Highway 1 intersection that cannot accommodate extra-long trucks due to the proximity of the Caspar Creek bridge. The "do nothing" alternative is inefficient and wasteful due to the Caspar transfer station location seven miles south of Fort Bragg.

Response EE-1

Comments noted.

Oral Comments FF - Rick Childs

Comment FF-1

There is no perfect place for a transfer site. It has to go someplace, and the process has identified the site with the least impact which can benefit the coast most. The reduction in truck miles from the site and the cost savings should be included in the RTC. *(Distributed a sheet included herein with written comments).* Self-haul miles saved 162,000 miles per year, generates at 50 cents per mile \$81,000 saved by public. Larger savings from the garbage trucks: 117,000 fewer garbage truck miles, at 30 mph and \$90/hr to operate, reduces cost of operations by \$350,000, over 20 percent of the transfer station operating budget. That is very significant.

Response FF-1

Comments noted.

Oral Comments GG – Kelly Fairall

Comment GG-1

County General Plan policy RM-25: prevent fragmentation. Clearing five acres of forest is fragmenting. Policy RM-28 states that the County wants to protect pygmy forestlands and transitional pygmy including prevention of vegetation removal, disruption of vegetation and minimize the introduction of water and nutrients due to human activity. This transfer station will be removing pygmy, removing vegetation and introducing water and nutrients due to human activity. Also stated in Goal DE-1 is preserving the rural character of Mendocino County. Adding a transfer station in the middle of a currently forested area isn't preserving rural character. The previous sites have no specific plans to reclaim land to natural state.

Response GG-1

Please see Master Response #5 - Mendocino County General Plan.

Comment GG-2

The Highway 20 site is part of Noyo River hydraulic area. This area is listed as impaired for sediment, siltation and water temperatures. Transfer station would worsen these problems. According to the EIR, 68 percent of pollutants will be removed by bioswales. There is a 26 percent increase in runoff according to Table 3.9-1.

Response GG-2

Please see Response BB-1 above.

Comment GG-3

There are other current locations with less biological impacts than the project site.

Response GG-3

Please see Master Response #3 – Alternatives Evaluated.

Comment GG-4

If the project goes forward, the Caspar land should be reclaimed. We keep taking from the environment and don't put anything back.

Response GG-4

Mitigation for the loss of 0.58 acre of Pygmy cypress forest would be accomplished by preservation at another location. Please see Master Response #1 – Mitigation for Pygmy Cypress Forest. The project also includes the closure of the Caspar self-haul site as soon as the new transfer station is completed and operational.

Oral Comments HH – Kent Pember**Comment HH-1**

The EIR is efficient, logical and well-appointed. It is a hazard to have the Caspar dump where it is. The roads are way too narrow. It's foolish not to conserve our future fuel costs, our future road use costs, everything having to do with the transport. Going down a dead-end road and back seems crazy. The transfer station belongs somewhere on Highway 20. Former D.A. promised that the (Caspar) dump would close.

Response HH-1

Comments noted.

Oral Comments II – Rixanne Wehren**Comment II-1**

Representing the Sierra Club. Concerned about the pygmy vegetation and the Bishop Pine Forest. The Bishop Pine Forest was misclassified as not a protected habitat but it is.

Response II-1

Please see Master Response #2 – Classification of Bishop Pine Forest.

Comment II-2

Taking any part of the pygmy forest is not a viable option, it has been recognized as a world-class habitat that exists only in this County and a few small places around the world. It is a very unique ecosystem. Total protection is needed, not partial. Conservation easement doesn't mean you aren't affecting the pygmy.

Response II-2

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest.

Comment II-3

Hydrology study isn't quite adequate because of pygmy hydrology. We're asking for better hydrology study of pygmy forest and the Bishop Pine Forest.

Response II-3

Please see Master Response #7 – Hydrology and Water Quality, and Response Q-4 and Response U-2.

Comment II-4

The cumulative effects were not evaluated as widely as necessary. Did not mention the ongoing destruction of pygmy by the County in siting of two other transfer stations on pygmy forest: Albion and Caspar.

Response II-4

The Albion and Caspar transfer stations were placed on land cleared for landfills about 50 years ago. There was no recognition at that time of Pygmy cypress forest as a special status habitat and the situation of the habitat was much different. More recent surveys identified the prevalence of this habitat and are used as a baseline in the DEIR. Please also see Response T-13.

Comment II-5

We consider the swap to be a lose-lose-lose situation. We will lose the protected trees from Russian Gulch which go into the JDSF. State Parks is going to have to take the (Caspar) dump, and we lose the new pygmy forest being cut down. State Parks has said they value their trees a lot more than the dump site and so there has to be money changed.

Response II-5

The comment incorrectly describes the land swap. The 12.6 acres from Russian Gulch State Park that would be transferred to JDSF would become part of JDSF's Caspar Creek Experimental Watershed Study Area, which is a research project for evaluating the effects of timber management on streamflow, sedimentation and erosion. The study area was established in 1961 and will continue at least through 2099 pursuant to a memorandum of understanding with the U.S. Forest Service (reference DEIR Section 2.5.1). There is no timber harvesting currently contemplated, but if harvesting was planned, it would be subject to a Timber Harvest Plan (verbal conversation March 24, 2015 with Pam Linstead, Manager, JDSF). Under California law, a Timber Harvest Plan performs the functions of and substitutes for review under CEQA. The DEIR does not discuss possible impacts to the 12.6 acres which would be transferred to JDSF for the above reasons, and because no impacts are presently assumed or reasonably foreseeable.

Regarding the 61-acre Caspar Landfill property, the land swap doesn't require State Parks to take ownership. It does; however, award State Parks a conservation easement so that State Parks can control future use of the site and prevent any activities that might adversely impact Russian Gulch State Park. The DEIR references the Caspar site in several places and the responses are the same, in that no changes to the site would occur except cessation of operations of the existing self-haul transfer station and the removal of its equipment.

Oral Comments JJ – Barbara Rice

Comment JJ-1

Listen to the experts, don't go back to default position to leave it at Caspar. Consultant Steve Salzman in 2007 said location off Road 409 would not be considered today if things done all over again because it is inappropriate and it was only history that you consider it today. There is a school, State Park and State Forest on the road, the transfer station is incompatible, harassing walkers and bikers. The environmental impact is greater that farther the site is from transportation corridor. Highway 20 makes sense.

Response JJ-1

Comments noted.

Oral Comments KK – Jeremy James

Comment KK-1

The overlay of Google earth map and species don't line up. It is cockeyed and slanted.

Response KK-1

The projection of the figure from the DEIR at the public hearing was slightly distorted by the projector.

Comment KK-2

The CNPS says there is no such thing as transitional pygmy. All the areas that show transitional pygmy are actually pygmy.

Response KK-2

This is consistent with the DEIR's Biological Resources Section.

Comment KK-3

The EPA mandate for transfer stations says they have to account for future growth. So this portion of the parcel isn't the only piece that will be affected. There will be more of this pygmy destroyed. [reads written statement by Erik Thorbecke which is responded to under written comments].

Response KK-3

As noted in DEIR Section 2.5.7, the project is designed so that the proposed 30,000 square foot transfer station building is large enough to accommodate larger tonnage through more intensive use of the same infrastructure without the need for physical expansion.

Oral Comments LL – John Fremont

Comment LL-1

The EIR is cooked. It is full of errors. The errors all substantiate the Highway 20 transfer station. The emergency helipad is a private airstrip. It is used to evacuate hospital patients when we are covered in fog. Also used in forest fires.

Response LL-1

The term “airstrip” is defined by the Meriam-Webster Dictionary as “an area of land that is used as a runway for airplanes to take off and land.” This means an airstrip has a runway that can accommodate fixed-wing aircraft. The small graveled clearing west of the project site is a backup location for certain public service helicopters to land if the helipads in Fort Bragg are fogged in. It is not an airstrip. It is very seldom used and is not open to the public. The project would not interfere with any future use of the helipad; nor would future use of it create a hazard for the public. It does not trigger any of the airstrip-vicinity significance considerations of the CEQA Guidelines.

Comment LL-2

The project is in a very high forest fire severity zone. EIR says it would not create wildland fire risk. Last year helicopters required to put out fires across the road from where he lives, right next to the helipad. There is substantial risk but the EIR does not mention it.

Response LL-2

The DEIR acknowledges the forest fire severity zone. However, the facility would not create a fire risk because the building would be a fully-enclosed steel and concrete structure and therefore non-flammable and it would be surrounded by paved driveways of substantial width that would provide a non-flammable setback from any vegetation. An integral part of transfer station facilities is an on-site capability to extinguish any fires.

Comment LL-3

EIR says there are no creeks on the project site. There is at least one creek that runs right through my property heading west, a seasonal creek. It only carries water in the winter time, but this station will operate year-around.

Response LL-3

The DEIR correctly states there are no creeks on the project site. For a discussion of the project’s hydrology, see Master Response #7 – Hydrology and Water Quality.

Comment LL-4

The residents of Road 409 have spoken out about the stench, traffic problems, litter, air and water pollution and other environmental hazards and they have forced the joint powers to close their garbage station. The same problems will force the early closure of the \$5 million boondoggle on Highway 20. There are better solutions: a biomass system.

Response LL-4

The Caspar Transfer Station on Road 409 hasn’t been closed and no one is forcing the City and County to do so. There has been no proposal or consideration of a “biomass” or combustion disposal method because the capital costs of that technology are prohibitive for small wastestreams. Such a facility would require a similar siting and footprint as this project.

Comment LL-5

The Pudding Creek station goes through town and they complain they don't want trucks going through town. The speed limit here in town is 25 mph, it's a straight shot, on Highway 20 the speed limit is 55 mph and it will clog traffic.

Response LL-5

The DEIR Transportation Section 3 and Traffic Impact Study (DEIR Appendix H) show that the project's traffic can be managed safely and cause no decline in the level of service of Highway 20.

Oral Comments MM – Ann Rennacker**Comment MM-1**

Flaws in EIR. The project would cause water contamination in our aquifer and runoff into the Noyo River.

Response MM-1

Please see Response BB-1.

Comment MM-2

Highway 20 should not be subjected to huge semi-truck traffic hauling garbage.

Response MM-2

The semi-truck traffic already uses Highway 20 and the project would greatly reduce such trips.

Comment MM-3

No pygmy forest should be cut ever. It is a rare and unique ecosystem. Tourists come from all over the world to walk the ecological staircase. Tourism is our main industry. You can't transplant pygmy trees from one area to another.

Response MM-3

Please see Response AA-2.

Comment MM-4

We need a biologist to come out and do an assessment. Jere Melo the forester did the assessment and he only looked at value of board feet if you logged it. Teresa Scholer lives here and her husband wrote a book on pygmy forest. She could give some assessment. The health of our forests is our future.

Response MM-4

The biological assessment which was prepared by a qualified biologist is Appendix D of the DEIR.

Comment MM-5

The size of the transport trucks is excessive and dangerous on Highway 20. There is bound to be an accident or a spill. The Pudding Creek transfer station is already industrialized we can use that and take it out by train to Willits.

Response MM-5

The reasons why these alternatives were selected are set forth in the DEIR Sections 4.4.2 and 4.4.3. Please also see Master Response #3 – Alternatives Evaluated.

Oral Comments NN – William Lemos

Comments NN-1

The question is whether the Highway 20 is best possible location. The most compelling argument in EIR because it will reduce the carbon footprint by 140 metric tons per year, a significant reduction. The Clean Air Act demands we do what we can. The project objectives 2.3 are cost-effective and environmentally sound solid waste services, increased efficiency in solid waste transfer in order to minimize energy use, GHG emissions, truck trips and cost. We will have to remove some Bishop pine but is that going to counterbalance the overall need to look at the environment first in a whole unit as what we can do as a community.

Response NN-1

Comments noted.

Oral Comments OO – Gordon Leppig

Comment OO-1

Senior environmental scientist with CDFW. Concerns with impact on pygmy forest and Northern Bishop Pine Forest. Both of these natural communities are ranked by the State as highly imperiled. The County has worked with the Department to better protect them from development interests. Both the County General Plan and the JDSF Management Plan recognize the importance of protecting ecologically significant habitats such as these. As proposed the project has significant impact on Pygmy cypress forest / woodlands. We find the mitigations insufficient and not described in adequate detail to assess effectiveness.

Response OO-1

Please see Master Response #1 – Mitigation for Pygmy Cypress Forest.

Comment OO-2

Significant impacts to Northern Bishop Pine Forest. The DEIR misclassifies, it does not recognize its rarity or State rank. Therefore, it did not describe the impact as significant or propose mitigations. The DEIR must propose mitigations to significant impacts to Northern Bishop Pine Forest. The cumulative impacts analysis to these natural communities is inadequate and does not recognize the ongoing threat to them.

Response OO-2

Please see Master Response #2 – Classification of Bishop Pine Forest.

Comment OO-3

While the DEIR includes the three-way property transfer as part of the project the DEIR includes no impact assessment on the ultimate disposition of the other two parcels.

Response OO-3

Please see Response II-5 above.

Comment OO-4

Project location. The DEIR concludes the project is the environmentally superior alternative. The DEIR dismisses other sites without giving them full environmental analysis. The DEIR alternatives analysis should be redone to fully analyze sites occurring outside of threatened natural communities.

Response OO-4

Please see Master Response #3 – Alternatives Evaluated.

Comment OO-5

Water quality impacts and stormwater management. Outfall structures. Where does polluted water go? The DEIR doesn't consider this and defers the design and placement to a future time. The Department finds the DEIR needs substantial revisions and should be recirculated pursuant to CEQA Section 15088.5.

Response OO-5

Please see Master Response #7 – Hydrology and Water Quality.

Oral Comments PP - Leslie Kashiwada**Comment PP-1**

The alternatives are dismissed out of hand and need to be further evaluated. Not in favor of keeping the Road 409 site open, it's a very poor place for a transfer station. Not a pleasant drive on trash delivery days. There are flaws in the EIR. Wants analysis of Pudding Creek and rail option [commenter also submitted a written statement which is responded to under written comments.]

Response PP-1

Please see DEIR Section 4.0 and Master Response #3 – Alternatives Evaluated.

Oral Comments QQ – Sue Boecker**Comment QQ-1**

Trash needs to be recycled. It needs to be mined. This proposal does not do that. The train seems to be the only logical way. Realizes the tracks are falling apart. There is a way to do the train. \$5 million is a good start. The haulers could kick in as well, there has to be another way.

Response QQ-1

Please see DEIR Section 4.4.3, and Master Response #3 – Alternatives Evaluated.

Comment QQ-2

The Summers Lane Reservoir is very near. All of Fort Bragg's water will eventually come out of there. Water is our most precious and limited resource.

Response QQ-3

Please see Master Response #6 - Summers Lane Reservoir.

Comment QQ-4

Highway 20 is a very scary place. I go up Ukiah Comptche Road or Highway 128. It's curvy and fast and big trucks on there. That spot would be a real problem.

Response QQ-4

The project would reduce large truck traffic on Highway 20.

Comment QQ-5

Tourism is the only viable alternative for coast economy. Trash station on doorstep is not something people want to look at. The litter and odor would not make it a good decision.

Response QQ-5

Please see Master Response #4 – Aesthetic Impact. The methodology for odor impacts is discussed on DEIR page 3.3-10, and the impact analysis is discussed in Impact AQ-3 - Create Objectionable Odors Affecting a Substantial Number of People on DEIR page 3.3-14.

Oral Comments RR - Rex Gressett**Comment RR-1**

These people are not listening to what you are saying. There is a \$5 million project and they are going to make money on it. You can win. We stopped them on the hotel. This is bad judgment just like that one. Protect the pygmy forests it's the obvious thing. Don't expect anything out of a group of people that have already made up their minds. Get the best, finest, most up-to-date transfer station on earth because we love Mendocino County. Don't let them for their money put in this great big fume-belching monstrosity. Mr. Lemos you should be ashamed of yourself.

Response RR-1

Comments noted.

Oral Comments SS - Meg Courtney**Comment SS-1**

A lot of research was done on this. We had looked at the train. It's not going to work. The Pudding Creek transfer station doesn't work, it's even worse than Road 409. It's not viable. This has been looked at a million ways and this is it. So either take this or I don't know where the thinking is. The advantages to the environment and the efficiency of this transfer station - it's not going to be visible. I love trees and the pygmy forest but when you weigh the two things the savings in gas miles, taking the CO2 out of the environment, to me it just doesn't weigh out. We have to look forward.

Response SS-1

Comments noted.

[Oral comments were also made by Elizabeth Keppeler who reiterated and expanded upon them in a written statement which is responded to under written comments above (Response P-1 through P-14).]

5. References

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Appendices

Appendix A

Natural Community Mapping

April 24, 2015

Mike Sweeney
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

Dear Mr. Sweeney,

The purpose of this letter is to inform you of the results of a cursory natural community (i.e., vegetation or plant community) mapping performed at the request of the Mendocino Solid Waste Management Authority at APN 118-500-45, near Casper, Mendocino County, California. Specifically, WRA identified and mapped the natural communities present within the Study Area, including northern Bishop pine forest and Mendocino pygmy cypress forests. The WRA site visit occurred on April 18, 2015 and was conducted by WRA botanist Erich Schickenberg.

Survey Methods

Prior to the April 18th site visit, a review was conducted of background information including:

- Google Earth
- California Soil Resources Lam (CSRL) Online Soil Survey.
- California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants

Prior to the site visit, a WRA biologist reviewed the aerial vegetation signature on Google Earth and the available soil survey data. During the site visit, portions of the Study Area were traversed on foot and the natural communities were documented based on dominant and characteristic species. The approximate boundaries of the natural communities were then hand-drawn on aerial photographs by following distinct signatures to create the natural communities map (Attachment 1).



Mendocino pygmy cypress forest

Survey Results

The 28.3-acre parcel is bounded to the north and east by private residential property; to the south by the Casper Transfer Station; and to the west by private property containing contiguous northern Bishop pine and Mendocino pygmy cypress forest.

The Study Area is dominated by northern Bishop pine and Mendocino pygmy cypress forest communities, with smaller areas of disturbed vehicle paths and trails (Attachment 1).

Northern Bishop Pine Forest: Northern Bishop pine forest is known from near the coast from Fort Bragg, Mendocino County to northwestern Sonoma County, with stands on Point Reyes, Mount Tamalpais, and Monterey Peninsula (Holland 1986). This natural community is characteristic of the northern Bishop pine forest described in Holland (1986), and Bishop pine forest (*Pinus muricata* Forest Alliance) described in Sawyer et al. (2009). Vegetation associations were not mapped but include Bishop pine-evergreen huckleberry (*Pinus muricata-Vaccinium ovatum* Forest Association) and Bishop pine/Bolander's pine/pygmy cypress forest (*Pinus muricata/P. contorta* ssp. *bolanderi/Hesperocyparis pygmaea* Forest Association).

Bishop pine forest occupies approximately 5.76 acres in the central portion of the Study Area (Attachment 1). This community is dominated by Bishop pine (*Pinus muricata*), with several characteristic and subdominant tree species including pygmy cypress (*Hesperocyparis pygmaea*), and Bolander pine (*Pinus contorta* ssp. *bolanderi*). The overstory is somewhat open to completely closed containing mature to over-mature trees. The understory contributes to the vertical structure with a high density of shrubs and depauperate herbaceous layer. Shrub and understory tree species include evergreen huckleberry (*Vaccinium ovatum*), Pacific rhododendron (*Rhododendron macrophyllum*), giant chinquapin (*Chrysolepis chrysophylla*), tanoak (*Notholithocarpus densiflorus*), and salal (*Gaultheria shallon*). The herbaceous layer is sparse, and includes bracken fern (*Pteridium aquilinum*) and western sword fern (*Polystichum munitum*).

Mendocino Pygmy Cypress Forest: Mendocino pygmy cypress forest is known from near the coast on ancient marine terraces composed of acidic podzol-like soils (Blacklock series) from Fort Bragg to Albion in Mendocino County, and in scattered stands south into Sonoma County (Holland 1986, Sawyer et al. 2009). This natural community is characteristic of Mendocino pygmy cypress forest described in Holland (1986), and pygmy cypress forest (*Hesperocyparis pygmaea* Forest Alliance) described in Sawyer et al. (2009). Vegetation associations were not mapped but include pygmy cypress forest (*Hesperocyparis pygmaea* Forest Association), pygmy cypress/Bishop pine forest (*Hesperocyparis pygmaea/Pinus muricata* Forest Association), and pygmy cypress/Bolander's pine forest (*Hesperocyparis pygmaea/Pinus contorta* ssp. *bolanderi* Forest Association).

Three morpho-types were identified and mapped within the Study Area, "tall pygmy forest", "transitional pygmy forest", and "extreme pygmy forest." These mapping units were based on species composition and height of individual trees, and appeared to be correlated with the depth of a cemented hardpan within the substrate, with stunted trees (extreme pygmy forest) located on soils with a very shallow cemented hardpan.

Tall pygmy forest is dominated pygmy cypress (*Hesperocyparis pygmaea*), with a few scattered individuals of Bishop pine (*Pinus muricata*). This morpho-type occupies approximately 3.70 acres in the southwestern and northeastern portions of the Study Area (Attachment 1). Although pygmy species dominated these areas, the soils do not appear to be limiting the growth of individual trees, and average heights range from 35 to 100 feet. The understory is dominated by tall, dense shrubs including Pacific rhododendron (*Rhododendron macrophyllum*), evergreen huckleberry (*Vaccinium ovatum*), and salal (*Gaultheria shallon*).

Transitional pygmy forest is dominated by pygmy cypress (*Hesperocyparis pygmaea*), with subdominants of Bishop pine (*Pinus muricata*) and Bolander's pine (*Pinus contorta* ssp. *bolanderi*). This morpho-type occupies approximately 8.60 acres in the northwestern and southeastern portion of the Study Area (Attachment 1). The soils appear to be somewhat limiting the growth of individual trees, and average heights range from 15 to 35 feet. The understory is dominated by dense shrubs including hairy manzanita (*Arctostaphylos columbiana*), Pacific rhododendron (*Rhododendron macrophyllum*), evergreen huckleberry (*Vaccinium ovatum*), and salal (*Gaultheria shallon*).

Extreme pygmy forest is dominated by pygmy cypress (*Hesperocyparis pygmaea*) and Bolander's pine (*Pinus contorta* ssp. *bolanderi*). This morpho-type occupies approximately 7.05 acres of the Study Area (Attachment 1). The soils appear to be extremely limiting the growth of trees and shrubs whose average height ranges from 5 to 15 feet. The understory is composed of short statured dense thickets of shrubs with greater interstitial space between thickets than in transitional pygmy forest and tall pygmy forest. Shrub species include Labrador tea (*Rhododendron columbianum*), wax myrtle (*Morella californica*), salal (*Gaultheria shallon*), and evergreen huckleberry (*Vaccinium ovatum*). The herbaceous layer is sparse with bracken fern (*Pteridium aquilinum*) and western sword fern (*Polystichum munitum*). Additionally, cryptogamic crusts formed from reindeer lichens (*Cladonia portentosa*, *Cladina impexa*) are present sporadically in open areas that appear to pond water in the wet months.

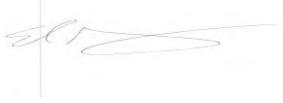
Labrador Tea Thicket (Wetland): Labrador tea thickets are known from near the coast and northern Sierra Nevada on strongly seasonally to perennially saturated substrates in depressions, seeps, swales, and as riparian. They have been documented from Del Norte County southward to Marin County (Holland 1986, Sawyer et al. 2009). This natural community is characteristic of freshwater (*Ledum*) swamps as described in Holland (1986), and Labrador tea thickets (*Rhododendron glandulosum* Shrubland Alliance) described in Sawyer et al. (2009). This natural community was observed in the southwestern portion of the Study Area, and occupies approximately 1.14 acres. The overstory of this area was previously dominated by conifer trees, which have since suffered mortality and are now fallen. Therefore, the dominant species is now Labrador Tea (*Rhododendron columbianum*), with other native shrubs and herbs including California wax myrtle (*Morella californica*), bracken fern, (*Pteridium aquilinum*), and western sword fern (*Polystichum munitum*).

Summary

Based on the site visit and review of pertinent information, the Study Area is dominated by relatively undisturbed northern Bishop pine and Mendocino pygmy cypress forests communities. The Study Area contains approximately 5.76 acres of northern Bishop pine forest, 3.70 acres of tall pygmy forest, 8.60 acres of transitional pygmy forest, and 7.05 acres of extreme pygmy forest. A 1.14 acre Labrador tea thicket (wetland) was also observed within the Study Area.

Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Erich Schickenberg', written over a vertical line.

Erich Schickenberg
Plant Biologist

References:

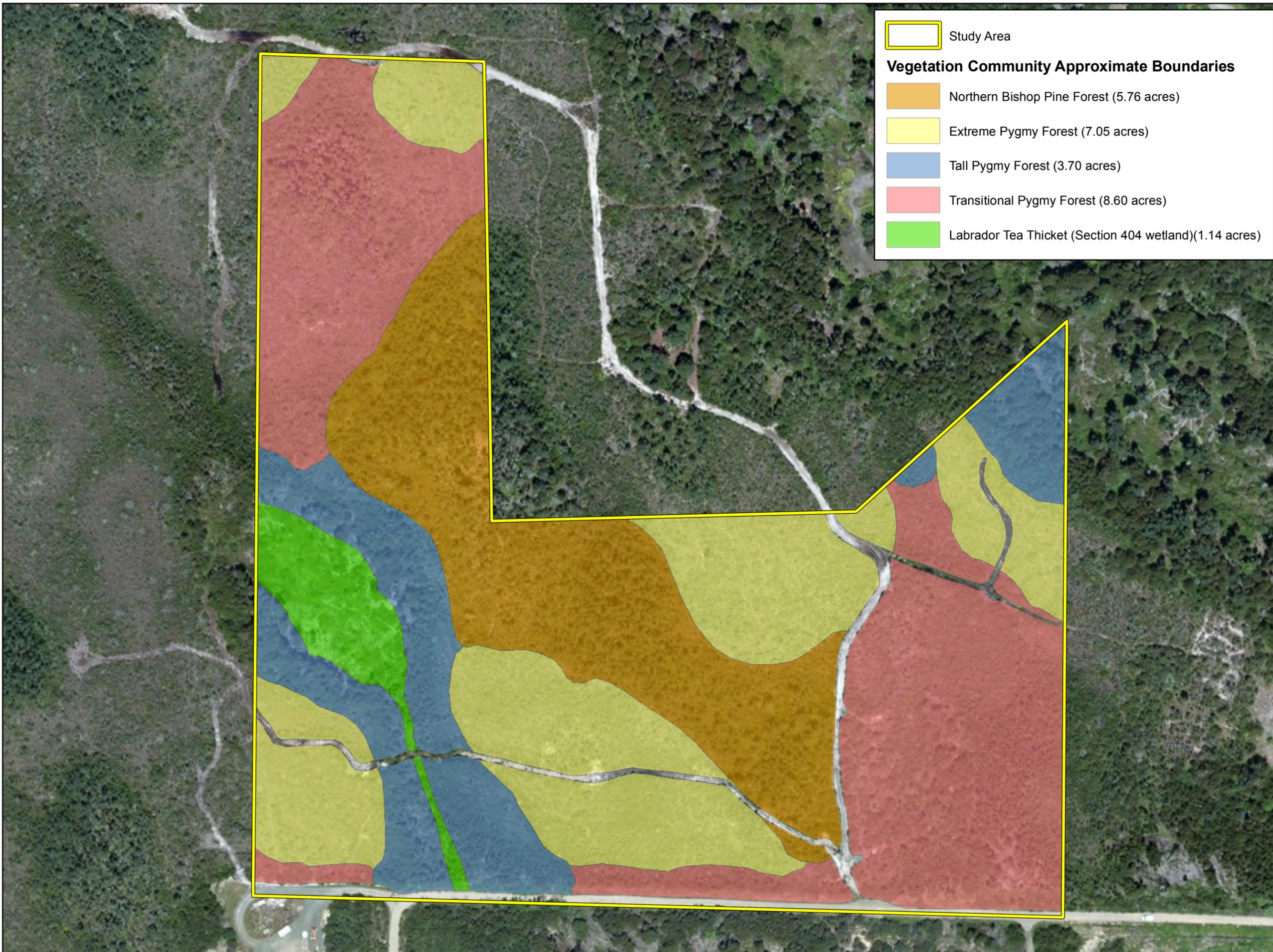
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Attachment 1: Vegetation Communities

APN# 118-500-45

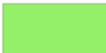
Mendocino County,
California

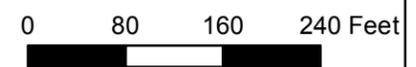
Attachment 1.
Vegetation Communities



 Study Area

Vegetation Community Approximate Boundaries

-  Northern Bishop Pine Forest (5.76 acres)
-  Extreme Pygmy Forest (7.05 acres)
-  Tall Pygmy Forest (3.70 acres)
-  Transitional Pygmy Forest (8.60 acres)
-  Labrador Tea Thicket (Section 404 wetland)(1.14 acres)



Map Prepared Date: 4/24/2015
 Map Prepared By: Chris Zumwalt
 Base Source: ESRI Streaming 6/16/2010
 Data Source(s): WRA

Appendix B

Botanical Reconnaissance of Parcel 118-500-45

Botanical Reconnaissance of Parcel 118-500-45 adjacent to the Casper Transfer Station



Submitted to:
Michael E. Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Dr.
Ukiah, CA 95482

Submitted by:
Kerry Heise Botanical Consulting
453 Mendocino Dr.
Ukiah, CA 95482

Introduction

On April 16, 2015 a short reconnaissance visit was made to APN# 118-500-45 in Mendocino County. The purpose of the visit was to make a general assessment of the botanical diversity and ecological condition of the parcel. To accomplish this, the area was travelled on foot through representative stands while characterizing the vegetation in terms of species composition, abundance, and structure. A complete floristic survey, which requires a more extensive investigation during multiple visits between spring and fall, was not conducted. As a result a number of herbaceous species, including grasses and rushes, along with many non-vascular plants (mosses and liverworts) and lichens were not included.

Site Description

The parcel is located on a portion of uplifted marine terrace approximately 360 feet in elevation and 1.75 miles east of the Pacific Ocean between Doyle creek to the north and Russian Gulch to the south. The vegetation here is composed largely of undisturbed pygmy cypress woodland. Across its range this vegetation type occurs on marine terraces and associated sandstone primarily between Pudding Creek and the Navarro River in Mendocino County (Sawyer et. al. 2009). Soils of these coastal terraces are acidic spodosols with cemented hardpan that are seasonally flooded. Water persists under the hardpan throughout the summer which deep rooted species can tap into (Sholars 1982). Over time leaching away of nutrients produces sterile soils where tree growth is severely limited. Where this leaching has been most dramatic full-grown trees may only reach 2 meters in height, while in adjacent, more fertile areas they can obtain heights up to 50 meters.

Bolander's beach pine (*Pinus contorta* subsp. *bolanderi*), pygmy cypress (*Hesperocyparis pygmaea*), and Bishop pine (*Pinus muricata*) commonly occur together in varying proportions throughout the parcel. Between 50-75% of the parcel is covered in stunted pygmy woodland/forest where Bolander's beach pine and pygmy cypress often co-dominate in stands between 2-5 meters in height. Associated shrubs are often as high as the trees such as California rhododendron (*Rhododendron macrophyllum*), western Labrador tea (*Rhododendron columbianum*), and western huckleberry (*Vaccinium ovatum*). Species such as pygmy manzanita (*Arctostaphylos nummularia* subsp. *mendocinoensis*) and salal (*Gaultheria shallon*) occupy the lower portions of the canopy. Under open canopies herbaceous species are very sparse resulting in patches of exposed soil which are occasionally colonized with mosses and lichens. The scattered mats of white, intricately-branched maritime reindeer lichen (*Cladonia portentosa* subsp. *pacifica*) on the parcel reach their southern distribution in pygmy cypress woodland.

Interspersed are patches of Bishop pine dominated forest with much higher canopies up to 25 meters in height. Both Bolander's beach pine and pygmy cypress are present in these stands, reaching higher into the canopy as well. In the parcel's southwest corner a dense stand of taller pygmy cypress occurs.

Rarity

Pygmy cypress woodland is extremely rare in the state, only occurring along a thin belt of uplifted marine terraces along the Mendocino coast and in a few scattered locations along the northern Sonoma coast. As many as 10 rare species identified in the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS 2015; CDFW 2015) occur within the range of the pygmy cypress woodland,

5 of these were seen on APN# 118-500-45 (App. A, B). Much of this rare habitat has been lost to residential development and the remaining undeveloped parcels are impacted by various threats including illegal pot growing, recreational trails, and off-road use, which all impact sensitive vegetation.

Salal with maritime reindeer lichen



Conclusion

The vegetative cover of APN#118-500-45 is largely comprised of pygmy cypress woodland along with patches of Bishop pine forest. Aside from a small graded road there are no visible signs of human disturbance, although the invasive Jubata grass (*Cortaderia jubata*) occurs along the road at the parcel's southern boundary and presents a threat if not controlled. These ancient coastal terraces provide habitat for a suite of rare species, largely restricted or endemic to this small sliver of California Coast. High value should be placed on their conservation.

List of Species seen on APN#118-500-45 (Nomenclature follows the Jepson Manual, 2012 for vascular plants, Esslinger 2014 for Lichens). * = rare according to CNPS Inventory

Trees

Hesperocyparis pygmaea (Synonym: *Cupressus pygmaea*)

Pinus contorta subsp. *bolanderi*

Pinus muricata

pygmy cypress *

Bolander's beach pine *

Bishop pine

Shrubs

Arctostaphylos nummularia subsp. *mendocinoensis*

Gaultheria shallon

Morella californica (Synonym: *Myrica californica*)

Rhododendron columbianum (Synonym: *Ledum glandulosum*)

Rhododendron macrophyllum

Vaccinium ovatum

pygmy manzanita *

salal

wax myrtle

western Labrador tea

California rhododendron

western huckleberry

Herbaceous Perennials

| | |
|-------------------------------|--------------------|
| <i>Agrostis</i> sp. | bentgrass |
| <i>Carex californica</i> | California sedge * |
| <i>Juncus</i> sp. | rush |
| <i>Lilium maritimum</i> | coast lily * |
| <i>Pedicularis densiflora</i> | Warrior's plume |
| <i>Xerophyllum tenax</i> | bear grass |

Lichens

| | |
|--|--------------------------|
| <i>Cladonia chlorophaea</i> | mealy pixie-cup |
| <i>Cladonia crispata</i> | organ-pipe lichen |
| <i>Cladonia portentosa</i> subsp. <i>pacifica</i> (Synonym: <i>Cladonia portentosa</i> subsp. <i>pacifica</i>) | maritime reindeer lichen |
| <i>Hypogymnia inactiva</i> | mottled tube lichen |
| <i>Platismatia herrei</i> | tattered rag lichen |
| <i>Usnea</i> sp. | beard lichen |

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Appendix A: California Rare Plant Ranks (CRPR)

- 1A. Presumed extirpated in California and either rare or extinct elsewhere
- 1B. Rare or Endangered in California and elsewhere
- 2A. Presumed extirpated in California, but more common elsewhere
- 2B. Rare or Endangered in California, but more common elsewhere
- 3. Plants for which we need more information - Review list
- 4. Plants of limited distribution - Watch list

1A: Plants Presumed Extirpated in California and either rare or extinct elsewhere

The plants of Rank 1A are presumed extirpated because they have not been seen or collected in the wild in California for many years. This rank includes those plant taxa that are both presumed extinct, as well as those plants which are presumed extirpated in California and rare elsewhere. A plant is extinct if it no longer occurs anywhere. A plant that is extirpated from California has been eliminated from California, but may still occur elsewhere in its range.

1B: Plants Rare, Threatened, or Endangered in California and Elsewhere (Includes Rare Plant Ranks 1B.1, 1B.2, 1B.3)

The plants of Rank 1B are rare throughout their range with the majority of them endemic to California. Most of the plants that are ranked 1B have declined significantly over the last century. California Rare Plant Rank 1B plants constitute the majority of plant taxa tracked by the CNDDDB, with more than 1,000 plants assigned to this category of rarity.

2A: Plants Presumed Extirpated in California, but more common elsewhere

The plants of Rank 2A are presumed extirpated because they have not been seen or collected in the wild in California for many years. This rank includes only those plant taxa that are presumed extirpated in California, but that are more common elsewhere in their range. Note: Plants of both Rank 1A and 2A are presumed extirpated in California; the only difference is the status of the plants outside of the state.

2B: Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere (Includes Rare Plant Ranks 2B.1, 2B.2, 2B.3)

The plants of Rank 2B are rare, threatened or endangered in California, but more common elsewhere. Plants common in other states or countries are not eligible for consideration under the provisions of the Federal Endangered Species Act; however they are eligible for consideration under the California Endangered Species Act. This rank is meant to highlight the importance of protecting the geographic range and genetic diversity of more widespread species by protecting those species whose ranges just extend into California. Note: Plants of both Rank 1B and 2B are rare, threatened or endangered in California; the only difference is the status of the plants outside of the state.

3: Plants About Which We Need More Information - A Review list (Includes Rare Plant Ranks 3, 3.1, 3.2, 3.3)

The plants that comprise Rank 3 are united by one common theme--we lack the necessary information to assign them to one of the other lists or to reject them. Nearly all of the plants remaining on Rank 3 are taxonomically problematic.

4: Plants of Limited Distribution - A Watch list (Includes Rare Plant Ranks 4.1, 4.2, 4.3)

The plants in this category are of limited distribution or infrequent throughout a broader area in California, and their vulnerability or susceptibility to threat appears low at this time. While we cannot call these plants “rare” from a statewide perspective, they are uncommon enough that their status should be monitored regularly. Should the degree of endangerment or rarity of a Rank 4 plant change, we will transfer it to a more appropriate rank or delete it from consideration.

Threat Ranks:

The California Rare Plant Ranks (CRPR) use a decimal-style threat rank. The threat rank is an extension added onto the CRPR and designates the level of threats by a 1 to 3 ranking with 1 being the most threatened and 3 being the least threatened. Most CRPRs read as 1B.1, 1B.2, 1B.3, etc. Note that some Rank 3 plants do not have a threat code extension due to difficulty in ascertaining threats for these species. Rank 1A and 2A plants also do not have threat code extensions since there are no known extant populations of the plants in California.

Threat Code extensions and their meanings:

- .1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- .2 – Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)
- .3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Note: In March, 2010, DFG changed the name of “CNPS List” or “CNPS Ranks” to “California Rare Plant Rank” (or CRPR). This was done to reduce confusion over the fact that CNPS and DFG jointly manage the Rare Plant Status Review groups (300+ botanical experts from government, academia, NGOs and the private sector) and that the rank assignments are the product of a collaborative effort and not solely a CNPS assignment.

In July 2013, CNPS revised the Rare Plant Ranks in order to better define and categorize rarity in California’s flora. In essence, Rank 2 was split into Rank 2A and Rank 2B to be complementary to the already existing 1A and 1B ranks. This split in Rank 2 plants resulted in five Rank 2 plants moving to Rank 2A (Presumed extirpated in California, but more common elsewhere) and the remaining Rank 2 plants being re-classified as Rank 2B (Rare, Threatened or Endangered in California, but more common elsewhere)

App. B: List of rare and endangered plant taxa within a 9 quad area surrounding the Mendocino 7.5' quadrangle.
 California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants, 8th edition. Accessed April 17, 2015.
 Note: Those in **bold** seen on April 16, 2015 visit to APN# 118-500-45

| Scientific Name | Common Name | Family | CRPR |
|--|------------------------------------|---------------------|-------------|
| <i>Abronia umbellata</i> var. <i>breviflora</i> | pink sand-verbena | Nyctaginaceae | 1B.1 |
| <i>Agrostis blasdalei</i> | Blasdale's bent grass | Poaceae | 1B.2 |
| <i>Angelica lucida</i> | sea-watch | Apiaceae | 4.2 |
| <i>Arctostaphylos nummularia</i> ssp. <i>mendocinoensis</i> | pygmy manzanita | Ericaceae | 1B.2 |
| <i>Astragalus agnicidus</i> | Humboldt County milk-vetch | Fabaceae | 1B.1 |
| <i>Blennosperma nanum</i> var. <i>robustum</i> | Point Reyes blennosperma | Asteraceae | 1B.2 |
| <i>Calamagrostis bolanderi</i> | Bolander's reed grass | Poaceae | 4.2 |
| <i>Calystegia purpurata</i> ssp. <i>saxicola</i> | coastal bluff morning-glory | Convolvulaceae | 1B.2 |
| <i>Campanula californica</i> | swamp harebell | Campanulaceae | 1B.2 |
| <i>Carex californica</i> | California sedge | Cyperaceae | 2B.3 |
| <i>Carex lenticularis</i> var. <i>limnophila</i> | lagoon sedge | Cyperaceae | 2B.2 |
| <i>Carex livida</i> | livid sedge | Cyperaceae | 2A |
| <i>Carex lyngbyei</i> | Lyngbye's sedge | Cyperaceae | 2B.2 |
| <i>Carex saliniformis</i> | deceiving sedge | Cyperaceae | 1B.2 |
| <i>Castilleja ambigua</i> var. <i>ambigua</i> | johnny-nip | Orobanchaceae | 4.2 |
| <i>Castilleja ambigua</i> var. <i>humboldtiensis</i> | Humboldt Bay owl's-clover | Orobanchaceae | 1B.2 |
| <i>Castilleja litoralis</i> | Oregon coast paintbrush | Orobanchaceae | 2B.2 |
| <i>Castilleja mendocinensis</i> | Mendocino Coast paintbrush | Orobanchaceae | 1B.2 |
| <i>Ceanothus gloriosus</i> var. <i>exaltatus</i> | glory brush | Rhamnaceae | 4.3 |
| <i>Ceanothus gloriosus</i> var. <i>gloriosus</i> | Point Reyes ceanothus | Rhamnaceae | 4.3 |
| <i>Chorizanthe howellii</i> | Howell's spineflower | Polygonaceae | 1B.2 |
| <i>Clarkia amoena</i> ssp. <i>whitneyi</i> | Whitney's farewell-to-spring | Onagraceae | 1B.1 |
| <i>Collinsia corymbosa</i> | round-headed Chinese-houses | Plantaginaceae | 1B.2 |
| <i>Coptis laciniata</i> | Oregon goldthread | Ranunculaceae | 4.2 |
| <i>Cornus canadensis</i> | bunchberry | Cornaceae | 2B.2 |
| <i>Cuscuta pacifica</i> var. <i>papillata</i> | Mendocino dodder | Convolvulaceae | 1B.2 |
| <i>Erigeron supplex</i> | supple daisy | Asteraceae | 1B.2 |
| <i>Erysimum concinnum</i> | bluff wallflower | Brassicaceae | 1B.2 |
| <i>Erysimum menziesii</i> | Menzies? wallflower | Brassicaceae | 1B.1 |
| <i>Fritillaria roderickii</i> | Roderick's fritillary | Liliaceae | 1B.1 |
| <i>Gilia capitata</i> ssp. <i>pacifica</i> | Pacific gilia | Polemoniaceae | 1B.2 |
| <i>Gilia millefoliata</i> | dark-eyed gilia | Polemoniaceae | 1B.2 |
| <i>Hemizonia congesta</i> ssp. <i>congesta</i> | congested-headed hayfield tarplant | Asteraceae | 1B.2 |
| <i>Hesperevax sparsiflora</i> var. <i>brevifolia</i> | short-leaved evax | Asteraceae | 1B.2 |
| <i>Hesperocyparis pygmaea</i> | pygmy cypress | Cupressaceae | 1B.2 |
| <i>Horkelia marinensis</i> | Point Reyes horkelia | Rosaceae | 1B.2 |
| <i>Hosackia gracilis</i> | harlequin lotus | Fabaceae | 4.2 |
| <i>Juncus supiniformis</i> | hair-leaved rush | Juncaceae | 2B.2 |
| <i>Kopsiopsis hookeri</i> | small groundcone | Orobanchaceae | 2B.3 |

| | | | |
|--|------------------------------|------------------|-------------|
| <i>Lasthenia californica</i> ssp. <i>bakeri</i> | Baker's goldfields | Asteraceae | 1B.2 |
| <i>Lasthenia californica</i> ssp. <i>macrantha</i> | perennial goldfields | Asteraceae | 1B.2 |
| <i>Lilium maritimum</i> | coast lily | Liliaceae | 1B.1 |
| <i>Lilium rubescens</i> | redwood lily | Liliaceae | 4.2 |
| <i>Lycopodium clavatum</i> | running-pine | Lycopodiaceae | 4.1 |
| <i>Microseris borealis</i> | northern microseris | Asteraceae | 2B.1 |
| <i>Mitellastrum caulescens</i> | leafy-stemmed mitrewort | Saxifragaceae | 4.2 |
| <i>Packera bolanderi</i> var. <i>bolanderi</i> | seacoast ragwort | Asteraceae | 2B.2 |
| <i>Phacelia insularis</i> var. <i>continentis</i> | North Coast phacelia | Boraginaceae | 1B.2 |
| <i>Pinus contorta</i> ssp. <i>bolanderi</i> | Bolander's beach pine | Pinaceae | 1B.2 |
| <i>Piperia candida</i> | white-flowered rein orchid | Orchidaceae | 1B.2 |
| <i>Pityopus californicus</i> | California pinefoot | Ericaceae | 4.2 |
| <i>Pleuropogon refractus</i> | nodding semaphore grass | Poaceae | 4.2 |
| <i>Puccinellia pumila</i> | dwarf alkali grass | Poaceae | 2B.2 |
| <i>Ramalina thrausta</i> | angel's hair lichen | Ramalinaceae | 2B.1 |
| <i>Rhynchospora alba</i> | white beaked-rush | Cyperaceae | 2B.2 |
| <i>Sanguisorba officinalis</i> | great burnet | Rosaceae | 2B.2 |
| <i>Sidalcea calycosa</i> ssp. <i>rhizomata</i> | Point Reyes checkerbloom | Malvaceae | 1B.2 |
| <i>Sidalcea malachroides</i> | maple-leaved checkerbloom | Malvaceae | 4.2 |
| <i>Sidalcea malviflora</i> ssp. <i>patula</i> | Siskiyou checkerbloom | Malvaceae | 1B.2 |
| <i>Sidalcea malviflora</i> ssp. <i>purpurea</i> | purple-stemmed checkerbloom | Malvaceae | 1B.2 |
| <i>Tiarella trifoliata</i> var. <i>trifoliata</i> | trifoliolate laceflower | Saxifragaceae | 3.2 |
| <i>Trifolium trichocalyx</i> | Monterey clover | Fabaceae | 1B.1 |
| <i>Triquetrella californica</i> | coastal triquetrella | Pottiaceae | 1B.2 |
| <i>Usnea longissima</i> | Methuselah's beard lichen | Parmeliaceae | 4.2 |
| <i>Veratrum fimbriatum</i> | fringed false-hellebore | Melanthiaceae | 4.3 |
| <i>Viola palustris</i> | alpine marsh violet | Violaceae | 2B.2 |

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**Central Coast Transfer Station
Revised Draft Environmental Impact Report
State Clearinghouse #2014012058**

April, 2016

Mendocino Solid Waste Management Authority
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Ukiah, CA 95482
Contact: Mike Sweeney, General Manager
(707) 468-9710

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1. Introduction to Revised Draft EIR

The County of Mendocino (“County”) and the City of Fort Bragg (“City”), acting together pursuant to their Caspar Joint Powers Agreement (“Caspar JPA”), are planning to construct and operate a new solid waste transfer station for the central coast region of Mendocino County (“Central Coast Transfer Station” or “Project”).¹

The site search and study of alternatives began in 2007. On August 13, 2013, the County Board of Supervisors and City Council selected 30075 Highway 20, Fort Bragg, as the preferred site for the Project and authorized preparation of an environmental impact report (“EIR”) pursuant to the California Environmental Quality Act (“CEQA”).

On January 27, 2014, the County and City issued and distributed a Notice of Preparation (“NOP”) to announce their decision to prepare an EIR for the Central Coast Transfer Station project and solicit comments from agencies and the public concerning the scope of the EIR. Issuance of the NOP commenced a 30-day scoping period, during which a public scoping meeting was held at the Fort Bragg Town Hall on February 19, 2014 to receive additional input regarding issues to be addressed in the EIR. The scoping period ended on February 25, 2014.

A Draft EIR (State Clearinghouse Number 201012058) was then prepared and issued on February 9, 2015, along with all required public notices, which commenced a 45-day public comment period that closed on March 26, 2015. During that public comment period, the City and County held a public meeting in Fort Bragg on March 19, 2015 to receive comments on the Draft EIR.

The County and City received extensive oral and written comments on the Draft EIR and prepared a Response to Comments document that was issued on June 26, 2015, detailing proposed revisions to the Draft EIR and providing responses to all significant environmental issues raised in the written and oral comments on the Draft EIR received during the public comment period.

Additional public comment was received following the issuance of the Response to Comments document. The City Council and Board of Supervisors held a joint meeting on July 21, 2015 and decided to continue the public hearing to allow staff to consult with the two State agencies that submitted comments on the day of the hearing. As a result of those consultations, the City Council and Board of Supervisors decided to revise and recirculate the Draft EIR.

¹ The City of Fort Bragg and/or the County of Mendocino would hold title to the new Central Coast Transfer Station site but would retain a private solid waste management company to design, build and operate the facility under a long-term contract to carry out these tasks and functions.

This Revised Draft EIR incorporates the original draft EIR by reference but amends and supersedes six of its chapters as identified and summarized below. Most of the changes were previously outlined in responses made in the Response to Comments document. In addition, this Revised Draft EIR includes new information regarding: the project's impact on Bishop Pine forest, the project's property transfer between Russian Gulch State Park and Jackson Demonstration State Forest ("JDSF"), and alternatives to the project. All changes to the original chapters in the draft EIR are highlighted by ~~strikethrough~~ for deletions and **underlined bold face italics** for insertions.

The following is a list of the Draft EIR chapters that have been revised and a summary of the revisions:

2.0 Project Description

- Section 2.5.1: additional discussion of land transfer of 12.6 acres to JDSF [p. 2.0.3]
- Section 2.55: discussion regarding the roofing and grading associated with the Project's recycling drop-off areas [p. 2.0.6]
- Table 2-1: add 2014 and 2015 [p. 2.0.7]
- Section 2.6, Required Permits & Approvals: addition of Cal Fire setback variance [p. 2.0.10]

3.1 Aesthetics

- Section 3.1.5, Impact AES-2: addition of discussion of litter prevention [p. 3.1.6]

3.3 Air Quality and Odor

- Section 3.3.2, Regulatory Framework: addition of Mendocino County Air Quality Management District ("MCAQMD") requirements concerning construction fugitive dust [p. 3.3.6]
- Table 3.3-3: replace Bay Area Air Quality Management District ("BAAQMD") thresholds with MCAQMD thresholds [p. 3.3.8]
- Section 3.3.5, Impact AQ-1: Addition regarding the applicability of MCAQMD Regulation 1, Rule 1-430 [p. 3.3.11]
- Table 3.3-4: replace Bay Area Air Quality Management District (BAAQMD) thresholds of significance with MCAQMD thresholds [p. 3.3.11]
- Table 3.3-5: replace Bay Area Air Quality Management District (BAAQMD) thresholds with MCAQMD thresholds [p.3.3.12]
- Section 3.3.5, Impact AQ-2: replace "BAAQMD" with "MCAQMD" [p. 3.3.13]

3.4 Biological Resources

- Section 3.4.3, Evaluation Criteria and Significance Thresholds: revised thresholds [p. 3.4.38]
- Section 3.4.4, Methodology: delete comment on Bishop Pine Forest [p.3.4.40]
- Section 3.4.5, Mitigation Measure BIO-1b: expand mitigation area at Assessor's Parcel #118-50-045 from 3.55 acres to entire 28.3 acre parcel [p 3.4.43]

- Section 3.4.5, Mitigation Measure BIO-1e: change mitigation ratio from 3:1 to 30:1 [p. 3.4.46]
- Section 3.4.5, Impact BIO-2: add discussion concerning the sensitive species ranking of Bishop Pine Forest and upgrade project impact conclusion to potentially “significant” [pp. 3.4.46 through 3.4.51 and Table 3.4-8]
- Section 3.4.5, Mitigation Measure BIO-2: change “BIO-2” to “BIO-2a” and increase pygmy forest mitigation area from 1.8 acres to 19.4 acres [p. 3.4.50]
- Section 3.4.5: add Mitigation Measure BIO-2b to address Bishop Pine Forest [p. 3.4.52]
- Section 3.4.5, Impact BIO-5: revise comment on Bishop Pine Forest [p. 3.4.53]
- Section 3.4.6, Cumulative Impacts: add reference to new BIO-2b [p. 3.4.54]
- New Appendix: Add Bishop Pine Mitigation Plan [Appendix L].

3.9 Hydrology and Water Quality

- Section 3.9.5, Impact HWQ-1, Operation: addition of discussion concerning the Project’s recycling areas [p.3.9.11]
- Section 3.9.5, Mitigation Measure HWQ-4: amend title and add a fourth standard [p. 3.9.19]

4.0 Alternatives Description & Analysis

- Section 4.1.1: note that additional alternatives to be analyzed are Empire Waste Management property, Leisure Time RV Park, and Mendocino Parks & Recreation District property [p. 4.2]
- Section 4.2.2: Alternative 2: add comment on noise [p.4.5]
- Add Section 4.2.3: Alternative 3: Empire Waste Management property [p. 4.5]
- Add Section 4.2.4: Alternative 4: Leisure Time RV Park [p. 4.8]
- Add Section 4.2.5: Alternative 5: Mendocino Parks & Recreation District property [p. 4.10]
- Section 4.3: Revised to consider additional alternatives [p. 4.12]
- Section 4.4: Alternatives Not Carried Forward: delete references to sites now analyzed as alternatives [pp. 4.13-4.16]

Review process for Revised Draft EIR

Responses were provided to the public comments received on the original Draft EIR in the Response to Comments document published in June 2015. Pursuant to CEQA Guidelines Section 15088.5(f)(2), new public comment on this Revised Draft EIR shall be limited to the chapters or portions of the EIR which have been revised and recirculated (i.e., chapters 2.0, 3.1, 3.3, 3.4, 3.9 and 4.0). In other words, the partial recirculation of the Revised Draft EIR is not an opportunity to re-submit comments or add additional comments on previously published topics left unchanged in the Revised Draft EIR.

This Revised Draft EIR will be circulated for 45 days to allow interested individuals and public agencies to review and comment on the document. Written comments on the Revised Draft EIR, relating only to those chapters and portions which have been

revised, will be accepted by the Mendocino Solid Waste Management Authority (MSWMA) until the date which will be stated in the Notice of Availability. Public agencies, interested organizations and individuals are invited to submit comments to:

Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482
Email: sweeney@pacific.net

To facilitate understanding of and orderly responses to comments, please provide a separate sentence or paragraph for each comment, and note the page and chapter/section of the Revised Draft EIR to which the comment is directed.

The Revised Draft EIR is available for review at the address above, and at the Fort Bragg City Hall, 416 N. Franklin Street, Fort Bragg, and at the Fort Bragg Library, 499 E. Laurel Street, Fort Bragg. It is also available in downloadable format on the MSWMA website at <http://mendorecycle.org>.

Following the close of the comment period on the Revised Draft EIR, the lead agency will respond by preparing written responses to any significant environmental issues raised in timely comments on the revised/recirculated chapters of the Revised Draft EIR. The responses to the timely comments received on the Revised Draft EIR will be included in a new Response to Comments document.

2. Revised sections of draft EIR

2.0 Project Description

2.1 Project Overview

The Central Coast Transfer Station project would replace the existing solid waste transfer and disposal system (owned by the County of Mendocino and City of Fort Bragg, and operated by Solid Waste of Willits and Empire Waste Management) for the Central Coast region of Mendocino County with a new transfer station facility on SR 20. The new transfer station would be publicly owned and operated by a private contractor, and would allow direct haul of all solid waste to a destination landfill. The Central Coast region extends from the mouth of the Navarro River north to the southern edge of the town of Westport, and inland from the Pacific Ocean to a point approximately half-way to the inland valleys. It corresponds to the Coastal Zone of Mendocino County Solid Waste Refuse Collection Area No. 2, together with the incorporated City of Fort Bragg. In 2013, this watershed generated 11,882 tons of solid waste which is transferred by Empire Waste Management in truck haul pods and debris boxes.

The City of Fort Bragg and County of Mendocino would hold title to the Central Coast Transfer Station site but would not design, build, or operate the facility. A private solid waste management company would be retained under a long-term contract to carry out these functions. The contract would embody the mitigation measures set forth in this EIR. Some details of design and operation would be left to the discretion of the private operator. Any changes to the design would be analyzed for consistency with the project as described and analyzed in this EIR before approval of the contract with a private solid waste management company.

2.2 Project Location

The proposed project site for the new transfer station is located in unincorporated Mendocino County approximately 3.5 miles southeast of downtown Fort Bragg. The 17-acre site will be removed from Jackson Demonstration State Forest (JDSF) at 30075 State Route 20 (Figure 2-1 - Vicinity Map), and includes a portion of Assessor's Parcel Number (APN) 019-150-05 (Figure 2-2 - Site Plan). The removal of the site from JDSF was ~~mandated~~ **authorized** by AB 384 (2011), the text of which is included as Appendix I.

2.3 Project Objectives

The proposed project has the following objectives:

- To provide cost-effective and environmentally-sound waste management services to the citizens of Fort Bragg and Mendocino County.

- To construct and operate a commercial transfer station able to accommodate waste from the wasteshed, peak periods and technological changes.
- To allow the Central Coast region's solid waste to be loaded for direct haul to a destination landfill, rather than being dumped and reloaded at the Willits Transfer Station.
- To increase the efficiency of solid waste transfer from the Central Coast region in order to minimize energy use, greenhouse gas emissions, truck trips, and costs.
- To achieve public ownership of the transfer station facility to ensure long-term protection of the public interest, while accommodating private operation by a qualified solid waste entity under a contract that ensures compliance with all federal, state and local regulations and requirements.
- To isolate the transfer station, as much as possible, from potentially conflicting land uses.
- To control the rising costs of managing solid waste and recyclables for the City of Fort Bragg and Mendocino County.

2.4 Existing Solid Waste Collection/Disposal System

Currently, the region's solid waste stream is handled in different pieces. The curbside solid waste is collected by Empire Waste Management, a franchisee under separate contracts with both the County of Mendocino and the City of Fort Bragg. The curbside collection vehicles have detachable bodies (commonly referred to as "pods") which are removed and stored at Empire Waste Management's truck depot at 219 Pudding Creek Road, Fort Bragg. The pods are then loaded three-at-a-time on a flatbed semi-trailer and hauled approximately 35 miles east on SR 20 to the Willits Transfer Station, where they are emptied out and the solid waste is reloaded for long-haul to Potrero Hills Landfill in Suisun City, California. Empire Waste Management also collects solid waste in roll-off boxes (also known as debris boxes) which are hauled two-at-a-time to Willits Transfer Station. Solid waste from private vehicles is received at the Caspar self-haul transfer station at 14000 Prairie Way, Caspar, the site of a closed landfill. The waste is received in debris boxes and pods, which are hauled by Empire Waste Management to the Willits Transfer Station.

The Central Coast region also has a second, smaller self-haul transfer station located at 30180 Albion Ridge Road, Albion. The waste is received in debris boxes which are hauled by Solid Wastes of Willits to the Willits Transfer Station.

2.5 Project Description

The project includes several related components:

2.5.1 Site Acquisition and Land Swap

Following a decision by the City and County to approve the project and a contract for design, construction and operation of the facility, the next step would be for the City and County to exercise their option to take ownership of the site pursuant to AB 384 (2011).

At the request of the County of Mendocino and City of Fort Bragg, AB 384 was enacted in 2011 and added new Section 4659 to the Public Resources Code, which included provisions authorizing a multi-party/multi-property land swap whereby the state would transfer ownership of the 17-acre

JDSF site (project site) to the County/City in exchange for either ownership of 35 acres at the Caspar Landfill site or control over its future uses.

Under AB 384, the 60-acre Caspar site (Figure 3 - Project Land Exchange Parcels), including the footprint of the closed landfill, would be the subject of a conservation easement granted to the California Department of Parks & Recreation (DPR). DPR would have the option of taking ownership of the 35 westernmost acres of the site (Figure 3). The interest of DPR in the property results from the site's adjacent proximity to Russian Gulch State Park. DPR has stated in the past that operations of the Caspar self-haul transfer station (and prior to 1992, the Caspar Landfill) cause a conflict with the State Park. DPR has not indicated any plans for the 35-acre Caspar property except to keep it vacant.

Further, under the land swap authorized by AB 384, ~~twelve~~ **12.6** acres of redwood forest at the northeastern corner of Russian Gulch State Park (Figure 3), comprising the entire Park northeast of County Road 409, would be transferred to Jackson Demonstration State Forest (JDSF). The purpose of this transfer would be to offset the loss of forest resources caused to JDSF at the Central Coast Transfer Station site. These ~~42~~ **12.6** acres would become part of JDSF's Caspar Creek Experimental Watershed Study area. The Caspar Creek Experimental Watershed Study area serves as a research area for evaluating the effects of timber management on streamflow, sedimentation, and erosion. The study area was established in 1961 as a cooperative effort between the CalFire and the United States Forest Service Pacific Southwest Research Station (PSW). PSW and CalFire have a 100-year Memorandum of Understanding to continue research at the site at least through 2099. Caspar Creek is one of 11 USFS Experimental Forests and Ranges selected in 2007 to complement the national network of Long Term Ecological Research sites.

The Caspar Creek Experimental Watershed Study is an intensive scientific research project that began in the 1960's to study the erosion impacts of heavy logging that was scheduled at that time along the South Fork of Caspar Creek. [Keppeler E., Lewis J., Lisle T., Effects of Forest Management on Streamflow, Sediment Yield, and Erosion, Caspar Creek Experimental Watersheds, U.S. Forest Service, Pacific Southwest Research Center, 2003. <http://www.fs.fed.us/psw/publications/4351/Keppeler2007fog.pdf>]

The study generated dozens of scientific papers and contributed to the creation of the State's Forest Practices Act in 1974. Significantly, researchers have found that long-term sediment impacts from the 1960's logging have persisted and are increasing, possibly due to deterioration of old logging roads and structures. Therefore scientific interest in the South Fork of Caspar Creek will persist and any logging whatsoever would continue to be conducted under a microscope.

No logging has occurred on the South Fork since the 1970's, but a new selective timber harvest is planned for 2017-18. It will not include any activity on the 12.6 acres to be acquired by JDSF. Following that timber harvest, no further activity is presently contemplated for the South Fork and would be unlikely to happen for at least 15 years [Pam Linsted, JDSF manager, email, November 25, 2015].

JDSF maintains a “road and trail corridor” alongside County Road 409, which includes a trail paralleling Road 409, that presently is interrupted by the 12.6-acre piece of the State Park. Upon transfer of the 12.6-acre piece of property to JDSF it would be incorporated into the road and trail corridor [Linsted, November 25, 2015]. This would provide additional protection from disturbance under the JDSF Management Plan’s policy concerning “Aesthetics Related Buffers.” The purpose of the buffer is to “maintain aesthetic qualities valued by the public” [JDSF Management Plan, p. 275]. What this would mean in practice is that little or no timber harvesting activity would occur on the property that would be visible from Road 409 through the property [Linstead, July 28, 2015], which constitutes the entire southwestern boundary of the 12.6 acres.

Further, habitat for the Marbled murrelet, a bird species that is California listed as endangered and federal listed as threatened, has recently been detected in Russian Gulch State Park. On July 16, 2015, State Parks environmental scientists identified over 20 trees on the 12.6 acres which are prime marbled murrelet habitat [email from Renee Pasquinelli to Linda Perkins, August 6, 2015]. These trees are located in the northerly and easterly part of the 12.6 acres, with some close to the existing boundary with JDSF [Pasquinelli, August 26, 2015]. This endangered-species habitat on the 12.6 acres is now documented and must be protected in accordance with the California and federal endangered species laws.

Should logging ever be proposed on the 12.6 acres, CEQA review in the form of a Timber Harvest Plan would be required. The Timber Harvest Plan approval process is equivalent to the environmental review process under CEQA because the California Department of Forestry and Fire Protection’s timber harvesting regulatory program is a certified regulatory program pursuant to Public Resource Code § 21080.5. [CEQA Guidelines 14 CCR 15251(e)]. All timber harvests in JDSF are subject to a Timber Harvest Plan [Linsted, November 25, 2015].

2.5.2 Facility Construction

After obtaining the required permits, the company that was awarded the design-construction-operations contract would build the facility within the parameters set forth in the adopted EIR. As described in this EIR, the construction would entail land clearing, road improvements to SR 20, building and paving, and on-site utilities.

Site preparation would take approximately two weeks, followed by grading/excavation which would take approximately one month. Trenching would take approximately three weeks. Construction of the buildings would take approximately four months, and paving approximately two weeks. Construction equipment for site preparation and grading/excavation would include: excavator, rubber tired dozer, backhoe, dump truck, water truck, and vibratory roller. Building construction and

paving would include the following additional equipment: crane, forklift, generator sets, welders, flatbed truck, mini bobcat, and cement and mortar mixers.

Soil hauling volume is estimated at 5,000 cubic yards of export and 6,000 cubic yards of import, for a net import of 1,000 cubic yards. Asphalt has been estimated at approximately 1,200 cubic yards.

2.5.3 Facility operation

The transfer station would commence operations as described elsewhere in this section and receive the entire solid waste disposal stream from the Central Coast watershed, for transfer to a destination landfill.

1.1.1 2.5.4 Closure of existing facilities

With the opening of the new transfer station, the existing Caspar self-haul transfer station would cease operations and Empire Waste Management would cease its direct-haul transfer to Willits Transfer Station and instead use the new transfer station. The Albion self-haul transfer station would continue to operate but its solid waste would be redirected to the new Central Coast Transfer Station.

2.5.5 New Facility Description

The Central Coast Transfer Station facility would include a solid waste transfer building (with loading bay and unloading and waste areas), an outdoor recycling drop-off area, two scales and office (scalehouse), paved driveways, parking areas for the public and transfer trailers, two stormwater detention areas, a groundwater well, a septic tank and leachfield, and perimeter fencing immediately outside the developed project footprint. The site plan is shown in Figure 2-2. A single gate on SR 20 would accommodate all vehicle entry and exit. Vehicles would pull up at the scalehouse for inspection, weighing or volume measurement, and to pay applicable charges. The Transfer Building would be approximately 30,000 square feet and enclosed. Enclosure would reduce or prevent off-site noise, odors, and dust. In addition, the design would be compatible with installation of control measures such as negative-pressure ventilation with biofiltered exhaust, automated roll-up doors, and/or doorway air curtains, should they be necessary to prevent off-site transmission of odor.

Some vehicles would operate outdoors in the recycling area, most likely a single loader and occasional roll-off trucks to change-out debris boxes as necessary. These vehicles would use “white-sound” OSHA-approved backup alarms such as the Brigade which replaces the typical loud “ping” with a directional buzzing sound with much less range.

All solid and green waste (leaves, brush, landscape trimmings, and unfinished wood) would be deposited inside the transfer building. These materials would be loaded into transfer trailers using a method to be determined by the operator, such as a grapple crane. When a transfer trailer is fully loaded, it would be driven



Typical vacuum belly transfer trailer used for solid waste hauling

directly to a destination landfill to be specified under the operator's contract. The facility may utilize high-volume possum belly trailers to transport solid waste (the image is an example of a possum belly trailer, length may vary). These high-volume trailers can legally haul up to 10 percent more waste than a standard waste hauling trailer. More tons per load equates to less trips. Solid waste would typically be removed within 24 hours; however, it is possible that in some situations, such as weekends/holidays, waste could remain for up to 48 hours. Among the fully-permitted regional landfills that might receive the solid waste are Potrero Hills in Suisun City, Redwood in Novato, Sonoma Central in Petaluma, Anderson in Anderson, Ostrum Road in Wheatland, Lake County in Clearlake, Recology Hay Road in Vacaville, and Keller Canyon in Pittsburg. Green waste would be hauled to Cold Creek Compost in Potter Valley or another fully-permitted compost facility. Transfer vehicles leaving the facility would proceed east on SR 20.

The recycling drop-off area would duplicate the drop-off services presently provided at the Caspar self-haul transfer station. Cans, bottles, cardboard, paper and mixed plastics would be collected together in debris boxes (see outdoor recycling area in Figure 2-2). Scrap metal, appliances, electronics and concrete rubble would be received in paved bunkers or debris boxes. Used motor oil and used antifreeze would be collected in secure tanks with secondary containment (see outdoor recycling area in Figure 2-2). Other recyclable household hazardous waste items, including electronics, fluorescent lights, and batteries, would be collected in secure containment areas. All other hazardous wastes would be prohibited at the facility and customers would be referred to the periodic HazMobile household and small business hazardous waste mobile collection system.

For the purposes of evaluation and analysis in this EIR, a total of 4.72 acres is assumed to be disturbed by the project-- approximately 3.76 acres within the project footprint, and 0.96 acre for a 10-foot buffer (construction/temporary).

The site is heavily forested and as much of the original vegetation as possible would be preserved. No new landscaping is planned.

The motor oil recycling tank, antifreeze recycling tank, appliance recycling drop-off area, and electronics drop-off area will be roofed to shield from rainwater, and the area will be graded to prevent stormwater entry. The facility use permit will require daily clean-up of any spills or staining.

2.5.6 Hours of Operation

The transfer station would operate five days per week for self-haul customers and the franchised hauler, and two additional days per week for the self-haul customers only. The exact hours of operation would be determined by the operations contracts; however, it is anticipated to be between 8:00 a.m. and 5:00 p.m. There would be approximately four employees on site.

2.5.7 Capacity

Based on the current wastestream, documented by transfer station records, the solid waste throughput would average 35 tons per day year-round, with a peak day of 50 tons per day. The facility could handle a larger wastestream by more intensive utilization of the same infrastructure. The future size of the wastestream is speculative. There has been no growth (an actual decrease has occurred) in the region's disposal wastestream over the last ~~six~~ **eight** years as shown by Table 2-1, and City and County annual population growth projections are less than one percent.

According to the Fort Bragg General Plan Land Use Element, “it is expected that growth will continue to occur at a slow but regular pace (i.e., less than 0.5 percent per year) as experienced in the last decade (Fort Bragg 2012).” The Mendocino County General Plan “projects the County’s total population will increase to 93,166 persons by the year 2010, and then increase an average of 9.5 percent every 10 years to a population of 134,358 in 2050” (California Department of Finance 2007).

The region has a highly-developed waste diversion system and strong public support for waste diversion. One possible source of substantial future growth might be development of the 315-acre former Georgia-Pacific Mill Site in the City of Fort Bragg. While it is unknown if or when this development might occur, the possible mix of residential, commercial and industrial zoning for the Mill Site has been set forth in a draft specific plan. The proposed transfer station could accommodate the waste generation of the Mill Site development without the need for expansion of the original infrastructure. Based on the draft specific plan, the land uses would be of types that would utilize the curbside collection of the franchised hauler, meaning that the solid waste would be transported to the transfer station in relatively few trips by the hauler’s compactor trucks.

Table 2-1 Solid Waste Disposal in the Region

| Year | Solid Waste Disposal of Region (tons) |
|--------------------|---------------------------------------|
| 2008 | 14,300 |
| 2009 | 12,334 |
| 2010 | 11,691 |
| 2011 | 11,078 |
| 2012 | 11,060 |
| 2013 | 11,882 |
| <u>2014</u> | <u>12,034</u> |
| <u>2015</u> | <u>13,224</u> |

Source: Disposal Reports, Willits Transfer Station

2.5.8 Facility Access and State Route Improvements

Access to the project site would be controlled by gate with security fencing surrounding the perimeter of the facility. The site will include two queuing lanes for ingress and one queuing lane for egress. Vehicles would enter and exit the facility directly from SR 20, which would be improved with deceleration and acceleration lanes as illustrated in Figure 2-2. SR 20 improvements would include acceleration and deceleration lanes per California Department of Transportation (Caltrans) standards. SR 20 would be widened from the roadway centerline north to accommodate the acceleration and deceleration lanes, and for the new eastbound left-turn pocket and westbound right-turn pockets at the proposed project access point.

All vehicles carrying solid waste and other materials that may have a fee charged for their disposal would enter and leave the site across the scales. Customers with mixed loads including items that

can be dropped off for free or that are paid for on a per item basis may be routed through the outdoor recycling area.

2.5.9 Utilities and Public Services

Potable water for the facility would be provided by a new on-site well. Sewer for the single restroom would be handled via an on-site septic tank and leachfield, or a holding-tank system. Three-phase electrical power is available on the SR 20 frontage.

2.5.10 Energy Usage

Operation of the solid waste transfer station would require electricity for general operation of the facility, lighting for the scalehouse and restroom, interior lighting for the unloading area, and security lighting. Except in unusual or emergency circumstances, all operations would take place during daylight hours so there would be no need for exterior lighting except for minimal security lighting which would be shielded and downcast. The transfer building would incorporate translucent panels in the ceiling and/or walls to provide interior illumination, thereby minimizing the need for interior lights.

Trucks and self-haul vehicles would use gasoline/diesel to deliver solid waste and recycling materials to the facility. Trucks would use diesel for delivery of the transfer trailers to a destination landfill. The amount of diesel used annually for the delivery of transfer trailers to the Willits Transfer Station under existing conditions is approximately 54,630 gallons per year. The amount of diesel used annually for the delivery of transfer trailers to a destination landfill under project conditions is unknown at this time.

Currently, the franchised hauler collection trucks make an average of 63 trips per week or 3,276 trips annually for its curbside collection routes throughout Fort Bragg and the unincorporated area. The trucks are based at 219 Pudding Creek Road, Fort Bragg, and return there to unload their pods. These trucks would be diverted to unload at the proposed transfer station, causing an average of eight additional miles of travel for each truck. The additional miles per year would be approximately 26,208 miles per year and approximately 8,293 gallons of diesel annually.

Self-haul vehicles currently drop off at the Caspar Transfer Station. The population centroid of the service area has been determined by the Mendocino County GPS Coordinator to be a point approximately one mile northeast of the intersection of SR 20 and SR 1. Since the entire service area has non-mandatory trash collection at similar prices for identical terms of service, the centroid for self-haul trip generation is assumed to be the same as the population centroid. From the SR 20 and SR 1 intersection, the Caspar Transfer Station is 6.8 miles away and the project site is 3.0 miles away, which would equate to approximately 7.6 miles saved per visit, or 162,032 miles per year. Using an estimate of 17 miles per gallon for self-haul vehicles, the amount of fuel saved would be approximately 9,531 gallons.

2.5.11 Stormwater Detention Facilities

Two stormwater detention facilities have been planned for the proposed project (Figure 2-2). The detention basins would be designed to be an impoundment lined with vegetated soil. Stormwater runoff would be conveyed from the site to these basins through bioswales and from surface runoff. Stormwater collects in the basins and the outlet would allow water to drain slowly, while sediment

and other particulate forms of pollutants settle out. At full capacity, the basins are designed to drain in at most 72 hours and at least 24 hours to prevent mosquito production and allow for capture of subsequent storms. These basins would be designed to remain dry except during a runoff event and the detention period afterward. When maintenance is required, accumulated sediment would be removed, characterized, and disposed of appropriately.

2.5.12 On-site Well

An on-site potable water well would be constructed to supply water for operations and for drinking water. The well would be located east of the facility (Figure 2-2) and would supply water to a holding tank, with sufficient capacity for the facility's needs including fire protection as required by CalFire. The well would be constructed according to the California Department of Public Health (CDPH) standards, which consider 100-foot offsets from the transfer station building and proper well construction including a sanitary seal, with adequate materials for the casing and screen. The pump used in the well would be a submersible pump logically tied with telemetry to the storage tank. An approximately 10-foot wide by 55-foot long road would be constructed leading to the pumphouse for the well. The road would be top dressed with gravel and the pumphouse would be approximately four feet by four feet. To protect groundwater quality, transfer trailers will be prohibited from parking on the eastern side of the facility through barriers and signage.

2.5.13 Holding Tank Sewer System

As an alternative to a septic tank and leachfield, a sewage holding tank could be provided subject to regulatory approval. The tank would be located in close proximity to the restrooms. The holding tank would be designed with sufficient capacity to accommodate five employees and several visitors per day. Construction of the holding tank would be in accordance with Mendocino County Division of Environmental Health's Minimum Standards for On-site Sewage Systems standards, including appropriate materials, access ports, and an over flow alarm. The tank would be emptied as necessary by a permitted septic tank service.

2.5.14 Caspar Transfer Station Closure

Closure of the Caspar self-haul transfer station would involve shutting the gate and ceasing acceptance of solid waste. This would occur within one week of the opening of the new transfer station. It is anticipated that removal of small and existing portable structures, including the gate house, lockers and stationary compactors, would occur at some point after the Caspar transfer station closes. At this time there is no requirement or intention to demolish any of the existing structures at the Caspar facility. Any future demolition would depend on funding and future use of the site by DPR.

2.5.15 Construction Schedule and Duration

The timeline for construction is dependent on a number of factors. It is estimated that construction would commence within 24 months from certification of the EIR, followed by up to six months of construction depending on weather. Hours of construction would be between the hours of 8:00 AM and 6:00 PM.

2.6 Required Permits and Approvals

As anticipated by the existing provisions of the Caspar JPA agreement, the JPA will be amended to specify the roles of the City and County in transfer station contract administration, land title, and site supervision. The project would require the following permits/approvals:

- Acquisition of the project site by the County of Mendocino and the City of Fort Bragg
- Major use permit by the County of Mendocino as a Civic Type Use – Major Impact Services & Utilities
- Approval by California Department of Forestry & Fire Protection of a Timberland Conversion Plan, Timberland Conversion Permit, and Timber Harvest Plan
- Encroachment permit and related approvals by the California Department of Transportation for improvements to SR 20
- Solid waste facilities permit from the California Department of Resource Recovery & Recycling
- Stormwater discharge permit (National Pollutant Discharge Elimination System) from the Water Quality Control Board
- Well construction permit from the Mendocino County Health Department
- Permit for the construction of a septic system from the Mendocino County Health Department.
- **Variance from California Department of Forestry & Fire Protection for reduced setback from vegetation because of non-flammability of building.**



- Project Site
- Major Highways
- City Limits
- Highways
- Parks/Open Space
- Major Roads
- Rivers/Streams

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 Miles
 Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
 GCS: NAD 1983 StatePlane California 1 FIPS 5001 Feet

Mendocino Solid Waste Management Authority
 Central Coast Transfer Station EIR

Job Number 5411065
 Revision A
 Date 03 Nov 2014

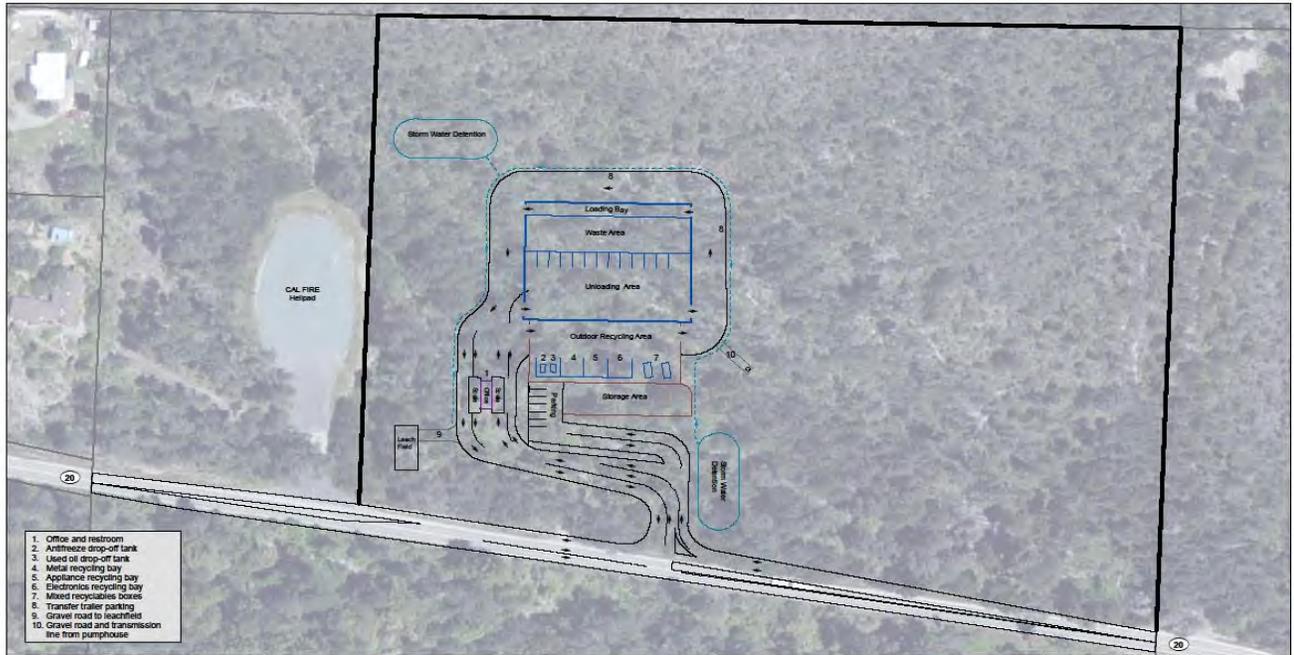
Vicinity Map and Project Location

718 7501 Street Eureka CA 95501 USA T 707 443 8326 F 707 444 8220 E eureka@ghd.com W www.ghd.com

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Data source: USDA NAIP Imagery, 2010; USA Base Map, 2010; GHD data, 2010. Created by jprosser

Figure 2-1



1. Office and restroom
2. Antifreeze drop-off tank
3. Used oil drop-off tank
4. Metal recycling bay
5. Appliance recycling bay
6. Electronics recycling bay
7. Mixed recyclables boxes
8. Transfer trailer parking
9. Gravel road to leachfield
10. Gravel road and transmission line from pump house

Paper Size 11" x 17" (ANSI B)
 0 50 100 150 200
 Feet
 Map Projection: Lambert Conformal Conic
 National Datum: North American 1983
 Grid: NAD 1983 StatePlane California II FIPS 5402 Feet



- 17 Acre Portion of APN 019119905
- Parcels
- Bio-swale
- Direction of Travel



Mendocino Solid Waste Management Authority
 Central Coast Transfer Station EIR

Job Number: S411065
 Revision: A
 Date: 29 Jan 2015

Site Plan

Figure 2-2

718 Third Street Eureka CA 95501 USA T 707 443 8326 F 707 444 8330 E eureka@ghd.com W www.ghd.com

3.1 Aesthetics

This section evaluates the potential impacts related to aesthetics and visual resources during construction and operation of the project. To provide the basis for this evaluation, the Setting section describes the existing scenic resources and visual character for the project area and the Regulatory Framework section describes the regulatory background that applies to the project.

3.1.1 Setting

The descriptions of existing conditions are accompanied by photographs of representative views taken during a site visit on May 7, 2014. The locations and viewpoints of each image are shown in Figure 3.1-1.

Visual Character of the Project Site

The project site consists of approximately 17 acres of relatively flat, coniferous forest, with dense underbrush. (see Images 1 through 4). The site has no built structures or roadways. SR 20 is adjacent to and directly south of the project site and the CalFire helipad is adjacent to and directly west of the project site.

Visual Character of the Surrounding Area

The dominant visual character in the immediate project area consists of forest land to the north, east, and south, and low density single family residential to the west. Between the single family homes and the project site is the CalFire emergency helipad. SR 20 provides access to the project site and runs in a predominantly east-west direction connecting the communities of Fort Bragg to the west and Willits to the east. SR 20 has one lane in each direction in the project vicinity with a minimal shoulder. Utility lines run along the south side of SR 20 in the project area.

The views for both eastbound and westbound travellers on SR 20 as they approach the project site include coniferous forest on both sides of the highway with utility lines along the south side of the highway (similar to Images 2 and 4).

3.1.2 Regulatory Framework

Federal

There are no federal regulations that apply to the proposed project related to visual resources in Mendocino County.

State

California Scenic Highway Program

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program to preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways. According to the California Scenic Highway Program website, no State-designated scenic highways are located in the project vicinity (Caltrans 201). SR 20 is an Eligible State Scenic Highway though not officially designated.

Site Photographs



Image 1: Looking east at the project site from the west side of the helipad.



Image 2: Looking northeast at the project site from the south side of SR 20 across from the helipad entrance.



Image 3: Looking north at the approximate location of the project entry from the south side of SR 20.



Image 4: Looking northwest at the project site from the southeast corner of the project on the south side of SR 20.

Regional and Local

County of Mendocino General Plan Goals and Policies

The following are the goals and policies from the *Mendocino County General Plan* that are applicable to the project.

Goal RM-14 (Visual Character): Protection of the visual quality of the County's natural and rural landscapes, scenic resources, and areas of significant natural beauty.

Goal RM-15 (Dark Sky): Protection of the qualities of the County's night-time sky and reduced energy use.

Policy RM-80: Vegetation removal should be reviewed when involving five (5) or more acres, assessing the following impacts:

- Grading and landform modifications including effects on site stability, soil erosion and hydrology.
- Effects on the natural vegetative cover and ecology in the project area.
- Degradation to sensitive resources, habitat and fisheries resources.
- Compatibility with surrounding uses.
- Visual impacts from public vantage points.

Policy RM-126: New development should incorporate open space and resource conservation measures, coordinated with the surrounding area.

Policy RM-128: Protect the scenic values of the County's natural and rural landscapes, scenic resources, and areas of significant natural beauty.

Policy RM-132: Maintain and enhance scenic values through development design principles and guidelines, including the following:

- Development scale and design should be subordinate to and compatible with the setting.
- Reduce the visual impacts of improvements and infrastructure.
- Minimize disturbance to natural features and vegetation, but allow selective clearing to maintain or reveal significant views.

Policy RM-134: The County shall seek to protect the qualities of the night-time sky and reduce energy use by requiring that outdoor night-time lighting is directed downward, kept within property boundaries, and reduced both in intensity and direction to the level necessary for safety and convenience.

3.1.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to aesthetic resources, as defined by the CEQA Guidelines (Appendix G), if it would:

- Have a substantial adverse effect on a scenic vista;
 - Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
 - Substantially degrade the existing visual character or quality of the site and its surroundings;
- or

- Create a new source of substantial light or glare which would adversely affect day or night-time views in the area.

Areas of No Project Impact

As explained below, construction and operation of the project would not result in impacts related to one of the significance criteria identified in Appendix G of the current CEQA Guidelines as mentioned above. The following significance criterion is not discussed further in the impact analysis, for the following reasons:

- **Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a State scenic highway.** There are no officially designated state scenic highways within Mendocino County (Caltrans 2011). SR 20 within Mendocino County is eligible, but not officially designated. Therefore, the significance criterion related to substantially damaging scenic resources within a State scenic highway is not applicable to the proposed project.

3.1.4 Methodology

The visual impact analysis below evaluates the physical changes that would occur at the project site using the CEQA Guidelines significance thresholds described above. The potential for changes to views from visually sensitive land uses also is evaluated. The visual impacts are compared against the thresholds of significance discussed above.

The projects impacts from light and glare is measured for consistency with the Mendocino County General Plan Goal RM-15 and Policy RM-134.

There would be no physical changes to the Caspar self-haul transfer station except removal of some small structures, which could be considered a beneficial aesthetic impact to the site. Therefore, the Caspar site is not considered further in this analysis. Likewise, the transfer of 12.6 acres from Russian Gulch State Park to JDSF involves no physical changes and therefore no aesthetic impacts.

3.1.5 Impacts and Mitigation Measures

Impact AES-1: Substantial Adverse Effect on Scenic Vistas.

A scenic vista is generally defined (dictionary) as a view that has remarkable scenery or a broad or outstanding view of the natural landscape. These conditions do not exist at the project site or in the surrounding area. The site does have scenic qualities; however, they are not remarkable or outstanding. The project site and surrounding area includes forest land consisting of a variety of species, including pygmy forest; however, the proposed project would be situated within the central portion of the site, behind a screen provided by existing tall trees and undergrowth, as shown in Images 2 and 3, which would remain, so that views of the buildings and ancillary facilities would be shielded from off-site view. Consistent with Policies RM-126, RM-128, and RM-132, site construction would leave much of the surrounding natural vegetation, approximately 12 acres, as undisturbed open space on all sides with the exception of the entry point on SR 20. The visual impact to residences to the west is expected to be minimal because of the intervening trees, vegetation, and helipad that would shield views of the project site. The helipad was created with fill which has increased its elevation to approximately 433 feet (above sea level), thus creating a visual barrier between the neighboring properties and the project site which are at an elevation of approximately 397 feet. The distance from the center of the helipad and closest property line to the

west is approximately 250 feet. Therefore, development of the project site would not have a substantial adverse effect on a scenic vista. The impact to scenic vistas would be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

Impact AES-2: Substantially Degrade Existing Visual Character of Site and Surroundings.

The project site is surrounded by forest land to the north, east and south, and a helipad and single family residences to the west. The conversion of this site to a transfer station facility would alter the site's visual character by introducing buildings, paved areas, fencing, and automobile and truck traffic when in operation. However, as noted above under Impact AES-1, the proposed project facilities would be situated within the central portion of the site, behind a screen provided by existing vegetation, so that views of the buildings and ancillary facilities would be shielded by trees, vegetation, and topography, from off-site views.

The proposed transfer station building would have a peak height of approximately 50 feet, while other buildings on the site would generally be one story with typical heights of 20 feet or less. The main transfer station building would be approximately 275 feet from the edge of pavement on SR 20, and approximately 600 feet east of the nearest residential home to the west (Figure 2-2). Although travelers along SR 20 would have views of the facilities at the entryway, they would be fleeting and minimized by the existing trees which would be maintained as part of the project. Therefore, because of the distance of the main transfer station building from SR 20 and residences to the west, and the height of the existing trees and vegetation, as well as topography, views of the transfer station building and ancillary facilities would be minimal to non-existent in most instances. The impact to the visual character of the site and surroundings would not be substantial and therefore would be less than significant.

State Vehicle Code Section 23115 requires that all loads are properly secured to prevent litter and other articles from escaping. Transfer station operators warn self-hauling customers to comply and sometimes levy penalty rates for uncovered loads. The transfer station operators also routinely take responsibility for roadside litter clean-up in the vicinity of their facilities. The contract between the operator and the City and County will specify the litter prevention and clean-up responsibilities of the operator.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

Impact AES-3: Impacts from Nighttime Lighting and Glare.

Under current conditions, the proposed project site does not generate any light or glare. Although the proposed transfer station would normally operate only during daylight hours, there would be outdoor lighting available for buildings, parking areas and other facilities in case unusual or emergency circumstances caused nighttime operation. The facilities are not expected to produce any perceived glare because operations would normally occur only in daylight hours and any exterior lighting would be shielded and downcast. Light poles would not be taller than necessary to provide appropriate lighting for security and safety. As noted previously, because of the distance of the transfer station building from SR 20 and residences to the west, and the density of the existing trees and vegetation, the facility's lighting would not be expected to adversely affect adjacent land

uses. Additionally, because facility lighting would be focused downward and not up into the sky, the project will be consistent with the County's "dark sky" goal and policy (Goal RM-15 and Policy RM-134) of seeking to protect the qualities of the nighttime sky by requiring that outdoor nighttime lighting is directed downward and kept within property boundaries. The impact from nighttime lighting and glare would be less than significant.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

3.1.6 Cumulative Impacts

Impact AES-C-1: Result in Cumulatively Considerable Contribution to a Cumulative Impact Related to Aesthetic Resources.

The impacts to scenic vistas, visual character, and light/glare are not cumulatively considerable, because there are no cumulative projects located in the same viewshed as the project site. As shown in Table 3.0-1, the cumulative projects are all more than 2.9 miles from the project site. Additionally, impacts to a scenic vista or visual character would be dependent upon project- and site-specific variables, including proximity to visually sensitive receptors, the visual sensitivity of the respective development sites, and the operational characteristics of each development site. The potential impacts of other projects on a scenic vista or visual character of a development site and its surroundings would be evaluated on a project-by-project basis. It is assumed that cumulative development would progress in accordance with the Zoning/Development Code of the respective jurisdictions. Each project would be analyzed in order to ensure the construction-related Zoning/Development Code restrictions are consistently upheld. Cumulative impacts to a scenic vista or visual character would not be cumulatively considerable.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.



- 1. Office and restroom
 - 2. Antifreeze drop-off tank
 - 3. Used oil drop-off tank
 - 4. Metal recycling bay
 - 5. Appliance recycling bay
 - 6. Electronics recycling bay
 - 7. Mixed recyclables boxes
 - 8. Transfer trailer parking
 - 9. Unpaved driveway to leachfield
- Image Viewpoint Location

| | | | | |
|---|--|--|--|--|
| <p>Paper Size ANSI A 0 50 100 150 200 Feet</p> <p>Map Projection: Lambert Conformal Conic Horizontal Datum: North American 1983 GCS: NAD 1983 StatePlane California II FIPS 5402 Feet</p> | | | <p>Mendocino Solid Waste Management Authority Central Coast Transfer Station EIR</p> | <p>Job Number: 8411065 Revision: A Date: 30 Jul 2014</p> |
| | | | Viewpoint Locations | <h3>Figure 3.1-1</h3> |
| <p>183 Lonendale Street Melbourne VIC 3000 Australia T 61 3 9597 9000 F 61 3 9597 8111 E mel@ghd.com W www.ghd.com</p> <p>© 2012. While every care has been taken to prepare this map, GHD (and DATA CUSTODIAN) make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.</p> <p>Data source: Data Custodian, Data Set Name/TN#, Version/Data. Created by:jrouseau</p> | | | | |

3.3 Air Quality and Odor

This section includes a summary of applicable regulations, existing air quality and odor conditions and an analysis of potential impacts related to air quality and odor during construction and operation of the project. The impacts and mitigation measures section establishes the thresholds of significance, evaluates potential air quality and odor impacts, and identifies the significance of impacts. Where appropriate, mitigation is presented to reduce impacts to less-than-significant levels.

3.3.1 Setting

The proposed project would be located in Mendocino County in the North Coast Air Basin. The county covers 3,510 square miles and is bounded on the west by the Pacific Ocean and on the east by mountains that separate the North Coast and Sacramento River Air Basins. The county's east-west width varies from 35 to 60 miles, and its north-south length is approximately 80 miles. Within 20 miles of the ocean, the county landscape rises to 3,000 feet in a series of ridges parallel to the coast and separated by narrow valleys. The alluvial valleys that run parallel to the coast and mountain ranges are 1,000 to 1,500 feet above sea level in the central part of the county; and drop to 500 feet above sea level at the points where the Eel and Russian Rivers leave the County. The project site is located about 3 miles east of Fort Bragg.

The climate of Fort Bragg is maritime, with high humidity throughout the year. There are distinct wet and dry seasons. The rainy season lasts from October through April, accounting for about 90 percent of annual precipitation. The dry season, lasting from May through September, is characterized by regular intrusions of low clouds and fog that usually clear by late morning. Early afternoon generally is mostly sunny with low clouds moving in by evening. Temperatures are moderate, and the annual range is one of the smallest in the lower 48 states. During a typical year, the low temperatures are in the mid-30s (degrees Fahrenheit) and the high temperatures reach the mid-70s. The reason for the small temperature range is the proximity to the Pacific Ocean. The prevailing northwest wind blows across the cold, upwelling water that is almost always present along the Mendocino County coast.

Wind data for Fort Bragg are reported in the California Surface Wind Climatology (CARB 1984). The predominant wind flow is from the northwest. A secondary predominant flow is from the southeast, occurring primarily in fall and winter. The mean wind speed is 7.6 miles per hour (mph), with spring having the highest mean wind speed out of the northwest.

Existing Air Quality – Criteria Air Pollutants

California and the federal government (i.e., U.S. Environmental Protection Agency [EPA]) have established ambient air quality standards for several different pollutants. Most standards have been set to protect public health, but standards for some pollutants have other purposes, such as to protect crops, protect materials, or avoid nuisance conditions. Table 3.3-1 summarizes state and federal ambient air quality standards.

Among the pollutants that may be generated by the proposed project, those of greatest concern are emitted by motor vehicles. These pollutants include fine particulate matter less than 2.5 microns in diameter (PM_{2.5}) and particulate matter less than 10 microns in diameter (PM₁₀). Other pollutants

that are less problematic to the region include ozone precursors NOX and reactive organic gases [ROG]) and carbon monoxide. The specifics of each of these pollutants are discussed below.

Particulate Matter

Particulate matter (PM) is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particles 10 microns or less in diameter are defined as "respirable particulate matter" or "PM₁₀." Fine particles are 2.5 microns or less in diameter (PM_{2.5}) and, while also respirable, can contribute significantly to regional haze and reduction of visibility. Inhalable particulates come from smoke, dust, aerosols, and metallic oxides. Although particulates are found naturally in the air, most particulate matter found in the vicinity of the project site is emitted either directly or indirectly by motor vehicles, industry, construction, agricultural activities, and wind erosion of disturbed areas. Most PM_{2.5} is comprised of combustion products such as smoke. Extended exposure to PM can increase the risk of chronic respiratory disease (BAAQMD 2011a). PM exposure is also associated with increased risk of premature deaths, especially in the elderly and people with pre-existing cardiopulmonary disease. In June 2002, the California Air Resources Board (CARB) adopted new ambient air quality standards for PM₁₀ and PM_{2.5}, resulting from an extensive review of the health-based scientific literature. The U.S. EPA adopted a more stringent 24-hour PM_{2.5} standard of 35 micrograms per cubic meter (µg/m³) in September 2006, replacing the older standard of 65 µg/m³ (BAAQMD 2012).

Ozone

Ground-level ozone is the principal component of smog. Ozone is not directly emitted into the atmosphere, but instead forms through a photochemical reaction of ROG and nitrogen oxides, which are known as ozone precursors. Ozone levels are highest from late spring through autumn when precursor emissions are high and meteorological conditions are warm and stagnant. Motor vehicles create the majority of ROG and NOX emissions in California. Exposure to levels of ozone above current ambient air quality standards can lead to human health effects such as lung inflammation and tissue damage and impaired lung functioning. Ozone exposure is also associated with symptoms such as coughing, chest tightness, shortness of breath, and the worsening of asthma symptoms (BAAQMD 2011). The greatest risk for harmful health effects belongs to outdoor workers, athletes, children, and others who spend greater amounts of time outdoors during periods of high ozone levels.

Carbon Monoxide

Carbon monoxide, known as CO, is a public health concern because it combines readily with hemoglobin in the bloodstream, reducing the amount of oxygen transported by blood. State and federal CO standards have been set for both 1-hour and 8-hour averaging times. The state 1-hour standard is 20 parts per million (ppm) by volume, and the federal 1-hour standard is 35 ppm. Both the state and federal standards are 9 ppm for the 8-hour averaging period. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter, when light winds combine with ground-level temperature inversions (typically between evening and early morning). These conditions result in reduced dispersion of vehicle emissions. Also, motor vehicles emit CO at higher rates when air temperatures are low.

Nitrogen Dioxide

Nitrogen dioxide (NO₂) is an essential ingredient in the formation of ground-level ozone pollution. NO₂ is one of the NOX emitted from high-temperature combustion processes, such as those

occurring in trucks, cars, and power plants. Home heaters and gas stoves also produce NO₂ in indoor settings. Besides causing adverse health effects, NO₂ is responsible for the visibility reducing reddish-brown tinge seen in smoggy air in California. NO₂ is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract. Studies suggest that NO₂ exposure can increase the risk of acute and chronic respiratory disease (BAAQMD 2011). Due to potential health effects at or near the current air quality standard, the CARB recently revised the State ambient air quality standard for NO₂. The U.S. EPA recently adopted a new 1-hour NO₂ standard of 0.10 ppm.

Sulfur Dioxide

Sulfur dioxide is a colorless gas with a strong odor. It can damage materials through acid deposition. It is produced by the combustion of sulfur-containing fuels, such as oil and coal. Refineries, chemical plants, and pulp mills are the primary industrial sources of sulfur dioxide emissions. Sulfur dioxide concentrations in the Bay Area are well below the ambient standards. Adverse health effects associated with exposure to high levels of sulfur dioxide include irritation of lung tissue, as well as increased risk of acute and chronic respiratory illness (BAAQMD 2011).

Lead

Lead occurs in the atmosphere as particulate matter. It was primarily emitted by gasoline-powered motor vehicles, although the use of lead in fuel has been virtually eliminated. As a result, levels throughout the State have dropped dramatically.

Ambient Air Quality – Monitoring Station Data and Attainment Designations

Table 3.3-2 summarizes air quality data for monitoring stations in Mendocino County. Data from 2013 are the most recent available. The data reported in Table 3.3-2 show that ambient air quality standards were not exceeded over the 2010-2013 period at this monitoring station. Carbon monoxide, nitrogen dioxide, sulphur dioxide, and lead are not measured in the county due to the lack of emission sources. These pollutants have been measured at very low levels in the past.

Attainment Status

Areas that do not violate ambient air quality standards are considered to have attained the standard. Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant, using the most recent three years of monitoring data. The North Coast Air Basin as a whole does not meet State standards for PM₁₀, as designated by CARB. The air basin is considered attainment or unclassified for all other air pollutants. Unclassified typically means the region does not have concentrations of that pollutant that exceed ambient air quality standards.

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer or serious illness) and include, but are not limited to, the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level. The identification, regulation, and monitoring of TACs is relatively new compared to that for criteria air pollutants that have established ambient air quality standards. TACs are regulated or evaluated on the basis of risk to human health rather than comparison to an ambient air quality standard or emission-based threshold.

Table 3.3-1 Relevant California and National Ambient Air Quality Standards and Attainment Status

| Pollutant | Averaging Time | California Standards | California Attainment Status | National Standards | National Attainment Status |
|---|----------------|---------------------------------------|------------------------------|---------------------------------------|-----------------------------|
| Ozone | 8-hour | 0.070 ppm (137 µg/m ³) | Attainment | 0.075 ppm (147µg/m ³) | Unclassified/ Attainment |
| | 1-hour | 0.09 ppm (180 µg/m ³) | Attainment | None | NA |
| Carbon Monoxide | 1-hour | 20 ppm (23 mg/m ³) | Attainment | 35 ppm (40 mg/m ³) | Unclassified/ Attainment |
| | 8-hour | 9.0 ppm (10 mg/m ³) | Attainment | 9 ppm (10 mg/m ³) | |
| Nitrogen Dioxide | 1-hour | 0.18 ppm (339 µg/m ³) | Attainment | 0.100 ppm (188 µg/m ³) | Unclassified/ Attainment |
| | Annual | 0.030 ppm (57 µg/m ³) | Status not reported | 0.053 ppm (100 µg/m ³) | |
| Sulfur Dioxide | 1-hour | 0.25 ppm (655 µg/m ³) | Attainment | 0.075 ppm (196 µg/m ³) | Unclassified |
| | 24-hour | 0.04 ppm (105 µg/m ³) | Attainment | 0.14 ppm (365 µg/m ³) | |
| | Annual | None | NA | 0.03 ppm (56 µg/m ³) | |
| Respirable Particulate Matter (PM ₁₀) | 24-hour | 50 µg/m ³ | Nonattainment | 150 µg/m ³ | Unclassified |
| | Annual | 20 µg/m ³ | Nonattainment | None | |
| Fine Particulate Matter (PM _{2.5}) | 24-hour | None | NA | 35 µg/m ³ | Unclassified/ Attainment |
| | Annual | 12 µg/m ³ | Attainment | 12 µg/m ³ | |

Source: CARB (2014a and 2014b)

Notes:

ppm = parts per million

mg/m³ = milligrams per cubic meter

µg/m³ = micrograms per cubic meter

Table 3.3-2 Highest Measured Air Pollutant Concentrations in Mendocino County

| Pollutant | Average Time | Measured Concentration | | |
|---|--------------|------------------------|----------------------|----------------------|
| | | 2011 | 2012 | 2013 |
| Ozone Ukiah | 8-Hour | 0.047 ppm | 0.061 ppm | 0.049 ppm |
| | 1-Hour | 0.066 ppm | 0.066 ppm | 0.059 ppm |
| Respirable Particulate Matter (PM ₁₀) Fort Bragg | 24-Hour | 35 µg/m ³ | 40 µg/m ³ | 47 µg/m ³ |
| | Annual | 16 µg/m ³ | 13 µg/m ³ | 14 µg/m ³ |
| Fine Particulate Matter (PM _{2.5}) Willits | 24-Hour | 26 µg/m ³ | 24 µg/m ³ | 26 µg/m ³ |
| | Annual | 10 µg/m ³ | 7 µg/m ³ | NA |

Source: CARB 2014c

Diesel exhaust is the predominant TAC in urban air with the potential to cause cancer. It is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). According to the CARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the federal Hazardous Air Pollutants programs. California has adopted a comprehensive diesel risk reduction program. The U.S. EPA and the CARB adopted low-sulfur diesel fuel standards in 2006 that reduce diesel particulate matter substantially. The CARB recently adopted new regulations requiring the retrofit and/or replacement of construction equipment, on-highway diesel trucks, and diesel buses in order to lower PM_{2.5} emissions and reduce statewide cancer risk from diesel exhaust.

Sensitive Receptors

Sensitive receptors are people who are particularly susceptible to the adverse effects of air pollution. The CARB has identified the following people who are most likely to be affected by air pollution: children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases. Residential areas are also considered sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. The closest sensitive receptors include single-family residences 500 feet west or further and 1,000 feet east-southeast from the active parts of the facility.

3.3.2 Regulatory Framework

Federal

The federal Clean Air Act of 1977 (CAA) governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act. At the federal level, the U.S. EPA administers the Clean Air Act. The California Clean Air Act is administered by the CARB and by the Air Quality Management Districts at the regional and local levels.

The U.S. EPA is responsible for enforcing the federal CAA. The U.S. EPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS). The NAAQS are required under the CAA and subsequent amendments. The U.S. EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships and certain types of locomotives. The U.S. EPA has jurisdiction over emission sources outside State waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by the CARB.

State

In California, the CARB, which is part of the California Environmental Protection Agency, is responsible for meeting the State requirements of the federal Clean Air Act, administering the California Clean Air Act, and establishing the California Ambient Air Quality Standards (CAAQS). The California Clean Air Act, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the CAAQS. The CARB regulates mobile air pollution sources, such as motor vehicles. It is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. The CARB

established passenger vehicle fuel specifications, which became effective in March 1996. It oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level.

Regional and Local

Mendocino County Air Quality Management District

The Mendocino County Air Quality Management District (MCAQMD) is one of 35 local air districts in California. The mission of the MCAQMD is to protect and manage air quality. The MCAQMD has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. The MCAQMD regulates new or expanding stationary sources of toxic air contaminants. The District is managed by a five member Board of locally elected officials which currently consists of all five members of the Mendocino County Board of Supervisors.

In January 2005 the MCAQMD adopted the Particulate Matter Attainment Plan. The District is in attainment for all Federal criteria air pollutants and is also in attainment for all State standards except PM10. Districts designated non-attainment for all pollutants except PM10 are required to prepare an attainment plan. While the District is not required to prepare a PM10 attainment plan the District is required to prevent significant deterioration of local air quality and make reasonable efforts toward achieving attainment status for all pollutants. In general, 'reasonable progress' is defined as a 5% reduction in emissions per year, until the standard is attained. SB 656 requires the District to list particulate matter control measures it considers cost-effective and develop a schedule for their implementation. The Particulate Matter Attainment Plan is designed to serve as a summary of the District's current status, a long range planning tool, and a roadmap for future District policy.

Emissions of fugitive dust from grading operations would be subject to MCAQMD Rule 1-400(a), Rule 430(a) and Rule 430(b). The project operator would have to submit a Large Grading Operation Permit application to MCAQMD. Construction activities would be subject to District rules (as noted above) that prohibit the handling, transportation, or open storage of materials, or the conduct of other activities in such a manner that allows or may allow unnecessary amounts of particulate matter to become airborne except when reasonable precautions are taken to prevent emissions and District-required airborne dust control measures are implemented.

Mendocino County General Plan Goals and Policies

The Mendocino County General Plan contains goals, policies, standards, and implementation programs pertinent to air quality. The following general plan policies regarding air quality are considered relevant to the proposed project:

- Policy RM-37: Public and private development shall not exceed Mendocino County Air Quality Management District emissions standards.
- Policy RM-38: The County shall work to reduce or mitigate particulate matter emissions resulting from development, including emissions from wood-burning devices.
- Policy RM-43: Reduce the effects of earth-moving, grading, clearing and construction activities on air quality.
- Policy RM-44: New development should be focused within and around community areas to reduce vehicle travel.

- Policy RM-45: Encourage the use of alternative fuels, energy sources and advanced technologies that result in fewer airborne pollutants.
- Policy RM-46: Reduce or eliminate exposure of persons, especially sensitive populations, to air toxics.
- Policy RM-47: Minimize the exposure of sensitive uses, such as residences, schools, day care, group homes or medical facilities to industrial uses, transportation facilities, or other sources of air toxics.

1.1.2 3.3.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to odor and air quality, as defined by the CEQA Guidelines (Appendix G), if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

MCAQMD recommends that agencies use the Bay Area Air Quality Management District's (BAAQMD) Air Quality CEQA Guideline thresholds adopted in 2010 for projects in Mendocino County (MCAQMD 2010). One difference is that MCAQMD recommends that the Indirect Source Rule [Regulation 1, Rule 1-130(i)(1)] definition of an "Indirect Source" be used to set emission thresholds for ROG and NOX. Significance thresholds used to evaluate air quality and odor impacts from this project are described in Table 3.3-3.

Areas of No Project Impact

Conflict with or obstruct implementation of the applicable air quality plan. As discussed previously, the MCAQMD has published the Particulate Matter Attainment Plan in 2005, representing the most current applicable air quality plan for the County. This plan is designed to meet the requirements of Senate Bill 656 (2003), which required the District to list particulate matter control measures it considers cost-effective and develop a schedule for their implementation. This document is designed to serve as a summary of the District's current status, a long range planning tool and a roadmap for future District policy. Consistency with this plan is the basis for determining whether the proposed project would conflict with or obstruct implementation of an applicable air quality plan. The plan includes measures dealing with such topics as wood burning stoves, campfires, dust from unpaved roads, construction grading activities, and open burning. The plan does not include measures or policies that would apply directly to operation of the project. As for the control measure regarding grading activities during construction, the measure never went through the rule-making process and consequently was not adopted. Construction and operation of the project would not result in impacts related to conflicts with an applicable air quality plan.

Table 3.3-3 Air Quality Significance Thresholds

| Pollutant | Construction Thresholds | Operational Thresholds | |
|---|--|--|--------------------------------------|
| | Average Daily Emissions (lbs./day) | Average Daily Emissions (lbs./day) | Annual Average Emissions (tons/year) |
| Criteria Air Pollutants | | | |
| ROG | 180 54 | 180 | None 40 |
| NO _x | 42 54 | 42 | None 40 |
| PM ₁₀ | 80 | 80 | None 15 |
| PM _{2.5} | 54 | 54 | 10 |
| CO | Not Applicable <u>None</u> | 9.0 ppm (8-hour average) or 20.0 ppm (1-hour average) <u>125 tons/year</u> | |
| Fugitive Dust | Construction Dust Ordinance or other Best Management Practices | None <u>Same as above</u> | |
| Health Risks and Hazards for New Sources | | | |
| Excess Cancer Risk | 10 per one million | 10 per one million | |
| Chronic or Acute Hazard Index | 1.0 | 1.0 | |
| Incremental annual average PM _{2.5} | 0.3 <u>>3.0</u> µg/m ³ | 0.3 <u>>3.0</u> µg/m ³ | |
| Health Risks and Hazards for Sensitive Receptors (Cumulative from all sources within 1,000 foot zone of influence) and Cumulative Thresholds for New Sources | | | |
| Excess Cancer Risk | 100 per one million | | |
| Chronic Hazard Index | 10.0 | | |
| Annual Average PM _{2.5} | 0.8 µg/m ³ | | |
| Odors | 5 confirmed complaints per year averaged over 3 years | | |

Sources: BAAQMD 2011; BAAQMD 2009; and MCAQMD ~~2003~~ **2015**

(see http://www.co.mendocino.ca.us/aqmd/pdf_files/ceqa-criteria-and-ghg.pdf)

(see http://www.co.mendocino.ca.us/aqmd/pdf_files/ISR_Policy.pdf)

1.1.3 3.3.4 Methodology

Project Emissions

The air quality impact analysis considers construction and operational impacts associated with the proposed project. Construction and operation period air pollutants were modelled using the latest version of the California Emissions Estimator Model, CalEEMod (Version 2013.2.2).

The on-site construction modelling was based on the construction equipment inventories and schedule provided for the project (included in Appendix C). Modeled construction phases include Site Preparation, Grading, Trenching, Exterior Building, Interior Building, and Paving. The mobile emissions during construction, which include haul truck trips, vendor or delivery truck trips, and

worker trips, were included in the CalEEMod model. The modelling assumed that construction would occur in 2016. The project was entered as a 30,000 square foot light-industrial use on five acres. The provided equipment list and schedule were used to model construction equipment emissions. Localized construction period impacts associated with fugitive dust are evaluated through the appropriate application of best management practices recommended by BAAQMD to reduce PM₁₀ emissions.

Project operation was assumed to produce emissions from traffic and use of off-road equipment to process material. CalEEMod was used to compute emissions from the off-road equipment that was assumed to include a large front-end loader, forklift and grapple crane. Although not quantified for this analysis, there is a small amount of diesel used at the existing Caspar facility from the intermittent use of a loader. Under the project, this loader would no longer be used as operations at the Caspar facility would cease. Implementation of the project also would reduce, by approximately half, the amount of waste handled at the Willits Transfer Station. Thus the equipment used to move and load materials there would not be used as frequently, resulting in reduced diesel usage at the Willits facility. Therefore, the modelling results presented in this analysis are conservative, looking only at the new on-site emissions from operations and not deducting emissions that would cease with the implementation of the new transfer facility.

Net traffic emissions associated with operation of the new facility, decommissioning of the Caspar facility, and discontinued use of the Willits Transfer Station by central coast, were computed using the EMFAC2011 model developed by the CARB. This included modelling of self-haul vehicles, franchise hauling trucks, and use of large trucks to transfer material to Willits. Self-haul vehicles were assumed to be a mix of light-duty trucks, medium-duty trucks, and light heavy duty trucks, consistent with the vehicle miles travelled distribution computed by EMFAC2011. Current haul trucks were assumed to consist of diesel-powered T6 heavy heavy duty trucks. New project haul trips were assumed to be made by larger T7 heavy heavy duty trucks. The franchise haul trucks were assumed to be Solid Waste Collection Trucks. Refer to Appendix C for additional detail on the assumptions and outputs.

The traffic emissions are based on the projected change in vehicle miles travelled (VMT) combined with the emissions rates computed using EMFAC2011. Changes to VMT are based on different vehicle travel characteristics for the existing scenario and the project scenario where all self-haul materials and collected solid waste are brought to the project site, then transferred to Willits in larger trucks (only mileage to Willits was calculated as miles between Willits and the destination landfill would remain the same with implementation of the project). Table 3.7-1, in Section 3.7 Greenhouse Gas Emissions and Energy, describes the distribution of VMT for existing conditions and the project conditions. The emission rates from EMFAC2011 are based on Mendocino County default annual conditions, aggregate year of 2016 and an average travel speed of 30 miles per hour.

Appendix C includes the CalEEMod model output and emissions computations that were made using EMFAC2011.

Impacts to Sensitive Receptors

A risk assessment of construction emissions was performed to assess cancer risk and PM_{2.5} exposure. Construction emissions were computed using CalEEMod, as described above. The truck and worker trip lengths were calculated as 0.3 miles to reflect on- or near-site travel.

Air quality modeling of annual average diesel particulate matter (DPM) and fugitive PM_{2.5} concentrations was conducted using the EPA's ISCST3 dispersion model in a screening mode. The

ISCST3 model is a steady-state, multiple-source, dispersion model designed to calculate pollutant concentrations from single or multiple sources. The model is recommended by BAAQMD for predicting air pollutant/contaminant concentrations associated with various emissions sources. The ISCST3 model predicts pollutant concentrations at receptors located in areas of flat or complex terrain from a variety of emission source types including point, area, volume and line sources.

The U.S. EPA ISCST3 dispersion model was used in screening mode to calculate concentrations of DPM and PM_{2.5} concentrations at existing sensitive receptors (residences) in the vicinity of the project construction area. The ISCST3 dispersion model is a BAAQMD-recommended model for use in modelled analysis of these types of emission activities for CEQA projects. The ISCST3 modeling utilized a single area source to represent the on-site construction emissions from the project site, one for DPM exhaust emissions and the other for fugitive PM_{2.5} dust emissions. To represent the construction equipment exhaust emissions, an emission release height of six meters was used for the area source. The elevated source height reflects the height of the equipment exhaust stacks and the rise of the exhaust plume. For modelled fugitive PM_{2.5} emissions, a near ground level release height of two meters was used for modelled the area source. Emissions from vehicle travel on-site and off-site within about 1,000 feet of the construction site were distributed throughout the modelled area sources. Construction emissions were modelled as occurring daily between 8 a.m. – 5 p.m. when a majority of the construction activity involving equipment usage would occur.

The model used a synthetic screening level meteorological data set to determine the annual concentrations in the air quality assessment. Screening modelled encompasses a number of conservative analytical modelled techniques for estimating extreme upper bound concentrations. These “worst-case” estimates are based on simplified, but conservative assumptions of dispersion meteorology. The primary purpose of screening modelled is to assess new potential sources whose impacts may be low enough that they will not pose a threat to ambient air quality standards or health risks, thus avoiding the need for further analysis. The screening meteorological data set was obtained from the BAAQMD and used a matrix of daytime dispersion parameters for each five (5) degrees of wind direction. From this, the ISCST3 model calculates a 1-hour average. Using the BAAQMD and CARB persistence factors, the 1-hour average was converted to an annual average by applying the recommended factor of 0.1 (BAAQMD 2012). DPM and fugitive PM_{2.5} concentrations were calculated at nearby sensitive receptors at heights of 1.5 meters (4.9 feet) representative of the ground level exposures for the nearby residential structures.

Increased cancer risks were calculated using the modelled concentrations and BAAQMD recommended risk assessment methods for infant exposure (3rd trimester through two years of age), child exposure, and for an adult exposure (BAAQMD 2010). The cancer risk calculations were based on applying the BAAQMD recommended age sensitivity factors to the DPM exposure parameters. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Infant, child, and adult exposures were assumed to occur at all residences during the entire construction period. Appendix B also includes the cancer risk calculations.

Odors

The handling and storage of solid waste can produce odors. Odors are generally considered an annoyance rather than a health hazard. The ability to detect and respond to odors varies considerably among the population and is quite subjective. The receptors nearest the site are residences to the west and southeast. Odors are analysed qualitatively, based on the potential for the site to generate odors and wind patterns in the area.

3.3.5 Impacts and Mitigation Measures

Impact AQ-1: Violate Any Air Quality Standard or Result in Cumulatively Considerable Net Increase of Any Criteria Pollutant for which the Project Region is in Non-attainment.

By its very nature, air pollution is largely a cumulative impact, in that individual projects are rarely sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions (BAAQMD 2011). Mendocino County is considered non-attainment for PM₁₀.

Most of the construction would occur over a 6-month period, or about 132 days. Table 3.3-4 presents the project's construction period emissions, based on the CalEEMod model results. Construction period emissions would not exceed significance thresholds. During grading and construction activities, dust would be generated. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed at any given time, amount of activity, soil conditions, and meteorological conditions. Unless controlled, fugitive dust emissions during construction of the proposed project would be a significant impact. In addition to measuring the construction-related emissions against specified thresholds, the BAAQMD recommends that all proposed projects implement "basic construction mitigation measures" whether or not construction-related emissions exceed applicable thresholds. Incorporation of these measures also meets the construction-related threshold for fugitive dust identified in Table 3.3-3, which is to use best management practices during construction of a project. ***In addition, the Project would be subject to requirements of MCAQMD Regulation 1, Rule 1-430.*** Therefore, without inclusion of the basic construction mitigation measures as defined by the BAAQMD, the impact during construction would be significant.

Table 3.3-4 Construction Criteria Air Pollutant Emissions

| Facility Site | ROG | NO _x | PM ₁₀ | PM _{2.5} |
|---|---------------------------------|--------------------------------|--------------------------------|-------------------|
| Emissions in tons per year | 0.43 | 1.29 | 0.05 | 0.04 |
| Average Daily Emissions (pounds per day) ¹ | 6.5 | 19.5 | 0.8 | 0.6 |
| Threshold (pounds per day) | 180 <u>54</u> | 42 <u>54</u> | 80 <u>82</u> | 54 |
| Exceed Threshold? | No | No | No | No |

Notes: ¹Assuming 132 days of construction

Project operational emissions are presented in Table 3.3-5. These include on-site emissions based on CalEEMod modelling and mobile emissions based on the traffic analysis and EMFAC2011 emission factors. The combination of the increase in emissions from the facility and the decrease of mobile emissions would result in emission well below the significance thresholds (Note, even if the reduction in mobile emissions was not included, the project emissions would still be below the thresholds). Operation of the project would have less-than-significant impacts on air quality.

Table 3.3-5 Operational Criteria Air Pollutant Emissions

| Facility Site | ROG | NO _x | PM ₁₀ | PM _{2.5} | CO |
|---|------------------|------------------|------------------|-------------------|-------------------|
| On-Site Emissions in tons per year | 0.27 | 1.42 | 1.36 | 0.18 | <u>0.55</u> |
| Mobile Emissions in tons per year | (0.14) | (1.30) | (0.10) | (0.07) | <u>(1.02)</u> |
| Average Daily Emissions (pounds per day) ¹ | 0.7 | 0.9 | 7.2 | 0.6 | - |
| <u>Threshold(tons per year)</u> | <u>40</u> | <u>40</u> | <u>15</u> | <u>10</u> | <u>125</u> |
| Threshold (pounds per day) | 180 | 42 | 80 | 54 | - |
| Exceed Threshold? | No | No | No | No | <u>No</u> |

Notes:

¹Assuming 350 days of operation per year**Mitigation Measure AQ-1: Air Quality Control Measures during Construction.**

The contractor shall implement the following Best Management Practices:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible and feasible. Building pads shall be laid as soon as possible and feasible, as well, after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.
9. **Include all applicable requirements contained in District Regulation 1, Rule 1-430.**

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure AQ-1 complies with the best management practices recommended by the BAAQMD to reduce construction related air emissions, including dust, to a

less-than-significant level. Therefore, Impact AQ-1 would be reduced to less than significant with implementation of the Mitigation Measure AQ-1.

Impact AQ-2: Expose Sensitive Receptors to Substantial Pollutant Concentrations.

Construction of the project would result in emissions of diesel particulate matter, a TAC that causes cancer. The MCAQMD does not have community risk assessment guidelines for evaluating these impacts. Therefore, the BAAQMD guidance for evaluating community risk impacts was used. Emissions of diesel particulate matter and fugitive PM_{2.5} were predicted. These emissions were input to a dispersion model to predict the exposure at sensitive receptors near the project. Cancer risk computations were performed (refer to Appendix B for the outputs).

The location of the maximum modeled DPM and PM_{2.5} concentration is shown on Figure 3.3-1. Increased cancer risks were calculated using the modeled concentrations and BAAQMD recommended risk assessment methods for both a child exposure (3rd trimester through two years of age) and adult exposure (BAAQMD 2010). Since the modeling was conducted under the conservative assumption that emissions occurred daily for a full year during the construction year, the default BAAQMD exposure period of 350 days per year was used.

Results of this assessment indicate that for project construction the incremental child cancer risk at the maximally exposed individual (MEI) receptor would be 11.6 in one million and the adult incremental cancer risk would be 0.6 in one million. This would be over the threshold of 10 in one million and would be a significant impact.

The maximum annual PM_{2.5} concentration was 0.285 µg/m³ occurring at the same location where maximum cancer risk would occur. This PM_{2.5} concentration is below the ~~BAAQMD~~ **MCAQMD** threshold of ~~0.3~~ **3.0** µg/m³ used to judge the significance of health impacts from PM_{2.5}.

Potential non-cancer health effects due to chronic exposure to DPM were also evaluated. The chronic inhalation reference exposure level (REL) for DPM is 5 µg/m³ (BAAQMD 2011). The maximum predicted annual DPM concentration for project construction was 0.133 µg/m³ (see Appendix B), which is much lower than the REL. The Hazard Index (HI), which is the ratio of the annual DPM concentration to the REL, is 0.027. This HI is much lower than the ~~BAAQMD~~ **MCAQMD** significance criterion of a HI greater than 1.0.

Operation of the project would generate some truck traffic and localized on-site emissions. The project would introduce about 10 to 15 daily truck trips. These would be considered minor and would not increase the overall cancer risk significantly. Impacts from pollutants emitted during operation would be less than significant.

Mitigation Measure AQ-2: Select Equipment during Construction to Minimize Emissions.

The Contractor shall follow the following standard: All diesel-powered off-road equipment larger than 50 horsepower and operating at the site for more than two days continuously shall meet U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent.

Level of Significance: Less than significant with mitigation.

Based on the significant result for child exposure to construction emissions, mitigation was applied to the sources of DPM in order to reduce the impacts to a less significant. Incorporating Mitigation Measure AQ-2, the modeling results with this mitigation in place would have a child cancer risk of 5.87 in a million with the adult incremental cancer risk of 0.3 in million, which is below the

significance threshold of 10 in one million. Therefore, implementation of Mitigation Measure AQ-2 would reduce the impact to less than significant.

Impact AQ-3: Create Objectionable Odors Affecting a Substantial Number of People.

The handling of waste material has the potential to cause odors. Potential odor issues would be a function of the strength of the odors emanating from the project, combined with the distance to the receptors (i.e., residences) and meteorological conditions. The handling and transfer of solid waste would occur inside of a fully enclosed building. The nearest residence is about 600 feet west of the project facility building where material transfer would occur. Wind data for Fort Bragg indicate a predominant wind from the northwest, with a secondary predominant wind from the east-southeast.

Odor problems from solid waste transfer stations are well understood because of the experience of thousands of such facilities throughout the United States. Municipal solid waste creates significant amounts of objectionable odor only when it degrades over time. Therefore, the primary means of odor avoidance is to transfer waste out of the facility quickly, with regular cleaning to ensure that residual waste doesn't build up. If transfer cannot be carried out rapidly enough to control odor, a variety of measures are available. The most important measure is to fully enclose the transfer building, with minimal door openings, so that spread of odor by dispersion or wind is reduced. Additional measures, in approximate order of cost and impact, include:

- Roll-up doors which can be automated to open only when a vehicle approaches.
- Air curtains on doorways. These help confine odors to the inside of the transfer station building.
- Deodorizing misting spray. Overhead sprays can neutralize odorous material.

Several types of misting sprays are commercially available, including Odor X, NONOX, and Biomagic.

- Negative pressure ventilation with biofiltered exhaust.

Biofilters are typically a large container filled with wood chips or compost that will scrub noxious odors out of exhaust air. An example is CR&R's Perris Transfer Station in Perris, California, which receives up to 3,000 tons per day and has reportedly eliminated odor problems after installation of a biofilter.

For the Central Coast Transfer Station, all handling of solid waste would occur inside of the building. The enclosed building would reduce the potential for odors. Typically, solid waste would be removed from the facility within 24 hours and would not remain at the site for more than 48 hours. The project is anticipated to include features to reduce odors; however, project design details are not available at this time. Since these control features have not been specified at this time, there is a potential for odors to be emitted from the facility that could result in odor complaints, potentially exceeding the threshold of five confirmed complaints per year averaged over three years. This would be a significant impact.

The outdoor recycling area would have a low potential to cause off-site odors. Bottles cans and other recyclable materials typically do not have strong odors. The localized odors produced by recyclable materials can be minimized through application of good management practices.

Mitigation Measure AQ-3: Implement Odor Reduction Measures.

The County and City shall require as an enforceable provision of the operations contract for the facility that no odors are detectable beyond the site boundaries. When approving the final building

design, the County and City will ensure that it is compatible with installation of any necessary odor control systems. The operations contract will require:

Design & Construction

1. Design of facility to ensure all transfer, handling and storage of solid waste material occurs within the fully enclosed building.
 - A. The County Environmental Health Division, Local Enforcement Agent (LEA) for CalRecycle, has jurisdiction over odor impacts of a solid waste facility and conducts periodic inspections and responses to complaints. If the LEA confirms off-site odor at any time, the operator will be required to implement any or all of the following controls:
 - .. Air curtains at doorways
 - B. Overhead misting system
 - C. Negative pressure ventilation with exhaust air directed through biofilters

Operation

1. Close all doors when facility is not operating.
2. Ensure material is not stored on site for more than 48 hours.
3. Develop and implement best management practices to clean the facility on a daily basis, including removing all odor producing food waste from facility floors and equipment.
4. Provide neighbors with a contact name and phone number to report odor or dust complaints. Such complaints shall be documented. The source or cause of any odor will be identified and actions taken to mitigate the odors shall also be documented.

The County and City shall designate a staff member to receive, document, and follow-up on odor complaints. A record shall be kept of each complaint for a minimum of five years from the date the complaint is received.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure AQ-3 provides basic odor minimization measures to be integrated into the project design and operation, with further measures that require “pre-plumbing” for additional odor-control systems, so that if complaints approach the established threshold, these additional measures would be implemented. Implementation of Mitigation Measure AQ-3 would reduce the impact to less than significant.

3.3.6 Cumulative Impacts

Impact AQ C-1: Result in a Cumulatively Considerable Contribution to Cumulative Impacts Related to Air Quality.

Project emissions of criteria air pollutants or their precursors would not make a considerable contribution to cumulative air quality impacts. As noted in the project analysis, air pollution, by nature, is mostly a cumulative impact. The significance thresholds applicable to construction and operational aspects of a project represent the levels at which a project’s individual emissions of criteria pollutants and precursors would result in a cumulatively considerable contribution to the region’s air quality conditions as described by BAAQMD (BAAQMD 2011).

The proposed project’s construction-period emissions exhaust would not exceed the quantitative significance thresholds, and fugitive dust emissions would be adequately controlled through

implementation of BAAQMD best management practices. Therefore, project construction would not make a considerable contribution to cumulative air quality impacts.

Significant community risk impacts to sensitive receptors from project construction were identified as 11.6 in one million. A review of cumulative construction projects that are planned and approved in the area (see Section 3.0, Table 3-1 of this Draft EIR) did not reveal any nearby projects within 1,000 feet of the Maximally Exposed Individual (MEI) to result in a cumulative construction health risk impact. Therefore, the cumulative analysis is the same as for the project. The project's contribution to the cumulative impact is 11.6 in one million, which is over the individual threshold and therefore a considerable contribution to the cumulative impact. The cumulative impact to TACs is significant.

Mitigation Measures: AQ-1 Air Quality Control Measures during Construction and AQ-2 Select Equipment during Construction to Minimize Emissions.

Level of Significance: Less than significant with mitigation.

Incorporating Mitigation Measure AQ-2, the modeling results with this mitigation in place would have a child cancer risk of 5.87 in a million with the adult incremental cancer risk of 0.3 in million, which is below the significance threshold of 10 in one million. Therefore, implementation of Mitigation Measure AQ-2 would reduce the projects contribution to the cumulative impact to less than significant.



Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

-  PermanentFootprint_141104
-  ConstructionFootprint_141104
-  Parcels
-  Residences within 1,000 feet of Project Area

Paper Size ANSI A
 0 70 140 210 280 350
 Feet
 Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
 Grid: NAD 1983 StatePlane California II FIPS 0402 Feet



Mendocino Solid Waste Management Authority | Job Number | 8411065
 Central Coast Transfer Station EIR | Revision | A
 Date | 04 Nov 2014

Sensitive Receptors **Figure 3.3-1**

190 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com
 G:\0016201 MendocinoSolidWasteMgmtAuthority\9411065 MSWMA TransferStationEIR\08-GIS\Map\Figures\EIR\F3.3-1_SensitiveReceptors.mxd
 © 2012. Whilst every care has been taken to prepare this map, GHD (and DATA CUSTODIAN) make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expense, loss, damage and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.
 Data source: Data Custodian, Data Set Name/Title, Version/Date. Created by:jrouseau

3.4 Biological Resources

This section evaluates the potential impacts related to biological resources during construction and operation of the project. The setting section describes the existing environmental conditions for biological resources. The regulatory framework section describes the applicable regulations at the federal, state and local level. The impacts and mitigation measures section establishes the thresholds of significance, evaluates potential impacts to biological resources, and identifies the significance of impacts. Where appropriate, mitigation is presented to reduce impacts to less-than-significant levels. Information in this section is based in part on the Biological Resources Assessment prepared for this project by WRA in June 2013 (Appendix D).

3.4.1 Setting

Vegetation Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats may be protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, and the California Department of Fish and Wildlife (CDFW) Streambed Alteration Program; or local ordinances or policies such as City or County tree ordinances. Other sensitive biological communities include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB) [CDFW 2014a]. Sensitive plant communities are also provided in list format by CDFW (2009a). CNDDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2012) methodology (see Table 3.4-1), with those alliances ranked globally (G) or statewide (S) with status of 1 through 3 considered to be of special concern as well as imperiled (CDFG 2007; CDFW 2014b).

Table 3.4-1 Score Value Ranges for Nature Serve Conservation Status Ranks

| Calculated Score Value Range | Calculated Status Rank | Status Description | Definition | Threat Rank |
|------------------------------|------------------------|----------------------|--|--|
| score \leq 1.5 | G1, S1 | Critically Imperiled | Less than 6 elemental occurrences (EO) or less than 1,000 individuals or less than 2,000 acres | S1.1 = very threatened S1.2 = threatened S1.3 = no current threats known |
| 1.5 < score \leq 2.5 | G2, S2 | Imperiled | 6-20 EOs or 1,000-3,000 individuals or 2,000-10,000 acres | S2.1 = very threatened S2.2 = threatened S2.3 = no current threats known |

| Calculated Score Value Range | Calculated Status Rank | Status Description | Definition | Threat Rank |
|------------------------------|------------------------|--------------------|--|--|
| 2.5 < score ≤ 3.5 | G3, S3 | Vulnerable | 21-100 EOs or 3,000-10,000 individuals or 10,000-50,000 acres | S3.1 = very threatened S3.2 = threatened S3.3 = no current threats known |
| 3.5 < score ≤ 4.5 | G4, S4 | Apparently Secure | This rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat. | No threat rank |
| score > 4.5 | G5, S5 | Secure | Demonstrably secure to ineradicable | No threat rank |

Compiled from: CDFG 2007; NatureServe 2012

The application of global ranking (G#) for determination of sensitive communities is summarized in Table 3.4-1 (NaturServe 2009). Additionally, CDFW high priority natural community elements are reserved for those areas exhibiting high quality occurrences based on a criterion such as:

1. Lack of invasive species;
2. No evidence of human caused disturbance such as roads or excessive livestock grazing, or high grade logging; or,
3. Evidence of reproduction present (sprouts, seedlings, adult individuals of reproductive age), and no significant insect or disease damage, etc.

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations, and ordinances. These non-sensitive communities may, however, provide suitable habitat for some special-status plant or wildlife species and are part of the general existing site conditions. Sensitive and non-sensitive habitat/vegetation types were mapped on the site and presented in the supporting biological resources evaluation to establish existing conditions at the project site (WRA 2013).

Numerous sites visits were conducted to identify suitable habitats for special-status species, and to map sensitive and non-sensitive habitats (WRA 2013). The site visit included study of 20.95 acres of APN 019-150-05 (i.e., the portion of the parcel which is north of Highway 20, and hereinafter referred to as the “property”, and “property study area”) in order to provide context for the actual 17-acre “project site” that is encompassed by the 20.95 acre property. The nomenclature and classification for habitat areas mapped on the property are presented in Table 3.4-2, and information is presented as a basis to evaluate whether mapped areas qualify as sensitive habitats by CDFW definition. Many of the habitats identified on the property study area are considered sensitive, including wetlands and at least portions of the cypress forest (particularly the stunted/pygmy portions, as well as areas where cypress are growing in conjunction with Bolander’s pine which is typical plant composition for pygmy forest). Resources mapped on the property are ***identified in Table 3.4.2***, quantified in Table 3.4-3 and presented on Figure 3.4-1.

Table 3.4-2 Nomenclature for Vegetation Communities on Property

| Habitat | Vegetation Alliance | CNDDB Global (G) and State (S) Rank | Vegetation Association | Dominant Species and CRPR Status |
|--|---|-------------------------------------|---|---|
| Bishop pine forest <i>alliance</i> | Bishop pine (<i>Pinus muricata</i>) Forest Alliance | G3 S3_* | Bishop pine-evergreen huckleberry (<i>P. muricata-Vaccinium ovatum</i>) | <i>P. muricata</i> [CRPR none] |
| Cypress forest (tall) | Pygmy cypress (<i>Hesperocyparis pygmaea</i>) Forest Alliance | G2 S2 | Mendocino cypress – tall (<i>H. pygmaea</i>) | <i>H. pygmaea</i> [CRPR 1B] |
| Cypress forest (intermediate) | | | Pygmy cypress / Bolander's pine (<i>H. pygmaea/Pinus contorta</i> ssp. <i>bolanderi</i>) | <i>H. pygmaea</i> [CRPR 1B] <i>P. contorta</i> ssp. <i>bolanderi</i> [CRPR 1B] |
| Cypress forest (pygmy); USACE Forested wetland | | | Pygmy cypress / Bolander's pine – pygmy (<i>H. pygmaea/P. contorta</i> ssp. <i>bolanderi</i>) | <i>H. pygmaea</i> [CRPR 1B] <i>P. contorta</i> ssp. <i>bolanderi</i> [CRPR 1B] |
| USACE Palustrine emergent wetland | Slough sedge sward (<i>Carex obnupta</i>) Herbaceous Alliance | G4 S3 | Slough sedge/California sedge sward (<i>C. obnupta/C. californica</i>) Association | <i>Carex obnupta</i> [None] <i>C. californica</i> [CRPR 2] |

***See discussion under Impact BIO-2**

Source: Sawyer et al. (2009)

Table 3.4-3 Existing Habitats Quantified for the Property

| Habitat | Dominant Species | Property (acres) | Tree Count Estimate (#) | Regional Conditions (acres) ¹ |
|---|--|------------------|-------------------------|--|
| Disturbed / ruderal | Various | 1.11 | NA | NA |
| Bishop pine forest <i>alliance</i> | Bishop pine (<i>P. muricata</i>) | 8.39 | NA | 14,900 |
| Cypress forest (tall) | cypress (<i>H. pygmaea</i>) | 4.78 | 776 | NA |
| | Bolander's pine (<i>P. contorta</i> ssp. <i>bolanderi</i>) | | 100 | |
| Cypress forest (intermediate) | cypress (<i>H. pygmaea</i>) | 4.44 | 336 | NA |
| | Bolander's pine | | 147 | |
| Cypress forest (pygmy) / Forested wetland | cypress (<i>H. pygmaea</i>) | 3.11 | 598 | 2,000 |
| | Bolander's pine | | 496 | |
| Palustrine emergent wetland | Various | 0.22 | NA | NA |
| Total | | 20.95 | | |

¹Regional conditions are estimated and presented for context utilizing a variety of sources that provide general mapping quantities for the area, yet are believed to be the most current data readily available based on conversation with CDFW and others (Miller, Linda 2014, Pers. Com). While approximately 4,420 acres of Pygmy Cypress forest type was mapped in 1998 by CALVEG in the area between Ten Mile and Navarro River (CDF 2005), some sources have indicated this may be reduced to as little as 2,000 acres, and mapping is highly variable on what definition, species composition, and tree height is used for this map unit. CDFW is working on mapping project currently to establish baseline existing conditions (Miller, Linda 2014, Pers. Com). 2,000 acres is used herein as a conservative estimate of what remains regionally of pygmy forest and as a basis for comparative analysis to project impacts (although project impacts are to intermediate and tall cypress/Bolander's pine). In 1998 CALVEG mapped 14,900 acres of Bishop pine in Mendocino County (CDF 2005).

Bishop Pine Forest Alliance: This community is known along the coast from Fort Bragg, Mendocino County to northwestern Sonoma County, and there are also stands on Point Reyes, Mount Tamalpais, and Monterey Peninsula (Sawyer et al. 2009). Vegetation associations include Bishop pine-evergreen huckleberry (*Pinus muricata-Vaccinium ovatum* Forest Association) and Bishop pine/Bolander's pine/ cypress (*Pinus muricata / P. contorta* ssp. *bolanderi / Hesperocyparis pygmaea* Forest Association). At the project site, this community is dominated by Bishop pine (*Pinus muricata*), with several subdominant tree species including pygmy cypress (*Hesperocyparis pygmaea*) [approximately 327 individuals scattered across the property within this map unit], Bolander's pine (*Pinus contorta* ssp. *bolanderi*) [approximately 47 individuals scattered across the property within this map unit], as well as western hemlock (*Tsuga heterophylla*), and coast redwood (*Sequoia sempervirens*). The overstory varies from somewhat open to completely closed containing mature to over-mature trees. The understory contributes to the vertical structure with a high density of shrubs and herbaceous layer. Shrub species include evergreen huckleberry (*Vaccinium ovatum*), Pacific rhododendron (*Rhododendron macrophyllum*), giant chinquapin (*Chrysolepis chrysophylla*), tanoak (*Notholithocarpus densiflorus*), and salal (*Gaultheria shallon*). Herbaceous species are sparse and include bracken fern (*Pteridium aquilinum*), bear grass (*Xerophyllum tenax*), and modesty (*Whipplea modesta*). Bishop pine forest occupies approximately 8.39 acres in the southwestern and south-central portion of the property.

Pygmy Cypress Forest Alliance: Cypress forest is known near the coast from Fort Bragg to Albion in Mendocino County, with true pygmy forest comprised of unique vegetation associations with pygmy/stunted trees growing on old uplifted marine terraces with restrictive acidic podzol-like soils (Blacklock Series), and in scattered stands south into Sonoma County (WRA 2013). Vegetation

Associations (as described by Sawyer et al. 2009) within this Forest Alliance include Pygmy Cypress Forest Association (*Hesperocyparis pygmaea* Association) and Pygmy Cypress/Bolander's Pine Forest Association (*Hesperocyparis pygmaea/Pinus contorta* ssp. *bolanderi* Association). A total of 12.33 acres of Pygmy Cypress Forest Alliance were mapped on the property, made up of the following three morpho-types (classified based on dominant species composition and tree class/size): "cypress forest – tall," "cypress forest – intermediate," and "cypress forest – pygmy," the first of which corresponds with the pygmy cypress Association, and the latter two correspond with the pygmy cypress/Bolander's pine Association. These mapping units/associations were based on species composition and height of individual trees, and may be correlated to soil conditions, with stunted trees (cypress forest - pygmy) located on areas mapped to have a shallow cemented hardpan within the soil. Individual trees were counted in several 50-foot radius vegetation plots, and numbers estimated across the stands (WRA 2013). The three morpho-types are further described below.

Cypress Forest - Tall is dominated by Mendocino/pygmy cypress, with scattered individuals of Bishop pine. Although cypress dominates these areas, the soils do not appear to be limiting the growth of individual trees, and average heights range from 35 to 100 feet. These areas were mapped and classified at plant association level as Mendocino cypress (*H. pygmaea* Association). For the most part, this area lacks presence of Bolander's pine which when in conjunction with pygmy cypress trees, is considered to be the typical species composition of true Mendocino pygmy forest. The dense understory is dominated by tall shrubs including Pacific rhododendron, evergreen huckleberry, and salal. This morpho-type occupies approximately 4.78 acres in the southeastern and northwestern portions of the property. Tree counts within plots in this map unit estimate approximately 776 cypress (subdominant Bishop pine was not counted), and approximately 100 Bolander's pine scattered throughout (calculated to be less than 10% of trees present in this map unit).

Cypress Forest - Intermediate is dominated by Mendocino/pygmy cypress, with subdominants of Bishop pine and Bolander's pine. The average height of trees range from 15 to 35 feet, which could have partially limited growth pattern due to soils and/or soil moisture. The area was mapped and classified by vegetation association to be consistent with Pygmy cypress / Bolander's pine (*H. pygmaea/Pinus contorta* ssp. *bolanderi* Association). The understory is dominated by dense shrubs including hairy manzanita (*Arctostaphylos columbiana*), Pacific rhododendron, evergreen huckleberry, and salal (*Gaultheria shallon*). This morpho-type occupies approximately 4.44 acres in the northern and north-eastern portion of the property. Tree counts within plots in this map unit estimate approximately 336 cypress mostly of intermediate height (Bishop pine was not counted), and approximately 147 Bolander's pine scattered throughout.

Cypress Forest - Pygmy. A habitat unique to several areas along California's north coast, pygmy forest occurs in the western part of Mendocino County. Climatic and soil conditions have created a highly specific plant community with limited growth. In the pygmy forests, soil has been leached of its nutrients, is highly acidic, and is underlain by an iron hardpan. Due to the poor soil conditions, these communities are dominated by dwarf species of plants such as pygmy manzanita, pygmy cypress, Bolander pine, and lichens (WRA 2013). The area is dominated by pygmy cypress and Bolander's pine. The soils are thought to be limiting the growth of trees whose average height ranges from 5 to 15 feet and shrubs are stunted and sparse to absent in density. The understory is composed of short statured shrubs with noticeably greater interstitial space between thickets than in intermediate cypress forest and tall cypress forest areas at the site. Scattered shrub species include Labrador tea (*Rhododendron columbianum*), wax myrtle (*Morella californica*), salal, and

evergreen huckleberry. The herbaceous layer is sparse with bracken fern, bear grass, California sedge (*Carex californica*), and sporadic coast lilies (*Lilium maritimum*). Additionally, cryptogamic crusts formed from reindeer lichens (*Cladonia portentosa*, *Cladina impexa*) are present sporadically in open compacted areas. This morpho-type occupies approximately 3.11 acres in the eastern portion of the property and is analogous with the forested wetland map unit described below. Tree counts within plots in this map unit estimate approximately 598 cypress (stunted/pygmy) trees and approximately 496 Bolander's pine trees scattered throughout the property.

Federal and State Jurisdictional Wetlands and Waters

Palustrine Emergent Wetlands: Seasonal wetlands are known throughout California and are typically located in relatively flat locations underlain by soils with moderate to high clay content and/or substrates with a shallow impermeable layer within the upper profile. An approximately 0.22-acre seasonal palustrine emergent wetland (USACE jurisdictional) is located in the southeast corner of the property (Figure 3.4-1). This wetland is a slight concave depression which contains approximately 25 percent absolute cover of herbaceous species composed of predominantly slough sedge (*Carex obnupta*, OBL) and California sedge (FACW) [CRPR 2]. Trees and shrubs are rooted along the edge of this feature, include Bolander's pine (FAC), pygmy cypress (NL), evergreen huckleberry (FACU), and Labrador tea (OBL). The upper soil profile (0 to 9 inches) is composed of brown (7.5YR 5/8) matrix to dark grayish brown (10YR 4/2) sandy silts and silty clays with brown (7.5YR 5/8) on root channels. The subsurface layer (9 to 14 inches) is composed of very dark brown (10YR 2/2) clay loam with redoximorphic concentrations noted as present. Hydrology indicators include surface soil cracks (B6), a sparsely vegetated concave surface (B8), oxidized rhizospheres (C4), shallow aquitard (D3), and pass on the FAC-neutral test (D5). The boundary of this wetland was delineated based on topography and change in vegetation density.

Forested Wetlands: At the site, the boundary of USACE jurisdictional forested wetlands (USACE 2013) is analogous with the "cypress forest - pygmy" map unit (WRA 2013), and is approximately 3.11 acres. The vegetation is dominated by Bolander's pine (FAC), pygmy cypress (NL), evergreen huckleberry (FACU), and Labrador tea (OBL), wax myrtle (FACW), salal (FACU), and California sedge (FACW). The upper soil profile (0 to 6 inches) is composed of light brownish gray (10YR 6/2) and brown (7.5YR 4/3) sandy clay loam. The subsoil (6 to 8 inches) is composed of yellowish brown (10YR 5/6) sandy clay loam with brown (10YR 5/8) redoximorphic features in the soil matrix. Hydrology indicators include oxidized rhizospheres (C3), water-stained leaves (B9), and a shallow aquitard (D3). The boundary of the forested wetland was delineated based on changes in soils and vegetation type, and the USACE provided a jurisdictional determination concurring with conditions as mapped by WRA (USACE 2013).

Waters of the U.S. and State: Other waters, besides wetlands, subject to USACE jurisdiction under Section 404 of the Clean Water Act include lakes, rivers and streams (including intermittent streams) for non-tidal areas. Non-tidal waters of the U.S. are defined at the ordinary high water mark (OHWM) following the USACE Regulatory Guidance Letter No. 05-05, *Ordinary High Water Mark Identification* (USACE 2005). Because the Regional Water Quality Control Board (RWQCB) does not currently ascribe a specific methodology for delineating Waters of the State, wetlands and non-wetland waters were assessed for this project following USACE guidelines and it is assumed that USACE jurisdictional wetlands are also jurisdictional by the RWQCB (although not exclusive to). The site does not contain non-wetland water features or other Waters of the U.S./State. A 200-foot linear ephemeral swale is located outside of the western edge of the property, and flows

westward and terminates in a Labrador tea thicket. This area is noted herein per inquiry by CDFW, but is outside the property and thus was not mapped.

Riparian and Other Wet Areas: The property was evaluated to locate potential intermittent streams not already designated wetlands or waters of the U.S./State as well as associated riparian habitat following the standard guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code*. The guidance for CDFG Section 1602 jurisdiction is typically understood to include streams and to extend laterally to the top-of-bank (WRA 2013). If riparian vegetation is present within the top-of-bank, then CDFG jurisdiction extends to the outer dripline of such vegetation. Riparian vegetation does not exist on the property.

Special-Status Plant Species

Table 3.4-4 summarizes the potential for occurrence for the special-status plant species that are recorded as occurring in the vicinity of the site. Seven plant species were determined to have a moderate or high potential to occur at the site, and four plant species were identified and mapped at the site. Species descriptions for the special-status plant species identified at the site are presented below. The remaining plant species are unlikely or have no potential to occur due to one or more of the following reasons:

- Hydrologic conditions (e.g. marsh habitat, perennial streams) necessary to support some specific special-status plant(s) are not present at the site;
- Edaphic (soil) conditions (e.g. serpentine, volcanics) necessary to support some special-status plant(s) are not present at the site;
- Topographic positions and landforms (e.g. north-facing, slopes) necessary to support some special-status plant(s) are not present at the site;
- Associated vegetation communities (e.g. chaparral, coastal prairie, dune, bluff) necessary to support some special-status plant(s) are not present at the site;
- The degree of disturbance and/or presence of extensive highly competitive, non-native plant species (e.g. dense non-native annual grassland);
- The site is outside of the known elevation and/or localized distribution of some special-status plant(s) (e.g. coastal, montane).
- Special-status seasonally-appropriate plant surveys were conducted within appropriate time of year to identify species with moderate or high potential to occur at the site, and determined absence or presence of these species.

Table 3.4-4 Potential for Special-Status Plant Species to Occur on the Property

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|--|---------------------|--|---|---|
| PLANTS | | | | |
| pink sand verbena <i>Abronia umbellata</i> var. <i>breviflora</i> | 1B | Coastal dune, coastal strand; located on foredunes and interdunes with low vegetation cover. Elevation range: 0 – 35 feet. Blooms: June – October. | No Potential. The property does not contain coastal dune or coastal strand habitat necessary to support this species. | Not Present. |
| Blasdale’s bent grass <i>Agrostis blasdalei</i> | 1B | Coastal dune, coastal bluff scrub, coastal prairie; located on sandy to gravelly substrate close to rocks of bluff faces; typically located in nutrient poor areas with sparse vegetation cover. Elevation range: 15 – 490 feet. Blooms: May – July. | No Potential. The property does not contain coastal dune, coastal bluff scrub, or coastal prairie habitat necessary to support this species. | Not Present. |
| pygmy manzanita <i>Arctostaphylos nummularia</i> ssp. <i>mendocinensis</i> | 1B | Closed-cone coniferous forest; located acidic, sandy clay substrate in pygmy forest stands. Elevation range: 290 – 600 feet. Blooms: January. | High Potential. The property contains suitable substrate and pygmy forest habitat that may support this species. The nearest documented occurrence is approximately seven miles from the property. | Not Observed. This species was not observed during plant surveys in May and July (species vegetative state would have been visible and identifiable to species level outside of bloom period). |
| Humboldt County milk-vetch <i>Astragalus agnicidus</i> | SE; 1B | Broadleaf upland forest, redwood forest; located in disturbed openings in timber lands, on south-facing aspects, and along ridgelines. Elevation range: 585 – 2600 feet. Blooms: April – September. | No Potential. The property does not contain broadleaf upland forest or redwood forest necessary to support this species. | Not Present. |
| Point Reyes Blennosperma <i>Blennosperma nanum</i> var. <i>robustum</i> | SR; 1B | Coastal prairie, coastal scrub; located on open coastal hills underlain by sandy substrate. Elevation range: 30 – 475 feet. Blooms: February – April. | No Potential. The property does not contain coastal prairie or coastal scrub habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|---|---------------------|--|--|--|
| Thurber's reed grass <i>Calamagrostis crassiglumis</i> | 2 | Coastal scrub, freshwater marsh; typically located in marshy swales surrounded by grasslands or coastal scrub. Elevation range: 30 – 150 feet. Blooms: May – July. | No Potential. The property does not contain coastal scrub or freshwater marsh habitat necessary to support this species. | Not Present. |
| coastal bluff morning glory <i>Calystegia purpurata</i> ssp. <i>saxicola</i> | 1B | Coastal dunes, coastal scrub; located on coastal bluffs. Elevation range: 30 – 330 feet. Blooms: May – September. | No Potential. The property does not contain coastal dune or scrub habitat necessary to support this species. | Not Present. |
| swamp harebell <i>Campanula californica</i> | 1B | Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, freshwater marsh, North Coast coniferous forest; typically located in wetlands within a variety of surrounding habitats. Elevation range: 3 – 1320 feet. Blooms: June – October. | High Potential. The property contains wet areas within closed-cone coniferous forest (Bishop pine forest, pygmy forest) that may support this species. The nearest documented occurrence is less than one mile from the property. | Not Observed. This species was not observed during seasonally-appropriate plant surveys conducted in May and July during species-specific bloom time. |
| California sedge <i>Carex californica</i> | 2B | Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, marshes and swamps; located in drier areas of swamps, bogs, and marsh margins. Elevation range: 290 – 1090 feet. Blooms: May – August. | High Potential. The property contains wetlands within closed-cone coniferous forest (pygmy forest) habitat that may support this species. | Present. Scattered individuals of this species were observed throughout the pygmy forest habitat and a seasonal wetland depression within and adjacent to the property. |
| lagoon sedge <i>Carex lenticularis</i> var. <i>limnophila</i> | 2 | Bogs and fens, marshes and swamps, North Coast coniferous forest; located on lakeshores and beaches. Elevation range: 0 – 20 feet. Blooms: June – August. | Unlikely. Although the property contains North Coast coniferous forest and wetlands, this species is known from coastal dune wetlands and beach pine. | Not Present. |
| livid sedge <i>Carex livida</i> | 1A | Bogs and fens; historically known from sphagnum bogs. Elevation range: unknown. Blooms: June. | No Potential. The property does not contain sphagnum bog habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|---|---------------------|---|--|--|
| Lyngbye's sedge <i>Carex lyngbyei</i> | 2 | Marshes and swamps; brackish to freshwater. Elevation range: 0 – 35 feet. Blooms: April – August. | Unlikely. Although the property contains wetland habitat, marsh habitat is not present necessary to support this species. | Not Present. |
| deceiving sedge <i>Carex saliniformis</i> | 1B | Coastal prairie, coastal scrub, meadows and seeps, coastal salt marshes and swamps; located in mesic sites. Elevation range: 10 – 750 feet. Blooms: June – July. | No Potential. The property does not contain coastal prairie, coastal scrub, meadow, or coastal salt marsh habitat necessary to support this species. | Not Present. |
| green yellow sedge <i>Carex viridula</i> var. <i>viridula</i> | 2 | Bogs and fens, freshwater marshes and swamps, North Coast coniferous forest; located in mesic sites. Elevation range: 0 – 5200 feet. Blooms: June – November. | Moderate Potential. The property contains coniferous forest (Bishop pine forest) with wetland sites that may support this species; however, this species is closely associated with Douglas fir-coast redwood forest habitat not present. | Not Observed. This species was not observed during seasonally-appropriate plant surveys conducted in May and July during species-specific bloom time. |
| Humboldt Bay owl's-clover <i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i> | 1B | Coastal salt marsh; located in marshes associated with salt grass, cordgrass, pickleweed, and jaumea. Elevation range: 0 – 10 feet. Blooms: April – August. | No Potential. The property does not contain coastal salt marsh habitat necessary to support this species. | Not Present. |
| Oregon coast paintbrush <i>Castilleja litoralis</i> | 2 | Coastal bluff scrub, coastal dune, coastal scrub; located on sandy substrate. Elevation range: 45 – 325 feet. Blooms: June. | Unlikely. The property does not contain coastal bluff scrub, coastal dune, or coastal scrub habitat necessary to support this species. The plant surveys did not note presence of this species on property. | Not Observed. |
| Mendocino Coast paintbrush <i>Castilleja mendocinensis</i> | 1B | Coastal bluff scrub, coastal scrub, coastal prairie, closed-cone coniferous forest, coastal dune; typically located on open sea bluffs and cliffs. Elevation range: 0 – 520 feet. Blooms: April – August. | No Potential. The property does not contain coastal scrub, coastal prairie, or coastal closed-cone coniferous forest (beach pine forest) habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|--|---------------------|---|--|----------------------|
| Howell's spineflower <i>Chorizanthe howellii</i> | FE; ST; 1B | Coastal dunes, coastal prairie, coastal scrub; located on sand dunes, sandy slopes, and sandy areas in coastal prairie. Elevation range: 0 – 115 feet. Blooms: May – July. | No Potential. The property does not contain coastal dune, coastal prairie, or coastal scrub habitat necessary to support this species. | Not Present. |
| Whitney's farewell-to-spring <i>Clarkia amoena</i> ssp. <i>whitneyi</i> | 1B | Coastal bluff scrub, coastal scrub. Elevation range: 30 – 325 feet. Blooms: June – August. | No Potential. The property does not contain coastal scrub habitat necessary to support this species. | Not Present. |
| round-headed Chinese houses <i>Collinsia corymbosa</i> | 1B | Coastal dunes, coastal prairie. Elevation range: 0 – 65 feet. Blooms: April – June. | No Potential. The property does not contain coastal dune habitat necessary to support this species. | Not Present. |
| Oregon goldthread <i>Coptis laciniata</i> | 2 | North Coast coniferous forest, meadows and seeps; located in mesic sites, roadsides, and streamsides. Elevation range: 0 – 3250 feet. Blooms: March – April. | Unlikely. The property contains North Coast coniferous forest, yet this species is closely associated with mesic sites (e.g. streambanks) in coast redwood-Douglas fir habitat. | Not Present. |
| bunchberry <i>Cornus canadensis</i> | 2B.2 | North coast coniferous forest, bogs and fens, meadows and seeps in a broad range of stand types and soil/site conditions. Elevation range: 200 – 6,000 feet. Blooms: May - July | Unlikely. The property contains coniferous forest that may support this species yet plant surveys conducted in May and July did not document presence of this species. | Not Observed. |
| Mendocino dodder <i>Cuscuta pacifica</i> var. <i>papillata</i> | 1B | Coastal dunes; located in interdune depressions; likely hosts on lupines, catchflies, and cudweeds. Elevation range: 0 – 165 feet. Blooms: July – October | No Potential. The property does not contain coastal dune habitat necessary to support this species. | Not Present. |
| supple daisy <i>Erigeron supplex</i> | 1B | Coastal bluff scrub, coastal prairie; typically located in grassy sites along the coastline. Elevation range: 30 – 165 feet. Blooms: May – July | No Potential. The property does not contain coastal scrub or coastal prairie habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|--|---------------------|---|--|----------------------|
| bluff wallflower <i>Erysimum concinnum</i> | 1B.2 | Coastal dunes, coastal bluff scrub, coastal prairie. Elevation range: 0 – 600 feet. Blooms: March - May | Unlikely. Preferred coastal habitat is not present at the site. The plant surveys did not note presence of this species on property. | Not Observed. |
| Menzies' wallflower <i>Erysimum menziesii</i> ssp. <i>menziesii</i> | FE; SE; 1B | Coastal dune; located on stabilized and shifting dunes and coastal strand. Elevation range: 0 – 115 feet. Blooms: March – June. | No Potential. The property does not contain coastal dune habitat necessary to support this species. | Not Present. |
| Roderick's fritillary <i>Fritillaria roderickii</i> | SE; 1B | Coastal bluff scrub, coastal prairie, valley and foothill grassland; located on grassy slopes, mesas, and terraces. Elevation range: 45 – 1300 feet. Blooms: March – May. | No Potential. The property does not contain coastal bluff scrub, coastal prairie, or coastal grassland habitat necessary to support this species. | Not Present. |
| Pacific gilia <i>Gilia capitata</i> ssp. <i>pacifica</i> | 1B | Coastal bluff scrub, coastal prairie, valley and foothill grassland. Elevation range: 15 – 3090 feet. Blooms: April – August. | No Potential. The property does not contain coastal bluff scrub, coastal prairie, or grassland habitat necessary to support this species. | Not Present. |
| dark-eyed gilia <i>Gilia millefoliata</i> | 1B | Coastal dune. Elevation range: 5 – 100 feet. Blooms: April – July. | No Potential. The property does not contain coastal dune habitat necessary to support this species. | Not Present. |
| white seaside tarplant <i>Hemizonia congesta</i> ssp. <i>congesta</i> | 1B | Coastal scrub, valley and foothill grassland; located in grassy valleys and hills, often fallow fields. Elevation range: 65 – 1820 feet. Blooms: April – November. | No Potential. The property does not contain coastal scrub or grassland habitat necessary to support this species. | Not Present. |
| short-leaved evax <i>Hesper-evax sparsiflora</i> var. <i>brevifolia</i> | 1B | Coastal bluff scrub, coastal dune; located on sandy bluffs and flats near the immediate coastline. Elevation range: 0 – 700 feet. Blooms: March – June. | No Potential. The property does not contain coastal bluff scrub or coastal dune habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|--|---------------------|---|--|--|
| pygmy cypress <i>Hesperocyparis pygmaea</i> | 1B | Closed-cone coniferous forest; located on podzol-like soils (Blacklock series). Elevation range: 100 – 1950 feet. | High Potential. The property contains Blacklock series soils and closed-cone coniferous forest. | Present. Extensive stands of this species are located throughout the property, particularly as a stand-forming in the pygmy forest habitat. |
| Point Reyes horkelia <i>Horkelia marinensis</i> | 1B | Coastal dunes, coastal prairie, coastal scrub; located on sandy flats and dunes near the coast; in open grassy sites within scrub. Elevation range: 15 – 1140 feet. Blooms: May – September. | No Potential. The property does not contain coastal dune, coastal prairie, or coastal scrub habitat necessary to support this species. | Not Present. |
| hair-leaved rush <i>Juncus supiniformis</i> | 2 | Marshes and swamps, bogs and fens; located in sites near the coast. Elevation range: 65 – 325 feet. Blooms: April – June. | Unlikely. Although the property contains wetland habitat, this species is known primarily from sphagnum bog habitat not present in the property. | Not Present. |
| Baker's goldfields <i>Lasthenia californica</i> ssp. <i>bakeri</i> | 1B | Closed-cone coniferous forest, coastal scrub; located in openings in scrub and coastal forest habitat. Elevation range: 195 – 1690 feet. Blooms: April – October. | No Potential. The property does not contain coastal scrub or beach pine forest necessary to support this species. | Not Present. |
| perennial goldfields <i>Lasthenia californica</i> ssp. <i>macrantha</i> | 1B | Coastal bluff scrub, coastal dune, coastal scrub. Elevation range: 15 – 1690 feet. Blooms: January – November. | No Potential. The property does not contain coastal bluff scrub, coastal dune, or coastal scrub habitat necessary to support this species. | Not Present. |
| coast lily <i>Lilium maritimum</i> | 1B | Closed-cone coniferous forest, coastal prairie, coastal scrub, broadleaf upland forest, North Coast coniferous forest; typically located on sandy soils, often in raised hummocks or bogs, and roadside ditches. Elevation range: 15 – 1545 feet. Blooms: May – August. | High Potential. The property contains closed-cone coniferous forest and closed-cone coniferous forest (Bishop pine forest, pygmy forest) that may support this species. | Present. One concentrated and a second dispersed population of this species is located within or adjacent to the property, as mapped during seasonally-appropriate plant surveys conducted in May and July. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|--|---------------------|--|---|--|
| northern microseris <i>Microseris borealis</i> | 2 | Bogs and fens, meadows and seeps, lower montane coniferous forest. Elevation range: 3250 – 6500 feet. Blooms: June – September. | No Potential. The property does not contain bog, fen, meadow, seep, or lower montane coniferous forest habitat necessary to support this species. | Not Present. |
| Wolf's evening-primrose <i>Oenothera wolfii</i> | 1B | Coastal bluff scrub, coastal dune, coastal prairie, lower montane coniferous forest; located on sandy substrates in mesic sites. Elevation range: 10 – 2600 feet. Blooms: May – October. | Unlikely. Although the property contains coniferous forest, this species is most closely associated with open grassy sites (prairie, scrub) on the coast. | Not Present. |
| seacoast ragwort <i>Packera bolanderi</i> var. <i>bolanderi</i> | 2 | Coastal scrub, North Coast coniferous forest. Elevation range: 100 – 2115 feet. Blooms: January – July. | Unlikely. The property contains North Coast coniferous forest, yet this species is associated with coast redwood-Douglas fir forest not present on the study property. | Not Present. |
| North Coast phacelia <i>Phacelia insularis</i> var. <i>continentis</i> | 1B | Coastal bluff scrub, coastal dune; located on open maritime bluffs underlain by sandy substrate. Elevation range: 30 – 555 feet. Blooms: March – May. | No Potential. The property does not contain coastal bluff scrub or coastal dune habitat necessary to support this species. | Not Present. |
| Bolander's pine <i>Pinus contorta</i> ssp. <i>bolanderi</i> | 1B | Closed-cone coniferous forest; located on podzol-like soils (Blacklock series), closely associated with Bishop pine and pygmy cypress. Elevation range: 240 – 815 feet. | High Potential. The property contains Blacklock series soils and closed-cone coniferous forest. | Present. Extensive stands of this species are located throughout the property, particularly as stand-forming in the pygmy forest habitat. |
| dwarf alkali grass <i>Puccinellia pumila</i> | 2 | Meadows and seeps, marshes and swamps; located in mineral spring meadows and coastal salt marshes. Elevation range: 1 – 35 feet. Blooms: July. | No Potential. The property does not contain mineral springs, meadow, seep, or marsh habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|--|---------------------|---|---|---|
| angel's hair lichen <i>Ramalina thrausta</i> | 2B.1 | Grows on trees in forested moist areas. | Unlikely. The property contains coniferous forest (Bishop pine forest), yet the species is not known from near the site. | Not Observed. This species was not observed by GHD project biologists per site visit May 7, 2014.. |
| white beaked-rush <i>Rhynchospora alba</i> | 2 | Bogs and fens, meadows and seeps, marshes and swamps; located in freshwater perennial wetlands and sphagnum bogs. Elevation range: 195 – 6630 feet. Blooms: July – August. | No Potential. The property does not contain sphagnum bog or perennial marsh wetland habitat necessary to support this species. | Not Present. |
| great burnet <i>Sanguisorba officinalis</i> | 2 | Bogs and fens, meadows and seeps, broadleaf upland forest, marshes and swamps, North Coast coniferous forest, riparian forest; located on rocky serpentine seeps and streams. Elevation range: 195 – 4550 feet. Blooms: July – October. | No Potential. The property does not contain serpentine substrate necessary to support this species. | Not Present. |
| purple-stemmed checkerbloom <i>Sidalcea malviflora</i> ssp. <i>purpurea</i> | 1B | Broadleaf upland forest, coastal scrub. Elevation range: 45 – 280 feet. Blooms: May – June. | No Potential. The property does not contain coastal prairie or broadleaf upland forest habitat necessary to support this species. | Not Present. |
| Monterey clover <i>Trifolium trichocalyx</i> | FE; SE; 1B | Closed-cone coniferous forest; located on poorly drained, nutrient-deficient soils with a hardpan; often in openings and burned areas. Elevation range: 95 – 780 feet. Blooms: April – June. | Unlikely. This species is most closely associated with Monterey pine forests of the Central Coast, with one occurrence from coast redwood-Douglas fir forest of the North Coast. | Not Present. |
| coastal triquetrella <i>Triquetrella californica</i> | 1B | Coastal bluff scrub, coastal scrub, valley and foothill grassland; grows within 100 feet of the coastline in scrub and grasslands on open gravel substrates of roads, hillsides, bluffs, and slopes. Elevation range: 30 – 325 feet. | No Potential. The property does not contain coastal bluff scrub, coastal scrub, or grassland habitat necessary to support this species. | Not Present. |

| Species | Status ¹ | Habitat Requirements | Potential to Occur On-site | Results |
|---|---------------------|--|--|---------------------|
| alpine marsh violet <i>Viola palustris</i> | 2 | Coastal scrub, bogs and fens; located in swampy and shrubby places in coastal scrub or bog habitat. Elevation range: 0 – 490 feet. Blooms: March – August. | No Potential. The property does not contain coastal scrub or coastal bog habitat necessary to support this species. | Not Present. |

1) Key to status codes:

- FE Federal Endangered
- FT Federal Threatened
- FC Federal Candidate
- FD Federal De-listed
- BCC USFWS Birds of Conservation Concern
- SE State Endangered
- SD State Delisted
- ST State Threatened
- SR State Rare
- SSC CDFG Species of Special Concern
- CFP CDFG Fully Protected Animal
- 1A CRPR List 1A: Plants presumed extinct in California
- 1B CRPR List 1B: Plants rare, threatened or endangered in California and elsewhere
- 2 CRPR List 2: Plants rare, threatened, or endangered in California, but more common elsewhere
- 3 CRPR List 3: Plants about which more information is needed (a review list)
- 4 CRPR List 4: Plants of limited distribution (a watch list)

Potential to Occur:

- No Potential Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Results: (WRA 2013; see Appendix D)

Present. Species was observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

Not Present. Species is assumed to not be present due to a lack of key habitat components.

Not Observed. Species was not observed during surveys.

Source: Table compiled from the California Department of Fish and Wildlife (CDFW) Natural Diversity Database, U.S. Fish and Wildlife Service (USFWS) Species Lists, and California Native Plant Society (CNPS) Electronic Inventory searches of the Fort Bragg, Inglenook, Dutchmans Knoll, Noyo Hill, Mathison Peak, and Mendocino USGS 7.5 Minute Quadrangles (CDFW 2014a; CNPS 2014; USFWS 2014).

The seven plant species with a moderate to high potential to occur at the site are described below. Species accounts and distribution at the site, if present, are described below. Four species were observed at the site during the protocol-level survey in March, May, and/or July, 2012, and the results of the survey are presented in Table 3.4-5).

Table 3.4-5 Special-Status Plant Species Mapped on the Property

| Species | CRPR Status | Property (acres) | Plant Estimate (#) |
|-------------------|-------------|------------------|--------------------|
| Mendocino cypress | List 1B | 12.33* | 2,038 |
| Bolander's pine | List 1B | | 790 |
| Coast lily | List 1B | 0.06 | 114 |
| California sedge | List 2B | 0.09 | 894 |

Source: WRA 2013

*12.33 acres consists of the three morpho-types of cypress forest mapped at the site—a) cypress forest (tall) that is dominated by cypress, b) cypress forest (intermediate) and cypress forest (pygmy) the later two of which are dominated by combination of both cypress and Bolander's pine.

Mendocino manzanita (*Arctostaphylos nummularia* var. *mendocinensis*). CRPR 1B. High Potential (Not Present). Mendocino manzanita is an evergreen shrub in the heath family (Ericaceae) that blooms in January, but is identifiable by vegetation and ecological characteristics throughout the year. This species is located on highly acidic sandy clay podzol-like substrates (Blacklock soil series) in closed-cone coniferous forest (pygmy forest) at elevations ranging from 290 to 650 feet (CNPS 2014, CDFG 2014a). Associated species include pygmy cypress, Bolander pine, Bishop pine, evergreen huckleberry, Pacific rhododendron, Labrador tea (*R. columbianum*), California wax myrtle, and giant chinquapin.

There is one CNDDDB record for Mendocino manzanita in the greater vicinity of the property. The nearest documented occurrence is from March 1956 east of Fort Bragg, within one mile of the property. The most recent documented occurrence is from December 2003 in Jughandle State Park, approximately four miles southwest of the property (WRA 2013). Mendocino manzanita was determined to have a high potential to occur at the site due to the presence of suitable habitat, associated species, and Blacklock soils; however, this species was not observed during the protocol-level surveys performed in March, May, or July 2012.

Swamp harebell (*Campanula californica*). CRPR 1B. High Potential (Not Present). Swamp harebell is a perennial forb in the harebell family (Campanulaceae) that blooms June to October. It typically occurs in wetlands on acidic soils in bog and fen, closed-cone coniferous forest, coastal prairie, meadow, freshwater marsh, and North Coast coniferous forest habitat at elevations ranging from 3 to 1,320 feet (CNPS 2014, WRA 2013). Associated species include pygmy cypress, Bolander pine, Bishop pine, red alder (*Alnus rubra*), coast redwood, Douglas fir (*Pseudotsuga menziesii*), Pacific reedgrass (*Calamagrostis nutkaensis*), lady fern (*Athyrium filix-femina*), California blackberry (*Rubus ursinus*), salmonberry (*R. spectabilis*), Labrador tea, Nootka rose (*Rosa nutkana*), evergreen huckleberry, tinker's penny (*Hypericum anagalloides*), sedges (*Carex* spp.), rushes (*Juncus* spp.), and horsetail (*Equisetum* spp.) (WRA 2013).

Swamp harebell is known from 26 USGS 7.5-minute quadrangles in Marin, Mendocino, Santa Cruz, and Sonoma counties (CNPS 2014). There are 27 CNDDDB records (WRA 2013) in the greater vicinity of the property. The nearest documented occurrence is from August 1983 along Summers Lane, approximately one mile northwest of the property (WRA 2013). The most recent documented

occurrence from Mendocino County is from July 2007 in Little Valley Creek Basin, approximately six miles north of the property (WRA 2013). Swamp harebell was determined to have a high potential to occur at the site due to the presence of associated species, suitable habitat, suitable hydrologic and edaphic conditions, and the relative location of the documented occurrences. However, this species was not observed during the protocol-level rare plant survey conducted in July 2012 (blooms June through October).

California sedge (*Carex californica*). CRPR 2B. High Potential (Present). California sedge is a perennial graminoid in the sedge family (Cyperaceae) that blooms May to August. It typically occurs in drier portions of wetlands in bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, and marshes and swamps at elevations ranging from 290 to 1090 feet (CNPS 2014, WRA 2013). Associated species pygmy cypress, Bolander's pine, evergreen huckleberry, Pacific rhododendron, Labrador tea, salal, glossy-leaf manzanita (*Arctostaphylos nummularia*), coast lily, bracken fern, and coast sedge (WRA 2013).

There are 21 CNDDDB records for California sedge within the greater vicinity of the property. The nearest and most recent documented occurrence is from June 2010 along Summers Lane, approximately one mile northwest of the property (WRA 2013). California sedge was determined to have a high potential to occur on the property due to suitable substrate and hydrologic conditions, associated habitats and species, and the relative location of nearest documented occurrences. California sedge individuals were observed on the property with the densest populations located in transitional cypress forest and pygmy forest. Individuals within the transitional and pygmy forest community were estimated based on vegetation plot data, with a total estimate of 644 individuals. Populations within the tall cypress forest and seasonal wetland communities were discrete, and 250 individuals were counted and mapped (see Figure 3.4-1). Therefore, an estimated total of 894 individuals are estimated to be present on the property.

Green yellow sedge (*Carex viridula* var. *viridula*). CRPR 2. Moderate Potential (Not Present). Green yellow sedge is a perennial graminoid in the sedge family (Cyperaceae) that blooms from June to November. It typically occurs in mesic sites within bog and fen, freshwater marsh and swamp, and North Coast coniferous forest habitat at elevations ranging from 0 to 5,200 feet (CNPS 2014). Observed associated species include Buxbaum's sedge (*Carex buxbaumii*), flaccid sedge (*C. leptalea*), northern bugleweed (*Lycopus uniflorus*), and marsh pea (*Lathyrus palustris*) (WRA 2013).

Green yellow sedge is known from eight USGS 7.5-minute quadrangles in Del Norte, Humboldt, Mendocino, and Tuolumne counties (CNPS 2014). There is one CNDDDB record within the greater vicinity of the property. The nearest and most recent documented occurrence from Mendocino County is undated located in Inglenook Fen, MacKerricher State Park, approximately seven miles north of the property (WRA 2013). Green yellow sedge was determined to have a moderate potential to occur on the property due to the presence of associated habitats; yet few areas at the property contain hydrology sufficient to support this species. Green yellow sedge was not observed during protocol-level rare plant surveys conducted in July 2012 (blooms June through November).

Pygmy cypress (*Hesperocyparis pygmaea*). CRPR 1B. High Potential (Present). Pygmy cypress is an evergreen tree in the cypress family (Cupressaceae) which is identifiable throughout the year. It typically is stand forming on podzol-like soils (e.g. Blacklock soil series) within closed-cone coniferous forest at elevations ranging from 100 to 1,950 feet (CNPS 2014, CDFG 2014a). Observed associated species include Bishop pine, Bolander's pine (*P. contorta* ssp. *bolanderi*), coast redwood, evergreen huckleberry, Labrador tea, Pacific rhododendron, redwood manzanita

(*Arctostaphylos columbianum*), Eastwood manzanita (*A. glandulosa*), glossy-leaf manzanita (*A. nummularia*), salal, coast lily, bracken fern (*Pteridium aquilinum*), and bear grass (CDFG 2014a).

Pygmy cypress is known from 12 USGS 7.5-minute quadrangles in Mendocino and Sonoma counties (WRA 2013). There are 22 CNDDDB records within the greater vicinity of the property, and 81 other records from Mendocino County (WRA 2013). The nearest documented occurrence is along Summers Lane, approximately one mile northwest of the property. The most recent documented occurrence is from Mendocino County near Noyo Hill in Jackson Demonstration State Forest, approximately 1.5 miles south of the property. Pygmy cypress was determined to have a high potential to occur at the property due to the presence of suitable soil, associated species, and the relative location of the nearest documented occurrences. Several hundred individuals of pygmy cypress were observed within three morpho-types mapped and classified at the property: cypress forest-tall, cypress forest-intermediate, and cypress forest-pygmy, based on tree height, sub dominant/associated tree species, and understory density and species (see Figure 4.3-1). Within the three morpho type polygons, approximately 2,038 individuals were estimated within the property based on vegetation plot data (WRA 2013).

Coast lily (*Lilium maritimum*). CRPR 1B. High Potential (Present). Coast lily is a rhizomatous perennial forb in the lily family (Fabaceae) that blooms from May to August. It typically occurs in wetlands on sandy substrates in hummocks, roadsides, ditches, and undisturbed areas in closed-cone coniferous forest, North Coast coniferous forest, broadleaf upland forest, coastal prairie, coastal scrub, and freshwater marsh and swamp habitat at elevations ranging from 15 to 1,545 feet (CNPS 2014, CDFG 2014a). Observed associated species include Douglas fir, coast redwood, Bishop pine, Bolander's pine (*P. contorta* ssp. *bolanderi*), tanoak, giant chinquapin, wax myrtle, evergreen huckleberry, evergreen violet (*Viola sempervirens*), bracken fern, and deer fern (*Blechnum spicant*).

Coast lily is known from 19 USGS 7.5-minute quadrangles in Marin, Mendocino, San Francisco, San Mateo, and Sonoma counties. There are 23 CNDDDB records within the greater vicinity of the property, and 59 other records from Mendocino County. The nearest documented occurrence is from July 1974 along California Highway 20 immediately adjacent to the property. The most recent documented occurrence from Mendocino County is from June 2007 at the Glass Beach Headlands, approximately four miles northwest of the property (WRA 2013). Coast lily has a high potential to occur in the property due to the presence of the associated habitat, suitable substrate and hydrology, associated species, and the relative locations of documented occurrences. Two sub-populations of coast lily were observed and mapped within the property (see Figure 4.3-1). The first population is located near Highway 20 in the southwest corner of the property within Bishop pine forest; approximately 104 individuals were documented. The second population is composed of five individuals and is located within pygmy cypress forest in the eastern portion of the property. Most individuals were in bud or flower when observed during protocol-level surveys in May and/or July 2012 (blooms: May through August).

Bolander's pine (*Pinus contorta* ssp. *bolanderi*). CRPR 1B. High Potential (Present). Bolander's pine is an evergreen tree in the pine family (Pinaceae) that is identifiable throughout the year based on vegetative structures and cones. It typically occurs on podzol-like soils in closed-cone coniferous forest habitat at elevations ranging from 240 to 815 feet (CNPS 2014, CDFW 2014a). Observed associated species include pygmy cypress, Bishop pine, Labrador tea (*Rhododendron columbianum*), Pacific rhododendron, wax myrtle, evergreen huckleberry, giant chinquapin, California sedge, bracken fern, coast lily, and bear grass (WRA 2013).

Bolander's pine is known from six USGS 7.5-minute quadrangles in Mendocino County (CNPS 2014). There are 23 CNDDDB records in the greater vicinity of the property, and 45 other records from Mendocino County. The nearest documented occurrence is along Summers Lane, approximately one mile northwest of the property. The most recent documented occurrence from Mendocino County is from October 2002 in Van Damme State Park, approximately ten miles south of the property (WRA 2013). Bolander's pine was determined to have a high potential to occur at the property due to the presence of associated species, suitable substrate, and the relative location of the nearest documented occurrences. Several hundred individuals of Bolander's pine were observed on the property, with the densest stands located in conjunction with cypress trees. Approximately 790 individuals were estimated on the property based on vegetation plot data (WRA 2013).

Special-Status Wildlife Species

Table 3.4-6 summarizes the special-status wildlife species recorded with presence in the greater vicinity of the property, and evaluates the potential for each of the species to occur on the property. No special-status wildlife species were observed on the property during the site assessment. Nine special-status wildlife species have a moderate to high potential to occur at the property. For the remaining species, the property either lacks potentially suitable habitat or the site may contain potential habitat, but the habitat is disturbed to the extent that the occurrence of special-status species is unlikely. Special-status wildlife species with a moderate to high potential to occur on the property are discussed below.

Table 3.4-6 Potential for Special-Status Wildlife Species to Occur in the Property

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|---|-------------------|--|--|
| Mammals | | | |
| <i>Antrozous pallidus</i> pallid bat | SSC | Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites. | Unlikely. Suitable roosting sites are not present on the study property, although this species may occasionally forage over the area. |
| <i>Aplodontia rufa nigra</i> Point Arena mountain beaver | FE, SSC | Live in underground burrow systems with openings under vegetation, often on steep north-facing slopes or in gullies. The burrows are found in moist areas with well-drained soil. | No potential. The property is outside of known range of this species. |
| <i>Arborimus pomo</i> Sonoma tree vole | SSC | Occurs in old-growth and other forests, mainly Douglas-fir, redwood, and montane hardwood-conifer habitats. Feeds only on conifer leaves, almost exclusively on Douglas-fir. | High Potential. Suitable habitat is present on the property, and it is within the known range of this species. |
| <i>Corynorhinus townsendii townsendii</i> Townsend's big-eared bat | SSC, WBWG High | Primarily found in rural settings in a wide variety of habitats including oak woodlands and mixed coniferous-deciduous forest. Day roosts highly associated with caves and mines. | Unlikely. Suitable roosting sites are not present, although this species may occasionally forage over the property. |
| <i>Eumetopias jubatus</i> steller [northern] sea lion | FT | Breeds on Año Nuevo, San Miguel and Farallon islands, Point Saint George, and Sugarloaf. Hauls-out on islands and rocks. Needs haul-out and breeding sites with unrestricted access to water, near aquatic food supply. | No potential. The study property does not contain coastal or marine habitat. |
| <i>Lasionycteris noctivagans</i> silver-haired bat | WBWG Med Priority | This forest inhabitant is known to occur from southeastern Alaska in summer, to northeastern Mexico in winter and in xeric habitats at low elevations during seasonal migrations. They can roost in tree cavities or in bark crevices on tree trunks, especially during migration. | Moderate potential. Mature trees and snags that support cavities or exfoliating bark may provide roosting habitat onsite. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|--|--------------------------|--|---|
| <i>Lasiurus cinereus</i> hoary bat | WBWG Med Priority | Widespread occurring in all states except Alaska and south Florida. Most migrate to South America for the winter, although some stay and hibernate. Roost in the foliage of trees, and occasionally in caves, or manmade structures such as bridges and abandoned mines. It prefers woodland, mainly coniferous forests, and hunts over open areas or lakes. Mating occurs during the fall when migrating south. Young are born between May and July. Their diet consists mainly of moths. | Moderate potential. Mature trees with canopy or trees that support cavities or exfoliating bark may provide roosting habitat. |
| <i>Martes pennanti pacifica</i> Pacific fisher | FC, SSC | Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Use cavities, snags, logs and rocky areas for cover and denning. Need large areas of mature, dense forest. | Unlikely. Although the study property contains suitable habitat elements, it is not within the known current range of the species. |
| <i>Myotis lucifugus</i> little brown bat | WBWG Med Priority | Found across the US. Roosts in buildings, trees, and under rocks. Prefer forested land near water. | Moderate potential. Mature trees and snags that support cavities or exfoliating bark may provide roosting habitat if present onsite. |
| <i>Myotis thysanodes</i> fringed myotis | WBWG High Priority | Associated with a wide variety of habitats including mixed coniferous-deciduous forest and redwood/sequoia groves. Buildings, mines and large snags are important day and night roosts. | Moderate potential. Mature trees and snags that support cavities or exfoliating bark may provide roosting habitat. This species may occasionally forage over the property. |
| <i>Myotis Volans</i> long-legged myotis | WBWG High Priority | Generally associated with woodlands and forested habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings. | Unlikely. Suitable roosting sites are not present, although this species may occasionally forage over the property (WRA 2013). |
| <i>Phoca vitulina richardsi</i> Pacific harbor seal | MMPA | Occurs in marine and estuarine environments the length of California. Breeds on islands; hauls out on mainland sites. | No potential. The study property does not contain coastal or marine habitat. |
| <i>Zalophus californianus</i> California sea lion | MMPA | Occurs in marine and estuarine environments from Vancouver Island, British Columbia to the southern tip of Baja California. Breeds on offshore islands from the Channel Islands southward. Hauls out on mainland sites. | No potential. The property does not contain coastal or marine habitat. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|--|------------|---|--|
| Birds | | | |
| <i>Accipiter gentilis</i> northern goshawk | SC, SSC | Year-round resident within and on the edges of mixed and coniferous forests. Usually occurs in mature, old-growth forests. Hunts medium-sized birds. | Unlikely. The property is located to the west of this species' Mendocino County distribution as per a recent monograph (as referenced by WRA 2013). |
| <i>Agelaius tricolor</i> tricolored blackbird | SSC | Resident, though wanders during the non-breeding season. Highly colonial when breeding. Usually nests over or near freshwater in dense cattails, tule, or thickets of willow, blackberry, wild rose or other tall herbs. | No Potential. The property does not contain any typical nesting habitat, and is located outside of this species' limited breeding distribution in Mendocino County per a recent monograph (per WRA 2013). |
| <i>Aquila chrysaetos</i> golden eagle | CFP | Found in rolling foothill and mountain areas, sage-juniper flats, and dessert. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large, often isolated trees. | Unlikely. The property contains dense, coniferous forest canopy not suitable for foraging. May rarely occur in the vicinity during dispersal or other movements. |
| <i>Asio flammeus</i> short-eared owl | SSC | Resident and winter visitor. Found in open, treeless areas (e.g. marshes, grasslands) with elevated sites for foraging perches and dense vegetation for roosting and nesting. | No Potential. The property does not contain suitable open habitat, and species is not known to breed in Mendocino County per a recent monograph (WRA 2013). |
| <i>Asio otus</i> long-eared owl | SSC | Largely resident. Nests in a variety of woodland habitats, including coniferous, oak and riparian. Requires adjacent open land (e.g. grasslands, meadows) for foraging, and the presence of old nests of other birds for nesting. | Unlikely. The property is forested, and there is very limited open habitat in the vicinity. |
| <i>Athene cunicularia</i> burrowing owl | SSC | Occurs in open grasslands and shrublands with sparse vegetation. Roosts and nests in mammal burrows, typically those of ground squirrels. Preys upon insects and small vertebrates. | No Potential. The property contains no habitat suitable for this species, and is outside of its range per a recent monograph in Shuford and Gardali (2008). |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|--|---------|---|---|
| <i>Brachyramphus marmoratus</i> marbled murrelet | FT, SE | Occurs in coastal marine habitats for much of the year. Breeds in old-growth conifer stands (e.g. redwood, Douglas fir) containing platform-like branches, along the coast. | Unlikely. The property lacks stands of old-growth redwood and Douglas fir that provide breeding habitat. There are not CNDDDB breeding occurrences reported within ten miles of the property (WRA 2013). Species may fly over the area if inland breeding sites exist. |
| <i>Buteo regalis</i> ferruginous hawk | BCC | Winter visitor. Found in open habitats including grasslands, sagebrush flats, desert scrub and low foothills surrounding valleys. | No Potential. The property does not contain habitat typical of this species. |
| <i>Chaetura vauxi</i> Vaux's swift | SSC | Summer resident, primarily in forested areas. Nests in tree cavities, favoring those with a large vertical extent. Also uses chimneys and similar manmade substrates. | Moderate Potential. This species breeds throughout Mendocino County according to a recent monograph (WRA 2013). |
| <i>Charadrius alexandrinus nivosus</i> western snowy plover | FT, SSC | Resident and winter visitor. Found on sandy beaches, salt pond levees and shores of large alkali lakes. Need sandy gravelly or friable soils for nesting. | No Potential. The property does not contain beach, levee, or lake shore habitat necessary to support this species. |
| <i>Circus cyaneus</i> northern harrier | SSC | Resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests in dense vegetation on the ground, typically near water. | Unlikely. Although this species breeds in coastal Mendocino County (WRA 2013), the property is forested and does not contain suitable open habitat. |
| <i>Contopus cooperi</i> olive-sided flycatcher | SSC | Summer resident. Breeds in montane coniferous forests, as well as mixed forests along the coast. Often associated with edge habitats. | Moderate Potential. The property contains coniferous forest, with some edge areas. |
| <i>Dendroica petechial</i> yellow warbler | SSC | Summer resident. Nests in riparian stands of willows, cottonwoods, aspens, sycamores, and alders. Also nests in montane shrubbery in open coniferous forests. Occurs widely during migration. | Unlikely. The property does not contain any riparian habitat and provides no breeding habitat for this species. May occur occasionally during migration. |
| <i>Diomedea albatrus</i> short-tailed albatross | FE, SSC | Pelagic; comes to land only when nesting. Nests on remote Pacific islands. Rare in the eastern Pacific. | No potential. This species is entirely marine within the coastal California region. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|---|------------------------|---|---|
| <i>Elanus leucurus</i> white-tailed kite | CFP | Resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Preys on small diurnal mammals and other vertebrates. | No Potential. The property does not contain open grassland, prairie, or marsh habitat necessary to support this species. |
| <i>Falco peregrinus anatum</i> American peregrine falcon | FD, SE, CFP | Resident and winter visitor. Typically found near water, including rivers, lakes, wetlands and the ocean. Requires protected cliffs, ledges or anthropogenic structures for nesting. Forages widely, feeding on a variety of avian prey, mostly waterbirds. | Unlikely. The property does not contain cliffs or anthropogenic structures typically used for nesting. May occasionally forage over the site. |
| <i>Fratercula cirrhata</i> tufted puffin | SSC | Pelagic and coastal marine. Nests along islands, islets, or (rarely) isolated mainland cliffs. Requires sod or earth to burrow. Forages at sea, primarily for fish. | No potential. The property does not contain coastal marine habitat. |
| <i>Gavia immer</i> common loon | SSC | Winter visitor, in coastal estuarine and subtidal marine habitats. Also occurs on large inland water bodies. | No potential. The property does not contain suitable aquatic habitat for this species. |
| <i>Haliaeetus leucocephalus</i> bald eagle | FD, SE, CFP, BCC | Primary a winter visitor, with limited breeding in the region. Requires large bodies of water, or free-flowing rivers with abundant fish adjacent snags or other perches. Nests in large, old-growth, or dominant live tree with open branchwork. | Unlikely. The property does not contain large bodies of water and thus provides no typical habitat or foraging resources for this species. May occasionally fly over the area. |
| <i>Histrionicus histrionicus</i> harlequin duck | SSC | Winter visitor to marine waters along the coast; breeds inland along streams in the northern Sierra Nevada. | No Potential. The property does not contain coastal marine habitat. |
| <i>Lanius ludovicianus</i> loggerhead shrike | SSC | Resident in open habitats with scattered shrubs, trees, posts, etc. from which to forage for large insects and small vertebrates. Nests are well-concealed above ground in densely-foliaged shrub or tree. | No Potential. The property does not contain open areas, and is outside of its limited Mendocino County breeding range per a recent monograph in Shuford and Gardali (2008). |
| <i>Melanerpes lewis</i> Lewis's woodpecker | BCC | Winter visitor, occurring in oak savannahs and various open woodland habitats. Often associated with recently-burned areas. | Unlikely. The property does not contain open woodland or oak woodland habitat necessary to support this species. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|--|--------|---|--|
| <i>Numenius americanus</i> long-billed curlew | BCC | Winter visitor. Winters in large coastal estuaries, upland herbaceous areas, and croplands. Breeds in northeastern California in wet meadow habitat. | No Potential. The property does not contain suitable wetland, mudflat or grassland habitat for this species. |
| <i>Oceanodroma homochroa</i> ashy storm petrel | SSC | Pelagic and coastal marine. Breeds on the Farallon Islands off of the San Francisco/Marin Coast. | No Potential. The property does not contain pelagic or coastal marine habitat. |
| <i>Pelecanus occidentalis californicus</i> California brown pelican | CFP | Winter/non-breeding visitor to estuarine, marine subtidal, and marine pelagic waters along the coast. Nests on offshore islands of southern California. | No Potential. The property does not contain coastal marine habitat. |
| <i>Phoebastria albatrus</i> Short-tailed albatross | FE | Pelagic and coastal marine. | No Potential. The property does not contain pelagic or coastal marine habitat. |
| <i>Progne subis</i> purple martin | SSC | Summer resident. In NW California, typically breeds in coniferous forest and woodlands. Nests in tree cavities, usually high off the ground, and in the cavities of human-made structures (e.g. bridges, utility poles). | Moderate Potential. The property contains coniferous forest with potential tree cavities for nesting, and there is a documented breeding occurrence within four miles (WRA 2013). |
| <i>Riparia riparia</i> bank swallow | ST | Summer resident in lowland habitats in western California. Nests in areas with vertical cliffs and banks with fine-textured or sandy soils in which to burrow, typically riparian areas or coastal cliffs. | No Potential. The property does not contain suitable nesting habitat and is outside of this species' known breeding range in the state. |
| <i>Selasphorus rufus</i> rufous hummingbird | BCC | Summer resident in northwestern California. Breeds in a wide variety of habitats that provide nectar-producing flowers. Occurs throughout the state during migration. | Unlikely. The property is south of this species' limited California breeding range. May occur occasionally during migration. |
| <i>Selasphorus sasin</i> Allen's hummingbird | BCC | Summer resident along the California coast. Breeds in a wide variety of forest and woodland habitats that provide nectar-producing flowers, including parks and gardens. Migration generally limited to the coastal zone. | Moderate Potential. The property includes nectar plants and provides suitable breeding habitat for this species. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|---|---------|---|---|
| <i>Strix occidentalis caurina</i> northern spotted owl | FT, SSC | Resident. Typically occurs in large patches of old-growth coniferous forest. Prefers dense, structurally complex canopies with large trees for foraging and roosting. Nests on horizontal substrates in dense canopy, e.g. large cavities and broken tree tops. | Unlikely. Coniferous forest within the property lacks structurally-complex, old-growth characters typically favored by this species. Per CDFG's Spotted Owl Viewer, the nearest documented breeding occurrences are located approximately 1.2 miles east of the property. May occasionally forage in the area, but breeding is unlikely. |
| <i>Synthliborampus hypoleucus</i> Xantus's murrelet | ST | Pelagic and coastal marine. Breeds on offshore islands of southern California. Strays to northern California at sea during the non-breeding season. | No Potential. The property does not contain coastal marine habitat. |
| Reptiles and Amphibians | | | |
| <i>Ascaphus truei</i> Pacific tailed frog | SSC | Occurs from Mendocino County and north, in cold permanent streams, usually in forested areas of high precipitation. Primarily aquatic. | No potential. Although there are several documented occurrences within five miles (WRA 2013), the property does not contain stream habitat for this species. |
| <i>Emys (Actinemys) marmorata</i> Western pond turtle | SSC | Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter. | No potential. The property does not contain aquatic habitat necessary to support this species. |
| <i>Rana aurora</i> northern red-legged frog | SSC | Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive emergent and/or riparian vegetation. Documented to disperse through upland habitats after rains. <i>R. aurora</i> found north of Big River (includes project site). South of Big River to Elk Creek is integrate zone (Shaffer 2004). | Unlikely. The property does not contain suitable aquatic breeding habitat for this species. |
| <i>Rana boylei</i> foothill yellow-legged frog | SSC | Found in or near rocky streams in a variety of habitats. Feed on both aquatic and terrestrial invertebrates. | No potential. The property does not contain stream habitat necessary to support this species. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|--|---------------------|--|--|
| <i>Rhyacotriton variegatus</i> southern torrent salamander | SSC | Cold, permanent seeps and small streams with rocky substrate. | No potential. Although there is a documented occurrence in Hare Creek to the southwest (WRA 2013), the property does not contain stream or suitable seep habitat. |
| Fishes | | | |
| <i>Eucyclogobius newberryi</i> tidewater goby | FE, SSC | Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels. | No Potential. The property does not contain any aquatic habitat necessary to support this species. |
| <i>Oncorhynchus kisutch</i> Northern California steelhead | FE | Anadromous, spending time in the ocean, and spawning in coastal rivers and creeks. | No Potential. The property does not contain any aquatic habitat necessary to support this species. |
| <i>Oncorhynchus tshawytscha</i> chinook salmon - CA Coast ESU | FT, RP, NMFS | Anadromous, spending most of its life cycle in the ocean, but spawning in coastal rivers and creeks. The CA Coast ESU includes naturally spawned populations from rivers and streams south of the Klamath River (exclusive) to the Russian River (inclusive). | No Potential. The property does not contain any aquatic habitat necessary to support this species. |
| <i>Oncorhynchus mykiss</i> steelhead - Northern CA ESU | FT, NMFS, SSC | Anadromous, spending most of its life cycle in the ocean, but spawning in coastal rivers and creeks. The federal designation refers populations occurring below impassable barriers in coastal basins from Redwood Creek to, and including, the Gualala River. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean. | No Potential. The property does not contain any aquatic habitat necessary to support this species. |

| Species | Status | Habitat Requirements | Potential to Occur on the Property |
|---|--------|---|---|
| Invertebrates | | | |
| <i>Danaus plexippus</i> monarch butterfly | None | Winter roost sites in wind-protected tree groves (eucalyptus, Monterey pine or Monterey cypress), with nectar and water sources nearby. Individuals occur widely. No formal listing, winter roosts monitored by CDFW) | Unlikely. The property is forested, containing no typical tree grove habitat. Individual monarchs may occasionally pass through the property. |
| <i>Lycaiedes argyrognomon lotis</i> lotis blue butterfly | FE | Known from sphagnum-willow bogs in association with Bishop pine, pygmy forests and similar habitats. Harlequin lotus (<i>Hosackia gracilis</i>) is the suspected host plant. | Unlikely. The site contains pygmy cypress and Bishop pine forest, yet sphagnum-willow bog habitat or harlequin lotus are not present. Individual species may occasionally pass through the property. |
| <i>Speyeria zerene behrensii</i> Behren's silverspot butterfly | FE | Inhabits coastal terrace prairie habitat. Host plant is dog violet (<i>Viola adunca</i>). | No Potential. The site does not contain coastal terrace prairie habitat for dog violets. |

1) Key to status codes:

| | |
|------|---|
| FE | Federal Endangered |
| FT | Federal Threatened |
| FC | Federal Candidate |
| FD | Federal De-listed |
| BCC | USFWS Birds of Conservation Concern |
| SE | State Endangered |
| SD | State Delisted |
| ST | State Threatened |
| SR | State Rare |
| SSC | CDFG Species of Special Concern |
| CFP | CDFG Fully Protected Animal |
| WBWG | Western Bat Working Group High or Medium Priority species |

Potential to Occur:

| | |
|----------------------------|--|
| <u>No Potential</u> | Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime). |
| <u>Unlikely.</u> | Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site. |
| <u>Moderate Potential.</u> | Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site. |
| <u>High Potential.</u> | All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site. |

Source: Table compiled from the California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CNDDDB), U.S. Fish and Wildlife Service (USFWS) Species Lists, electronic database searches of the Fort Bragg, Inglenook, Dutchmans Knoll, Noyo Hill, Mathison Peak, and Mendocino USGS 7.5 Minute Quadrangles (CDFW 2014a; USFWS 2014).

Sonoma tree vole (*Arborimus pomo*), CDFW Species of Special Concern. High Potential. The Sonoma tree vole is distributed along the northern California coast from Sonoma County to the Oregon border. It occurs in old-growth and other forest types of Douglas fir and other conifers, including stands of Bishop pine. This species breeds year-round, but most often from February through September. Nests are constructed preferentially in tall trees, and may be situated on a whorl of limbs against the trunk, or at the outer limits of branches. Males nest most frequently in a tree nest constructed of needles, or less frequently in shallow burrows at the base of the tree, beneath litter. Females tend to spend most of their lives in trees, constructing large, domed nursery nests of needles at six to 150 feet above the ground. In young second-growth Douglas fir, nests can be placed on broken tops of trees, although old-growth Douglas fir stands likely provide the optimal structural components for nest building. The Sonoma tree vole is a coniferous needle specialist; needles and twigs are gathered primarily during the night, and may be consumed where found or brought to the nest. Needle resin ducts are removed. The remaining part is eaten, and the resin ducts may be used to line the nest cup. This unique nest lining is an identifying characteristic of this species.

This species was not observed during the reconnaissance-level site visit, nor were sign of its presence observed. However, there are several documented occurrences within five miles of the property (WRA 2013), and the property contains mature Bishop pine and other conifers. For these reasons, Sonoma tree vole has a moderate to high potential to be present.

Silver-haired bat (*Lasionycteris noctivagans*) Western Bat Working Group “Medium Priority” Species. Moderate Potential. This north temperate zone conifer and mixed conifer/hardwood forests inhabitant is known to occur from southeastern [Alaska](#) in summer, to northeastern [Mexico](#) in winter and in xeric habitats at low elevations during seasonal migrations. Maternity roosts appear to be almost exclusively in trees which include inside natural hollows and bird excavated cavities or under loose bark of large diameter snags. Both males and females change roosts frequently, and use multiple roosts within a limited area throughout the summer, indicating that clusters of large trees are necessary.

While the property does not contain optimal roosting habitat for this species, and foraging areas over water are not present, cavities and exfoliating bark within mature conifers may provide suitable roosting locations during certain portions of the year, therefore this species has moderate potential to be present on the property.

Hoary bat (*Lasiurus cinereus*) Western Bat Working Group “Medium Priority” Species. Moderate Potential. This species is widespread from near the limit of trees in Canada, southward at least to Guatemala, and from Brazil to Argentina and Chile in South America. Hoary bats are uncommon in the eastern U.S. and in the northern Rocky Mountains, but are more common in the prairie states and Pacific Northwest. They are associated with forested habitats in the west. Most migrate to South America for the winter, although some stay and hibernate. These bats roost in the foliage of trees, and occasionally in caves, or manmade structures such as bridges and abandoned mines. It prefers woodland, mainly coniferous forests, but hunts over open areas or lakes. Mating occurs during the fall when migrating south. Young are born between May and July. Their diet consists mainly of moths.

While the property does not contain optimal roosting habitat for this species, and foraging areas over water are not present, canopy within mature conifers may provide suitable roosting locations during certain portions of the year, therefore this species has moderate potential to be present on the property.

Fringed myotis (*Myotis thysanodes*), Western Bat Working Group “High Priority” Species. Moderate Potential. This bat ranges through much of western North America and is found in various habitats, including desert scrubland, grassland, sage-grass steppe, old-growth forest, and subalpine coniferous and mixed deciduous forest. Oak and pinyon-juniper woodlands are most commonly used. Fringed Myotis roosts in colonies from ten to 2,000 individuals, although large colonies are rare. Caves, buildings, underground mines, rock crevices in cliff faces, and bridges are used for maternity and night roosts, while hibernation has only been documented in buildings and underground mines. Tree-roosting has also been documented in Oregon, New Mexico, and California (WBWG 2012).

While the property does not contain optimal roosting habitat for this species, cavities and exfoliating bark within mature conifers may provide suitable roosting locations during certain portions of the year, therefore this species has moderate potential to be present on the property.

Little brown bat (*Myotis lucifugus*) Western Bat Working Group “Medium Priority” Species. Moderate Potential. Found in mesic, typically forested, areas of temperate across North America. This species is an ecological generalist exploiting a wide variety of natural and man-made roost sites and a wide spectrum of flying insect prey, including emerging adults of aquatic species. Summer maternity colony sites (consisting largely of reproductive females and dependent young) include tree cavities, caves and human-occupied structures.

While the property does not contain optimal roosting habitat for this species, and foraging areas over water are not present, cavities and exfoliating bark within mature conifers may provide suitable roosting locations during certain portions of the year, therefore this species has moderate potential to be present on the property.

Vaux’s swift (*Chaetura vauxi*), CDFW Species of Special Concern. Moderate Potential. Vaux's swift is a summer resident in California, breeding on the coast from central California northward and in the Cascades and Sierra Nevada. Nesting occurs in large, accessible, chimney-like tree cavities that allow birds to fly within the cavity directly to secluded nest sites. Such cavities usually occur in conifers, particularly redwoods (as reported by WRA 2013). Chimneys and similar manmade substrates are also used for nesting. This species is highly aerial and forages widely for insects in areas of open airspace. During migration, nocturnal roosting occurs communally; favored roosts may host thousands of individuals. The property contains conifers with some large, vertical-oriented cavities, and thus provides suitable breeding habitat and this species has moderate potential to be present on the property.

Olive-sided flycatcher (*Contopus cooperi*), CDFW Species of Special Concern. Moderate Potential. The olive-sided flycatcher is a summer resident in California, wintering in Central and South America. It breeds in a variety of forested habitats, typically coniferous forests at higher elevations, but also in mixed forest and woodlands at lower elevations. Breeding habitat is often associated with forest openings and edges, both natural (e.g., meadows, canyons) and man-made (e.g., logged areas) (as reported by WRA 2013). Nests are usually in conifers, and placed at variable height on the outer portions of branches. This species forages for insects, usually from prominent tree snags. The coniferous forest of the property provides suitable breeding habitat, particularly in its western portion along edge areas and this species has moderate potential to be present on the property.

Purple martin (*Progne subis*), CDFW Species of Special Concern. Moderate Potential. This large swallow is an uncommon summer resident in California, breeding in forest and woodlands at low- to mid- elevations throughout much of the state. Nesting occurs primarily in tree cavities; trees

selected are usually taller or isolated, with low canopy cover at the nest height, and situated on the upper portions of slopes and/or near bodies of water where large insects (favored prey) are abundant (as reported by WRA 2013). Conifers are the most frequently used tree type in northern California. Manmade structures with suitable cavities such as bridges or utility poles are also used. Coniferous forest within the property includes taller trees with potential cavities, and recent nesting has been documented within four miles of the property (WRA 2013). This species has moderate potential to be present on the property.

Allen's hummingbird (*Selasphorus sasin*), USFWS Bird of Conservation Concern. Moderate Potential. Allen's hummingbird, common in many portions of its range, is a summer resident along the majority of California's coast and a year-round resident in portions of coastal southern California. Breeding occurs in association with the coastal fog belt, and typical habitats used include coastal scrub, riparian, woodland and forest edges, and eucalyptus and cypress groves (WRA 2013). Feeds on flower nectar, and forages for insects and spiders. The property provides some forest edge habitat as well as nectar plants; this species has a moderate potential to be present, including breeding.

3.4.2 Regulatory Framework

Many sensitive biological resources in California are protected and/or regulated by federal, state, and local laws and policies. Those most applicable to the proposed project are summarized below.

Federal

Federal Endangered Species Act

The federal Endangered Species Act of 1973 (ESA) recognizes that many species of fish, wildlife, and plants are in danger of or threatened with extinction and established a national policy that all federal agencies should work toward conservation of these species. The Secretary of the Interior and the Secretary of Commerce are designated in the act as responsible for identifying endangered and threatened species and their critical habitats, carrying out programs for the conservation of these species, and rendering opinions regarding the impact of proposed federal actions on endangered species. The act also outlines what constitutes unlawful taking, importation, sale, and possession of endangered species and specifies civil and criminal penalties for unlawful activities.

Biological assessments are required under Section 7(c) of the act if listed species or critical habitat may be present in the area affected by any major construction activity conducted by, or subject to issuance of a permit from, a federal agency as defined in Part 404.02. Under Section 7(a)(3) of the act every federal agency is required to consult with the USFWS or NOAA Fisheries on a proposed action if the agency determines that its proposed action may affect an endangered or threatened species.

Section 9 of the ESA prohibits the "take" of any fish or wildlife species listed under the ESA as endangered or threatened. Take, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such action." However, Section 10 allows for the "incidental take" of endangered and threatened species of wildlife by non-federal entities. Incidental take is defined by the ESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Section 10(a)(2)(A) requires an applicant for an incidental take permit to submit a "conservation plan" that specifies, among other things, the impacts that are likely to result from the taking and the measures the permit applicant will undertake to minimize and mitigate such impacts. Section 10(a)(2)(B) provides statutory criteria that must be satisfied before an incidental take permit can be issued.

Clean Water Act, Section 404

Proposed discharges of dredged or fill material into waters of the U.S. require USACE authorization under Section 404 of the Clean Water Act (CWA) [33 U.S.C. 1344]. Waters of the U.S. generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands (with the exception of isolated wetlands). Wetlands subject to the CWA Section 404 are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3 [b]; 40 CFR 230.3 [t]). The USACE identifies wetlands using a “multi-parameter approach,” which requires positive wetland indicators in three distinct environmental categories: hydrology, soils, and vegetation. According to the USACE Wetlands Delineation Manual, except in certain situations, all three parameters must be satisfied for an area to be considered a jurisdictional wetland. The Regional Supplement to the Corps of Engineers Wetland Delineation Manual (USACE 2010) is also utilized when conducting jurisdictional wetland determinations in areas identified within the boundaries of the arid west.

The CWA also defines the ordinary high water mark as the Section 404 jurisdictional limit in non-tidal waters. When adjacent wetlands are present, the limit of jurisdiction extends to the limit of the wetland. Field indicators of ordinary high water include clear and natural lines on opposite sides of the banks, scouring, sedimentary deposits, drift lines, exposed roots, shelving, destruction of terrestrial vegetation, and the presence of litter or debris. Typically, the width of waters corresponds to the two-year flood event.

Clean Water Act, Section 401

Section 401 of the CWA requires applicants acquiring a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States, to also obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. The appropriate RWQCB regulates Section 401 requirements (see under State below).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (50 CFR 10.13) established federal responsibilities for the protection of nearly all species of birds, their eggs and nests. A migratory bird is defined as any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle. “Take” is defined in the MBTA “to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof.” Only non-native species such as feral pigeon (*Columba livia*), house sparrow (*Passer domesticus*), and European starling (*Sturnus vulgaris*) are exempt from protection.

State

California Environmental Quality Act

Rare or endangered plant or wildlife species are defined in the CEQA Guidelines Section 15380; endangered means that survival and reproduction in the wild are in immediate jeopardy. Rare means that a species is either presently threatened with extinction or that it is likely to become endangered within the foreseeable future. A species of animal or plant shall be presumed to be rare or endangered if it is listed in Sections 670.2 or 670.5, Title 14, California Administrative Code; or Title 50, Code of Federal Regulations Sections 17.11 or 17.12 pursuant to the federal Endangered Species Act as threatened or endangered.

California Endangered Species Act

The California Endangered Species Act (CESA) includes provisions for the protection and management of species listed by the State of California as endangered or threatened or designated as candidates for such listing (Fish and Wildlife Code Sections 2050 through 2085). The act requires consultation “to ensure that any action authorized by a State lead agency is not likely to jeopardize the continued existence of any endangered or threatened species or results in the destruction or adverse modification of habitat essential to the continued existence of the species” (Section 2053). California plants and animals declared to be endangered or threatened are listed at 14 CCR 670.2 and 14 CCR 670.5, respectively. The State prohibits the take of protected amphibians (14 CCR 41), protected reptiles (14 CCR 42), and protected furbearers (14 CCR 460). The CDFW may also authorize public agencies through permits or a memorandum of understanding to import, export, take, or possess any endangered species, threatened species, or candidate species for scientific, educational, or management purposes (Section 2081[a]). The CDFW may also authorize, by permit, the take of endangered species, threatened species, and candidate species provided specific conditions are met (Section 2081[b]).

California Fish and Game Code

The recently renamed California Department of Fish and Wildlife (CDFW) enforces the California Fish and Game Code (CFGC), which provides protection for “fully protected birds” (Section 3511), “fully protected mammals” (Section 4700), “fully protected reptiles and amphibians” (Section 5050), and “fully protected fish” (Section 5515). With the exception of permitted scientific research, no take of any fully protected species is allowed.

Section 3503 of the CFGC prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 specifically prohibits the take, possession, or destruction of any birds in the orders Falconiformes (hawks and eagles) or Strigiformes (owls) and their nests. These provisions, along with the federal MBTA, essentially serve to protect nesting native birds. Non-native species, including European starling and house sparrow, are not afforded protection under the MBTA or CFGC.

Streams, lakes, and riparian vegetation as habitat for fish and other wildlife species, are subject to jurisdiction by the CDFW under Sections 1600-1616 of the CFGC. Activity that will do one or more of the following, generally require a Section 1602 Lake and Streambed Alteration Agreement: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. The term “stream,” which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as follows: “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian is defined as, “on, or pertaining to, the banks of a stream;” therefore, riparian vegetation is defined as, “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself.” Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from the CDFW.

Clean Water Act and the State of California's Porter-Cologne Water Quality Control Act

The State Water Resources Control Board (SWRCB) regulates construction storm water discharges through SWRCB Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges that Have Received State Water Quality Certification." The State's authority to regulate activities in wetlands and waters resides primarily with the SWRCB, which in turn has authorized the State's nine RWQCBs, discussed below, to regulate such activities. Under Section 401 of the federal CWA, every applicant for a federal permit for any activity that may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with state water quality standards.

In the project area, the North Coast RWQCB (NCRWQCB) regulates construction in waters of the U.S. and waters of the State, including activities in wetlands, under both the CWA and the State of California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7). Under the CWA, the RWQCB has regulatory authority over actions in waters of the U.S., through the issuance of water quality certifications, as required by Section 401 of the CWA, which are issued in conjunction with permits issued by the USACE under Section 404 of the CWA. The RWQCB must certify that a USACE permit action meets State water quality objectives (§401 CWA, and Title 23 CCR 3830, et seq.) before a USACE permit is issued. Activities in areas that are outside of the jurisdiction of the USACE (e.g., isolated wetlands, vernal pool, or stream banks above the ordinary high water mark) are regulated by the nine RWQCBs, under the authority of the Porter-Cologne Act, and may require the issuance of either individual or general waste discharge requirements.

The California Wetlands Conservation Policy (Executive Order W-59-93) establishes a primary objective to "ensure no overall net loss ... of wetlands acreage and values in California." The RWQCBs implement this policy and the Basin Plan Wetland Fill Policy, both of which require mitigation for wetland impacts.

State Species of Special Concern

The CDFW maintains list of species and habitats of special concern. These are broadly defined as species that are of concern to the CDFW because of population declines and restricted distributions, and/or they are associated with habitats that are declining in California; the criteria used to define special-status species are described by the CDFW. Impacts to special-status plants, animals, and habitats may be considered significant under CEQA.

State Species of Special Concern include those plants and wildlife species that have not been formally listed, yet are proposed or may qualify as endangered or threatened, or are candidates for such listing under the California Endangered Species Act (CESA). This affords protection to both listed species and species proposed for listing. In addition, CDFW Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, United States Fish and Wildlife Service (USFWS) Birds of Conservation Concern, and CDFW special-status invertebrates are considered special-status species by CDFW. Plant species included within the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (Inventory) with California Rare Plant Rank (CRPR) of 1 and 2 are also considered special-status plant species. Few Rank 3 or Rank 4 plants meet the definitions of Section 1901 Chapter 10 of the Native Plant Protection Act (see below) or Sections 2062 and 2067 of the CDFG Code that outlines the California Endangered Species Act. There are occasions where CRPR List 3 or 4 species might be considered of special-concern particularly for the type locality of a plant, for populations at the periphery of a species range, or in areas where the taxon is especially uncommon or has sustained heavy losses, or from populations exhibiting unusual morphology.

Also under the jurisdiction of CDFW and considered sensitive are vegetation alliances with a State (“S”) ranking of S1 through S3 in the *List of Vegetation Alliances* (CDFG 2009a). CDFG ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in its California Natural Diversity Database (CNDDB).

Native Plant Protection Act

The CDFW administers the California Native Plant Protection Act (CNPPA) (Sections 1900–1913 of the CFGC). These sections allow the California Fish and Game Commission to designate rare and endangered plant species and to notify landowners of the presence of such species. Section 1907 of the CFGC allows the Commission to regulate the “taking, possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants.” Section 1908 further directs that “[n]o person shall import into this state, or take, possess, or sell within this state, except as incident to the possession or sale of the real property on which the plant is growing, any native plant, or any part or product thereof, that the Commission determines to be an endangered native plant or rare native plant.”

California Species Preservation Act

The California Species Preservation Act (CFGF Sections 900–903) includes provisions for the protection and enhancement of the birds, mammals, fish, amphibians, and reptiles of California. The administering agency is the CDFW.

Regional and Local

Mendocino County General Plan Goals and Policies

Following are the Mendocino County General Plan goals and policies most applicable to biological resources for the proposed project.

- Goal RM-7 (Biological Resources): Protection, enhancement and management of the biological resources of Mendocino County and the resources upon which they depend in a sustainable manner.
- Policy RM-24: Protect the County’s natural landscapes by restricting conversion and fragmentation of timberlands, oak woodlands, stream corridors, farmlands, and other natural environments.
- Policy RM-25: Prevent fragmentation and loss of our oak woodlands, forests, and wildlands and preserve the economic and ecological values and benefits.
- Policy RM-28: All discretionary public and private projects that identify special-status species in a biological resources evaluation (where natural conditions of the site suggest the potential presence of special-status species) shall avoid impacts to special-status species and their habitat to the maximum extent feasible. Where impacts cannot be avoided, projects shall include the implementation of site-specific or project-specific effective mitigation strategies developed by a qualified professional in consultation with state or federal resource agencies with jurisdiction (if applicable) including, but not limited to, the following strategies:
- Preservation of habitat and connectivity of adequate size, quality, and configuration to support the special-status species. Connectivity shall be determined based on the specifics of the species’ needs.

- Provision of supplemental planting and maintenance of grasses, shrubs, and trees of similar quality and quantity to provide adequate vegetation cover to enhance water quality, minimize sedimentation and soil transport, and provide adequate shelter and food for wildlife.
- Provide protection for habitat and the known locations of special-status species through adequate buffering or other means.
- Provide replacement habitat of like quantity and quality on- or off-site for special-status species.
- Enhance existing special-status species habitat values through restoration and replanting of native plant species.
- Provision of temporary or permanent buffers of adequate size (based on the specifics of the special-status species) to avoid nest abandonment by nesting migratory birds and raptors associated with construction and site development activities.
- Incorporation of the provisions or demonstration of compliance with applicable recovery plans for federally listed species.

Policy RM-29: All public and private discretionary projects shall avoid impacts to wetlands if feasible. If avoidance is not feasible, projects shall achieve no net loss of wetlands, consistent with state and federal regulations.

Policy RM-31: For the purposes of implementing this General Plan, the County defines “special status species” and “sensitive biotic communities” to include all species and habitat identified as such by the California Department of Fish and Game, U.S. Fish and Wildlife Service, or NOAA Fisheries.

Policy RM-72: New development shall protect sensitive environments and resource corridors while maintaining compatibility with adjacent uses.

Policy RM-73: The design of new development should emphasize the avoidance of sensitive resources and environments rather than their removal and replacement.

Policy RM-74: Discretionary development shall be designed or conditioned to achieve no net loss of sensitive resources.

Policy RM-75: Protection of existing sensitive resources is the highest priority. Onsite replacement or offsite replacement, protection or enhancement is less desirable.

Policy RM-76: Limit land use density and intensity within and adjacent to critical wildlife habitats, such as wetlands, deer wintering range, old growth forests and riparian corridors.

Policy RM-79: Encourage farmers, land owners and property managers to protect sensitive environments, and minimize the effects of recreation, tourism, agriculture and development on these resources. Promote techniques and features such as:

- Habitat contiguity,
- Wildlife corridors,
- Maintaining compatibility with adjacent uses,
- Maintaining habitat for sensitive plant and animal species.

Policy RM-80: Vegetation removal should be reviewed when involving five (5) or more acres, assessing the following impacts:

- Grading and landform modifications including effects on site stability, soil erosion and hydrology.
- Effects on the natural vegetative cover and ecology in the project area.
- Degradation to sensitive resources, habitat and fisheries resources.
- Compatibility with surrounding uses.
- Visual impacts from public vantage points.
- Cumulative and growth-inducing impacts.

For the purposes of implementing this policy, “vegetation removal” does not include state-regulated timber harvest

Policy RM-81: Vegetation management and landscaping for public and private development should emphasize protection and continuity of natural habitats and hydrology.

Policy RM-84: Protect “pygmy” ecosystems (“pygmy” and “transitional pygmy” vegetation and soils) through the use of measures that include minimizing:

- Vegetation removal,
- Disruption of vegetation continuity, and
- The introduction of water and nutrients due to human activity, sewage disposal systems, animals or agricultural uses.

Also:

- Limit subdivision of land on agricultural lands adjacent to “pygmy” ecosystems, and
- Promote best management practices to minimize impacts.

3.4.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to biological resources, as defined by the CEQA Guidelines (Appendix G), if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

Significance Threshold

Loss or harm of individuals or loss of habitat for listed or candidate species or species of special concern

Loss of individuals or eggs protected under the MBTA

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

Significance Threshold: Pygmy Cypress Forest

~~Imperiled Sensitive Habitats (State Rank S1 and S2 per CDFW criteria)~~

- Removal of more than zero (0) acres of sensitive habitat at project site

Significance Threshold: Bishop Pine Forest Alliance

~~Bishop Pine Habitat – High Quality (State Rank S3 per CDFW criteria)~~

- Loss of more than 1 acre at project site, and
- Loss of more than 1% of regional habitat

~~Bishop Pine Habitat – Low Quality (Uncertain State Rank per CDFW criteria)~~

- ~~— Loss of more than 5 acre at project site, and~~
- ~~— Loss of more than 10% of regional habitat~~

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

Significance Threshold

More than zero (0) acres of fill in wetlands, waters of the U.S., or waters of the State

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

Significance Threshold

Creation of a barrier to movement resulting in loss or harm to native resident or migratory fish or wildlife species

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;

Significance Threshold

Removal or damage that leads to mortality of any tree species protected by a Preservation Policy or Tree Ordinance

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Significance Threshold

Conflict with an approved habitat conservation plan

Areas of No Project Impact

As explained below, the project would not result in impacts related to one of the significance criteria identified in Appendix G of the current California Environmental Quality Act (CEQA) Guidelines. The following significance criteria are not discussed further in the impact analysis, for the following reasons:

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. The project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan as there are no such special plans that would govern the project.

3.4.4 Methodology

The assessment of potential impacts to biological resources is based on the relationship between species and habitat distribution and the locations and activities proposed for construction and operation of the project. Potential impacts on special-status plants and wildlife has been based on known occurrences or on the likelihood that suitable habitat for special-status species would be affected.

A biological resources assessment was prepared for the project (WRA 2013). Information on special-status plant and animal species was compiled through a review of the literature and database search. Database searches for known occurrences of special-status species focused on the Fort Bragg, Inglenook, Dutchmans Knoll, Noyo Hill, Mathison Peak, and Mendocino U.S. Geologic Service 7.5-minute topographic quadrangle. The following sources were reviewed to determine which special-status plant and wildlife species have been documented in the vicinity of the property:

- U.S. Fish and Wildlife Service (USFWS) quadrangle species lists (USFWS 2014)
- California Natural Diversity Database records (CNDDDB) (CDFW 2014a)
- California Native Plant Society (CNPS) Electronic Inventory records (CNPS 2014)

The potential for special-status species or habitats to occur on the property was evaluated by first determining which special-status species occur in the vicinity of the property through literature and database searches. The initial evaluation of the property, as to presence of non-sensitive biological communities, was conducted by determining what potential sensitive communities would be present, evaluating the property for presence of sensitive communities and mapping/designating such areas, and making a determination as to what would constitute a “non-sensitive” community. It should be noted that the CEQA Checklist and CEQA Guidelines Section 15065, do not restrict impact analysis to “high priority” or “sensitive” natural communities, as further discussed below and addressed by project-specific significance thresholds.

Significance thresholds have been provided for quantitative evaluation of impacts in relation to thresholds, particularly providing quantitative levels for item two (bullet two above), regarding potential impacts to areas potentially considered sensitive habitats. The significance thresholds allow for evaluation of impacts to habitats, for this project, in relation to regional context, and for evaluation of whether an impact constitutes a “substantial” adverse effect according to thresholds. The *CEQA Guidelines Section 15382* sets forth the following definition for significant effect: “Significant effect on the environment” means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including ... flora, fauna..”, etc. The *CEQA Guidelines Section 15064(b)* indicates that a strict definition of significant effect is not always possible because the significance of an activity may vary with the setting. According to *CEQA Statutes Section 21083 and CEQA Guidelines Section 15065* a project is considered to have a significant effect on the environment if: “The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of fish or wildlife population, cause a fish or wildlife species to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or significantly reduce the number or restrict the range of an endangered, rare, or threatened species.” With this regional context in mind, the impacts to Bishop pine forest are evaluated under project-specific significance thresholds provided in Section 3.4.3 above, as developed by project biologist and the lead agency to further define what constitutes a substantial impact. The lead agency concludes that less than 1% impact regionally to habitats with S3 (vulnerable) ranking does not constitute a substantial degradation to quality of the environment,

or substantial reduction in habitat of fish or wildlife causing such species to drop below self-sustaining levels, threaten to eliminate a plant or animal community, etc, as further elaborated on above.

The Caspar site is already developed and consists of unvegetated areas as well as some previously logged and remnant forest areas adjacent to the existing facility that is proposed for closure. As part of the closure of the facility, there would be no new ground disturbance. Therefore, there would be no impact to biological resources at the Caspar site. Impact to biological resources from closure of the Caspar facility is not discussed further **except as a mitigation site as described in Appendix L.**

3.4.5 Impacts and Mitigation Measures

Impact BIO-1: Substantial Adverse Effect on Special-Status Species

The County and City minimized the amount of impacts to sensitive-listed tree species through adjustment of the project footprint, and eliminated impact to the most sensitive area that is stunted and mapped as cypress forest-pygmy. This minimization and avoidance effort was conducted during the project planning phase and project layout/design per guidance of RM-74 that suggests prioritizing minimization and avoidance prior to a replacement or enhancement approach. The project layout also minimized fragmentation to sensitive species by placing the project site centered on Bishop pine area and maintaining connectivity of remaining sensitive listed plants with adjacent areas of similar character.

The proposed project would directly or indirectly impact populations of CRPR List 1B plant species. Potential impacts are shown in Table 3.4-7 and described further below.

Table 3.4-7 Project Impacts to Special Status Plant Species

| On Property Existing | | | | Impact | | | |
|----------------------|-----------|--------------|-------------------------------|--------------|-------------------------|-------------------------------|---------------------|
| Species | CRPR List | Area (acres) | Individual Plant Estimate (#) | Area (acres) | Percent of Project Site | Individual Plant Estimate (#) | Percent # of Plants |
| Mendocino cypress | List 1B | 12.33 | 2,037 | 0.580 | 5% | 230 | 11% |
| Bolander's pine | List 1B | | 790 | | | 38 | 5% |
| Coast lily | List 1B | 0.06 | 109 | 0.003 | 5% | 10 | 9% |
| California sedge | List 2 | 0.09 | 894 | 0.000 | 0% | 0 | 0% |

The project footprint would avoid the population of California sedge [CRPR List 2]. There would be no direct or indirect impact to California sedge.

The project would permanently impact five individual Coast lily (CRPR List 1B) plants within the project footprint. In addition, a 0.003 acre area where this plant is mapped would be temporarily impacted, either directly or indirectly, during construction. A portion of the 0.003 acres is within the construction buffer, with the remaining habitat close to the construction area and therefore threatened indirectly. The 0.003 acre potential impact area is estimated to include an additional five

individual plants based on percent of the subpopulation polygon being impacted, with individual plant counts for the entire property provided by field biologist during seasonally-appropriate plant surveys. Temporary and permanent impacts to Coast lily would be significant. Reference Figure 3.4-2 for permanent and construction impacts by habitats and rare plants.

The project would permanently impact approximately 0.58 acre of Mendocino cypress and Bolander's pine (both CRPR List 1B) (within areas categorized as cypress forest-tall and cypress forest-intermediate). Additionally, there are scattered cypress and Bolander's pine within the Bishop pine map unit. Impact to these individual trees is based on tree counts conducted within plots, and not based on acreage due to the scattered nature and low percent cover of these two species within the Bishop pine map unit. In total, approximately 229 Mendocino cypress and approximately 38 Bolander's pine are estimated to be impacted within the Bishop pine forest, cypress forest-tall, and cypress forest-intermediate based on estimates from tree counts conducted within plots at the property (WRA 2013). Impacts to Bolander's pine and Mendocino cypress would be significant.

The biological evaluation for the project site (WRA 2013) stated that the Sonoma tree vole, a State species of special concern, could be present at the site since conifer habitat is present and the site is within the known species range, and if present could be impacted during construction due to tree removal. Impacts to the Sonoma tree vole would be significant.

The biological evaluation for the project site (WRA 2013) determined the following special-status bird species could be present at the site, and could be impacted during construction due to tree removal: Vaux's swift, Olive-sided fly catcher, purple martin, Allen's hummingbird, all of which are State Species of Special Concern. These are summer resident avian species. There is also the potential for passerine migratory bird species to fly over or stop at the site. Nesting habitat for such species is not high quality, yet seasonal or occasional presence and/or nesting cannot be ruled out at this point in time. Impacts to special-status bird species and birds protected under the Migratory Bird Act would be significant. Project construction occurring during the March 15 through August 15 breeding season may have an adverse impact on breeding success for special-status bird species. Impacts to special-status birds would be significant.

The biological evaluation for the project site (WRA 2013) determined that the site has moderate potential to support roosting locations for some bat species listed as having "moderate to high priority for survey" per Western Bat Working Group (WBWG), and could be impacted through tree removal if present at the site. Several special-status bat species, including the Townsend's big-eared bat, silver-haired bat, hoary bat, little brown bat, and fringed myotis, have the potential to occur on the project site. No bats were observed during site evaluations, and none of the bat species are expected to occur in substantial numbers at the project site. Breeding and foraging habitat for these species on the project site and in adjacent areas is generally marginal because rock outcrops, decadent trees, and caves with suitable bat habitat are sparse to non-existent for these bat species. However, they still could forage over the project site and roost under bark or in cavities of trees. Project construction occurring during the March 1 through August 31 bat breeding season may have an adverse impact on breeding success for special-status bat species. Impacts to special-status bats could be significant.

Mitigation Measure BIO-1a: Mitigate Impacts to Coast Lily

The County and City shall implement the following measures to mitigate the temporary and permanent impacts to Coast lily plants during construction and operation of the project:

During Construction (0.003 acre subpopulation polygon)

The building contractor shall install construction avoidance fencing at the interface of project footprint and the edge of the 0.003 acre coast lily subpopulation present on the south edge of the project site (refer to Figure 3.4-1 of the Draft EIR). The fencing will be at a minimum 100 linear feet in length to provide a barrier between the construction footprint and adjacent coast lily subpopulation. The construction fencing will be placed so that there is no “construction buffer” in this area, so as to avoid direct impacts to coast lily individuals. The construction avoidance fencing shall be installed by a qualified biologist and inspected weekly for the duration of construction to ensure that the fencing remains installed properly.

During Operation (0.003 acre subpopulation polygon)

Permanent fencing shall be installed prior to operation of the project. The fencing shall be approximately 100 feet in length and placed between the driveway leading to the scalehouse and the subpopulation polygon so as to create a permanent barrier from project operation. Perimeter fencing installed around the perimeter of the transfer station facility may suffice as protection of the subpopulation polygon from operational activities.

Five Individual Coast Lily Plants

The five individual coast lily plants, as identified within the project footprint on Figure 3.4-1 of the Draft EIR, shall be relocated, if possible, to the south subpopulation area. If relocation is not possible a nursery will be contracted to provide locally sourced plant stock and the five plants will be replaced at a 2:1 ratio. The plant stock or plantings shall be placed in an area adjacent to the south subpopulation. The plant replacement (whether through relocation and/or replanting) shall require annual monitoring for two years, with 100% success. To ensure meeting the 100% success criteria it is recommended that supplemental planting occur at a minimum of 20% (i.e.: 1 additional plant for relocation or two additional plants for nursery-provided plant stock).

Mitigation Measure BIO-1b: Mitigate Impact to Mendocino Cypress and Bolander’s Pine

The impacts to CRPR listed tree species Mendocino cypress and Bolander’s pine (a 0.58 acre area) shall be mitigated through preservation at an offsite location. ~~The County and City proposes to use a portion of a 28-acre site identified as Assessor’s Parcel Number (APN) 118-50-045 which is adjacent to and north of the Caspar transfer station facility and is forested including cypress, Bishop Pine, and other related species. A photograph of the proposed mitigation site is provided as Figure 3.4-3 and the location is shown on Figure 2-3. This parcel was declared surplus by the County in 2011 and listed for sale. It is zoned Rural Residential with potential for development of a single-family house. On September 22, 2014, the County Board of Supervisors rescinded the designation as surplus and reserved the parcel for conservation mitigation if required for this project and/or other projects that could have forestry impacts. The County, owner of this property, shall place a conservation easement over a portion of it to permanently preserve an area at a 3:1 ratio for areas of sensitive listed tree species (cypress and Bolander’s pine) that are impacted at the new Central Coast Transfer Station site. At a 3:1 ratio, the conservation easement shall result in preservation of 1.75 acres of mixed cypress and Bolander’s pine forest. Impacts to Cypress forest—tall and Cypress forest—intermediate, based on CNDDDB rank of S2 for the overall forest classification (versus status/listing of individual tree species), are mitigated as detailed in Mitigation Measure BIO-2, which requires a conservation easement of 1.8 acres (3:1 ratio for impacts to total of 0.6 acres of CNDDDB S2 ranked forest). The 1.75 acres required in Mitigation Measure BIO-1b is in addition to the 1.8 acres required in Mitigation Measure BIO-2, but are coincident to the 1.8 acres (total preservation of 3.55 acres).~~

To mitigate for the removal of individual Mendocino pygmy cypress trees (approximately 229 individuals of intermediate and tall morphotypes) and Bolander's pine (approximately 38 individuals), present within 0.58 acre impact area mapped as Pygmy cypress Alliance (tall and intermediate morphotypes), as well as where individual CRPR listed trees are scattered within the Bishop Pine Alliance proposed for removal, the County shall create the Caspar Pygmy Forest Preserve on the 28.3 acre County-owned parcel off Prairie Way in Caspar (APN 118-500-45).² The County shall execute appropriate legal documents to guarantee that the Caspar Pygmy Forest Preserve will remain undeveloped in perpetuity and only accessible for botanical research and other activities consistent with undiminished protection of the habitat. The preservation may be accomplished by transferring title or an easement to an established conservation organization subject to a preservation covenant, or, if no such organization is found, by the County recording a covenant creating a conservation easement on behalf of the public. In that instance, the County shall secure all access points to the property and post warning signs. Quarterly inspection of the Caspar Pygmy Forest Preserve shall be made by County personnel along with their routine mandatory inspections of the cover of the nearby closed Caspar Landfill. The inspections of the Preserve shall ensure all access points remain secure and signage is in place, and that no vandalism or trash dumping occurs, and propose and implement remedial activities if necessary to maintain current condition of the Preserve. A vegetation description and map of the mitigation parcel are included in Appendix L.

Mitigation Measure BIO-1c: Minimize and Avoid Impacts to Sonoma Tree Vole.

The County and City shall consult with CDFW to minimize and avoid potential impacts to Sonoma tree vole during tree removal and project construction activities. Trees shall be removed during the non-breeding season (October to January). If seasonal avoidance of breeding time (February through September) cannot be implemented for tree removal activities, pre-construction surveys shall be conducted by a qualified biologist, in a manner such as follows (to be refined if necessary in consultation with CDFW):

- No more than two weeks before tree removal activities begin, a biologist will assess what portions, if any, of the tree removal area and areas within 50 feet of tree removal, is potential tree vole habitat, based on species composition and discussion with CDFW.
- If tree vole habitat is located on portions of the property within 50 feet of tree removal areas, a qualified biologist shall conduct a survey for presence of the species on the property in areas within 50 feet of tree removal and construction footprint.
- A standard survey methodology shall include at least two trained observers conducting visual searches for tree vole nests while walking along transects spaced 25 meters apart. When either fecal pellets, resin ducts, or potential nests are observed, vole nests must be confirmed

² **Currently, that 28.3-acre parcel is undeveloped, but is zoned Rural Residential with the potential for development of one or more single-family houses. The site has a variety of habitats present, mostly consisting of Cypress forest pygmy/forested wetland, Bishop Pine Forest Alliance, and pygmy forest morphotypes (intermediate and tall cypress trees). A photograph of the proposed mitigation site is provided as Figure 3.4-3 and the location is shown on Figure 2-3. Vegetation communities mapping conducted at the site documented 12.3 acres of intermediate and tall morphotypes (the former of which includes Bolander's pine subdominant), as well as 7.1 acres of high quality pygmy cypress (short morphotype) mixed with Bolanders pine (WRA 2015). Therefore, a total of 19.4 acres of pygmy cypress forest will be preserved. A separate evaluation concluded that the proposed Caspar Pygmy Forest Preserve is composed largely of undisturbed pygmy cypress woodland (Heise 2015, Appendix B).**

by climbing trees and examining all potential nests to see if they contain evidence of occupancy by tree voles (fecal pellets, resin ducts, and conifer branch cuttings).

- If occupied habitat is identified during pre-construction surveys, **clearing/construction activities shall be suspended while the** biologist consults with CDFW to determine how to avoid disruption to breeding activity or if individual relocation is possible.

Mitigation Measure BIO-1d: Conduct pre-construction Avian Surveys for Nesting Passerine Birds and Avian Species of Special Concern.

The building contractor shall conduct vegetation clearing activities if possible during the fall and/or winter months from August 16 to March 14, outside of the active nesting season for migratory bird species (i.e., March 15 to August 15). If vegetation cannot be removed during the non-breeding season, the applicant shall have a qualified biologist conduct preconstruction surveys within impact area from ground disturbance and tree removal, to check for nesting activity of migratory and special-status bird species. The biologist shall conduct the preconstruction surveys within the 14-day period prior to vegetation removal and ground-disturbing activities (on a minimum of three separate days within that 14-day period). If ground disturbance and tree removal work lapses for 15 days or longer during the breeding season, a qualified biologist shall conduct supplemental avian preconstruction survey before project work may be reinitiated.

If nesting activity is detected within the project footprint or within 300 feet of construction activities, the applicant shall have trees flagged that are supporting breeding, and will not remove those trees until the nests have fledged. Construction activities shall avoid nest sites until the biologist determines that the young have fledged or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within 300 feet of the construction area, buffers will be implemented if deemed appropriate in coordination with CDFW.

Mitigation Measure BIO-1e: Avoid Impacts to Special-Status Bat Species.

The County and City shall conduct tree removal activities outside of the bat breeding period of March 1 through August 31 if possible, so ideally tree removal would occur from September 1 to February 28. If trees cannot be removed during this time, the following measures shall be implemented:

- A qualified biologist shall be retained to conduct a habitat assessment at least 30 days and no more than 90 days prior to construction activities (i.e., ground-clearing and grading, including removal or trimming of trees) of all trees on the site that are proposed for removal. The assessment shall be designed to identify trees containing suitable roosting habitat for bats and to identify mitigation measures needed to protect roosting bats.
- If the habitat assessment identifies suitable special-status bat habitat and/or habitat trees, the biologist shall identify and evaluate the type of habitat present at the project site and specify methods for habitat and/or habitat tree removal in coordination with CDFW based on site-specific conditions. If bat habitat is present, removal of trees or areas that have been identified as habitat shall occur in two phases over two days under the supervision of a qualified biologist. In the afternoon on day one, limbs and branches of habitat trees without cavities, crevices and deep bark fissures would be removed by chainsaw. On day two, the entire tree can be removed. If trees with cavities, crevices and deep bark fissures are proposed for removal, CDFW shall be consulted for removal methods.

Level of Significance: Less than significant impact with mitigation.

Mitigation Measure BIO-1a would mitigate the impact through a combination of avoidance, minimization, and replacement or relocation of individual plants and is consistent with RM-28.

Mitigation Measure BIO-1b would preserve pygmy cypress (short, intermediate and tall morphotypes) at a 3:1 ratio **an approximate 30:1 ratio based on acreage, to compensate for impacts to Mendocino pygmy cypress intermediate and tall morphotypes, and scattered individual Mendocino pygmy cypress and Bolander's pine within the Bishop Pine Forest map unit, in** areas with cypress and Bolander's pine species composition, similar to the area of impact. Unless permanently preserved, portions of the proposed preservation site could be threatened by future development and/or encroachment from adjacent uses. Mitigation Measure BIO-1b is consistent with the intent of Mendocino County General Plan Policy RM-28 which calls for implementation of site-specific or project-specific effective mitigation strategies including preservation. Preservation will provide an immediate and permanent protection of an existing habitat similar to that being impacted, at an appropriate mitigation ratio to compensate for the use of offsite location and the proposed activity of preservation. The impact to Mendocino cypress and Bolander's pine is less than significant with mitigation.

Mitigation Measure BIO-1c identifies avoidance measures, and if avoidance is not possible outlines the process for identifying occupied habitat, and then requiring, in accordance with General Plan Policy RM-28, consultation with CDFW to determine appropriate avoidance measures if occupied habitat is found. The proposed mitigation outlines the procedure for avoidance and is consistent with the Mendocino County General Plan, therefore the impact is less than significant after mitigation.

Implementation of Mitigation Measure BIO-1d provides protection measures during construction for special-status birds and would mitigate potential impacts on special-status and migratory birds to less-than-significant levels by requiring pre-construction surveys by a qualified biologist to determine whether special-status or migratory bird nests are present at or near the project site and ensuring protection of nests and young until they have fledged.

Implementation of Mitigation BIO-1e provides protection measures for special-status bats during tree removal and would reduce the impacts to special-status bats because the disturbance caused by chainsaw noise and vibration during tree removal, coupled with the physical alteration of the branches and limbs may cause the bats to abandon the roost tree after nightly emergence for foraging. Removing the tree the next day prevents re-habituation and reoccupation of the altered tree, thereby reducing impacts to roosting bats to less-than-significant levels.

Impact BIO-2: Substantial Adverse Effect on Sensitive Natural Community.

The proposed project has the potential to permanently impact habitats considered sensitive natural communities by CDFW. ~~While not considered imperiled, there are also impacts anticipated to Bishop pine forest, a State Rank 3 (vulnerable) habitat.~~ Potential impacts are shown in Table 3.4-8 below.

Table 3.4-8 Project Impacts to Special Status Habitats

| Existing | | | | Impacts | | |
|---|-----------------------------|---------------------------|-----------------------------|----------------------|----------------|------------------|
| Habitat | Global (G) / State (S) Rank | Total On-Property (acres) | Regional Conditions (acres) | Total Impact (acres) | % Onsite acres | % Regional acres |
| Bishop pine forest <u><i>alliance</i></u> | G3 S3*** | 8.4 | 14,900* | 4.0 | 48.2% | 0.03% |
| Cypress forest (tall) | G2 S2 | 4.8 | 2,000** | 0.3 | 6.8% | 0.03% |
| Cypress forest (intermediate) | | 4.4 | | 0.3 | 5.8% | |
| Cypress forest (pygmy) / forested wetland | | 3.1 | | 0.0 | 0.0% | |

NA = Not Available

*CALVEG 1998 mapped 14,900 acres of Bishop pine forest in Mendocino County

**While 4,000 acres of cypress forest is often quoted as extent of this habitat type, some authors have indicated this may be reduced to as little as 2,000 acres currently. CDFW is working currently on mapping to establish baseline existing conditions (Miller 2014 Pers. com.). 2,000 acres is used herein as a conservative estimate of what remains regionally of pygmy forest and as a basis for comparative analysis, although it does not take into consideration ecotones, gradations, and various definitions of pygmy forest, nor is it known what species composition and tree heights this acreage estimate includes.

*****A letter from CDFW asserts that this habitat is G2 S2. See discussion below and lead agency response.**

The County and City have minimized the project footprint, and eliminated impact to the cypress forest—pygmy morpho-type, where Bolander’s pine and Mendocino/pygmy cypress are growing in a unique ecosystem connection with restrictive soil conditions. This effort to minimize impact to cypress forest—pygmy was conducted during the project planning and layout phase. The project layout has also minimized fragmentation to the more sensitive habitats at the property by placing the project site centered within the Bishop pine forest area and completely out of the cypress forest—pygmy morpho-type habitat area..

The project footprint and construction buffer will permanently impact a total of up to 0.6 acres of cypress forest (State Rank S2) consisting of two morpho-types (cypress forest—tall, and cypress forest—intermediate). The impact to cypress forest—intermediate is 0.3 acre. The cypress forest—intermediate has similar species composition as true cypress forest—pygmy with the similar species assemblage with presence of Bolander’s pine, yet a more established and denser understory. Additionally, the intermediate tree height indicates the area is not limited in tree growth pattern from restrictive soil conditions, and it is therefore assumed that some of the restrictive soil conditions typical of true pygmy forest ecosystem may not be present within this map unit at the property. Still, due to species composition as well as with the State Rank (S2) of imperiled for the habitat type, and for the purposes of this analysis in regards to requirements of County General Plan and priority for minimization of impacts to pygmy forest, as well as project significance thresholds set at impact above zero (0), impacts to this area are considered significant. The impact to cypress forest (tall) is 0.3 acre. The cypress forest (tall) map unit, with dense shrub and herbaceous understory, and with the low coverage of Bolander’s pine (a component of the pygmy forest ecosystem), does not show signs of restrictive soil conditions that are a part of the unique ecosystem relationship between vegetation and soils within the true pygmy forest. This area is considered to lack some of the soil and vegetation components typical of the pygmy forest ecosystem. Still, for the purposes of this analysis and given the State Rank (S2) of imperiled for this habitat type based on dominant species

of tree, as well as project significance threshold set at impact above zero (0), impacts to this sensitive cypress forest area are considered significant.

~~While not considered imperiled,~~ The project will also impact approximately 4.0 acres of Bishop pine forest alliance habitat. ~~a State Rank S3 (vulnerable) habitat.~~ This Bishop pine forest **alliance** is evaluated as to whether the area is considered high priority natural community based on the following three CDFW criteria (CDFW 2014):

- 1) Lack of invasive species: Although the site has not specifically been evaluated from an invasive species perspective, multiple site visits did not document extensive coverage of invasive species listed as high-priority by CallPC (Invasive Plant Council) within the Bishop pine forest, although there are likely non-native species present in varying coverages depending on proximity to roads and modified areas. The Bishop pine forest is likely to be of moderate to high priority based on this criterion.
- 2) No evidence of human caused disturbance such as roads or excessive livestock grazing, or high-grade logging: There are roads on the perimeter of the property, evidence of historic logging and site access, and an almost barren helicopter pad to the west of the Bishop pine forest. The Bishop pine forest is determined to be of moderate priority based on this criterion.
- 3) Evidence of reproduction present (sprouts, seedlings, adult individuals of reproductive age), and no significant insect or disease damage, etc.: Evidence of reproduction within the Bishop pine forest was not specifically evaluated, yet the area is a relatively even-age stand and sprouts and seedlings were not noted. The area does not appear to have insect or disease damage. The Bishop pine forest is determined to be of moderate priority based on this criterion.

The Bishop pine forest **alliance** ~~(State Rank S3)~~ on the property is therefore potentially moderate to high priority per the above CDFW criteria. The CEQA Checklist and CEQA Guidelines Section 15065, however, do not restrict impact analysis to “high priority” or “vulnerable” natural communities. The *CEQA Guidelines Section 15382* sets forth the following definition for significant effect, and as further addressed in the project significance thresholds developed by the lead agency and described above in the Significance Criteria section: “Significant effect on the environment” means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including ... flora, fauna..”, etc. The *CEQA Guidelines Section 15064(b)* indicates that a strict definition of significant effect is not always possible because the significance of an activity may vary with the setting. According to *CEQA Statutes Section 21083* and *CEQA Guidelines Section 15065* a project is considered to have a significant effect on the environment if: “The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of fish or wildlife population, cause a fish or wildlife species to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or significantly reduce the number or restrict the range of an endangered, rare, or threatened species.” With this regional context in mind, the impacts to Bishop pine forest **alliance** are evaluated under project-specific significance thresholds provided in Section 3.4.3 above. As provided in Table 3.4-8 above at the beginning of the Impact BIO-2 discussion, it is estimated that in relation to regional extent and quantity of Bishop pine mapped as occurring in Mendocino County (CDF 2005), the project impacts of 4.0 acres constitute approximately 0.03% of areas regionally mapped as Bishop pine forest. ~~Per the thresholds (loss of more than 1 acre of high quality habitat and loss of more than 1% of regional high quality habitat), the loss of less than 1% of regional potentially sensitive Bishop pine habitat is determined to be less than significant.~~

A comment letter issued by the California Department of Fish & Wildlife [March 24, 2015] asserted that the Global and State rankings for “Northern Bishop Pine” are G2 S2 and that this ranking should apply to the Bishop Pine forest alliance that exists at the project site. For the following reasons, it appears that there is reasonable uncertainty about which Global and State rank applies to the Bishop Pine species at the project site.

Based on the detailed, site-specific biological surveys conducted at the project site, it was determined that the site consists of “Bishop Pine Forest Alliance”—that is, a mixture of tree species with Bishop Pine as the predominant, tallest species but sharing the acreage with substantial numbers of other tree and shrub species. There is substantial documentation from CDFW itself and other sources that “Northern Bishop Pine” is an outdated classification that should not apply.

The County and City retained botanical consultants WRA Associates in 2013 to perform the detailed, on-site Biological Resources Assessment of the project site (Appendix D of DEIR). WRA classified the affected acres as “Bishop Pine Forest Alliance G3 S3” and described it as follows:

“This community is dominated by Bishop pine (*Pinus muricata*), with several characteristic and subdominant tree species including pygmy cypress (*Hesperocyparis pygmaea*), Bolander’s pine (*Pinus contorta* ssp. *bolanderi*), western hemlock (*Tsuga heterophylla*), and coast redwood (*Sequoia sempervirens*). The overstory is somewhat open to completely closed containing mature to over-mature trees. The understory contributes to the vertical structure with a high density of shrubs and depauperate herbaceous layer. Shrub species include evergreen huckleberry (*Vaccinium ovatum*), Pacific rhododendron (*Rhododendron macrophyllum*), giant chinquapin (*Chrysolepis chrysophylla*), tanoak (*Notholithocarpus densiflorus*), and salal (*Gaultheria shallon*). Herbaceous species are sparse and include bracken fern (*Pteridium aquilinum*), bear grass (*Xerophyllum tenax*), and modesty (*Whipplea modesta*).” [DEIR, Appendix D, p. 16]

This description is completely consistent with the definition of “Bishop Pine Forest Alliance” established by the U.S. Forest Service:

“Bishop Pine (*Pinus muricata*) occurs discontinuously along the coast from Humboldt County south to San Francisco at elevations below about 980 feet (300 m) in this zone. It is abundant in Mendocino and Sonoma Counties. Stands also exist in San Luis Obispo and Santa Barbara Counties, the Channel Islands and Baja California. The Bishop Pine type identifies stands in which it is the dominant conifer, commonly occurring on shallow, acidic or often poorly drained soils. Very dense, even-aged stands may develop after intense fire occurrences after this closed-cone pine releases its seeds. This type has been mapped in eight subsections of the Coast Section and one inland, older naturalized stand in the Central Franciscan Subsection of the Ranges Section. Understory herbaceous species such as Brackenfern (*Pteridium aquilinum*) and Sword Fern (*Polystichum munitum*) and shrubs such as Coffeeberry (*Rhamnus californica*) and California Huckleberry (*Vaccinium ovatum*) are common understory plants. Other associated trees include Douglas-fir (*Pseudotsuga amezia*), Bolander Pine (*P. contorta* ssp. *bolanderi*), Pygmy Cypress (*Cupressus goveniana* ssp. *pygmaea* or *Callitropsis pygmaea*), Madrone (*Arbutus menziesii*), Shore Pine (*P. contorta* ssp. *contorta*) and Redwood (*Sequoia sempervirens*).”

http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev3_046448.pdf

The WRA Biological Resources Assessment included several photos of the Bishop Pine area which clearly show the mixture of other species which separate the individual Bishop Pine trees and dilute their presence on these acres. [DEIR, Appendix D]

In classifying the Bishop Pine Forest Alliance, WRA used the CDFW Natural Communities List which has the following entries:

| | <u>[Global and State Rank]</u> | <u>[CNDDDB Code]</u> |
|---|--------------------------------|----------------------|
| <u>Pinus muricata (Bishop pine forest) Alliance</u> | <u>G3 S3</u> | |
| <u>Northern Bishop Pine Forest</u> | <u>G2 S2.2</u> | <u>CTT83121CA</u> |
| <u>Southern Bishop Pine Forest</u> | <u>G2 S2.2</u> | <u>CTT83122CA</u> |

nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=24716&inline=1

The last column with the “CNDDDB Code” instructs that the “Northern Bishop Pine Forest” classification should not be used. Specifically, the current CDFW website states:

“Holland types originally tracked by the CNDDDB are referenced with a code beginning with ‘CTT.’ These are provided as ‘legacy information’ with the understanding that Holland CTT codes and community types are no longer supported by DFG. Instead, all new information on terrestrial natural communities should use the State’s standard nomenclature as provided in the current Natural Communities List.”

[CDFW, dfg.ca.gov/biogeodata/vegcamp/natural_comm_background.asp, August 8, 2014; May 1, 2015.]

The Natural Communities Lists posted by CDFW show ‘Northern Bishop pine’ with the Holland CTT code CTT 83121CA. Per CDFW, the ‘Northern Bishop pine’ is a legacy “Holland type” category which is ‘no longer supported’ and does not have a key for classification/application for a vegetation stand. Indeed, in a report issued by CDFW in February 2016 entitled the “Classification of the Vegetation Alliances and Associations of Sonoma County, California [http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=115808],” CDFW includes information solely on the Bishop Pine forest alliance and makes no mention of the no longer supported “Northern Bishop Pine” legacy classification, despite the fact that bishop pine in Sonoma County is within the northern geographic range of the species. More importantly, that report also states that the Bishop Pine forest alliance is ranked G3/S3.

As a result of this uncertainty as to Bishop Pine’s true rank, imperiled status and regional distribution (most recent data mapping the regional extent of Bishop pine in Mendocino County dates back to 1998) the project’s potential to remove 4 acres of Bishop Pine forest alliance is conservatively considered to be a significant impact requiring mitigation. As detailed below in Mitigation Measure Bio-2b, that mitigation involves a suite of efforts to preserve existing high quality Bishop Pine forest, enhance existing degraded Bishop Pine forest and create brand new Bishop Pine forest. All told, this suite of measures provide mitigation at a ratio of 3:1.

Mitigation Measure BIO-2: BIO-2a: Mitigate Impacts to Cypress forest-tall and Cypress forest – intermediate.

The impacts to 0.6 acres of Cypress forest habitat shall be mitigated through preservation at an offsite location. The County and City propose to use a portion of a site identified as Assessor's Parcel Number (APN) 118-50-045 which is adjacent to and north of the Caspar transfer station parcel. A conservation easement will be placed over a portion of the preservation site to permanently preserve an area at a 3:1 ratio to **compensate for** areas of impact at the proposed project site (Cypress forest-tall and Cypress forest – intermediate). At a 3:1 ratio, The conservation easement shall include a minimum of 1.8 acres and may consist of a mixture of the three cypress morphotypes; pygmy, intermediate, and/or tall cypress and Bolander's pine forest. The ~~4.8 acres~~ **acreage** is in addition to the area already being preserved for impacts to sensitive-listed individual tree species within the habitats mitigated for under BIO-2 (cypress forest--tall and intermediate--map units), and shall be coincident to the area placed under conservation easement per Mitigation Measure BIO-1b. Therefore, in addition to the 1.75 acres proposed for permanent preservation as part of Mitigation Measure BIO-1b, an additional 0.05 acres shall be included in the preservation area for a minimum of 1.8 acres.

To mitigate for the removal of 0.58 acre of Mendocino pygmy cypress (tall and intermediate morphotypes) [12.6% of onsite map units] the County will designate the Caspar Pygmy Forest Preserve encompassing a 28.3 acre parcel.³ The County will execute appropriate legal documents to guarantee that the Caspar Pygmy Forest Preserve will remain undeveloped in perpetuity and accessible for botanical research and other activities consistent with undiminished protection of the habitat. This may be accomplished by transferring title or an easement to an established conservation organization subject to a preservation covenant, or, if no such organization is found, by the County recording a covenant creating a conservation easement on behalf of the public. In that instance, the County will secure all access points to the property and post warning signs. Periodic inspection of the Caspar Pygmy Forest Preserve will be made by County personnel at the same times as the mandatory inspections are made of the cover of the nearby closed Caspar Landfill. A vegetation description and map of the mitigation parcel is included in Appendix L.

Level of Significance: Less than significant with mitigation.

³ **The County-owned parcel off Prairie Way in Caspar (APN 118-500-45) is undeveloped, is zoned Rural Residential with the potential for development of one or more single family houses. The proposed preservation site has a variety of habitats present, including pygmy cypress forest (short morphotype), Bishop Pine Forest Alliance, and pygmy cypress intermediate and tall morphotypes. A photograph of the proposed mitigation site is provided as Figure 3.4-3 and the location is shown on Figure 2-3. Vegetation communities mapping conducted at the site documented 12.3 acres of intermediate and tall morphotypes, as well as 7.1 acres of high quality pygmy cypress (short morphotype) [WRA 2015]. Therefore, a total of 19.4 acres of pygmy cypress forest will be preserved. This mitigation in the form of preservation would result in an approximate 30:1 mitigation ratio for impacts. A separate independent evaluation of the site concluded that the proposed Caspar Pygmy Forest Preserve "is composed largely of undisturbed pygmy cypress woodland" (Heise 2015).**

The preservation site is identified as APN 118-50-045, and is adjacent and to the north of the current Caspar facility. The preservation site has similar, if not more pygmy-forest oriented species composition, compared to the area of impact, with a mixture of true pygmy forest (stunted with both cypress and Bolander's pine present) as well as intermediate cypress and Bolander's pine areas, and some Bishop pine (per GHD May 2014 site visit). Unless preserved, portions of this site could be threatened by future development and/or encroachment from adjacent uses. For potential impacts to habitats with State Rank S1 or S2, preservation is deemed an appropriate mitigative activity for these areas since attempts for direct replacement of the habitats would be linked to a unique ecosystem relationship, which in this case includes slow growing species within a setting of restrictive soil conditions. Preservation will provide an immediate and permanent protection of an existing habitat similar to that being impacted, at an appropriate mitigation ratio (~~3:1~~) to compensate for the use of offsite location and the proposed activity of preservation. The ~~3:1~~ ratio is appropriate rate as it provides compensation for the use of an offsite location (versus onsite) as well as the use of preservation as opposed to other mitigation strategies such as replacement. A temporal loss is not anticipated. The mitigation approach is consistent with RM-28 which allows for preservation as a mitigative approach for impacts to special-status species habitat, and RM-74 that prioritizes minimization and avoidance prior to employing replacement, protection, or enhancement measures. In conjunction with the avoidance and minimization activities conducted during project planning, and after proposed preservation/protection activities, the impact is determined to be less than significant.

Mitigation Measure BIO-2b: Mitigate impacts to Bishop Pine Forest Alliance.

The impacts from removal of 4.0 acres of Bishop Pine Forest Alliance at the project site will be mitigated as follows:

- 1. Preservation of 5.76 acres of Bishop Pine Forest at the Caspar Pygmy Forest Preserve (APN 118-500-45), which is described above in Mitigation Measure BIO-2a. As shown on the vegetation map (included in Appendix L), a substantial area in the center of this parcel is Bishop Pine Forest. Unless preserved, this parcel would be surplus property available for sale and residential development. The provisions for protection, ownership and management of the mitigation parcel are described above in Mitigation Measure BIO-2a.**
- 2. Restoration of 6.29 acres of Bishop Pine Forest at the closed Caspar Landfill property (APN 118-500-11) owned by the County of Mendocino and City of Fort Bragg. The restoration will consist of reestablishment of 1.01 acres where Bishop Pine is absent and enhancement of 5.28 acres where the Bishop Pine habitat currently exists but is seriously degraded. The plan for reestablishment and enhancement was prepared by WRA Associates and is attached as Appendix L.**

In combination, these mitigation measures will increase the acreage of protected Bishop Pine Forest under public ownership. As stated by the WRA Associates report, these measures "may also be considered as mitigation for impacts to Bishop pine forest at the proposed transfer station on Highway 20." [Bishop Pine Forest Mitigation Plan, WRA Associates, April, 2016, p. 1]

Level of Significance: Less than significant with mitigation.

As described above in Mitigation Measure BIO-2b, the Bishop Pine forest removed by the project will be mitigated by a combination of preservation, restoration and enhancement at a 3:1 ratio compared to the acreage removed.

Impact BIO-3: Substantial Adverse Effect on Federally Protected Wetlands.

Approximately 0.22 acres of USACE palustrine emergent wetlands, and 3.11 acres of USACE forested wetlands (that coincide with cypress forest—pygmy polygon) were mapped within the property (WRA 2012). There are forested wetlands approximately 50 feet north and over 100 feet east of the project footprint. The palustrine emergent wetland area is approximately 200 feet east of the project footprint and approximately 25 feet north of the SR 20 improvements. The USACE provided a jurisdictional determination concurring with the wetland delineation as mapped (USACE 2013). State jurisdictional areas beyond the USACE jurisdictional wetlands, such as isolated wetlands or other waters, seasonal/ephemeral drainages, etc., were not observed and are believed to be coincident with USACE jurisdictional wetlands. The project footprint avoids impacts to state and federal jurisdictional wetlands and waters. There would be no impact to federally protected wetlands.

Mitigation Measures: No mitigation is necessary.

Level of Significance: No impact.

Impact BIO-4: Interfere Substantially with Movement of Native Resident or Wildlife Species or With Established Native Resident or Migratory Wildlife Corridors, or Impede Use of Native Wildlife Nursery.

The project site is not a migratory wildlife corridor nor does it support a native wildlife nursery. With regard to protection under the Migratory Bird Act, refer to the analysis under Impact BIO-1.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

Impact BIO-5: Conflict with Local Policies or Ordinances Protecting Biological Resources.

The project does not conflict with approved local, regional, or state habitat conservation plans, as there are no such special plans that would govern the project other than compliance with Mendocino County General Plan goals and policies in relation to minimization of impacts to biological resources, as discussed under Impact BIO-1 and BIO-2 above. Impact BIO-2 and Mitigation Measures s BIO-2(a) and (b) address minimization of impacts to pygmy forest and Bishop Pine Forest where feasible per the guidance of County General Plan goals and policies, in accordance with Policy RM-28's directive to "Provide replacement habitat of like quantity and quality on on- or off-site for special-status species." The project does not conflict with local policies for the protection of biological resources.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.

3.4.6 Cumulative Impacts

Impact BIO-C-1: Result in Cumulatively Considerable Contribution to Cumulative Impacts Related to Biological Resources.

Project impacts to Coast lily would be mitigated to a no-net loss level. Therefore, the project would not contribute to a cumulative impact to Coast lily.

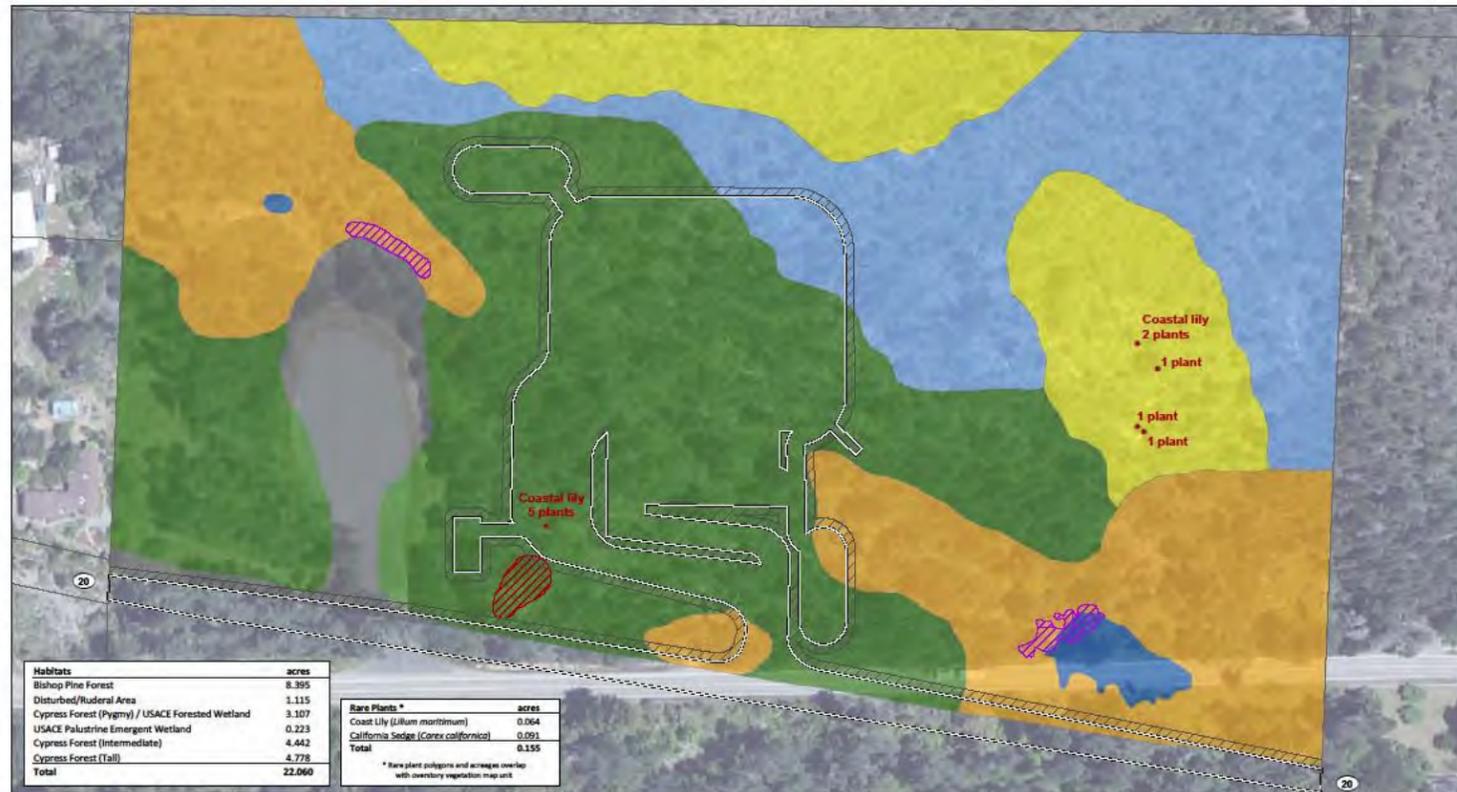
Project impacts to cypress forest-intermediate, and cypress forest-tall, which are State Rank S2 habitats, have been assessed both from a habitat perspective (calculated on an acreage basis), and on an individual tree basis for CRPR sensitive listed tree species dominant within some tree stands at the site. On a regional basis, the project impact (prior to mitigation) would be approximately up to 0.03%, although this calculation utilizes the estimate of 2,000 acres for regional extent of pygmy forest, while the project impacts are actually to cypress forest—intermediate and tall (not to cypress forest-pygmy). The cumulative projects listed in Table 3.0-1, do not currently have identified impacts to cypress forest—intermediate and/or cypress forest—tall habitat. Therefore, the project plus cumulative project would not result in cumulative impact to cypress forest—intermediate and —tall. There is no impact from the project to cypress forest—pygmy as this sensitive area on the property has been avoided through project layout.

Project impacts to Bishop pine forest, ~~which is State Rank S3 habitat,~~ have been assessed from a habitat perspective on an acreage basis within the regional context of habitat extent and quantity. On a regional basis, the project impact would be approximately up to 0.03% of the habitat mapped in the County. Per the individual project thresholds (loss of more than 1 acre of ~~high-quality~~ habitat and loss of more than 1% of regional ~~high-quality~~ habitat), the loss of less than 1% of regional potentially sensitive Bishop pine habitat is less than significant. Of the cumulative projects listed in Table 3.0-1, none have known impacts to Bishop pine. **Additionally, Mitigation Measure Bio-2b increases the acreage of Bishop Pine Forest under public protection and adds new Bishop Pine Forest.** Therefore, the project plus cumulative project would not result in additional cumulative impact.

With regard to impacts to special-status birds, bats, and voles, it is assumed the cumulative projects could have similar impacts as described for the project and would follow similar mitigation included in this EIR. The mitigation measures identified in this EIR comply with all appropriate policies for preserving and protecting biological resources in the Mendocino County General Plan and follow standard procedures recommended by resource agencies. Specific cumulative projects, as well as other projects in the greater Mendocino Coast area would be required to follow similar mitigation to avoid or protect special-status birds and bats. Therefore, impacts remaining after implementation of mitigation would not occur or would be minor and would not make a considerable contribution to cumulative impact on special-status birds, bats, or voles.

Mitigation Measures: No mitigation is necessary.

Level of Significance: Less than significant.



Paper Size 11" x 17" (ANSI B)

0 50 100 150 200 Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 5402 Feet

Legend:

- Bishop Pine Forest
- Disturbed/Ruderal Area
- Cypress Forest (Pygmy) / USACE Forested Wetland
- USACE Palustrine Emergent Wetland
- Cypress Forest (Intermediate)
- Cypress Forest (Tall)
- Rare Plant Individuals - Coastal Lily
- Rare Plants - California Sedge
- Rare Plants - Coast Lily
- Construction Footprint
- Permanent Footprint
- Parcels

Mendocino Solid Waste Management Authority
Central Coast Transfer Station EIR

Job Number: 8411065.04
Revision: A
Date: 04 Nov 2014

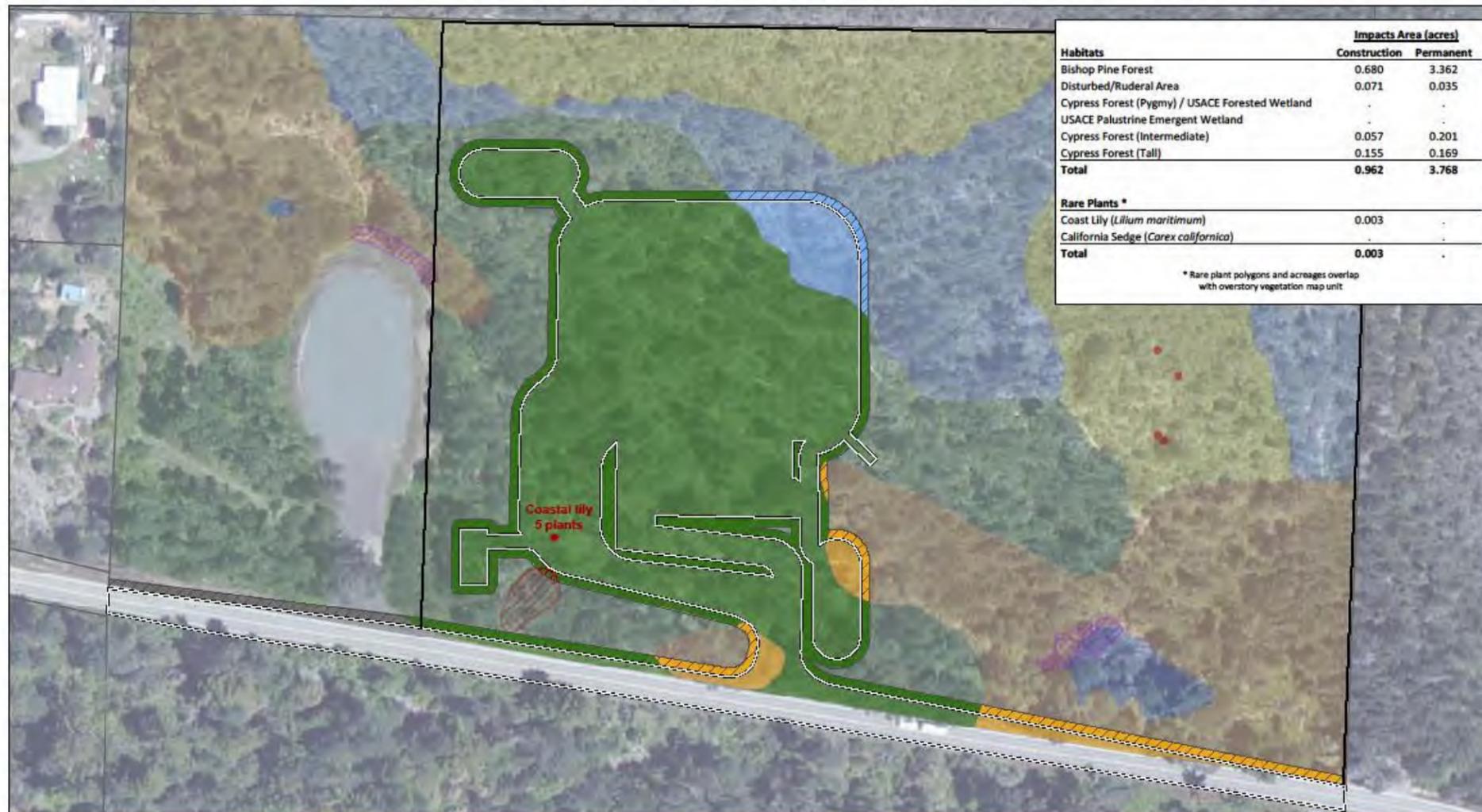
**Permanent & Construction Footprints
Existing Conditions - Biology**

Figure 3.4-1

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| Habitats | Impacts Area (acres) | |
|---|----------------------|--------------|
| | Construction | Permanent |
| Bishop Pine Forest | 0.680 | 3.362 |
| Disturbed/Ruderal Area | 0.071 | 0.035 |
| Cypress Forest (Pygmy) / USACE Forested Wetland | - | - |
| USACE Palustrine Emergent Wetland | - | - |
| Cypress Forest (Intermediate) | 0.057 | 0.201 |
| Cypress Forest (Tall) | 0.155 | 0.169 |
| Total | 0.962 | 3.768 |

| Rare Plants * | | |
|---|--------------|---|
| Coast Lily (<i>Lilium maritimum</i>) | 0.003 | - |
| California Sedge (<i>Carex californica</i>) | - | - |
| Total | 0.003 | - |

* Rare plant polygons and acreages overlap with overstory vegetation map unit

Paper Size 11" x 17" (ANSI B)

0 50 100 150 200 Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 5402 Feet

Mendocino Solid Waste Management Authority
Central Coast Transfer Station EIR

Job Number 8411065.04
Revision A
Date 04 Nov 2014

Permanent & Construction Footprints
Impacts - Biology

Figure 3.4-2

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Data source: Data Controller, Data Set Name/Title, Version/Date. Created by/owner

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-  Mitigation Site
-  Parcels
-  Rivers/Streams

3.9 Hydrology and Water Quality

This section evaluates the potential impacts related to hydrology and water quality during construction and operation of the project. To provide the basis for this evaluation, the Setting section describes the hydrological setting for the project area, including regional and local surface water and groundwater characteristics. Descriptions in this section are based on reviews of published information, reports, and plans regarding regional and local hydrology, climate, topography, and geology. The evaluation section establishes the thresholds of significance, evaluates potential hydrology and water quality impacts, and identifies the significance of impacts. Where appropriate, mitigation measures are presented to reduce impacts to a less than significant level.

3.9.1 Setting

The following discusses the hydrology and water quality-related context in which the proposed project would be constructed and would operate, including descriptions of the project area and stormwater management system of the project site; regional climate and hydrology; beneficial uses of surface waters; surface water quality; drainage and flooding; and local groundwater basin and beneficial uses. The setting focuses on the site for the proposed Central Coast Transfer Station. Closure of the Caspar Facility and the land transfer described in the Project Description would not result in new land uses or ground disturbance that would affect the hydrology or water quality of the area. Therefore, the hydrology and water quality-related context for the Caspar Facility and land transfer areas are not described in this section.

Regional Climate

The project area is characterized by cool, foggy summers and cool, rainy winters. Due to the proximity to the Pacific Ocean, the project site has very mild weather throughout the year. Most of the rainfall occurs from November to April with some light showers during the summer. Fog and low overcast clouds are common within the area, especially during the evening and early morning hours. The intense maritime effect of the Pacific Ocean causes uniquely cool summers for the area. In places a few miles inland, consistently hotter summer temperatures are found, a phenomenon typical of the Californian coastline.

January is the coldest month, with an average maximum temperature of 55.1 °F (12.8 °C) and an average minimum temperature of 39.9 °F (4.4 °C). The warmest month of the year is September, which has an average maximum temperature of 65.8 °F (18.8 °C) and an average minimum temperature of 49.2 °F (9.6 °C). Freezing temperatures occur during the winter months with an average of 11.1 days annually (NOAA 2014).

More than 96 percent of the total precipitation occurs in an 8-month period beginning in October and ending in May. Average annual precipitation is 40.24 inches at the project site. The wettest year on record was 1995 with 61.90 inches and the driest year on record was 2013 with 12.31 inches. The maximum precipitation recorded in one month was 21.60 inches in December 2002. The maximum 24-hour rainfall was 4.36 inches on December 28, 2002. Snow is extremely rare at the project site with the only recorded snowfall in January 1907 (NOAA 2014).

Regional Hydrology

The proposed project site was evaluated by LACO and Associates (LACO) in June 2012 to determine soil characteristics and drainage features (LACO 2012). The site was determined to be

characterized by relatively flat (2 to 5% slopes) to gently sloping (5 to 9% slopes) terrain. Elevations at the site range from a low of approximately 400 feet above mean sea level (msl) on the western portion to a high of approximately 430 feet msl at the northeast corner. Surface drainage on the site is generally split into two different drainage areas. The northwestern portion of the site generally drains to the northwest, while the southeastern portion of the site drains to the ~~east.~~ south. The undeveloped site is predominately covered by a very dense mixed forest with the only clearings consisting of a turnout off Highway 20, and jeep trails along a portion of the north and east perimeters. There are no creeks located on the project site.

Beneficial Uses of Surface Waters

The current 2011 Basin Plan prepared by the North Coast Regional Water Quality Control Board (NCRWQCB) identifies the beneficial uses of surface waters and groundwater within its region (NCRWQCB 2011). The Basin Plan assigns beneficial uses by Hydrologic Areas and Sub Areas. The project is located within the Noyo River Hydrologic Area (113.20), which includes the following existing beneficial uses: Municipal and Domestic Supply; Agricultural Supply; Industrial Service Supply; Groundwater Recharge; Hydropower Generation; Freshwater Replenishment; Navigation; Water Contact Recreation; Non-Contact Water Recreation; Commercial and Sport Fishing; Warm Freshwater Habitat; Cold Freshwater Habitat; Wildlife Habitat; Rare, Threatened, or Endangered Species; Migration of Aquatic Organisms; Spawning, Reproduction, and/or Early Development; and Aquaculture. The beneficial uses provide the basis for determining appropriate water quality objectives for the region (NCRWQCB, p. 2-11 2011).

Surface Water Quality

In accordance with Section 303(d) of the Federal Clean Water Act, state governments must present the U.S. Environmental Protection Agency (U.S. EPA) with a list of "impaired water bodies," defined as those water bodies that do not meet water quality standards, even after point sources of pollution have been equipped with the minimum required levels of pollution control technology.

The current 2010 Clean Water Act Section 303(d) list assigns impaired water bodies by Hydrologic Areas and Sub Areas. The project is located within the Noyo River Hydrologic area, which is listed as impaired for sediment/siltation and water temperature (SWRCB 2010).

Placement of a water body on the Section 303(d) list acts as the trigger for developing a Total Maximum Daily Load (TMDL), which is a pollution control plan for each water body and associated pollutant/stressor on the list. The TMDL identifies the quantity of a pollutant that can be safely assimilated by a water body without violating water quality standards.

A TMDL for sediment in the Noyo River was adopted by the United States Environmental Protection Agency (USEPA) on December 16, 1999. The TMDL includes numeric targets, source analysis, and sediment loading rates within the watershed (USEPA 1999). To date, no TMDL has been developed for the Noyo River temperature impairment.

Drainage and Flooding

The Federal Emergency Management Agency (FEMA) delineates regional flooding hazards as part of the National Flood Insurance Program. According to local Flood Insurance Rate Maps, the project site is not located within a 100-year floodplain, or other flood area (FEMA 2011).

Areas along streams may be inundated during major or prolonged storms. FEMA has mapped the areas susceptible to flooding during the 100-year storm event. While the 100-year floodplain may

be relatively limited in extent along smaller streams or streams incised valleys, the floodplain can be wide and extensive for major rivers, particularly where they pass through relatively flat valleys.

Floodways are the portion of the stream that carries peak runoff. Floodways cannot be filled or developed without causing increased flooding in other parts of the watershed.

In addition to natural flood hazards, flooding can occur as a result of inundation caused by failure of a dam, a result of seiches (i.e., earthquake-induced oscillating waves in an enclosed water body), tsunamis (i.e., earthquake-induced waves formed in the open ocean that reach a shoreline), or mudflows. The project area is not located near isolated bodies of water that would be subject to inundation by seiche. Similarly, the project area is not located within a coastal area subject to inundation from tsunami (Cal EMA 2009). The topography of the project area is generally flat and no areas that are likely to produce mudflows have been mapped or are present (USGS 1997).

Local Groundwater Basin and Beneficial Uses

The project area is located within the Fort Bragg Terrace Area Groundwater Basin (Basin 1-21). The groundwater system within the basin provides numerous benefits to the region, including rural residential and municipal water supplies, irrigation water for agriculture, and base flow to streams and surface water bodies.

The basement rock in the project area is coastal belt Franciscan complex, composed primarily of greywacke sandstone with shale lenses. Unconformably overlying the Franciscan complex are quaternary marine terrace deposits, including the older Lower Caspar Orchard deposits, which underlie the project site. The marine deposits consist mainly of fine-grained sand, with interbedded clayey layers.

The current 2011 Basin Plan prepared by the NCRWQCB identifies the beneficial uses of groundwater within its region. The Basin Plan assigns the following existing beneficial uses for groundwater: Municipal and Domestic Supply; Agricultural Supply; Industrial Water Supply; Industrial Process Water Supply; and Freshwater Replenishment to Surface Waters; among others (NCRWQCB 2011).

3.9.2 Regulatory Framework

Federal

Clean Water Act

The federal Clean Water Act (CWA), enacted by Congress in 1972 and amended several times since, is the primary federal law regulating water quality in the United States and forms the basis for several State and local laws throughout the country. The CWA established the basic structure for regulating discharges of pollutants into the waters of the United States. The CWA gave the U.S. EPA the authority to implement federal pollution control programs, such as setting water quality standards for contaminants in surface water, establishing wastewater and effluent discharge limits for various industry categories, and imposing requirements for controlling nonpoint source pollution. At the federal level, the CWA is administered by the U.S. EPA and U.S. Army Corps of Engineers (USACE). At the state and regional levels in California, the act is administered and enforced by the SWRCB and the nine RWQCBs.

Section 303(d) of CWA requires state governments to present the U.S. EPA with a list of "impaired water bodies," defined as those water bodies that do not meet water quality standards, even after point sources of pollution have been equipped with the minimum required levels of pollution control technology.

Sections 404 and 401 of the CWA require permitting and state certification for construction and/or other work conducted in “waters of the United States.” Such work includes levee work, dredging, filling, grading, or any other temporary or permanent modification of wetlands, streams, or other water bodies.

National Flood Insurance Program

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA also issues Flood Insurance Rate Maps identifying which land areas are subject to flooding. The maps provide flood information and identify flood hazard zones in each community. The design standard for flood protection is established by FEMA, with the minimum level of flood protection for new development determined to be the 1-in-100 annual exceedance probability (i.e. the 100-year flood event).

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate industrial and municipal discharges to surface waters of the United States. NPDES permit regulations have been established for broad categories of discharges including point source municipal waste discharges and nonpoint source stormwater runoff.

NPDES permits identify limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits.

State

Porter Cologne Water Quality Control Act

The Porter Cologne Water Quality Control Act is the primary statute covering the quality of waters in California. Under the Act, the SWRCB has the ultimate authority over State water rights and water quality policy. The nine RWQCBs regulate water quality under this Act through the regulatory standards and objectives set forth in Water Quality Control Plans (also referred to as Basin Plans) prepared for each region.

The five-member SWRCB allocates water rights, adjudicates water right disputes, develops state-wide water protection plans, establishes water quality standards, and guides the nine RWQCBs located in the major watersheds of the state. The joint authority of water allocation and water quality protection enables the SWRCB to provide comprehensive protection for California’s waters. The SWRCB is responsible for implementing the Clean Water Act, issues NPDES permits to cities and counties through RWQCBs, and implements and enforces the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) (Order No. 2009-0009, as amended by Order No. 2010-0014). Order No. 2009-0009 took effect on July 1, 2010 and was amended on February 14, 2011. The Order applies to construction sites that include one or more acre of soil disturbance. Construction activities include clearing, grading, grubbing, excavation, stockpiling, and reconstruction of existing facilities involving removal or replacement.

Safe Drinking Water Act

The 1974 Federal Safe Drinking Water Act, as amended in 1986 and 1996, requires the protection of drinking water and its sources (i.e., rivers, lakes, reservoirs, springs, and groundwater wells). The

act authorizes the EPA to set national standards for drinking water to protect against pollutants. The EPA, states, and local agencies work together to enforce these standards.

In California, the EPA has delegated the responsibility of administration of the California drinking water system to the California Department of Health Services (DHS). The DHS is accountable to the EPA for program implementation and for adopting standards and regulations that are at least as stringent as those developed by the EPA. The applicable state primary and secondary maximum contaminant levels (MCLs) are set forth in Title 22 CCR Division 4, Chapter 15, Article 16.

Water Rights in California

California has a dual system of water rights for surface water that recognizes both riparian and appropriative rights. A riparian right is the right to use water based on the ownership of property which abuts a natural watercourse. Water claimed by virtue of a riparian right must be used on the riparian parcel, and cannot be sold for use elsewhere. An appropriative right is an entitlement to water based on the actual use of the water. Appropriate rights may be sold or transferred.

California recently has passed three bills (AB 1739, SB 1168, and SB 1319), which together create a framework for implementing sustainable, local groundwater management for the first time in California history. However, these recently approved bills do not apply to this project as the groundwater sustainability plans will not come into effect until 2020 or 2022 depending on the priority level assigned to the various groundwater basins. Generally, landowners overlying a groundwater resource have a right to make reasonable use of that groundwater. The project will use groundwater under this principle.

Regional and Local

Regional Water Quality Control Board

Regional Water Boards adopt and implement Water Quality Control Plans (Basin Plans) which recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The current 2011 Basin Plan prepared by the NCRWQCB provides a definitive program of actions designed to preserve and enhance water quality and to protect beneficial uses of water in the North Coast Region.

The NCRWQCBs' planning process also includes water quality planning programs (adoption, review, and amendment of state-wide and basin water quality control plans and policies), including development and adoption of TMDLs and implementation plans; regulatory programs (permitting and control of discharges to water through "NPDES" and WDR permits, discharge to land – "Chapter 15," and storm water and storage tanks programs); monitoring and quality assurance programs; nonpoint source management programs, including the "Watershed Management Initiative;" and funding assistance programs, including grants and loans.

North Coast RWQCB Basin Plan

As set forth in the Basin Plan, specific beneficial uses of surface water and groundwater have been established for the Hydrologic Area in which the project is located (see Section 3.9.1, Setting). To protect these beneficial uses, the Basin Plan sets forth the following water-resource protection objectives for inland surface waters:

Color: Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

Tastes and Odors: Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance or adversely affect beneficial uses.

Floating Material: Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

Suspended Material: Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

Settleable Material: Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.

Oil and Grease: Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

Biostimulatory Substances: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

Sediment: The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Turbidity: Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

pH: The pH shall conform to those limits listed in the basin plan. The pH shall not be depressed below 6.5 nor raised above 8.5.

Changes in normal ambient pH levels shall not exceed 0.2 units in waters with designated marine (MAR) or saline (SAL) beneficial uses nor 0.5 units within the range specified above in fresh waters with designated COLD or WARM beneficial uses.

Dissolved Oxygen: The dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time:

- Waters designated WARM, MAR, or SAL 5.0 mg/l
- Waters designated COLD 6.0 mg/l
- Waters designated SPWN 7.0 mg/l
- Waters designated SPWN during critical spawning and egg incubation period 9.0 mg/l

Bacteria: The bacteriological quality of waters of the North Coast Region shall not be degraded beyond natural background levels. In no case shall coliform concentrations in waters of the North Coast Region exceed the following:

- In waters designated for contact recreation (REC-1), the median fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 50/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml (State Department of Health Services).
- At all areas where shellfish may be harvested for human consumption (SHELL), the fecal coliform concentration throughout the water column shall not exceed 43/100 ml for a 5-tube decimal dilution test or 49/100 ml when a three-tube decimal dilution test is used (National Shellfish Sanitation Program, Manual of Operation).

Temperature: Temperature objectives for COLD interstate waters, WARM interstate waters, and Enclosed Bays and Estuaries are as specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions thereto. In addition, the following temperature objectives apply to surface waters:

- The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.
- At no time or place shall the temperature of any COLD water be increased by more than 5°F above natural receiving water temperature.
- At no time or place shall the temperature of WARM intrastate waters be increased more than 5°F above natural receiving water temperature.

Toxicity: All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Water Board.

The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary for other control water that is consistent with the requirements for "experimental water" as described in Standard Methods for the Examination of Water and Wastewater, 18th Edition (1992). As a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a 96-hour bioassay.

In addition, effluent limits based upon acute bioassays of effluents will be prescribed. Where appropriate, additional numerical receiving water objectives for specific toxicants will be established as sufficient data become available, and source control of toxic substances will be encouraged.

Pesticides: No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no bioaccumulation of pesticide concentrations found in individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no bioaccumulation of pesticide concentrations found in bottom sediments or aquatic life.

Waters designated for use as domestic or municipal supply shall not contain concentrations of pesticides in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 4, Section 64444.5.

Chemical Constituents: Waters designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Division 4, Article 4, Section 64435.

Waters designated for use as agricultural supply shall not contain concentrations of chemical constituents in amounts which adversely affect such beneficial use.

North Coast RWQCB NPDES Permit

Projects that discharge stormwater runoff to waters of the U.S. from land disturbances greater than one acre require a General Construction Stormwater Discharge Permit from the RWQCB, as required under NPDES Order No. 2009-0009, as amended by Order No. 2010-0014. To obtain a permit, a discharger files a Notice of Intent to be included under the State's NPDES permit.

General conditions of the permit require that dischargers must eliminate non-stormwater discharges to stormwater systems, develop and implement a Storm Water Pollution Prevention Plan (SWPPP), and perform inspections of stormwater pollution prevention measures.

Mendocino County Groundwater Ordinance

The Mendocino County Groundwater Ordinance (Ordinance) is the guidance document that the County Environmental Health Division uses to evaluate proof of water, as required in Policy 6b. The standards from the Ordinance are used as the significance thresholds for groundwater quantity impacts discussed in this Section.

Mendocino County General Plan Goals and Policies

The Mendocino County General Plan contains the following goals and policies that are relevant to hydrology and water quality for the project:

Goal RM-2 (Water Supply): Protection, enhancement, and management of the water resources of Mendocino County.

Goal RM-3 (Water Quality): Land use development and management practices that protect or enhance water quality.

Policy RM-18: No division of land or Use Permit shall be approved without proof of an adequate (as defined by the County Environmental Health Division) potable water supply for each parcel being created or proposed for special use.

Policy RM-19: Promote the incorporation of project design features that will improve water quality by minimizing impervious surface areas, maximizing on-site retention of storm water runoff, and preserving existing vegetation to the extent possible.

Examples include:

- Using Low Impact Development (LID) techniques.
- Updating the County's Building Codes to address "green" building and LID techniques that can reduce pollution of runoff water, and promoting these techniques.

Policy RM-20: Require integration of storm water best management practices, potentially including those that mimic natural hydrology, into all aspects of development and community design, including streets and parking lots, homes and buildings, parks, and public landscaping.

3.9.3 Evaluation Criteria and Significance Thresholds

The project would cause a significant impact related to hydrology and water quality, as defined by the CEQA Guidelines (Appendix G), if it would:

- Violate any water quality standards or waste discharge requirements;

Significance Threshold (Sources)

Non-compliance with Waste Discharge Requirements for Low Threat Discharges to Surface Waters in the North Coast Region (NCRWQCB Order No. R1-2009-0045)

Non-compliance with the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. (State Water Resources Control Board Order No 2009-0009 as amended by Order No 2012-0006)

- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);

Significance Threshold (Sources)

Mendocino County Coastal Groundwater Development Guidelines

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Inundation by seiche, tsunami, or mudflow.

Areas of No Project Impact

As explained below, construction of the project would not result in impacts related to several of the significance criteria identified in Appendix G of the current CEQA Guidelines. The following significance criteria are not discussed further in the impact analysis, for the following reasons:

- **Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.** The proposed project does not include the construction of new housing or structures for human occupancy. Therefore, the significance criterion related to the placement of housing within a 100-year flood hazard zone is not applicable to the proposed project and is not discussed further.
- **Place within a 100-year flood hazard area structures which would impede or redirect flood flows.** The proposed project does not include the construction of structures within a FEMA designated 100-year flood hazard area. Therefore, the significance criterion related to impeding or redirecting flood flows within a 100-year flood hazard area is not applicable to the proposed project and is not discussed further.
- **Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.** The proposed project does not include the construction of structures within an area subject to inundation

from failure of a levee or dam (Mendocino County 2008). Therefore, the significance criterion related to flooding as a result of the failure of a levee or dam is not applicable to the proposed project and is not discussed further.

- **Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.** The project area is not located near an isolated body of water that would be subject to inundation by seiche. The proposed project does not include the construction of structures within an area subject to inundation from a tsunami (Cal EMA 2009). The project area is generally flat and not capable of a mudflow event and according to the MHMP has a landslide hazard rating of low (Mendocino County 2008). Therefore, the significance criterion related to inundation by seiche, tsunami, or mudflow is not applicable to the proposed project and is not discussed further.

3.9.4 Methodology

Potential impacts to hydrology and surface water quality are evaluated for both construction and operational activities. The project is evaluated to determine compliance with applicable federal, State, and local permitting and design requirements related to storm water quality, flooding, and drainage. Potential impacts related to groundwater depletion are evaluated, including the potential for pumping of groundwater for excavation dewatering. Flooding impacts are evaluated by determining if the project is located within a FEMA flood hazard area or other area of flooding, as well as assessing the project's compliance with local storm water requirements. The evaluation also considers additional runoff from new impervious areas, and whether such increases would exacerbate flooding at or downstream of the project area. Regional documents and maps were reviewed to identify hydrology and water quality resources that could be directly or indirectly affected by construction or operational activities.

The Caspar site is already developed and there would be no new ground disturbance or changes in the existing drainage as part of site closure. Therefore, there would be no impact to hydrology and water quality at the Caspar site. Therefore, impacts to hydrology and water quality-related impacts at the Caspar Facility are not described further.

3.9.5 Impacts and Mitigation Measures

Impact HWQ-1: Violate any Water Quality Standards or Waste Discharge Requirements.

The project is required to obtain and comply with necessary permits and comply with other Mendocino County and the NCRWQCB requirements, acting to prevent, or essentially reduce the potential for the project to violate any water quality standards or waste discharge requirements.

Construction

SWRCB Order No. 2009-0009 applies to public and private construction projects that include one or more acres of soil disturbance. Because the proposed Central Coast Transfer Station site is anticipated to disturb up to 4.72 acres of land, compliance with Order No. 2009-0009 would be required. Therefore, if construction activities associated with the project are not properly managed, applicable water quality standards and waste discharge requirements could be violated. The impact is considered significant.

Well Development

The proposed project would require a groundwater well to be drilled and operated for on-site water use. The short term impacts associated with construction and well development activities, are

related to site grading, exploratory drilling, well installation, well head and well house construction, well development, connection piping trenching and storage tank construction.

Well drilling activities would include a reverse mud rotary drilling technique utilizing a mud slurry to remove drill cuttings from the bore hole shaft. These cuttings and mud slurry are circulated through settlement tanks and not allowed to flow over the surface of the site or commingle with surface waters. The contractor would utilize large on-site tanks for well drilling and testing operations. The drilling mud would be contained in these tanks and removed from the site. Because the slurry would not be discharged but would be contained and removed, the impact to water quality associated with well drilling activities is considered less than significant.

After drilling is complete, the well would be developed by purging and testing. Well development purging consists of flushing the developed well and removal of any residual drilling mud. A pump test consists of continuous pumping and well performance monitoring over an approximately 72-hour period, and takes place after the well development purging. In addition, during this phase of construction, the well is disinfected with chlorine (sodium hypochlorite).

Well testing water that is discharged to the environment is required to conform to pertinent water quality standards. Well development and well pump test discharge water could be high in suspended solids and could contain chlorine residual. Impacts to water quality from discharge of well testing water are considered significant.

Operation

Some liquids could be generated on the tipping floor from cleaning, odor reduction misting, or solid waste trucks when unloading solid waste after rainstorms. The design of the main indoor drainage control system would direct liquids from the waste and unloading areas to flow through a clarifier to remove solids, then to an on-site 500-gallon above ground storage tank. Liquids would not be allowed to leave the site and stormwater would not be allowed to enter the building. Facility and equipment inspections, combined with monitoring of the storage tank containment area, allow for the detection of potential sources of leachate leaks to the environment and early corrective actions to be implemented if necessary. The amount of wastewater generated is expected to be of such minimal quantity that most of the water is anticipated to evaporate. Facility operations would include removal of the wastewater by a licensed waste hauler with disposal at a permitted wastewater treatment facility when the tank becomes full. Therefore, impacts related to wastewater generated from operations would be less than significant.

The motor oil recycling tank and antifreeze recycling tank planned for the recycling drop-off area are standard features used at many transfer stations. The motor oil tank will have double-containment and be encased in concrete to protect it from any rupture. Likewise, the antifreeze recycling tank would have external containment to prevent any leaks from escaping. Nevertheless, public use can cause minor small spills when motor oil or antifreeze are being poured into the tanks, which could be carried away if exposed to rain/stormwater. Also, appliances and electronics in recycling drop-off areas create a potential for minor transmission of contaminants if similarly exposed to rain. Exposure to rain will be prevented by roofing these oil, antifreeze and appliance/electronics recycling areas and grading to prevent infiltration of stormwater.

Stormwater discharges from operation of the project are required to comply with applicable provisions and performance standards stated in the National Pollutant Discharge Elimination System (NPDES) permit. As required by the NPDES permit, County and NCRWQCB requirements,

waste materials will not be discharged to drainage areas. Because the Central Coast Transfer Station has the potential to discharge pollutants from a point source (e.g., leaking oil from hauling trucks), the facility would be required to obtain an Industrial SWPPP under California Water Code Section 13260. The impact to water quality during operation of the project is considered significant.

Construction and operations of the proposed project would result in potentially significant water quality impact.

Mitigation Measure HWQ-1a: Manage Construction Storm Water.

The County and City shall obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by Order No. 2012-0006. In compliance with the NPDES requirements, a Notice of Intent (NOI) shall be prepared and submitted to the NCRWQCB, providing notification and intent to comply with the State of California General Permit. In addition, a Construction Storm Water Pollution Prevention Plan (SWPPP) shall be prepared for pollution prevention and control prior to initiating site construction activities. The Construction SWPPP shall identify and specify the use of erosion sediment control best management practices (BMPs) for control of pollutants in stormwater runoff during construction related activities, and shall be designed to address water erosion control, sediment control, off-site tracking control, wind erosion control, non-stormwater management control, and waste management and materials pollution control. A sampling and monitoring program shall be included in the Construction SWPPP that meets the requirements of the NCRWQCB to ensure the BMPs are effective. A Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee implementation of the Plan, including visual inspections, sampling and analysis, and ensuring overall compliance.

Mitigation Measure HWQ-1b: Industrial Storm Water General Permit.

The County and City shall obtain coverage under State Water Resources Control Board Order No. 97-03-DWQ, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities. This shall include submittal of a notice of intent to obtain permit coverage, and preparation, retention on site, and implementation of a SWPPP. The SWPPP shall identify the sources of pollution that affect the quality of industrial storm water discharges and authorized non-storm water discharges, and describe and ensure the implementation of best management practices to reduce or prevent pollutants in industrial storm water discharges. The SWPPP shall also include a monitoring program and other requirements contained in Order No. 97-03. Implementation of the SWPPP shall include the necessary inspections, monitoring, and overall compliance.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measures HWQ-1a and HWQ-1b would mitigate potential impacts on water quality standards and waste discharge requirements to a less than significant level by complying with, and receiving coverage under, the NPDES General Permit for Discharge of Stormwater associated with construction and operational activities. The implementation of BMPs, consistent with the requirements of the site's NPDES General Permit for Discharge of Stormwater associated with Construction Activity and the SWPPP, would ensure that the project does not violate any water quality standards or waste discharge requirements. With implementation of Mitigation Measures HWQ-1a and HWQ-1b, the projects construction and operational water quality impacts would be reduced to a less than significant level.

Mitigation Measure HWQ-1c: Well Development According to Mendocino County and California State Standards.

The contractor shall ensure that any well development and well pump test water is disposed of in accordance to the discharge limitations of the NCRWQCB general permit for Dewatering and Other Low Threat Discharges to Surface Waters if disposed of in the drainage system. If sediment concentrations are in excess of surface discharge standards then compliance shall be achieved through the on-site detention of water in a storage tank to allow for the settlement of suspended solids. In addition, the contractor shall discharge all well development disinfection discharges containing chlorine residuals after treating the discharge to meet discharge requirements. With implementation of the above mitigation measures, the water quality impacts due to well development would be reduced to a less-than-significant level.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure HWQ-1c would mitigate potential impacts on water quality standards and waste discharge requirements to a less than significant level by complying with NCRWQCB general permit for Dewatering and Other Low Threat Discharges to Surface Waters. With implementation of Mitigation Measures HWQ-1c, the project's construction water quality impacts would be reduced to a less than significant level.

Impact HWQ-2: Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge.

Pumping of groundwater that causes the groundwater gradient (slope of the water table surface) to change either its direction or its magnitude by more than 10% of the pre-Project direction and magnitude is considered significant (groundwater flow is directionally proportional to the gradient). Based on the Mendocino County Coastal Groundwater Development Guidelines, a project using groundwater cannot cause interference of more than 10% of the existing drawdown at neighboring wells or reduction of well yield to less than 90% of the maximum-day demand. Excessive groundwater pumping has the potential to significantly impact the underlying aquifer and lower the local groundwater table.

A groundwater study was performed for the proposed Mendocino Coast Regional Park and Golf Course project adjacent to, and north of the project site. Prepared by Lawrence and Associates (March 2005), the study included the installation of several pumping and observation wells. The wells were drilled to a maximum depth of 91 feet below ground surface (bgs), where bedrock was encountered. The pumping and observation wells were constructed approximately 1,800 feet north of the project site and within the same geologic unit (Lower Caspar Orchard marine terrace sediments) underlying the project site. Testing of the wells determined groundwater was approximately 20 feet bgs and produced a long term yield of 4 to 5 gallons per minute (gpm) for a 2-inch diameter well with a 40-foot well screen.

The model area developed by Lawrence and Associates (March 2005), while considerably larger than the project area, included the location of the proposed project. A total of 24 wells, pumping at an average rate of 10 gpm were evaluated to access the possible impacts to groundwater. It was determined that neither the direction nor magnitude of the groundwater gradient changed significantly with pumping. The groundwater model predicted that the water pumped was approximately 92% from aquifer storage and about 8% from a reduction in stream flow from Newman Gulch. It was determined that the reduction in flow was less than the standard significance of 10 percent. In addition, the groundwater model showed that pumping from the wells would not cause the standards of significance for groundwater level or quantity to be exceeded.

Based on the geotechnical investigation performed by LACO and Associates (June 2012) for the project site, a groundwater well with a screen interval between 25 to 60 feet bgs within the terrace sediments at the site will likely provide at least 2 gpm. The report recommended that at a minimum, the well should be located at least 100 feet from the leachfield, and at the easterly portion of the site where the terrace sediments are likely thicker and the higher elevation will facilitate gravity flow to the facility. During the site investigation by LACO, groundwater was encountered at the project site to be on average 10 feet bgs. In the upslope areas, shallow perched groundwater was encountered at depths ranging from approximately 2 to 5 feet bgs.

Water demand for the project is expected to be less than 1,000 gallons per day, mainly for employee use. Assuming the groundwater well produces 2 gpm, the pump would need to operate for about 9 hours per day to meet the projects daily water demand.

The required groundwater production rate would be lower than the significance threshold of 10 percent. Therefore, impacts from groundwater pumping would be less than significant.

Mitigation Measures: No Mitigation is necessary.

Level of Significance: Less than significant.

Impact HWQ-3: Substantial Additional Sources of Polluted Runoff or Otherwise Substantially Degrade Water Quality.

The development of the proposed project would alter the types, quantities, and timing of stormwater contaminants relative to existing conditions. If this stormwater runoff is uncontrolled and not treated, the water quality of the discharge could affect off-site drainage channels and downstream water bodies.

Construction activities could result in stormwater discharges of suspended solids and other pollutants into local drainage channels from the project site. Construction related chemicals (e.g., fuels, paints, adhesives, etc.) could be washed into surface waters by stormwater runoff. The deposition of pollutants (e.g., gas, oil, etc.) onto the ground surface by construction equipment could similarly result in the transport of pollutants to surface waters by stormwater runoff or in seepage of such pollutants into groundwater.

The operation of the proposed project site could also introduce new stormwater pollutant sources. These pollutant sources would include oils and greases, petroleum hydrocarbons (e.g., gas and diesel fuels), nitrogen, phosphorous, and heavy metals. These pollutants could adversely affect stormwater discharges from the site.

The Local Enforcement Agency's Solid Waste Facilities permit for the potential site would prohibit the discharge of drainage containing solids, wash water, or leachate from solid wastes (14 CCR Article 6). The proposed project would be required to comply with these requirements by containing waste processing operations within the interior of the transfer station building and directing contact water into the building's interior collection system. Therefore, the discharge of drainage during operation from the solid waste processing area would not occur.

The type and concentration of stormwater discharge contaminants for developed areas varies based on a variety of factors, including intensity of urban uses such as vehicle traffic, types of activities occurring on site, types of chemicals used on-site (e.g., pesticides, herbicides, cleaning agents, petroleum by-products), road surface pollutants, and rainfall intensity. The design of the facility's stormwater management system would incorporate Low Impact Development (LID) strategies including minimization of the amount of stormwater generated and treated, retention and

detention in vegetated bioswales, rain gardens, and oil/water separators in order to limit the contaminants entering stormwater flows. However, due to the industrial nature of the proposed project, there is the potential to contribute additional sources of polluted runoff and to degrade water quality during site operations if not handled properly and done in compliance with State regulations. The impact to water quality is considered significant.

Mitigation Measures HWQ-1a: Manage Construction Storm Water and HWQ-1b: Industrial Storm Water General Permit.

Level of Significance: Less than significant with mitigation.

As described above under HWQ-1a and HWQ-1b, the implementation of BMPs, consistent with the requirements of the site's NPDES General Permit for Discharge of Stormwater associated with construction and operational activities, would ensure that the project does not violate any water quality standards. With implementation of the Mitigation Measures HWQ-1a and HWQ-1b, the project's construction and operational water quality impacts would be reduced to a less than significant level.

Impact HWQ-4: Substantially Alter Existing Drainage Pattern, or Substantially Increase Rate or Amount of Runoff in a Manner which would Result in Flooding On- or Off-site.

The project would not significantly alter the existing drainage patterns at the site. However, development of the project could lead to increased runoff due to removal of vegetation and the creation of impervious surfaces. Culverts, storm drains, seasonal drainage swales, and inlet and outlet structures would need to be constructed to manage stormwater. Prevention of localized flooding would depend on adequately sizing the onsite drainage features. The County requires that drainage features be designed in accordance with the Mendocino County Drainage Standards, and that peak runoff for the 2, 10, 50 and 100-year/24-hour storm events following development are not greater than under pre-development conditions.

A surface water hydrologic analysis has been performed for the project, considering pre- and post-development conditions (GHD 2014) and can be found in Appendix G. As part of this analysis the project area was divided into two drainage areas, identified as Drainage Area 1 and 2 (see Figure 2-3, in the Hydrologic Study located in Appendix G). A comparison of the peak runoff rates and volume for the 2, 10, 50 and 100-year/24-hour storm events under existing and project conditions are presented in Table 3.9-1. Comparing existing conditions to project conditions, shows that the project would increase runoff rates and volumes as a result of the change in land use due to the increase in impervious area (e.g., roofs and pavement surfaces), resulting in a significant impact.

The hydrologic report did not explicitly assess the stormwater contribution from the groundwater well house and access road (10-foot wide and 55-foot long), which would add approximately 0.01 acres of impervious area to the project site. Further review determined that the addition of 0.01 acres of impervious area would add approximately 0.02 cfs to the stormwater runoff for the facility.

Given the conservative nature of the hydrologic analysis, the original estimate of the amount of impervious area for the proposed transfer station took into account the entire foot print of the facility. This estimate is considered conservative due to the fact that the facility is not entirely impervious (e.g., some areas will be gravel and have grass strips). If the pervious areas were subtracted out and the impervious area of the well house and access road are added to the hydrologic analysis, there would be no net increase in the amount of impervious area. Therefore, the predicted stormwater runoff volumes in the hydrologic analysis are still considered valid.

Stormwater captured in the project area will be conveyed through sheet flow to a series of bioswales that surround the facility. The purpose of the bioswales is to control the concentration of flow from the project area as well as filter out sediment and chemical constituents that could impair water quality. This would be achieved by allowing stormwater to partially infiltrate and pass through the bioswale before being released to the detention basins.

Bioswales have been shown to remove pollutants such as phosphorous, metals (e.g., Cu, Zn, Pb), nitrogen, solids, organics, and bacteria at removal rates ranging from 68-98% (CASQA 2003). In order to handle runoff effectively, a bioswale needs to be sized appropriately for the area that it collects stormwater.

Table 3.9-1: Peak Runoff Rates and Volumes for Pre and Post-Project Conditions

| Drainage Area | | 2-year/24-hour | | | 10-year/24-hour | | | 50-year/24-hour | | | 100-year/24-hour | | |
|----------------|----------------------------|----------------|--------------|---------|-----------------|--------------|---------|-----------------|--------------|---------|------------------|--------------|---------|
| | | Pre-Project | Post-Project | % Diff. | Pre-Project | Post-Project | % Diff. | Pre-Project | Post-Project | % Diff. | Pre-Project | Post-Project | % Diff. |
| Basin 1 | Peak Flow (cfs) | 3.8 | 5.2 | 26% | 8.0 | 10.0 | 15% | 12.8 | 14.3 | 10% | 14.7 | 16.1 | 9% |
| | Total Storm Volume (ac-ft) | 0.22 | 0.30 | 26% | 0.48 | 0.56 | 15% | 0.74 | 0.82 | 10% | 0.84 | 0.92 | 9% |
| Basin 2 | Peak Flow (cfs) | 4.6 | 5.5 | 16% | 10.0 | 11.0 | 8% | 15.5 | 16.4 | 6% | 17.8 | 18.7 | 5% |
| | Total Storm Volume (ac-ft) | 0.27 | 0.32 | 16% | 0.58 | 0.63 | 8% | 0.89 | 0.94 | 6% | 1.02 | 1.07 | 5% |

Estimating the size of the required swale should be based on estimates that include site runoff, site soils, slope, swale vegetation, infiltration time, and space available. Based on the results of the surface water hydrologic analysis performed for the project, water surface elevations for the receiving stormwater channels are approximately 1-foot or less (assuming a 2-foot wide channel) and channel velocities are not expected to be above 4 feet per second (fps), under all storm events

A preliminary detention basin analysis was conducted to determine approximate detention basin volumes that would be necessary to keep runoff rates and volumes to pre-project conditions (GHD 2014). The detention basins were sized to reduce peak flow rates and volumes to pre-project conditions. These results were then compared to results from methods used to size detention ponds to minimize sediment transport potential from on-site to off-site drainages. The results from the hydrologic analyses demonstrate that use of the proposed detention ponds would serve to retain the potential increase in peak flows, runoff volumes, and increased sedimentation associated with conversion from existing to project conditions.

The required detention pond volumes are presented in Table 3.9-2. As shown in Table 3.9-2, the detention basin sizes presented can be constructed on-site.

Table 3.9-2: Detention Basin Volumes

| Drainage Area | Detention Basin Volume (ac-ft) |
|---------------|--------------------------------|
| Basin 1 | 0.77 |
| Basin 2 | 0.85 |

The largest storage volume required is for Detention Basin 2, with 0.85 acre-feet. Based on the results of the surface water hydrologic analysis for the project site, the required area for each detention basin is approximately 50 by 129 feet.

The drainage patterns for the project area are unlikely to significantly change under the proposed project. Under existing conditions, overland flow from Drainage Area 1 and 2 flows predominately to the northwest and to the south, respectively. Runoff generated on-site would continue to be allowed to flow in the same orientation and direction as under existing conditions.

Mitigation Measure HWQ-4: Reduce Potential for Increased Offsite Runoff.

The applicant shall design and construct detention basins within the project area to reduce stormwater runoff volume, rates, and sedimentation in addition to allowing stormwater to infiltrate. The specific locations of these detention basins will be determined during the development of the grading and drainage plans, as required by Mendocino County. To facilitate this, the applicant shall submit a final detailed design-level hydrologic and hydraulic analysis as necessary to Mendocino County detailing the implementation of the proposed drainage plans, including detention basin facilities that will conform to the following standards and include the following components, at a minimum:

3. The project shall ensure the peak runoff for the 2-, 10-, 50- and 100-year/24-hour storm events for post-development conditions is not greater than under existing conditions. The final grading and drainage plan, including detention basin designs, shall be prepared by a California licensed Professional or Civil

Engineer. All design and construction details shall be depicted on the grading and drainage plans and shall include, but not be limited to, inlet and outlet water control structures, grading, designated maintenance access, and connection to existing drainage facilities.

4. Mendocino County shall review and approve the grading and drainage plans prior to implementation to ensure compliance with County standards. The project shall incorporate any additional improvements deemed necessary by the County.
5. Once constructed, the drainage components, including detention basins and conveyance structures will be inspected by the County and maintained per the guidelines outlined in the projects SWPPP.
6. **The detention basins shall be designed to completely drain within 24 to 96 hours (also referred to as “drawdown time”). The 24-hour limit is specified to provide adequate settling time; the 96-hour limit is specified to mitigate vector control concerns (e.g., mosquitoes). The project shall employ erosion control practices (i.e., temporary seeding and mulching) to reduce the amount of sediment flowing into the basin. The outlet structures shall be armored (e.g., riprap lined or equivalent) and designed to evenly spread stormwater where appropriate and slow velocities to prevent erosion and re-suspension of sediment. Specifically, the northern most detention basin shall have a vertical outlet pipe located within the detention basin that is connected to a pipe manifold that discharges stormwater in a regulated manner through a minimum of four equally spaced discharge pipes. By spacing the diffuser pipes a minimum of 25 feet from each other and discharging into an existing drainage located in the Bishop Pine Forest, stormwater infiltration will be promoted while not impacting the pygmy forest. The southernmost detention basin shall utilize a similar approach to managing stormwater, but will only consist of one outlet pipe that discharges directly to the existing drainage swale on Highway 20.**

The contractor shall ensure that all disturbed areas of the project are graded in conformance with the approved grading and drainage plans in such a manner as to direct stormwater runoff to properly designed detention basins.

Level of Significance: Less than significant with mitigation.

Implementation of Mitigation Measure HWQ-4 would reduce the impact to less than significant by requiring the project to incorporate all necessary drainage and stormwater management systems, and to comply with all stormwater system design, construction, and operational requirements in the mitigation measure and by Mendocino County. In combination, the project's stormwater management components and compliance with mitigation measures and regulatory requirements act to preclude potentially adverse drainage and stormwater runoff impacts.

More specifically, the project drainage concepts will maintain the site's primary drainage patterns, and will modify and enhance drainage areas in order to accept developed stormwater discharged from the project site. Stormwater conveyance capabilities and capacities provided by the project will ensure that post-development stormwater runoff volumes and velocities do not exceed pre-development conditions. In addition, long term maintenance of stormwater controls would be required for compliance with the project's SWPPP.

3.9.6 Cumulative Impacts

Impact HWQ-C1: Result in a Cumulatively Considerable Contribution to Cumulative Impacts Related to Hydrology and Water Quality.

Cumulative projects identified in Table 3.0-1 would have the potential to affect water quality and increased runoff during construction and long-term operation. The projects would contribute stormwater flows to the local and regional drainage facilities. However, construction activities associated with cumulative projects would be subject to existing federal, State, and local regulations. Existing County policies for project design and approval, as well as NCRWQCB regulations, would minimize potential impacts to a less than significant level. Implementation of the Project plus the cumulative projects would not result in a significant cumulative impact on hydrology and water quality. Therefore, cumulative impacts would be less than significant.

Mitigation Measures: No Mitigation is necessary.

Level of Significance: Less than significant.

4.0 Alternatives Description and Analysis

4.1 Introduction

This chapter presents the alternatives analysis for the project. Section 15126.6(a) of the CEQA Guidelines requires EIRs to “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.” Section 15126.6(b) of the CEQA Guidelines also identifies the purpose of an EIR’s discussion and analysis of project alternatives which is to identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The CEQA Guidelines further require that the alternatives be compared to the proposed project’s environmental impacts and that the “no project” alternative be considered (Section 15126.6[d][e]). CEQA Guidelines Section 15126.6(e)(1) states that the purpose of describing and analyzing the no project alternative is “to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.” The no project analysis is required to “discuss the existing conditions at the time the notice of preparation is published...as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services (Section 15126.6[e][2]). If the project is a “development project on identifiable property, the “no project” alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved. In certain instances, the no project alternative means “no build” wherein the existing environmental setting is maintained. This would be the case for the Central Coast Transfer Station project. The “no project” alternative would entail continuing existing self-haul operations at the Caspar Facility and continuing use of the Willits Transfer Station as the coast’s commercial long-haul transfer station.

4.1.1 Identifying Project Alternatives

The County of Mendocino and City of Fort Bragg began their search for a potential transfer station site in 2007. Consultants surveyed dozens of potential locations throughout the greater Fort Bragg

area. From 2009 to 2011, City and County staff studied five potential locations. In 2011, the City and County named two of these sites as finalists for more intensive investigation, and on August 13, 2013, designated 30075 Fort Bragg-Willits Road (SR 20) as the preferred project site. The alternatives analyzed in this chapter in addition to the proposed project include the No Project Alternative, the Caspar Landfill Site Alternative, the Empire Waste Management Pudding Creek Road Site Alternative, the Leisure Time RV Park Site Alternative, and the Mendocino Parks & Recreation District Property Alternative and the Caspar Site Alternative. These alternatives were chosen for analysis because they either (1) could potentially meet the project objectives or (2) are currently used for solid waste activities. The environmentally superior alternative is discussed in Section 4.3, and alternatives which were previously considered but are not being carried further in this Draft EIR are described in Section 4.4 below.

4.2 Description of Alternatives

A conceptual design of the transfer station facility appears in Figure 2-2 for the preferred project site at 30075 Highway 20. If placed at any alternative location, the transfer station would include the same elements of approximately the same size, although the configuration could be altered. Operational standards would be essentially the same as set forth in Chapter 2.0, Project Description.

4.2.1 Alternative 1: No Project Alternative

Under the No Project Alternative solid waste in the coastal watershed would continue to be handled in the same manner as under existing conditions. Waste would be hauled to the Willits Transfer Station and self-haul would continue to occur at the Caspar facility. No new development would occur at the SR 20 site. Existing haul routes would remain the same and there would be no modification to any of the existing facilities including those at the Caspar, Pudding Creek, or Albion sites.

The SR 20 site is currently undeveloped and consists of various forest land and vegetation. Under the No Project Alternative the SR 20 site would remain as part of the JDSF. In the short- and long-term, no changes are expected to the project site. Therefore, the project site would remain in its undeveloped, forested, and vegetated state.

Under the No Project Alternative the hauling inefficiency would remain the same as under existing conditions. The No Project Alternative includes no changes or improvements to the existing facilities and therefore would not increase criteria air pollutants, energy use, GHG emissions, noise, or traffic relative to existing conditions; however, the efficiencies that would be gained with the project would not occur. In fact, in the context of GHG, the project would cause a net reduction of emissions and therefore results in a beneficial impact which would be lost under this No Project Alternative. Accordingly, impacts of the No Project Alternative on air quality, GHG emissions, as well as energy, would be greater than with the project.

Under the No Project Alternative there would be no vegetation removal, ground disturbance or construction, and therefore there would be no impact on aesthetics, forest resources, biological resources, cultural resources, geology, hazards, or land use.

4.2.2 Alternative 2: Caspar Landfill Site

The Caspar site is located at 14000 Prairie Way in Caspar (Figure 2-3). The 62-acre Caspar site was used for a landfill from 1967 to 1992 and for a self-haul transfer station from 1992 until the present. It is jointly owned by the County and City. The surrounding area is rural residential. The nearest residence is 950 feet from the transfer station area and there are three residences within 1,000 feet. Russian Gulch State Park borders the facility to the south.

The Caspar site was originally forest land but much of the original vegetation was stripped many years ago and there is now a large cleared area used for the existing self-haul facility. Little or no vegetation removal would be required if the proposed project was sited at the Caspar site.

A proposal from the County Solid Waste Division in 2006 for a new 2,500 square-foot self-haul building included schematics that showed how new construction could fit into the existing developed area. A commercial transfer station would require a larger footprint but it could be placed at the same spot, toward the southern end of the existing facilities. Electrical service, road access, and water wells are already established at the Caspar site, and on-site wastewater disposal could be developed to replace the existing portable toilets.

Aesthetics

The visual resource impacts of this alternative would be greater than the proposed project because the existing Caspar site has less vegetation to shield views of a new facility from a greater number of residences and recreational users. Even though this alternative would include development of a transfer station facility at an existing solid waste facility, there would be greater viewsheds impacted at the Caspar site compared to the proposed project site.

Agriculture and Forest Resources

There would be no impact to agricultural resources or conflict with a Williamson Act or agricultural zoning with Alternative 2 because the site is not zoned for agricultural uses, is not prime agricultural land and is not subject to any Williamson Act contracts. There would also be no forest land impacts with Alternative 2 because this alternative is already developed as a solid waste facility and would not require the removal of forest land to expand the facility.

Air Quality

The air quality impacts, for both air pollutants and air contaminants, associated with construction activities at the Caspar site would generally be similar to the proposed project, assuming development of a similar transfer station. The operational air quality impacts with this alternative would be approximately the same as the proposed project if the transfer station is constructed at the Caspar site because operation would be similar to the proposed project. However, the air pollutant emissions from transfer trailers, franchise hauler's collection trucks and self-haul vehicles would be higher with this alternative than the proposed project because the Caspar site is approximately seven miles south of the approximate center of waste generation, which is considered to be the intersection of SR 1 at SR 20. Overall, this alternative would have greater air quality impacts than the proposed project.

Biological Resources

Implementation of this alternative would eliminate the biological resources impacts anticipated with implementation of the proposed project because this site is already developed and used as a transfer station. A commercial transfer station at the Caspar site could be placed within the boundaries of the existing facility, toward the southern end of the site. Because the Caspar site is already developed, the biological resources impacts associated with this alternative would be less than with the proposed project.

Cultural Resources

The potential impacts on cultural resources anticipated with this alternative are expected to be less than with the proposed project because the Caspar site is already developed including paved and graded areas. However, as with the proposed project, construction of the project at the Caspar site could unearth unknown cultural resources which would be a significant impact. The same mitigation measures for the proposed project (Mitigation Measures CR-1, CR-2, and CR-3) would also be applicable to this alternative.

Geology and Soils

The Caspar site is located in a similar geologic area, and with similar soils, as the proposed project site. Also, the Caspar site is relatively flat and has been partially developed. Therefore, the development of the Caspar site for transfer station operations would be expected to result in the same seismic and erosion hazards that would be anticipated with development of the project site.

Greenhouse Gas Emissions

Operationally, this alternative would have similar emissions as the proposed project because they would both be similarly sized. Overall, this alternative would generate higher emissions than the proposed project because the Caspar site is approximately seven miles south of the approximate center of waste generation (SR 1 at SR 20), which means collection trucks (and self-haul vehicles) would need to make an average round trip of approximately 14 miles to the Caspar site to empty each load. Since the outbound transfer trucks will exit the region via SR 20, they would similarly have to drive these additional miles.

Hazards and Hazardous Materials

The Caspar site would include the same uses on a similarly sized site as the proposed project. Therefore, the Caspar site would generally have the same hazard impacts as the proposed project.

Hydrology and Water Quality

Similar to the project site, the Caspar site is relatively flat and would not experience excessive erosion with additional site development. The Caspar site would direct stormwater runoff to the existing facilities currently used by the existing transfer station. Also, the Caspar site is already partially developed with impervious surfaces. Therefore, it would not be expected to substantially increase the peak runoff during storm events. As with the project site, the hydrology and water quality impacts associated with this site would be considered less than significant following implementation of appropriate hydrology and water quality mitigation measures. The hydrology impacts associated with this alternative are anticipated to be less than with the proposed project.

Land Use and Planning

The Caspar site would require an amendment to its Major Use Permit for the new facility. However, since the site is already used for solid waste transfer activities, the issues involved with the amendment would be limited. Therefore, the land use impacts of this alternative would be **similar or slightly** less than the proposed project if a new transfer building was fully enclosed **which also requires a Major Use Permit.**

Noise

Similar to the proposed project, development of this alternative would generate construction noise associated with the use of heavy equipment for demolition, site grading and excavation, installation of utilities, paving, and building fabrication. The noise impact of a facility at Caspar would depend on whether the transfer building was fully enclosed. If it was not, noise impacts could be greater than the proposed project. However, the Caspar site has fewer residential homes within the project vicinity compared to the proposed project. **The existing ambient noise level at Caspar reflects the outdoor operations of the self-haul transfer facility. An enclosed new transfer station would buffer and significantly reduce most of that source of noise generation. Like the proposed project, the Caspar alternative would not create a significant noise impact.**

Transportation

Transportation impacts associated with this alternative would be greater than with the proposed project. Due to the Caspar site's location, collection trucks and self-haulers must drive through the intersection of Highway 1 and County Road 409 to access the site. Caltrans has stated that this intersection is substandard for large, slow truck traffic and has limited potential for improvements because of the presence of the Highway 1 bridge over Caspar Creek just to the north. Caltrans has indicated that the left turn pocket off Highway 1 is 300 feet and the standard size would need to be 435 feet.

The Caspar site's geographic location is relatively inefficient for purposes of a regional transfer station. Caspar was originally purchased by the City and County for use as a landfill, so a remote location was desirable. A transfer station, conversely, is most efficient when it is close to the center of waste generation and to the route of outhaul. The Caspar site is approximately seven miles south of the approximate center of waste generation (Highway 1 at SR 20), which means collection trucks would need to make an average round trip of approximately 14 miles to the Caspar site to empty each load. Since the outbound transfer trucks will exit the region via SR 20, they would similarly have to drive these additional miles. Compared to the proposed project site on SR 20, the Caspar location would result in approximately 25,000 additional miles of truck travel per year.

Consistency with Project Objectives

The Caspar alternative would meet the project's objectives but be less successful than the preferred site in efficiency of hauling, minimizing hauling costs, isolation from potentially conflicting land uses, and controlling future solid waste costs.

4.2.3 Alternative 3: Empire Waste Management Pudding Creek Road Site

Empire Waste Management, the franchised solid waste collector for the City and County, owns 9.24 acres at 219 Pudding Creek Road, Fort Bragg, which accommodates a recycling buy-back center, truck garage, waste loading platform, and truck depot. There is space on

the northern edge of this property to accommodate the construction and operation of a transfer station akin to the proposed project. Empire Waste Management is willing to build such a facility, but only under its own ownership and operation.

This site's existing land uses and conditions include recycling and heavy truck operations and related utilities, paved access, and other services.

Aesthetics

The project would be consistent with the existing industrial-type structures and would add little new aesthetic impact and have the same less-than-significant aesthetic impact as the proposed project.

Agriculture and Forest Resources

There would be no impact to agricultural resources or conflict with a Williamson Act or agricultural zoning with Alternative 2 because the site is not zoned for agricultural uses, is not prime agricultural land and is not subject to any Williamson Act contracts. There would also be no forest land impacts with Alternative 2 because this alternative site is already developed as a solid waste facility with industrial uses and would not require the removal of forest land to expand the facility to include a new transfer station.

Air Quality

The air quality impacts, for both air pollutants and air contaminants, associated with construction activities at this alternative site would generally be similar to the proposed project, assuming development of a similar transfer station. The operational air quality impacts with this alternative would be approximately the same as the proposed project if the transfer station is constructed at this site because operation would be similar to the proposed project. Air pollutant emissions from transfer trailers would be slightly higher than the proposed project because of its more distant location from the Highway 20 exit corridor, however this would be offset by a slightly lower total mileage driven by collection trucks. On balance, the air quality impact of this alternative would be the same as the proposed project.

Biological Resources

Implementation of this alternative would not result in any significant biological resources impacts because this site is already developed and used as a solid waste facility.

Cultural Resources

The potential impacts on cultural resources anticipated with project development at this alternative site are expected to be less than with the proposed project because the Pudding Creek site is already developed, including paved and graded areas and with industrial uses.

However, as with the proposed project, construction of the project at the Pudding Creek site could unearth unknown cultural resources which would be a significant impact.

Geology and Soils

This alternative site is located in a similar geological area as the proposed project and is flat and developed. Seismic and erosion hazards are the same as the proposed project.

Greenhouse Gas Emissions

Operation of a transfer station at this alternative site would have similar emissions as the proposed project because they would both be similarly sized. Transfer trucks would travel an additional 10.8 miles per trip compared to the proposed project. This would be approximately offset by lesser mileage driven by solid waste collection trucks which would terminate their routes at the same location as the Empire Waste Management transfer station. Overall, the greenhouse gas impact would be about the same as the proposed project.

Hazards and Hazardous Materials

Construction and operation of a transfer station at this alternative site would involve the same uses on a similarly sized site as with the proposed project. Therefore, this alternative would generally have the same hazard impacts as the proposed project.

Hydrology and Water Quality

This site has developed storm water management and thus construction and operation of a transfer station at this alternative site should not result in significant water quality impacts.

Land Use and Planning

The property is zoned industrial and a use permit would be required from the City of Fort Bragg. This alternative site is situated in close proximity to the numerous residences. The 63-unit Ocean Lake Subdivision is situated adjacent to and immediately north of the site. The transfer station building would be at the north side of the property since this is the only available space. Therefore it would be less successful than the proposed project in meeting the project objective of isolation from other land uses.

Noise

Immediately north of the site is the 63-unit Ocean Lake Subdivision. The transfer station building would be at the north side of the property. A transfer station on this site would have a greater potential for creating significant noise impacts to a larger number of residences when compared to the proposed project.

Transportation

Given this alternative site's location on the north side of the City of Fort Bragg, approximately 2.6 miles beyond the City center on Main Street, access for a transfer station traffic at this site would be through the City's congested Main Street (SR 1), which reduces from four to two lanes at Laurel Street, creating a "choke point" with substantial backups during peak periods and seasons. Furthermore, development of a transfer station at this location would likely require installation of a traffic signal at the intersection of SR 1 and Pudding Creek Road.

Consistency with Project Objectives

The Empire Waste Management alternative would meet some of the project's objectives but not the objective calling for public ownership of the transfer station site. It would be less successful than the proposed project in efficiency of transfer, hauling expense, isolation from potentially conflicting land uses, and controlling rising solid waste costs.

4.2.4 Alternative 4: Leisure Time RV Park Site

This alternative site is located at 30801, State Route 20 in Fort Bragg. The property is a 24.3 acre parcel on the south side of SR 20, less than 1/2 mile west of the proposed project site. It is currently used as a trailer park for both short-term visitors and long-term residents. Acquisition of the property would significantly increase the capital expense of development of a transfer station when compared to the proposed project's no-cost site acquisition option. The property has 700 feet of frontage on SR 20, with good sight distance in both directions. No major streams or waterways are located on the property and approximately 12 acres are flat and useable. The southern portion of the property is densely vegetated and falls off steeply to Hare Creek which lies approximately 1,000 feet away. A seven-acre portion of the property is already cleared of forest. Private sewer and water systems are in place.

Aesthetics

The visibility of the project to Highway 20 and to nearby residences would depend on its placement on the property. There is only a thin screen of vegetation along the boundaries to the north and west. Construction and operation of the proposed project at this alternative site could result in greater aesthetic impacts, due to the height of the transfer building, than the proposed project, which would be completely shielded by trees and other vegetation.

Agriculture and Forest Resources

There would be no impacts to agricultural resources or forestland, or conflict with a Williamson Act or agricultural zoning if the project were to be developed at this site .

because the site is not zoned for agricultural or timberland uses, is not prime agricultural land and is not subject to any Williamson Act contracts.

Air Quality

The air quality impacts, for both air pollutants and air contaminants, associated with construction activities at this site would generally be similar to the proposed project, assuming development of a similar transfer station. The operational air quality impacts with this alternative would be approximately the same as the proposed project if the transfer station is constructed at this site because operation would be similar to the proposed project. Transportation impacts would also be the same, since the two sites are in close proximity.

Biological Resources

Since 7 acres of this site have been cleared of vegetation, impact to biological resources is unlikely if the transfer station was to be constructed/operated on those acres.

Cultural Resources

The potential impacts on cultural resources anticipated with project development at this alternative site are expected to be less than with the proposed project because the site is already developed. However, as with the proposed project, construction of the project at the site could unearth unknown cultural resources which would be a significant impact.

Geology and soils

This site is located in a similar geological area as the proposed project and is flat and developed. Seismic and erosion hazards would be similar to the proposed project.

Greenhouse Gas Emissions

This site is close to the proposed project site and would therefore have the same positive impact on greenhouse gas emissions compared to existing conditions.

Hazards and Hazardous Materials

This site would include the same uses on a similarly sized site as the proposed project. Therefore, this site would generally have the same hazard impacts as the proposed project.

Hydrology and Water Quality

Domestic water supply and wastewater disposal systems currently exist at the site (well and septic). This site is relatively flat with developed drainage associated with its trailer park and campground development. The southern portion of the property is densely vegetated and falls off steeply to Hare Creek which lies approximately 1,000 feet away. Additional runoff from transfer station development would need to be addressed and managed for release to the south in order to mitigate potentially significant impacts to the Hare Creek watershed.

Land Use and Planning

The property is zoned Forest Land and would require a major use permit to allow transfer station development. The site is close to many residences to the northwest, west, and east. The closest residential building is approximately 20 feet from the western boundary. There are approximately 24 residential parcels within 1,000 feet of the western boundary and 12 parcels within 1,000 feet of the eastern boundary. Leisure Time RV Park currently has 12 permanent residents and 10 six-month renters who would have to be evicted to make room for a transfer station. According to the park manager, the park has become increasingly attractive to low-income residents being priced out of the Fort Bragg rental market because they can more easily afford the approximately \$500 per month space rental at Leisure Time RV Park. [Personal conversation with Kimberly Murphy, Leisure Time RV Park manager, July 23, 2015].

In addition to permanent residents, the 35-year-old Leisure Time RV Park has been important for Fort Bragg's tourist economy with its available tent camping and RV sites are completely filled during peak vacation times. To accommodate growing demand, the park owner is building a new leach field at an approximate cost of \$100,000. [Personal conversation with Kimberly Murphy, Leisure Time RV Park manager, July 23, 2015].

Placing the transfer station at Leisure Time RV Park would require the eviction of current residents, the elimination of a low-cost housing alternative for the region, destruction of an important local business serving the tourist industry, and placement of this new industrial land use in proximity to a far greater number of nearby residences than the proposed project site.

Noise

Noise from construction and operation of a transfer station at this alternative site would adversely affect 36 residences within 1,000 feet of the property. Accordingly, potential noise impacts of this alternative are greater than the proposed project because the proposed project site's vegetation would better screen and buffer construction and operational noise and because there are fewer residences in close proximity.

Transportation

Since this site is only 0.6 miles away from the proposed project site and also is on Highway 20, transportation impacts would be similar to the proposed project. Similar improvements would be required to Highway 20 to create turn lanes.

Consistency with Project Objectives

The Leisure Time RV Park alternative would meet most of the project's objectives but would be less successful than the proposed project in isolating from potentially conflicting land uses.

4.2.5 Alternative 5 Mendocino Parks & Recreation District Property

This alternative site is located at 30812 State Route 20 in Fort Bragg and contains 173.5 acres of primarily undeveloped forestland. Approximately seven acres were cleared of vegetation for use as a stockpile area, and would therefore be the most appropriate part of the property for transfer station development. This seven-acre cleared area is located in the southwestern corner of the property, close to the intersection of SR 20 with Summers Lane. An access driveway connects to SR 20, with good sight distance in both directions.

As of March, 2016, the property is owned by the Mendocino Parks & Recreation District, which has filed for bankruptcy and owes approximately \$2.3 million on the property. The property is listed for sale. Acquisition cost would significantly increase the capital expense of transfer station development at this alternative site. Furthermore, the City of Fort Bragg already tried but failed to purchase the property at fair market value in early 2014 since the District rejected the City's offer. Accordingly, public entity acquisition of this site may not be feasible because public entities are prohibited by law from paying more than fair market value for property and the District has already rejected the City's fair market value offer to purchase the site.

Aesthetics

Like the proposed project, a transfer station at this site could be located to be completely shielded from view behind existing forest vegetation.

Agriculture and Forest Resources

There would be no impact to agricultural resources or conflict with a Williamson Act or agricultural zoning with this site. There would also be no forest land impacts if the project was located on the cleared acreage.

Air Quality

The air quality impacts, for both air pollutants and air contaminants, associated with construction and operational activities at this site would generally be similar to the proposed project, assuming development of a similar transfer station. Transportation impacts would be the same, since the two sites are in close proximity.

Biological Resources

Since 7 acres of this site have been cleared of vegetation, there probably would be no significant impact to biological resources if the transfer station was located on those acres, except for potential impact noted below under Hydrology and Water Quality.

Cultural Resources

The potential impacts on cultural resources anticipated with project development at this alternative site are expected to be less than with the proposed project because the site is already cleared. However, as with the proposed project, construction of the project at the site could unearth unknown cultural resources which would be a significant impact.

Geology and soils

This site is located in a similar geological area as the proposed project and is flat and developed. Seismic and erosion hazards are probably the same as the proposed project.

Greenhouse Gas Emissions

This site is close to the proposed project site and would therefore have the same positive impact on greenhouse gas emissions compared to existing conditions.

Hazards and Hazardous Materials

This site would include the same uses on a similarly sized site as the proposed project. Therefore, this site would generally have the same hazard impacts as the proposed project.

Hydrology and Water Quality

The site is the headwaters of Sholars Bog and drains to the northwest into pygmy forest. Additional runoff from transfer station development would need to be carefully addressed and managed in order to mitigate potentially significant runoff impacts to the watershed. Mitigating these potential impacts would be similar or more challenging than the mitigation necessary for the proposed project site. Groundwater is available for transfer station operations.

Land Use and Planning

The property is zoned Forest Land and would require subdivision from the remainder of the larger parcel and a major use permit to allow transfer station development. Acquisition would be possible only if the property was available at a price not greater than the appraised value, which has not been the case in the past. Thirty-five residences are within 1,000 feet of the northern and western borders.

Noise

The nearby residences to the north and west would be subject to noise impact from the transfer station, which would be relatively greater in impact than the proposed project site due to lesser ambient noise from Highway 20 traffic.

Transportation

Since this site is only 0.6 miles away from the proposed project site on Highway 20, transportation impacts would be similar to the proposed project. Similar improvements would be required to Highway 20 to create turn lanes.

Consistency with Project Objectives

The Mendocino Parks and Recreation District alternative would meet most of the project's objectives but would be less successful than the preferred site in achieving public ownership and isolating from potentially conflicting land uses.

4.3 Environmentally Superior Alternative

As summarized in Table 1-1, in Chapter 1, the project would have impacts to air quality, odors, biological resources, cultural resources, geology and soils, hydrology, and transportation, all of which have been mitigated to less than significant. Based on the analysis above, the No Project Alternative has greater impacts than the project under two resource categories (GHG emissions and energy) and fewer impacts under all other categories.

While Alternative 2: Caspar Site has greater impacts than the project under five resource categories (aesthetics, air quality, GHG emissions, energy, and traffic) with all other resource impacts being the same (odor, cultural, geology, and hazards) or less (biological resources, hydrology, and land use).

Alternative 3: Empire Waste Management has equivalent impacts to the proposed project under most criteria except greater impacts on land use, transportation and noise and lesser impacts on biological and cultural resources and hydrology.

Alternative 4: Leisure Time RV Park has equivalent impacts to the proposed project under most criteria except greater impacts on aesthetics, land use and noise and lesser impacts on biological and cultural resources.

Alternative 5: Mendocino Parks & Recreation District has equivalent impacts to the proposed project under most criteria except greater impacts on land use and noise and lesser impacts on biological and cultural resources. Greater impacts on hydrology (storm water management) are possible but undetermined.

Selection of the environmentally superior alternative could depend on what weight is given to the various environmental impacts. This can be a subjective judgment. If it is assumed that all categories of environmental impact have equal weight, then the environmentally superior

alternative, based on the analysis above, is the No Project Alternative because it has the fewest number of impacts to environmental resources.

According to CEQA Guidelines Section 15126.6(e), if the No Project Alternative is determined to be the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. **Measured solely by the number of categories of impact, the Mendocino Parks and Recreation District alternative should be so identified.** Among the other alternatives, the environmentally superior alternative is the proposed project as mitigated, given it would achieve greater reductions in various environmental resource categories including aesthetics, air quality, energy consumption, greenhouse gas emissions, and transportation. Although it has greater impacts to biological resources than Alternative 2, the impacts have been fully mitigated and are outweighed by the beneficial impact to GHG emissions and energy consumption.

Alternatives 3, 4 and 5 would have greater impacts than the proposed project due to their proximity to a larger number of residences. Placing a solid waste transfer station in close vicinity to residences is an environmental impact that the lead agency has sought to minimize throughout the siting process.

The following chart summarizes the density of residential development around certain sites:

| <u>Site</u> | <u>Closest residence (feet) from site boundary</u> | <u>Number of residences within 1000 feet from site boundary</u> |
|--|---|--|
| <u>Project site Highway 20</u> | <u>360*</u> | <u>14</u> |
| <u>Caspar transfer station site</u> | <u>200</u> | <u>11</u> |
| <u>Empire Waste Management Pudding Creek</u> | <u>150</u> | <u>62</u> |
| <u>Leisure Time RV Park</u> | <u>20**</u> | <u>36</u> |
| <u>Mendocino Coast Parks & Recreation</u> | <u>20</u> | <u>35</u> |

Source: GoogleEarth

***A residence across Highway 20 (Thorbecke) is closer than 360 feet to the site's property boundary, but the transfer station facilities would be built at the far western end of the property, at least 700 feet from Thorbecke.**

****Not including residents of the RV Park.**

4.4 Alternatives Considered but not Carried Forward in this EIR

4.4.1 Georgia-Pacific Woodwaste Landfill, Georgia-Pacific Haul Road, Fort Bragg

Approximately 20 acres of the 80-acre Georgia-Pacific woodwaste landfill property could be the site of a transfer station; however, the owner is not willing to sell. Its remote location would have the advantage of isolation from other land uses, but the least expensive access route would be Summers Lane, which is a narrow residential road. In addition to improvements to Summers Lane, Summers Lane would need to be extended 3,000 feet to reach the woodwaste landfill property. A 2007 estimate of these road improvement costs was estimated at \$2 million. There is no electric service currently to this site. This potential site is comprised entirely of pygmy forest. Together with the new road construction and installation of utilities, this site would require removal of more forest land than other sites, the owner is continuing to address SWRCB clean-up requirements, and the owner is not a willing seller.

~~**4.4.2 Empire Waste Management, 219 Pudding Creek Road, Fort Bragg**~~

~~Empire Waste Management, the franchised solid waste collector for the City and County, owns 9.24 acres which accommodates a recycling buy-back center, truck garage, and truck depot. There is space on the northern edge of this property where a transfer station building could be built. Empire Waste Management is willing to build such a facility, but only under its own ownership and operation, therefore, one of the primary project objectives of public ownership could not be met.~~

~~This site would have the advantages of pre-existing uses for recycling and heavy truck operation, together with existing utilities, paved access, and other services. The disadvantages of this site arise from its location on the north side of the City of Fort Bragg, approximately 2.6 miles beyond the City center on Main Street. Access for transfer station traffic would be through the City's congested Main Street (SR 1), which reduces from four to two lanes at Laurel Street, creating a "choke point" with substantial backups during peak periods and seasons. The City does not want to increase truck traffic at this location. Furthermore, development of a transfer station at this location would likely require installation of a traffic signal at the intersection of SR 1 and Pudding Creek Road.~~

~~A transfer station at this site would be very close to the 63-unit Ocean Lake Subdivision which borders Empire Waste Management's property to the north, therefore, it would be less successful in meeting one of the project objectives of isolation from other land uses.~~

4.4.3 California Western (Skunk Train) Railroad

Solid waste transfer via railroad, instead of highway, was suggested by some people who commented on the scope of this EIR. If it were feasible, rail haul would alter the design of the project, but it would not eliminate the need for a transfer station facility where both the franchised collector's trucks and self-haul vehicles could dump waste.

Rail haul requires extra steps in loading and unloading compared to truck haul and is only used in the solid waste industry for very long hauls, typically several hundred miles or more. The California Western Railroad connects Fort Bragg to Willits but there is no rail service beyond Willits. Therefore, the use of rail haul for this project would require unloading and reloading at the Willits

Transfer Station (which is close to the California Western Railroad tracks). This would be inconsistent with one of the project objectives which is to make it possible for Central Coast solid waste to be hauled directly to a destination landfill.

Rail haul on the California Western Railroad route would be subject to occasional interruption due to landslides, washouts, and tunnel collapse. Therefore, a truck haul backup would need to be constantly available, either by maintaining specialized flatbed semi-trailers that can accommodate the rail containers, or by using conventional truck transfer trailers. Either approach would impose additional costs.

Rail haul wouldn't avoid the need for a transfer station facility similar in size to the proposed project, therefore, the siting challenge would be altered, but not eliminated. Presumably the new site would be adjacent or very near to the California Western Railroad depot at the west end of Laurel Street. Due to frequent traffic congestion, the City of Fort Bragg has opposed siting a transfer station anywhere north of the point where Main Street reduces down to two lanes. Also, land near the California Western Railroad depot is valuable and privately owned, meaning that acquisition would be costly and possibly require condemnation. The vicinity of the California Western Railroad depot includes extensive residential, commercial, tourist, and historic sites.

4.4.4 Leisure Time RV Park, 30801 SR 20, Fort Bragg

~~This property is a 24.3-acre parcel on the south side of SR 20 currently used as a trailer park. The owner has offered to sell the property for \$1.2 million; however, this would significantly increase the capital expense of development of a transfer station. The property has 700 feet of frontage on SR 20, with good sight distance in both directions. No major streams or waterways are located on the property and approximately 12 acres are flat and useable. A seven-acre portion of the property is already cleared of forest. Private sewer and water systems are in place.~~

~~This site would have some of the same advantages as the proposed project site, which is approximately 0.7 mile farther east on SR 20. The proposed project site and this site both lie along the exit route for solid waste transfer on SR 20. This site would require removal of little or no forest since a substantial area is already cleared. However, it is close to many residences to the northwest, west, and east. The closest residential building is approximately 20 feet from the western boundary. There are approximately 24 residential parcels within 1,000 feet of the western boundary and 12 parcels within 1,000 feet of the eastern boundary. Therefore it would be less successful in meeting one of the project objectives of isolation from other land uses.~~

4.4.5 Mendocino Parks & Recreation District Property, 30812 SR 20, Fort Bragg

~~These 173.5 acres are presently undeveloped land, mostly forested. As of October, 2014, the property is owned by the Mendocino Parks & Recreation District which is in bankruptcy and owes approximately \$2.3 million on the property. The property is listed for sale. Acquisition cost would significantly increase the capital expense of transfer station development. Furthermore, the City of Fort Bragg attempted to purchase the property at fair market value as established by an appraisal~~

~~in early 2014 and its purchase offer was rejected, thus it is not certain that the property could be sold to a public entity (public entities are prohibited by law from paying more than fair market value for property).~~

~~No major streams or waterways are located on the property. It is flat to gently sloping and mostly forested with Pygmy species. It contains some wetlands. The property is the headwaters of the Sholars Bog.~~

~~Approximately seven acres were cleared of vegetation for use as a stockpile area, and would therefore be the most appropriate as part of the property for transfer station development. This cleared area is located in the southwestern corner of the property, close to the intersection of SR 20 with Summers Lane. An access driveway connects to SR 20, with good sight distance in both directions.~~

~~This site would have some of the same advantages of the preferred site, which is about 0.7 mile farther east on SR 20. Both lie along the exit route for solid waste transfer. This site would require removal of little to no forest since a substantial area is already cleared. However, it is closer to a much greater number of residences to the northwest, west, and south. The closest neighbor's building is 20 feet from the northern boundary of the site. There are approximately 35 residential parcels within 1,000 feet of the western and northern borders. Therefore, it would be less successful in meeting the project objective of isolation from other land uses.~~

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Bishop Pine Forest Mitigation Plan – Central Coast Transfer Station

MENDOCINO SOLID WASTE MANAGEMENT AUTHORITY
MENDOCINO COUNTY, CALIFORNIA

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WRA Project No. 25260



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Appendix A – Representative Photographs of Restoration Parcel

1.0 INTRODUCTION

At the request of the Mendocino Solid Waste Management Authority (MSWMA), WRA, Inc. (WRA) evaluated the potential for the Caspar Transfer Station (Restoration Parcel) and an adjacent parcel, identified by Mendocino County, proposed for preservation (Preservation Parcel) as mitigation for temporary and permanent impacts to 4.0 acres of Bishop pine forest at the site of the proposed transfer station on Highway 20.

WRA conducted a site visit to the Restoration Parcel (APN 118-500-11) on September 3 and November 20, 2015 to assess existing conditions and potential areas for Bishop pine forest restoration. WRA determined the Restoration Parcel can provide approximately 5 acres of Bishop pine forest enhancement and 1 acre of Bishop pine forest re-establishment for a total of approximately 6 acres of Bishop pine forest restoration.

In addition to Bishop pine forest restoration efforts proposed in the Restoration Parcel, the Preservation Parcel (APN 118-500-45) may also be considered as mitigation for impacts to Bishop pine forest at the proposed transfer station on Highway 20. This parcel was identified by Mendocino County and MSWMA in comments to the EIR for the proposed transfer station on Highway 20. The Preservation Parcel is a 28-acre parcel located adjacent to the Caspar Transfer Station which contains relatively intact pygmy cypress forest and Bishop pine forest. On April 18, 2015, WRA visited the parcel proposed for preservation to map vegetation types and determined that approximately 5.76 acres of Bishop pine forest is present. Because the Preservation Parcel is proposed for preservation rather than restoration, the restoration efforts described in this Mitigation Plan do not pertain to the Preservation Parcel.

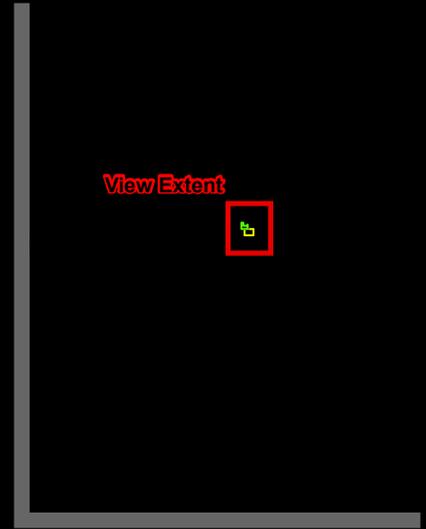
WRA has prepared this Bishop Pine Forest (BPF) Mitigation Plan (herein referred to as the "Mitigation Plan") on behalf of the MSWMA for proposed restoration efforts at the Caspar Transfer Station (Restoration Parcel). This Mitigation Plan provides guidance for restoration efforts at the Transfer Station, including guidelines for the implementation, management, and monitoring of the BPF restoration. The Mitigation Plan also outlines the criteria and methodology that will be used to determine the success of the restoration efforts.

2.0 EXISTING CONDITIONS

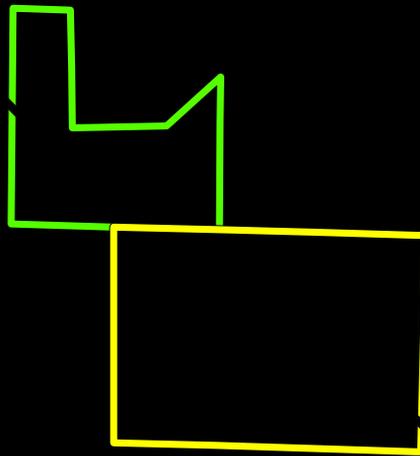
2.1 Restoration Parcel

The Restoration Parcel is located at 15000 Prairie Way in unincorporated Mendocino County (Figure 1). The County-owned 62 acre parcel supports several vegetation types with the majority being pygmy cypress woodland, BPF, ruderal vegetation, and non-native grassland. Areas of development include several small outbuildings, developed roads, and infrastructure which allows for the temporary storage of garbage, recycling, and other waste materials. A decommissioned landfill occupies the majority of the eastern third of the Restoration Parcel. WRA conducted site visits on September 3 and November 20, 2015 to document existing conditions at the site in an effort to assess the type and condition of vegetation present and potential to restore and enhance BPF.

-  Restoration Parcel
-  Preservation Parcel

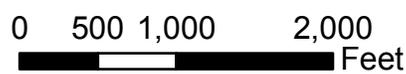


Preservation Parcel



Restoration Parcel

Figure 1. Locations of Restoration and Preservation Parcels



Mendocino County, California

Map Prepared Date: 4/7/2016
 Map Prepared By: Fhourigan
 Base Source: Esri Streaming - National Geographic
 Data Source(s): WRA

Dense ruderal vegetation occurs in the north central portion of the Restoration Parcel; consisting primarily of non-native, invasive species such as gorse (*Ulex europaea*), pampas grass (*Cortaderia jubata*), bull thistle (*Cirsium vulgare*), Scotch broom (*Cytisus scoparius*), and wild radish (*Raphanus sativus*). While Bishop pines occur along the edges of the ruderal vegetation, no natural recruitment of Bishop pine into the ruderal area was observed. The majority of the eastern third of the Restoration Parcel is buried and covered landfill. However, a strip of land south of the landfill, bordering Russian Gulch State Park property, was successfully restored with pygmy cypress and other native species (Winzler and Kelly 1994) as part of a past restoration effort within the Restoration Parcel. Developed areas occur in the center portion of the Restoration Parcel and are surrounded by ruderal vegetation or highly disturbed native vegetation, including approximately four acres of degraded BPF and transitional pygmy cypress woodland. Less impacted pygmy cypress woodland and BPF occurs in the entire western third of the Restoration Parcel. Non-native grasslands occupy the majority of the southern central portion of the Restoration Parcel. This vegetation type surrounds a small patch of disturbed pygmy cypress woodland and areas of bare soil.

The Restoration Parcel is located on land which was likely dominated by native pygmy cypress woodland and BPF, as apparent by the surrounding vegetation and adjacent soil types. The soil survey of Mendocino County, Western Part (USDA 1999) indicates the soil type of the Restoration Parcel as Pits and Dumps, while immediately adjacent to the Restoration Parcel, Shinglemill-Gibney, Blacklock and Tropaquepts soils are present. Shinglemill soils are poorly drained very deep loams with slow to medium runoff and are considered hydric (USDA 1999). Gibney soils are somewhat poorly drained very deep loam soils with slow runoff and slow permeability (USDA 1999). Blacklock soils are very poorly drained shallow sandy loams with slow to medium runoff and moderate permeability and are considered hydric. Many areas of Blacklock soil have a concrete hardpan in the B-horizon (USDA 1999).

Within the Restoration Parcel, three special status plant species were observed during the site visits. These special status species are typically associated with BPF and pygmy transitions like those occurring here and the plant ecology of these species are listed below. The special status species include: Mendocino Manzanita (*Arctostaphylos nummularia* ssp. *mendocinensis*, CRPR 1B.2), Bolander's pine (*Pinus contorta* ssp. *Bolander'si*, CRPR 1B.2) and pygmy cypress (*Hesperocyparis pygmaea*, CRPR 1B.2). A protocol-level special-status species survey inclusive of mapping and census of these species was not conducted by WRA at the time of the site visits.

Mendocino manzanita is an evergreen shrub in the heath family (Ericaceae) that blooms in January, but is identifiable through vegetation characteristics and habitat throughout the year. It typically occurs on acidic, sandy-clay soils with a hardpan (e.g. Blacklock soil series) in closed-cone coniferous forest (pygmy forest) at elevations ranging from 290 to 650 feet (CNPS 2015, CDFW 2015). Known associated species include pygmy cypress, Bolander's's pine, Pacific rhododendron (*Rhododendron macrophyllum*), Labrador tea (*R. columbianum*), bear grass (*Xerophyllum tenax*), and California sedge (*Carex californica*) (CDFW 2015).

Bolander's pine is an evergreen tree in the pine family (Pinaceae) that is identifiable throughout the year based on vegetative structures and cones. It typically occurs on podzol-like soils in closed-cone coniferous forest habitat at elevations ranging from 240 to 815 feet (CNPS 2015, CNDDDB 2015). Known associated species include pygmy cypress, Bishop pine (*Pinus*

muricata), Labrador tea, Pacific rhododendron, wax myrtle (*Morella californica*), evergreen huckleberry (*Vaccinium ovatum*), giant chinquapin (*Chrysolepis chrysophylla*), California sedge, bracken fern (*Pteridium aquilinum*), coast lily (*Lilium maritimum*), and bear grass (CDFW 2015).

Pygmy cypress is an evergreen tree in the cypress family (Cupressaceae) that releases pollen in the spring and is identifiable by vegetative characters year-round. It typically occurs on nutrient-deficient, acidic spodosols (Blacklock fine sandy loam) which pond throughout the wet season, but individuals can be located on deeper more fertile substrates, in closed-cone coniferous forest at elevations ranging from 95 to 1950 feet (CNPS 2015, CDFW 2015, CSRL 2013). Pygmy cypress is typically stand-forming and often dwarfs due to rooting on nutrient-deficient, acidic soils. Known associated species include Bolander's pine, Bishop pine, Douglas fir (*Pseudotsuga menziesii*), Pacific rhododendron, Labrador tea, evergreen huckleberry, red huckleberry (*Vaccinium parvifolium*), salal (*Gaultheria shallon*), Mendocino manzanita, bear grass, California sedge, coast lily, and bracken fern (CDFW 2015).

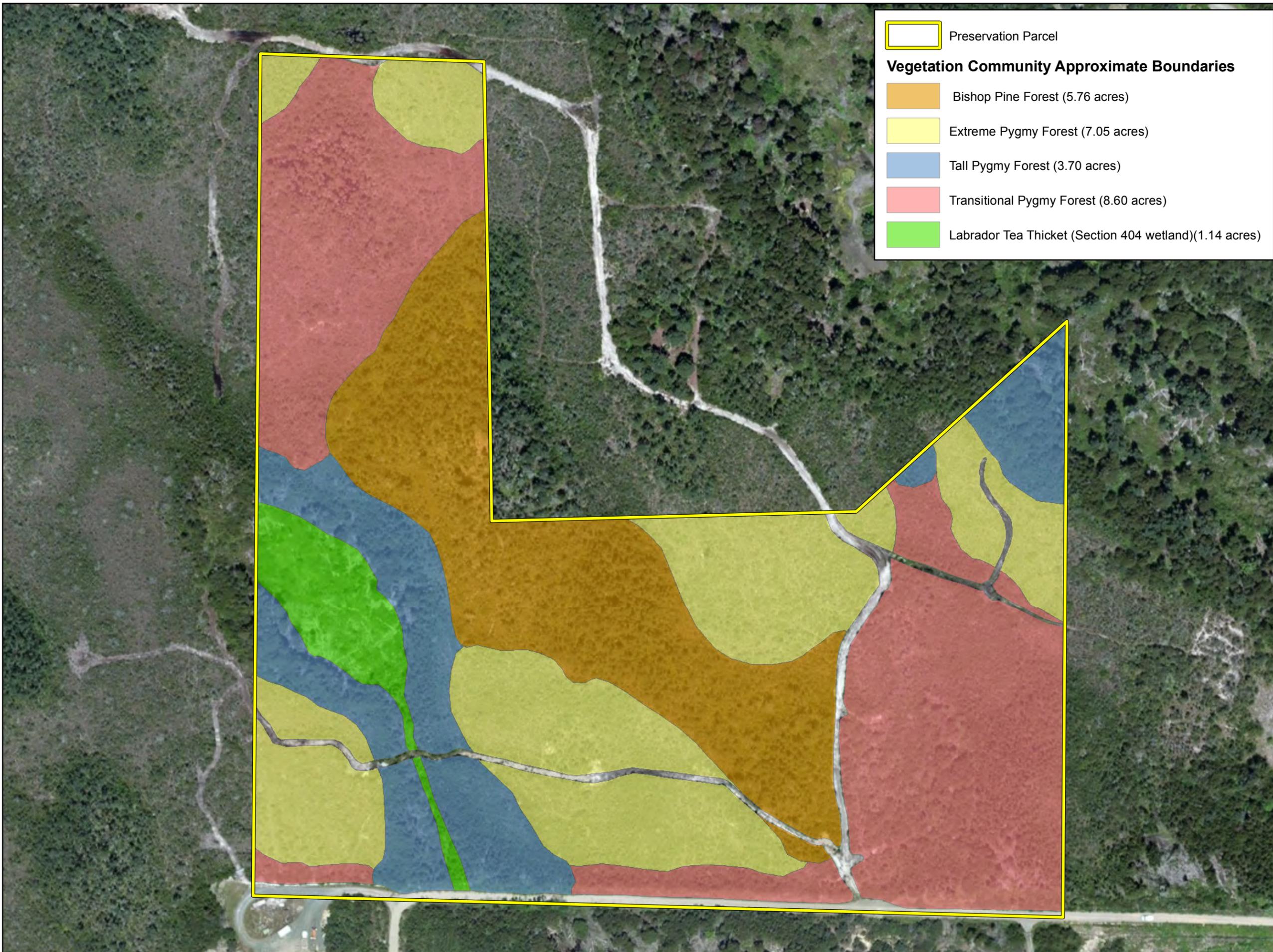
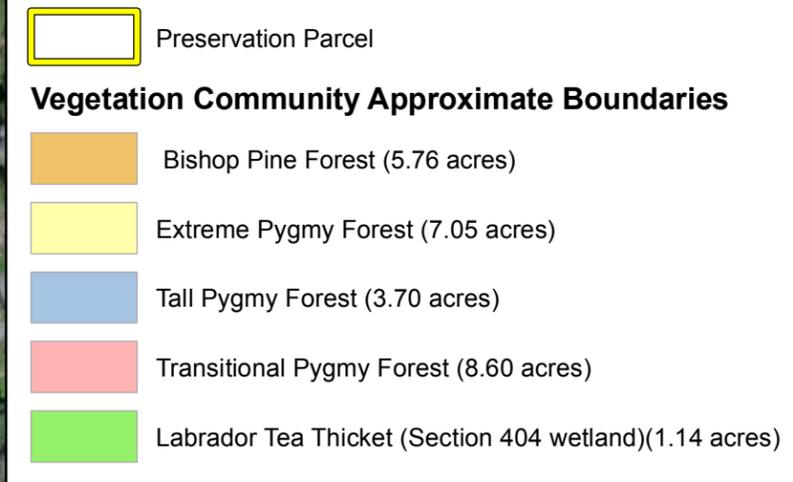
2.2 Preservation Parcel

The Preservation Parcel (APN 118-500-45) is a 28-acre parcel located adjacent to the Restoration Parcel on Prairie Way in unincorporated Mendocino County (Figure 1). The Preservation Parcel contains Bishop pine forest (Sawyer et. al 2009), Labrador tea thickets (Sawyer et. al 2009), extreme pygmy forest, tall pygmy forest, transitional pygmy forest (WRA 2002) (Figure 2). Bishop pine forest occupies approximately 5.76 acres in the central portion of the parcel. This community is dominated by Bishop pine (*Pinus muricata*), with several characteristic and subdominant tree species including pygmy cypress (*Hesperocyparis pygmaea*) and Bolander pine (*Pinus contorta* ssp. *bolanderi*). The overstory is somewhat open to completely closed, containing mature to over-mature trees. The understory contributes to the vertical structure with a high density of shrubs and a depauperate herbaceous layer. Shrub and understory tree species include evergreen huckleberry (*Vaccinium ovatum*), Pacific rhododendron (*Rhododendron macrophyllum*), giant chinquapin (*Chrysolepis chrysophylla*), tanoak (*Notholithocarpus densiflorus*), and salal (*Gaultheria shallon*). The herbaceous layer is sparse and includes bracken fern (*Pteridium aquilinum*) and western sword fern (*Polystichum munitum*).

APN# 118-500-45

Mendocino County,
California

Figure 2.
Vegetation
Communities of
Preservation Parcel



0 80 160 240 Feet



Map Prepared Date: 4/24/2015
Map Prepared By: Chris Zumwalt
Base Source: ESRI Streaming 6/16/2010
Data Source(s): WRA

3.0 BISHOP PINE ECOLOGY

Bishop pine occurs in nine disjunct populations along the California coast from Humboldt County south to Santa Barbara County (Sawyer et al. 2009). It is also found on Santa Cruz and Santa Rosa islands and in Baja California and mainland Mexico. Stands occur on ridges, headlands, maritime terraces, and sand dunes in areas with regular spring and summer fog. On the Mendocino coast, Bishop pine occurs in stream canyons on Caspar soils where it occurs with coast redwood (*Sequoia sempervirens*), on Noyo soils on uplifted marine terraces where it is the dominant or co-dominant with pygmy cypress, chinquapin (*Chrysolepis chrysophylla*), coast redwood or tan oak (*Notholithocarpus densiflorus*) and on Blacklock soils on uplifted marine terraces where it is co-dominant with pygmy cypress and Bolander's pine (Sholars 1982). Caspar soils are well drained sandy loam or sandy clay loam soils with slow to rapid permeability and runoff (USDA 1999). Noyo soils are poorly drained sandy loam or sandy clay loam soils with slow to medium runoff and very rapid to very slow permeability (USDA 1999). Blacklock soils are poorly drained sandy loam soils with a concreted hard pan; permeability is moderate to very slow with slow to medium runoff (USDA 1999).

Bishop pine trees typically live 80 to 100 years with most populations typically occurring as even-aged stands that originate after stand-replacing fires. Bishop pine is facultatively serotinous in the northern part of its range, meaning cones open to release seeds primarily after fires, but also on hot days and at sunny forest edges. Bishop pine trees do not resprout after fire; instead, regeneration is generally triggered by the nutrient availability of bare mineral soil and lack of cover resulting from fire; the combination of fire and exposed soil triggers germination of seeds. Bishop pine seedlings have intermediate shade tolerance which allows them to grow at the edges of dense forests where sunlight can reach the forest floor (Sugnet 1984). The range in seedling density regeneration varies greatly, as reported in the literature. In the year following the Vision Fire in Point Reyes, California, the density of Bishop pine seedling regeneration averaged as high as 25 seedlings per square meter, declining to an average of 11 seedlings per square meter the following year (Holzman 2003). On Santa Cruz Island, seedling regeneration density in the absence of fire was recorded to be approximately 0.13 seedlings per square meter (Walter and Taha 1999).

Stands of BPF along California's north coast vary in terms of species composition, health, and longevity which is primarily due to historic fire suppression and the increasing age of many stands. In the absence of stand replacing fires for duration of more than 80 years, Bishop pine stands along the north coast exhibit a significant increased susceptibility to disease and decline (Vogl et al. 1988). Typical indicators of disease and decline include excessive gall formation on large branches and stems, browning foliage, large branch dieback, pitch cankers on bole and branches, excessive beetle damage, and tree mortality (Gordon et al. 2001).

4.0 RESTORATION METHODS

The goal of the BPF restoration is to expand the distribution through encouragement of natural regeneration, as well as to improve the condition and health of existing BPF stands in the Restoration Parcel. Six locations within the Restoration Parcel have been identified as areas of restoration and will undergo either enhancement activities (Enhancement Areas) or re-establishment activities (Re-Establishment Area) and are collectively referred to as the Restoration Areas (Figure 3). These Restoration Areas are a subset of and occur within the Restoration Parcel. Representative photographs of the Restoration Areas are included in

Appendix A. There are approximately 5 acres of Enhancement Areas and 1 acre of Re-Establishment Area.

The Restoration Areas are composed of a combination of degraded transitional pygmy cypress woodland, degraded BPF, and ruderal vegetation. In general, the transitional pygmy cypress woodland consists of slightly stunted Bolander's pine, pygmy cypress, and Bishop pine (*Pinus muricata*) having an open canopy with an understory containing exposed bare soil and large individuals of pampas grass scattered throughout. Included in the understory are short and sparsely distributed native shrubs including wax myrtle and evergreen huckleberry.

The BPF in the Restoration Areas is dominated by mature individuals of Bishop pine and in some areas pygmy cypress, reaching heights of approximately 30 feet. The canopy is somewhat open, containing young to mature trees with several decadent individuals. The understory is open to dense, consisting of native and invasive shrubs and an open to dense, weedy herbaceous layer.

Native shrub species observed include wax myrtle, evergreen huckleberry, salal, coyote bush (*Baccharis pilularis*), Mendocino manzanita, and California blackberry (*Rubus ursinus*). Invasive shrubs in the understory include French broom (*Genista monspessulana*), pampas grass, gorse, Himalayan blackberry (*Rubus armeniacus*), scotch broom (*Cytisus scoparius*), and cotoneaster (*Cotoneaster* sp.). Species observed in the herbaceous layer include non-natives such as nit grass (*Rytidosperma penicillatum*), wild radish, bull thistle, as well as native species such as strawberry (*Fragaria chiloensis*) and bracken fern. An area of BPF within the Restoration Areas contains many degraded metal appliances or other discarded metal household items which are relicts of the site's historical and current use as a waste transfer station.

Ruderal vegetation consists of dense non-native, invasive species including gorse, pampas grass, bull thistle, Scotch broom, and wild radish.. While Bishop pine occur along the edges of the ruderal vegetation, no natural recruitment of Bishop pine into the ruderal areas was observed.

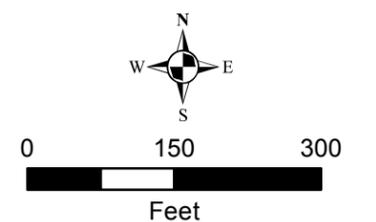
Enhancement Areas support disturbed BPF and transitional pygmy cypress woodland which will be enhanced through removal of invasive species, refuse and outbuildings, combined with the use of small burn piles to stimulate seed germination of the existing Bishop pine seed bank.

The Re-Establishment Area currently is comprised of ruderal vegetation with Bishop pine occurring nearby. Re-Establishment actions include invasive species removal and management along with encouragement of natural regeneration using woody debris placement and/or burn piles. Because the Enhancement Areas support existing BPF the number of additional Bishop pines to be recruited is expected to be less than in the Re-Establishment Area. When Bishop pine forests are burned, the resulting density of the seedlings is typically very high (Holzman 2003); even without fire, density of seedlings in a regenerating Bishop Forest is relatively high (Walter and Taha 1999). In the light of these facts, the amount of Bishop pine seedling natural recruitment in the Re-Establishment Area is expected to be higher than in the Enhancement Areas.

-  Restoration Parcel (62.71 acres)
-  Bishop Pine Enhancement (5.28 acres)
-  Bishop Pine Re-Establishment (1.01 acres)

Caspar Transfer Station (Restoration Parcel)
Mendocino County, California

Figure 3.
Bishop Pine Enhancement and Re-Establishment Areas



Map Prepared Date: 12/18/2015
Map Prepared By: dchan
Base Source: ESRI Streaming Imagery
Data Source(s): WRA

The use of invasive species removal will be employed to augment site conditions more favorable to Bishop pine and other native species. Following invasive species removal, burn piles and/or placement of Bishop pine trees and other locally native, conifer woody refuse will be used to encourage natural regeneration and recruitment of Bishop pine and other native BPF species. A 2003 study indicated fires with limited overstory mortality were frequent disturbances in coast redwood forests along the Mendocino Coast prior to the early 20th century (Brown and Baxter 2003), suggesting that frequent low intensity fires are the typical fire regime regional Bishop pine and other associated native species are adapted to. The burn piles proposed for natural regeneration and recruitment are intended to simulate similar low intensity fire regimes.

In the Enhancement Areas, burn piles are expected to stimulate natural germination of the existing Bishop pine seed bank and release seed from the cones through the heat and subsequent exposed soil and ash. The fire is expected to trigger Bishop pine seedlings to emerge from the soil, providing a new generation of Bishop pine individuals.

Despite Bishop pine occurring in close proximity, it is believed there is a limited seed bank in the Re-Establishment Area soil, indicated by the absence of natural recruitment in these areas. However other factors may be influencing the lack of recruitment as well. Laying down woody debris and cones from surrounding BPF will be utilized to provide a potential seed source in the Re-Establishment Area. Bishop pines are facultatively serotinous, therefore a hot day can stimulate the release of seeds from cones and initiate germination. If the post restoration monitoring reveals the rate of natural regeneration through the placement of woody debris alone hinders performance goal achievement, then additional adaptive management actions described in sections 4.1 and 4.3 below will be initiated.

4.1 Burn Piles

Natural Bishop pine regeneration is preferred over seedling planting for a number of reasons including, preserving the local genetic diversity and encouraging native mycorrhizal associations as well as to avoid potential introduction of plant diseases. Natural regeneration can be encouraged by burning understory shrubs, downed woody debris, and leaf and needle litter to expose bare mineral soil and to stimulate the release of cone seeds. Burn piles will be located primarily in the openings and along the edges of BPF and transitional pygmy cypress woodland stands with low levels of natural regeneration. Burn piles will be used as the primary source for natural regeneration in the Enhancement Areas and a secondary source in the Re-Establishment Areas and shall only be employed if the primary source (woody debris piles) appears to hinder performance goal achievement.

Burn piles timing and size will be limited to the requirements of Air Quality Control Board and will likely require a County permit before ignited. The burn piles should be short, wide, and composed of woody debris of native trees and shrubs, fallen cones, and branches with cones limbed from living or dead Bishop pine. To a lesser extent pygmy cypress and Bolander's pine trees should be used as well. Material for the burn piles should be collected from the Restoration Parcel. Number of limbs gathered from living trees will be limited to 10 percent of the total limbs on the tree. Ashes from the burn piles should be left in place to encourage the germination of any seeds released during the burn and to provide soil cover. Wood ash is high in calcium carbonate, a well-known liming agent used to increase pH of soils. A 1956 study which tested edaphic restrictions of Bishop pine indicated when a liming agent is added to

Blacklock soil, an increase of mycorrhizae growth on Bishop pine roots occurs (McMillan 1956) suggesting that wood ash may promote mycorrhizal growth, a well-known beneficial association between plants and fungi.

4.2 Woody Debris Piles

As with burn piles, woody debris piles offer a natural way to encourage regeneration of Bishop pine and other native conifers. In the Re-Establishment Areas, regeneration of Bishop pine and other native trees and shrubs will be triggered through laying down of Bishop pine branches and cones in several patches over the entire area following invasive species removal efforts. Woody debris piles will be the primary source of Bishop pine regeneration for the Re-Establishment Area.

Approximately fifty percent of the Re-Establishment Area will be covered in four foot square patches of woody debris from Bishop pine and other native species collected from the Restoration Parcel. Woody debris includes fallen branches and cones as well as branches cut from living trees. Number of limbs gathered from living trees will be limited to 10 percent of the total limbs on the tree. The woody debris should be placed in piles in such a way that overlapping occurs and is limited to a height of two feet; it is expected this technique will create small niches suitable to trigger germination and growth of Bishop pine seedlings and other native trees and shrubs typical of BPF. Placement of woody debris should be accomplished by hand to the greatest extent feasible.

Bishop pine cones are facultatively serotinous meaning cones are able to open during hot days. The placement of the woody debris will minimize wind and increase the local temperature; it is expected this micro-climate will trigger cones to open, releasing seeds and initiating germination. If conditions are suitable natural regeneration is expected within one year. The effectiveness of this method will be based on the number of observed seedlings in the woody piles following year one.

Invasive species control will occur over the entire Re-Establishment Area as described in section 4.4 in an effort to prepare the sites in a manner that increases the success of the establishment of sapling trees and additional native species.

4.3 Supplemental Planting (if applicable)

Because the success of natural regeneration is dependent upon many variables, in order to meet performance goals, restoration efforts may be supplemented by plantings of bare root or potted native plants. The number of plantings required is dependent upon the success of natural regeneration and should be determined by a qualified biologist based on the performance goals described below in Section 7.0. Table 1 lists the trees and shrubs species recommended for supplemental planting. These species were selected based on their presence onsite or in the greater Restoration Parcel and described in the literature as occurring in BPF. To preserve regional genetic integrity and assist with adaptation to onsite conditions, all trees and shrubs should be propagated from native species collected onsite or nearby, to the greatest extent feasible. Trees and shrubs should be grown in 1-gallon pots or larger and the growing medium should be standard, well-drained nursery soil amended with approximately 1 to 2 percent of native onsite BPF soil to help establish plant/mycorrhizal relationships (Winzler and Kelly 1994). Plants should be installed during the month of December, or thereabouts, to take advantage of the rainy season. All tree and shrub plantings should be mulched with a 2- to 4-

inch layer of woodchips created from the grinding of onsite native woody debris and should be managed for invasive species.

Table 1. Tree and shrub planting palette

| Scientific Name | Common Name |
|---|-----------------------|
| Trees | |
| <i>Pinus muricata</i> | Bishop pine |
| <i>Notholithocarpus densiflorus</i> | Tan oak |
| <i>Chrysolepis chrysophylla</i> | Chinquapin |
| <i>Pinus contorta ssp. contorta</i> | Bolander's pine |
| <i>Hesperocyparis pygmaea</i> | Pygmy Cypress |
| Shrubs | |
| <i>Vaccinium ovatum</i> | Evergreen huckleberry |
| <i>Morella californica</i> | Wax myrtle |
| <i>Arctostaphylos columbiana</i> | Columbia manzanita |
| <i>Xerophyllum tenax</i> | Bear grass |
| <i>Gaultheria shallon</i> | Salal |
| <i>Pteridium aquilinum var. pubescens</i> | Bracken fern |
| <i>Frangula purshiana</i> | Cascara |

Site Preparation

Site preparation will be initiated through localized removal of non-native grasses, herbs and shrubs surrounding potential plant holes, while maintaining all established native trees and shrubs, to the greatest extent feasible. Once invasive species are removed, manual or mechanical tools will be used for excavating holes for the placement of individual seedlings or cuttings. To promote growth, fertilizer will be added to each excavated hole prior to planting. Previous supplemental planting conducted within the Restoration Parcel indicated one-third ounce of Osmocote fertilizer provides a sufficient amount of nutrients for plantings (Winzler and Kelly 1994).

Irrigation

If supplemental plantings are necessary, a temporary irrigation system may be necessary to irrigate the containerized plantings for the first two to three years following planting. A qualified biologist will determine the appropriate irrigation rate, timing, and duration and communicate that information to MSWMA. After the third year, native plantings should become adequately established such that normal rainfall will provide the necessary hydrology for plant growth and maintenance.

Browse Control

Browse control devices consisting of one of three types of browse control devices should be installed around individual tree or shrub plantings if evidence of browsing is detected during monitoring:

1. Deer browse devices should be constructed of 4-inch by 4-inch welded wire mesh 4 feet in height and secured to #6 rebar. The rebar should be 5 feet in length and installed at least 1 foot into the ground.
2. Rabbit and ground squirrel devices should be constructed of hardware cloth, folded outwards and buried at least 2 inches, and secured by wood stakes.
3. Small mammal devices should be Tubex or similar.

4.4 Invasive Species Management

The entire Restoration Parcel contains a number of non-native, invasive species such as pampas grass, teasel (*Dipacus* sp.), scotch broom, bull thistle, gorse, and Himalayan blackberry. At a minimum, all invasive species within the Restoration Areas should be removed. However to ensure best possible success of restoration activities it is recommended that invasive species with a California Invasive Plant Council (Cal-IPC; 2015) rating of “high” or “moderate” be eradicated and managed within the entire Restoration Parcel.

Non-native annual grasses, which are a ubiquitous part of California’s landscape and are abundant at the site, should be excluded from invasive vegetation management efforts. Additionally a large patch of periwinkle (*Vinca major*, Cal-IPC Moderate) which seems to be isolated by topographic features will be excluded from the invasive vegetation management efforts. However, if encroachment of periwinkle impacts restoration efforts, eradication should be considered.

To control invasive species in the entire Restoration Parcel, a survey should be conducted, noting the location and approximate size of invasive species populations on maps. Survey efforts should be followed-up with invasive species eradication in the spring or early summer, or as appropriate for the biology of the species, and herbicide application directions. Eradication measures will consist of a combination of hand removal, mowing, weed whipping, or herbicide treatments. If used, herbicides will be approved for use in riparian settings and will be applied by hand by an appropriately licensed applicator. Control of invasive species throughout the greater Restoration Parcel is recommended to limit the spread into Restoration Areas once the invasive species have been removed from those areas.

Table 2. Cal-IPC Ranks of Invasive Species in Restoration Parcel

| Scientific Name | Common Name | Cal-IPC Rank (2015) |
|--------------------------|----------------------|----------------------------|
| <i>Ulex europaeus</i> | Gorse | High |
| <i>Cortaderia jubata</i> | Pampas grass | High |
| <i>Rubus armeniacus</i> | Himalayan blackberry | High |
| <i>Cytisus scoparius</i> | Scotch broom | High |

| Scientific Name | Common Name | Cal-IPC Rank (2015) |
|------------------------------|--------------|---------------------|
| <i>Genista monspessulana</i> | French broom | High |
| <i>Cirsium vulgare</i> | Bull thistle | Moderate |
| <i>Dipsacus</i> sp. | Teasel | Moderate |

Currently, invasive species occur in all Restoration Areas. All reasonable efforts should be made to control and remove existing or newly established populations of invasive species that may threaten onsite Bishop pine regeneration efforts and native understory development. Priority invasive plants include those listed in Table 2.

Recommended invasive species control methods include hand or mechanical removal and/or the use of herbicides. These methods are outlined below and can be used individually or in combination to eradicate or contain most invasive plant populations encountered in the Restoration Areas.

Hand/Mechanical Removal

Hand removal or use of small handheld equipment (such as a weed wrench or a chainsaw) is the preferred method of removing invasive species. Many species must be removed entirely and disposed of carefully, including stems and all root fragments, to prevent regeneration or spread. If plant material cannot be removed completely, black plastic can be laid over areas after hand or mechanical tools have been used to reduce plant material to ground-level.

Pruning and appropriate disposal of flowers and seed heads can help to prevent spread if removal of the entire plant is not possible or is planned for a later date.

The use of weed-eaters (or “weed-whackers”) or similar trimmers with string or metal blades is appropriate for mowing contiguous patches or large individuals of certain invasive species. Complete removal of perennial species also requires digging of the roots and/or rhizomes, but mowing can be used to suppress growth and prevent seeding until future removal is performed. Any mowing should be performed with care to avoid interspersed native species.

If hand or mechanical removal methods are tried and found to be ineffective after one year of treatment, or if it is well documented that control of a particular species is not practicable without the use of herbicides, then hand removal may be supplemented with chemical controls and implemented as described below.

Herbicides

Glyphosate- or triclopyr-based herbicides, such as Round-up and Garlon, may be utilized if invasive plants cannot be managed through other methods. The herbicide must be applied according to the label, using a localized spot-treatment method and with care to avoid drift onto native plants. Herbicides may not be used when rain is predicted within 24 hours after application or within 25 feet of any sensitive species or waterbody. This recommendation does not obviate the need to obtain any other applicable approvals or licenses for the use of these chemicals, should it be necessary.

4.5 Refuse Removal

Portions of the Restoration Areas contain refuse such as washing machines, bathtubs, construction materials, and other types of refuse. All refuse should be removed from the Restoration Areas and should be disposed of in an appropriate offsite location. It is expected that native wildlife may be living amongst the refuse, including sensitive wildlife species; therefore, it is recommended that a qualified biologist be present during removal of the refuse to ensure that no wildlife species are harmed. If wildlife species are observed during removal activities, the species should be allowed to leave the area on its own accord prior to resuming removal activities.

Several outbuildings occur within the central portion of the Restoration Parcel, adjacent to Enhancement Areas, and should be removed from the site, if feasible.

Staging areas for machinery to be used for the removal of refuse and outbuildings should be located in previously impacted portions of the Restoration Parcel. Access to the Restoration Areas should be limited to existing roadways to the greatest extent feasible, and the use of heavy machinery within the Restoration Areas should be limited to minimize soil compaction.

5.0 AVOIDANCE AND MINIMIZATION MEASURES

Restoration activities include invasive species removal, herbicide use, refuse removal, vegetation clearing, and outbuilding demolition and removal. To avoid potential impacts to sensitive wildlife and plant species associated with the proposed restoration activities, the following avoidance and minimization measures are recommended in order to comply with local environmental regulations.

Breeding Birds

The bird breeding season typically extends from February 1 to August 31. Ideally, the clearing of vegetation and any ground disturbance can be accomplished during the non-breeding season, between September 1 and January 31. If these activities cannot be done during the non-breeding season, a qualified biologist should perform breeding bird surveys within 14 days of the onset clearing of vegetation and refuse. If active bird nests are observed, no vegetation clearing activities should occur within 100-feet of the exclusion zone. The exclusion zone may vary depending on species, habitat, and level of disturbance and should be determined by a qualified biologist. The exclusion zone should remain in place around the active nest until all young are no longer dependent upon the nest.

Bat Roosts

As with birds, bat roost sites can change from year to year, making pre-disturbance surveys necessary to determine the presence or absence of bat roost sites in a given area. Bat surveys do not need to be performed if work or vegetation removal is conducted between September 1 and October 31, after young have matured and prior to the bat hibernation period. However, if it is necessary to remove trees or otherwise disturb potential bat roost sites between November 1 and August 31, pre-disturbance surveys should be conducted by a qualified biologist. Bat surveys involve surveying trees, rock outcrops, and buildings subject to removal or demolition for evidence of bat use (guano accumulation or acoustic or visual detections). If bats are found,

a minimum 50-foot buffer should be implemented around the roost. Removal of roosts should occur in September and October, or after the bats have left the roost.

Sensitive Plant Species

Several sensitive plant species are known to occur in the Restoration Areas, including Mendocino Manzanita, pygmy cypress and Bolander's pine. Occurrences of sensitive plant species should be identified and flagged by a qualified biologist prior to initiation of restoration activities. Sensitive plant species should be avoided during the removal of invasive species and implementation of burn piles.

6.0 MONITORING

Monitoring will include three components: (1) assessing tree and shrub regeneration, (2) assessing plant species composition and percent cover, and (3) assessing invasive species presence.

Monitoring of the Re-Establishment and Enhancement Areas should occur over a period of five years to document habitat development and to determine whether performance goals will be met. Monitoring will be conducted annually in the spring or early summer to identify potential invasive species issues, to document vegetation composition, cover, and document establishment and survival of target tree and shrub seedlings and/or plantings. Monitoring should begin during the first full growing season following initial enhancement and re-establishment activities.

Monitoring will include documentation and quantification of seedling regeneration and the presence of invasive species or other threats including erosion and trash or other signs of human disturbance through qualitative observations as well as fixed transects and permanent plots. If supplemental planting occurs, fixed transects will be established to evaluate the cover of native vegetation and invasive species in these areas. Permanent plots will be established in burn pile areas to document density and species composition of revegetation efforts. Monitoring will also include the use of photographs (photo points) to compare the growth of vegetation within the Enhancement and Re-Establishment Areas over time.

A monitoring report assessing the implementation of this Mitigation Plan and progress toward meeting performance goals will be submitted to the MSWMA by December 31 of each monitoring year. The report will be written by a qualified biologist that has experience conducting BPF monitoring. If problems are encountered that threaten the achievement of performance goals, the report should recommend adaptive management actions to be carried out by the applicant. Monitoring methods and final performance goals are outlined below.

6.1 Photo Monitoring

Photo documentation of restoration efforts will be conducted for Re-Establishment and Enhancement Areas to provide a visual assessment of growth of vegetation over time. In each Restoration Area, a minimum of four permanent photo point locations will be selected and taken in the same aspect to allow for inter-annual comparison.

6.2 Permanent Plots

Permanent square plots will be established in the area of each burn pile (size to be determined by local ordinances), measuring three meters on each side. Within each plot, the percent cover of each species will be visually approximated to determine the cover of native, non-native, and invasive species. Results from the plots will be averaged to determine the overall percent coverage and composition of plant species for the Restoration Areas. These data will then be examined to assess whether vegetation coverage is meeting the performance goals.

6.3 Fixed Transects

If supplemental planting occurs, fixed transects will be utilized to determine plant species cover. Within each transect, the percent cover of each species will be visually approximated in a half meter squared quadrat placed on ten foot intervals to determine the cover of native, non-native species, and invasive species. Results will be averaged to determine overall percent coverage and composition of plant species for the Restoration Areas. This data will be examined to assess whether vegetation coverage is meeting the performance goals.

6.4 Qualitative Assessment

A qualitative assessment of invasive plant species distribution and cover will occur during the spring monitoring visit in all Restoration Areas. Surveys will document the approximate location and cover of any invasive species rated at “high” or “moderate” by the Cal-IPC (2015) which have re-established in the Restoration Areas (if applicable), exclusive of non-native annual grasses and periwinkle (*Vinca major*). Results and recommendations of the invasive species assessment will be provided in the monitoring report.

A tally and condition assessment of all new Bishop pine seedlings will be conducted within the burn piles and woody debris piles. The monitoring biologist will make a general assessment of plant vigor as affected by shading, water availability, and other factors. The biologist conducting the monitoring will determine whether to recommend additional burn piles or supplemental planting of trees and shrubs based on the progress in meeting performance goals for plant survival and percent cover.

If supplemental planting occurs, the number of living trees and shrubs will be tallied and compared to the number of original plantings. Survivorship of the BPF plantings will be assessed visually. In addition, the monitoring biologist will make a general assessment of plant vigor, as affected by irrigation, browse, and other factors to determine whether to recommend replacing trees or shrubs that die based on the progress in meeting performance goals for plant survival and cover. In later stages of the monitoring period, individual tree and shrub plantings may begin to exhibit the effects of competition with adjacent plantings; this could result in the death of some plantings, but is not indicative of poor performance.

During each monitoring site visit, the general condition of the Restoration Areas including trash or other refuse will be noted. Recommendations for additional measures will be provided if necessary.

6.5 Monitoring Reports

An annual monitoring report will be submitted to the MSWMA by December 31 each year. The report will be prepared by a qualified biologist with experience in BPF habitat monitoring. The

report will assess progress towards meeting performance goals and identify any problems with erosion, refuse, invasive plants, and/or other general causes of habitat degradation. If necessary, adaptive management actions will be recommended. Monitoring reports will be submitted each monitoring year for five years.

7.0 PERFORMANCE GOALS

Restoration performance will be assessed using the following performance goals:

1. Invasive species with a “High” or “Moderate” Cal-IPC rating will comprise less than 5 percent relative cover in the Enhancement and Re-Establishment Areas. An area of three feet diameter around any Bishop pine seedlings or saplings will be kept clear of all invasive or non-native species through the use of invasive species management methods described in Section 4.4.
2. Relative percent cover of native species will exceed 25% by the end of the five-year monitoring period. If, after the first three seasons, it is determined that plant cover is not on track to meet the 25% cover requirement by the end of the five-year monitoring period, supplemental measures should be conducted to meet performance goals; supplemental measures include additional burn piles or supplemental planting of appropriate native understory species.
3. The Restoration Areas will show no signs of significant erosion, refuse disposal, or other anthropogenic impacts except only those necessary for the management and monitoring activities outlined in this plan. Refuse or other anthropogenic items observed will be removed off-site to the proper disposal locations. Standard construction erosion BMP’s, including the use of wattles and silt fencing will be utilized in erosive areas, if observed.
4. Given the highly disturbed condition of the Restoration Areas, natural revegetation is not expected to be as vigorous as in a natural environment. Performance goals for number of Bishop pine seedlings will reflect this expectation. In the Re-Establishment Area, approximately 250 Bishop pine saplings should be present after two years of monitoring. In later stages of the monitoring period, individual trees may begin to exhibit the effects of competition with adjacent plantings; this could result in the death of some trees, therefore Bishop pine saplings at the end of the five-year monitoring period should be approximately 190 trees. In the Enhancement Areas the Bishop pine forest is mostly mature so optimal tree density is already established, therefore at least 100 Bishop pine saplings should be present

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Appendix A
Representative Photographs of Mitigation Area



Photo 1. A representative photo of the transitional pygmy forest in one of the Enhancement Areas,



Photo 2. Photo showing pampas grass which is seen throughout the Restoration Parcel, including the Restoration Areas. This photo was taken in an Enhancement Area.



Photo 3. Photo showing a berm which contains the pond located amongst the restoration areas and is included in the Enhancement Area. It is covered with Scotch broom and other invasive species.



Photo 4. A photo showing one of the several outbuildings located immediately adjacent to Enhancement Areas.



Photo 5. A photo showing existing natural recruitment within the Enhancement Areas.



Photo 6. Photo showing the dense weedy understory of the existing Bishop pine forest.



Photo 7. Photo showing the dense weedy understory of the existing Bishop pine forest.



Photo 8. Photo showing existing trees and conditions. Note dead trees to the right of the picture.



Photo 9. Representative photo showing Re-Establishment Area. The area is dominated by invasive species which will need to be managed.



Photo 10. Additional photo showing Re-Establishment Area.



Photo 11. Photo showing existing Bishop pine forest in Enhancement Areas near the main entrance.



Photo 12. Photo showing weedy understory of existing Bishop pine forest near the main entrance.

Central Coast Transfer Station

Response to Comments

Revised Final Environmental Impact Report

State Clearinghouse #2014012058

September 2016

Mendocino Solid Waste Management Authority
3200 Taylor Drive
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Acronyms and Abbreviations

| | |
|----------|--|
| AB | Assembly Bill |
| APN | Assessor's Parcel Number |
| AQMD | Air Quality Management District |
| BAAQMD | Bay Area Air Quality Management District |
| BMP | Best Management Practice |
| CALVEG | California vegetation |
| Caltrans | California Department of Transportation |
| CARB | California Air Resources Board |
| CEQA | California Environmental Quality Act |
| CNDDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| CRPR | California Rare Plant Rank |
| DEIR | Draft Environmental Impact Report |
| DPM | diesel particulate matter |
| EIR | Environmental Impact Report |
| EPA | Environmental Protection Agency |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| FEIR | Final Environmental Impact Report |
| GHG | greenhouse gas |
| JDSF | Jackson Demonstration State Forest |
| LEA | local enforcement agency |
| LID | Low Impact Development |
| MCAQMD | Mendocino County Air Quality Management District |
| MSWMA | Mendocino Solid Waste Management Authority |
| NOP | Notice of Preparation |
| PM | particulate matter |
| RDEIR | Revised Draft Environmental Impact Report |
| RWQCB | Regional Water Quality Control Board |
| SWPPP | Stormwater Pollution Prevention Plan |

1. Introduction

1.1 Purpose of the Response to Comments/Revised Final Environmental Impact Report Document (“RTC/RFEIR”)

This document provides responses to comments received on the April 2016 Revised Draft Environmental Impact Report (“RDEIR”) for the proposed Central Coast Transfer Station Project (“Project”), and includes necessary revisions to clarify the text and analysis in the RDEIR. The RDEIR identified the likely environmental consequences associated with the project, and recommended mitigation measures to reduce potentially significant impacts. The RDEIR amended six sections of the original Draft Environmental Impact Report dated February 2015 (“DEIR”) and incorporated by reference the other unaltered sections of the DEIR. An earlier Response to Comments on the DEIR, dated June 2015, remains applicable and is incorporated herein by reference, although in some respects it has been modified by the RDEIR and this RTC/RFEIR, which are definitive in any instance of inconsistency.

This RTC/RFEIR document, together with the DEIR and RDEIR, constitutes the Final EIR (“FEIR”) for the project and will be considered by the Caspar Joint Powers Agreement lead agency partners (County of Mendocino and City of Fort Bragg) for certification under the California Environmental Quality Act (“CEQA”).

1.2 Environmental Review Process

CEQA requires lead agencies to consult with public agencies having jurisdiction over a proposed project, and to provide the general public and project applicant with an opportunity to comment on the RDEIR. This RTC/RFEIR document has been prepared to respond to the significant environmental points raised in the oral and written comments received on the RDEIR and to make modifications to clarify some of the information in the RDEIR.

The original DEIR was made available for public review on February 9, 2015, at the following locations: 1) Fort Bragg Public Library, 499 E. Laurel Street, Fort Bragg; 2) City of Fort Bragg, 416 N. Franklin Street, Fort Bragg; 3) City of Fort Bragg website at www.city.fortbragg.com; and 4) Mendocino Solid Waste Management Authority (MSWMA) website at www.MendoRecycle.org. The DEIR was distributed to local and State responsible and trustee agencies via submission to the State Clearinghouse, and the general public was advised of the availability of the DEIR by posting of a public notice in the local newspaper. A public notice was also filed with and posted by the County Clerk as required by law. A public hearing to receive comments on the DEIR was held by the City of Fort Bragg and County of Mendocino on March 19, 2015. The 45-day public comment period on the DEIR closed on March 26, 2015 at 5 p.m. In response to public and agency comments received on the DEIR, including comments received just prior to and on the same day the lead agency was set to hold a public hearing to consider certifying the EIR and approving the project, the lead agency decided to continue the public hearing of July 21, 2015 to allow staff additional time to consult with the commenting agencies. Ultimately, on or about September 18, 2015, the lead agency provided public notice of its decision to revise and recirculate the DEIR.

The RDEIR was subsequently prepared and made available for public review on May 11, 2016 at the following locations: 1) Fort Bragg Public Library, 499 E. Laurel Street, Fort Bragg; 2) Fort Bragg City Hall, 416 N. Franklin Street, Fort Bragg; and 3) Mendocino Solid Waste Management Authority (MSWMA) website at www.MendoRecycle.org. The RDEIR was distributed to local and State responsible and trustee agencies by the State Clearinghouse and the general public was advised of the availability of the

RDEIR by posting of a public notice in the local newspaper and by mailing or emailing a notice to those who had requested notice. A public notice was also filed with and posted by the County Clerk as required by law. A public hearing to receive comments on the RDEIR was held by the City of Fort Bragg and County of Mendocino on June 16, 2016. The 45-day public comment period on the RDEIR closed on June 24, 2016 at 5 p.m.

Copies of all written comments and summaries of all oral comments received on the RDEIR during the public comment period are contained in this document. Responses to each comment follow the comment letter or oral comment.

This RTC/RFEIR document will be provided to the Fort Bragg City Council and Mendocino County Board of Supervisors, together with the DEIR (and original RTC/FEIR document from June 2015) and RDEIR, for their review prior to their consideration of resolutions certifying the EIR as a full disclosure of potential impacts, mitigations and alternatives, and approving the project. If the project is approved, recommended mitigation measures will be adopted and implemented as specified in the resolutions and an accompanying mitigation monitoring and reporting program adopted unless the Board of Supervisors and City Council find the measures infeasible as specified in CEQA Guidelines Section 15091 (Findings).

1.3 Document Organization

This RTC/RFEIR document is organized into the following chapters:

Chapter 1 – Introduction. This chapter discusses the use and organization of this RTC document, and summarizes the environmental review process to date for the project.

Chapter 2 – Revisions to the RDEIR. Deletions and additions to the text of the DEIR are contained in this chapter.

Chapter 3 – List of Commenters. This chapter includes the names of agencies and individuals who commented on the RDEIR, both written and oral.

Chapter 4 – Comments and Responses. This chapter reproduces all of the written comments received on the RDEIR from public agencies and members of the public during the public comment period and provides responses to those comments both in the form of “Master Responses” (to the environmental points most frequently raised) and point-by-point responses to all other individual comments. The chapter also contains summaries of oral comments received during the Public Hearing held on June 16, 2016 at Fort Bragg Town Hall, 363 N. Main Street, Fort Bragg and responses to the significant environmental points raised by those oral comments.

Chapter 5 – Appendices.

2. Revisions to the RDEIR

This chapter includes minor revisions to the RDEIR necessary to correct minor errors or omissions or otherwise clarify information in the RDEIR. The changes to the RDEIR are indicated by indented text. Text that has been added to the RDEIR is indicated in underline font. (No deletions of the RDEIR are proposed.)

2.1 Project Description – Required Permits and Approvals (RDEIR Section 2.6)

Add the following to the list of required approvals at page 2.0-10 of the RDEIR:

- Coastal Development Permit for restoration activities at botanical mitigation sites, if the California Coastal Commission deems that those activities constitute “development” under the Coastal Act.

2.2 Biological Resources (RDEIR Section 3.4)

Add the following sentence prior to the final sentence in Mitigation Measure BIO-1b: Mitigate Impact to Mendocino Cypress and Bolander’s Pine:

Invasive plants along the southern boundary of the Caspar Pygmy Forest Preserve/Preservation Parcel shall be eradicated.

2.3 Alternatives Description & Analysis (RDEIR Section 4.3) Environmentally Superior Alternative

The chart on page 3.9.14 of Section 4.0 of the RDEIR has been replaced with the chart that appears in Master Response A.

3. Comments Received During RDEIR Public Comment Period

During the 45-day public comment period on the RDEIR, the lead agency received 19 written comments (letters/emails) and 15 oral comments at the June 16, 2016 public hearing. Lists of the comment letters and oral comments received, including the names and affiliations of the commenters, are shown below in Tables 3-1 and 3-2. The written comments that were received are numbered alphabetically starting with “A” through “S” and the oral comments are numbered alphabetically starting with “AA” through “OO.”

3.1 Table 3-1: Written Comments Received During Public Comment Period

| Letter/Email | Agency/Organization | Last Name | First Name | Letter/Email Date |
|--------------|----------------------|------------|---------------|-------------------|
| A | Individual | Moore | Shirley Ann | May 16, 2016 |
| B | Individual | Rennacker | Ann | June 8, 2016 |
| C | Individual | Durkee | Carrie | June 8, 2016 |
| D | Caltrans | Ahlstrand | Tatiana | June 3, 2016 |
| E | Fish & Wildlife | Manji | Neil | June 13, 2016 |
| F | Individual | James | Ronnie | June 13, 2016 |
| G | Individual | Thorbecke | Charla | June 15, 2016 |
| H | Individual | Durkee | Carrie | June 20, 2016 |
| I | Individuals | Thorbecke | Erik & Charla | June 16, 2016 |
| J | Individual | Fremont | John | June 16, 2016 |
| K | Sierra Club | Wehren | Rixanne | June 15, 2016 |
| L | Coastal Commission | Gedik | Tamara | June 21, 2016 |
| M | EPIC | DiPerna | Rob | June 23, 2016 |
| N | Native Plant Society | Sholars | Teresa | June 23, 2016 |
| O | Parks & Recreation | Amann | Kathleen | June 24, 2016 |
| P | Sierra Club | Carroll | Paul | July 17, 2015 |
| Q | Individual | James | Jeremy | June 24, 2016 |
| R | Individual | Rennacker | Ann | June 24, 2016 |
| S | Individual | Oberweiser | Ed | June 8, 2016 |

3.2 Table 3-2: Oral Comments Received at June 16, 2016 Public Hearing

| Comment | Agency/Organization | Last Name | First Name |
|---------|---------------------|-----------|------------|
| AA | Individual | Rice | Barbara |
| BB | Individual | Fremont | John |
| CC | Individual | Howson | Tracy |
| DD | Individual | Gay | James |
| EE | Individual | Thorbecke | Charla |
| FF | Individual | James | Jeremy |
| GG | Sierra Club | Wehren | Rixanne |
| HH | Individual | Walsh | Mary |
| II | Individual | Rennacker | Ann |
| JJ | Individual | Sacks | Rick |
| KK | Individual | Moller | Barbara |
| LL | Individual | Becker | Mickey |
| MM | Individual | Frank | Cynthia |
| NN | Individual | Heil | Bill |
| OO | Individual | Barber | Teri Jo |

4. Responses to Comments Received During the RDEIR Comment Period

4.1 Master Responses to Comments

Several of the written and oral comments submitted on the RDEIR raised the same/similar comments, demonstrating common, shared concerns. Accordingly, three Master Responses have been prepared to globally respond to those common concerns addressing the following topics: (1) distances to surrounding residences at project alternative sites; (2) location of the Project within the Coastal Zone; and (3) conditions on and potential impacts to 12.6 acres of existing Russian Gulch State Park land.

4.2 Master Response A: Distances to surrounding residences at project alternative sites

Several commenters objected to the chart on page 3.9.14¹ of Section 4.0 of the RDEIR because it stated distances to residences from the boundaries of the alternative project sites, without specifying whether it was the boundary of the parcel or the boundary of the projected location of a transfer station on the alternative project site. Accordingly, the chart is revised as follows:

| Site | Closest residence to projected transfer station footprint (feet) | Number of residences within 1000 feet of projected transfer station footprint |
|--|--|---|
| Project site on SR 20 ² | 450 | 13 |
| Caspar Landfill site ³ | 1000 | 2 |
| Empire Waste Management ⁴ | 150 | 62 |
| Leisure Time RV Park ⁵ | 0 ⁶ | 44 |
| Mendocino Coast Recreation & Park District site ⁷ | 350 | 28 |

¹ Section 4.0 of the RDEIR (Alternatives Description & Analysis) was inadvertently and incorrectly paginated with numbers beginning with 3.9 instead of 4.0, thus some page numbers duplicate those used in Section 3.9 (Hydrology & Water Quality). Future references to pages in Section 4.0 will be described as belonging to Section 4.0.

² Transfer station facility location is assumed to be the location shown in Figure 2-2 of the DEIR. This is the location on the proposed project site that was determined to have the least impact on sensitive plant species.

³ Transfer station facility location is assumed to be in an area already cleared of vegetation to the south of existing self-haul transfer station on the Caspar site. This is a location that would minimize impacts on sensitive plant species and would leave the existing self-haul facility operational during new facility construction.

⁴ Transfer station facility location is assumed to be in a location on the Waste Management site that would avoid existing structures and facilities so they can continue to operate during new facility construction.

⁵ Transfer station facility location is assumed to be in the portion of Leisure Time RV Park property already cleared of vegetation.

⁶ Existing full-time residents of Leisure Time RV Park would be displaced.

⁷ Transfer station facility location on MCRPD property is assumed to be in the portion of property that is already cleared of vegetation.

The data in this chart is based on the transfer station locations in DEIR Figure 2-2 (for the project site) and on the four satellite images shown in Appendices A through D, Figures 5-1 through 5-4 of the other four project alternatives, with the most likely and feasible location of a transfer station footprint superimposed. The footnotes to the table explain the rationale behind the identification of a most likely and feasible location on each alternative site. The count of surrounding residences is approximate because of the limitations of the satellite imagery resolution.

The revisions to the information in this chart do not change the analysis or conclusion reached in the RDEIR as the proposed project site continues to be better isolated from surrounding land uses than the alternative project sites, with the exception of the Caspar Landfill Site, which has other environmental deficiencies as set forth in the Alternatives chapter of the RDEIR.

4.3 Master Response B: Location of the Project within the Coastal Zone

Several commenters stated that the Caspar Landfill property (Restoration Parcel, APN 118-500-11) and the adjacent Preservation Parcel (APN 118-500-45) are located in the Coastal Zone and thus assert that a Coastal Development Permit would be required for the project mitigation measures proposed to preserve and restore pygmy and Bishop Pine forest on these parcels.

The Coastal Zone boundary bisects both the Preservation Parcel and the Restoration Parcel properties. The Coastal Zone boundary on the Restoration Parcel is shown on Appendix E, Figure 5-5. A comparison with the Bishop Pine restoration and enhancement plan in Appendix L, Figure 3 of the RDEIR shows that a small part (approximately 1 acre) of the Bishop Pine enhancement would occur within the Coastal Zone boundary.

Coastal Development Permits are required when “development” is planned within the Coastal Zone. Section 30106 of the Coastal Act defines “development” as follows:

"Development" means, on land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511).

The overall enhancement work proposed for the Restoration Parcel is described as follows: “Enhancement Areas support disturbed BPF and transitional pygmy cypress woodland which will be enhanced through removal of invasive species, refuse and outbuildings, combined with the use of small burn piles to stimulate seed germination of the existing Bishop Pine seed bank.” (RDEIR, Appendix L, p. 7)

For the small portion of the Enhancement Area which lies within the Coastal Zone, the enhancement work will consist of removal of trash, preparation and ignition of small burn piles to release seeds, and new plantings of Bishop Pine (if needed). There are no structures which would be demolished on the portion of the property that lies within the Coastal Zone. The dilapidated sheds that are proposed to be demolished are located on the northeast side of the site access road that traverses APN 118-500-11 from the self-haul facility to the northwest corner of the parcel. This area is entirely outside of the Coastal Zone.

For the Preservation Parcel at APN 118-500-45, the only work to be performed will be the removal of invasive Jubata grass along the parcel's southern boundary access road, and the placement of signs. The lead agency does not believe that either scope of work constitutes "development" requiring a Coastal Development Permit since the mitigation proposed for the Restoration and Preservation parcels is minimally invasive and wholly consistent with the Coastal Act. If, however, after consultation with the California Coastal Commission, it is determined that the proposed preservation and enhancement work associated with the project's mitigation measures on either the Restoration or Preservation parcels does require a Coastal Development Permit, then a permit will be sought and acquired. Section 2.6 of the RDEIR ("Required Permits and Approvals") has been revised to account for the possibility that a Coastal Development Permit may be required for these minor restoration activities.

4.4 Master Response C: Potential impacts to 12.6 acres of existing Russian Gulch State Park land

Several commenters raised concerns regarding the adequacy of the RDEIR's assessment of alleged impacts associated with the potential transfer of jurisdiction over the 12.6 acres of existing Russian Gulch State Park land situated north/northwest of County Road 409 to the Department of Forestry and Fire Protection (CalFire) pursuant to the authorization of the transfer in Public Resources Code Section 4659 (see, e.g., Comments B-2; E-21; H-3; K-5; O-2, O-3 and O-5; P-1; R-2 and R-8; S-2 and HH). All of those concerns are based not on evidence that the Project proposes specific new or changed activities on the 12.6 acres (it does not), but rather, on speculation that under CalFire's jurisdiction, the management of the 12.6 acres will result in timber harvesting resulting in adverse impacts to endangered species/habitat, and/or decreased recreational opportunities (including the study and collection of mushrooms from the "Mushroom Corners" area).

As demonstrated in the DEIR and RDEIR, the project does not propose any changes to the existing conditions on the 12.6 acres other than the potential transfer of jurisdiction pursuant to Public Resources Code Section 4659. Indeed, neither the City of Fort Bragg nor the County of Mendocino currently owns or controls the 12.6 acres (State Parks currently manages the 12.6 acres as part of the Russian Gulch State Park) or will in the future as a result of the Project (jurisdiction over the 12.6 acres may transfer to CalFire pursuant to the compensatory land swap provisions of Section 4659 if a solid waste transfer station is timely constructed on the proposed Project site). Moreover, subsection (k) of Section 4659 cited by several of the commenters only obligates the City/County to comply with CEQA "in connection with the transfer of property ownership and development of the solid waste transfer station," and limits its definition of "property" for purposes of the statute (including its CEQA compliance provision in subsection (k)) to the proposed Project site (e.g., the 17 acres of Jackson Demonstration State Forest ("JDSF") land adjacent to/north of SR 20).

Nonetheless, the lead agency fully understands and appreciates that, in addition to a proposed project's direct impacts, CEQA also requires analysis of a project's reasonably foreseeable indirect impacts. However, CEQA states that indirect impacts which are speculative or unlikely to occur are not reasonably foreseeable, and that an EIR may terminate its discussion of such impacts after noting that a potential indirect project impact is too speculative for evaluation (see CEQA Guidelines Sections 15064(d)(3), 15145). Based on the comments provided on this issue and the totality of the evidence in the administrative record for this project, it is clear that the alleged indirect impacts associated with the potential transfer of jurisdiction over the 12.6 acres are not reasonably foreseeable and are too speculative for meaningful environmental analysis.

Specifically, the record contradicts the commenters' assertions, based solely on select references to timber production policies in CalFire's Jackson Demonstration State Forest Management Plan, that the transfer will result in timber harvesting on the 12.6 acres. While timber production/harvesting has and will occur within the JDSF under the current Management Plan, nothing therein indicates that trees will or even may be cut on the 12.6 acres (should it be transferred into the JDSF). To the contrary, the evidence demonstrates that no timber harvests are reasonably foreseeable on the 12.6 acres because:

- If the 12.6 acres are transferred to CalFire's jurisdiction and into the JDSF, the land will be added to the adjacent Caspar Creek Watershed Study area, which is one of several special areas not covered by the JDSF Management Plan's silvicultural allocation plan (JDSF Management Plan, p. 76);
- Timber harvests are only conducted sparingly in the Caspar Creek Watershed Study area for research purposes, and only two study experiments have been conducted since the Study area was established in 1962;⁸
- The Caspar Creek Watershed Study area contains two distinct watersheds: the South Fork Caspar Creek and North Fork Caspar Creek watersheds. The 12.6 acres is located within the South Fork Caspar Creek watershed. The only prior study/experimental harvesting done to date in the South Fork took place in the early 1970s;
- Based on consultation with CalFire's JDSF Manager Pam Linstedt (including telephonic discussions and email correspondence), while limited harvesting associated with a planned third study/experiment is scheduled in the South Fork for 2017-2018, no trees will be cut from the 12.6 acres as part of the third study/experiment; neither additional timber harvests nor a fourth study/experiment is anticipated for at least the next 15 years; and if additional harvests are proposed in the distant future as part of a fourth study/experiment, they will likely not be proposed on the 12.6 acres given the occupied status of the Marbled Murrelet habitat within the 12.6 acres;⁹ and
- While not reasonably foreseeable at this time, CalFire will analyze and develop appropriate mitigation measures to address potential impacts of all future harvests within the Caspar Creek Watershed Study area within required Timber Harvest Plans, which are the functional equivalent of an Environmental Impact Report under CEQA for certified regulatory agencies/programs like CalFire and the California Coastal Commission.

⁸ See Memorandum of Understanding between CalFire and U.S. Forest Service concerning the Caspar Creek Watershed Study at <http://www.fs.fed.us/psw/topics/water/caspar/documents/CasparCreekMOU2015.pdf>.

⁹ See RDEIR, p. 2.0-3. See also Caspar Creek Experimental Watersheds Experiment Three Study Plan at <http://www.fs.fed.us/psw/topics/water/caspar/documents/CasparCreekStudyPlan.pdf>.

Additionally, the commenters' alleged impacts on recreational uses on and around the 12.6 acres are also unsubstantiated. For example, the "Mushroom Corners" area, historically used by researchers and personal/commercial mushroom collectors, does not extend onto the 12.6 acre parcel, but rather is situated upon an approximately 330 acre area centered at the junction of County Roads 408 and 409.¹⁰ Further, contrary to the commenters' implication, CalFire not only permits the study and collection of mushrooms from the Mushroom Corners area (and anywhere else in the JDSF), the JDSF Management Plan includes specific botanical management measures intended to preserve sustainable research and collection of mushrooms in the Mushroom Corners area into the future, including required consultation with the mycological research community and invasive plant control measures.¹¹ Thus, because mushroom collecting is prohibited on State Parks lands, if the 12.6 acres is transferred from Russian Gulch State Park to CalFire's JDSF, educational and recreational/commercial mushroom study and collection will be newly allowed and specifically managed, resulting in a beneficial impact. Finally, in addition to this beneficial impact regarding mushroom activities and management on the 12.6 acres, as noted in the RDEIR no other recreational or aesthetic impacts are reasonably foreseeable from the transfer of the 12.6 acres to CalFire's JDSF as the Special Concern Area policies and protections afforded by the JDSF's Management Plan for State Park special treatment areas and road and trail corridors would apply thereon, requiring CalFire to consider adjacent State Parks values and establish and maintain buffer areas along trails and roads (including County Road 409) to maintain aesthetic qualities valued by the public.¹²

In sum, while there is no certainty that timber will not be harvested on the 12.6 acres sometime in the distant future, there currently is no evidence that any such harvest or the commenters' alleged impacts associated therewith are a reasonably foreseeable consequence of the project or otherwise possible for at least the next 15 years. Without any evidence that such activity is reasonably foreseeable, and especially without any indication where and how such activity may occur, this potential indirect impact is just too speculative to conduct any meaningful environmental impact analysis at this time. Any such distant decision to propose changes to the 12.6 acres will be CalFire's, and CalFire must comply with CEQA as required at that time.

¹⁰ See JDSF Management Plan, Figure 5 at http://calfire.ca.gov/resource_mgt/downloads/fig5-Forest-Management.pdf. See also DEIR for JDSF Management Plan, page VII.6.2-11 here: http://calfire.ca.gov/resource_mgt/downloads/jdsf_deir_05/DEIR_Part_07_VII.06.2_V1A_BotanicalResources_1_2.05.pdf

¹¹ See JDSF Management Plan, pp. 256 and 273. See also JDSF mushroom permit information, rules, terms and conditions as well as permit application form here http://calfire.ca.gov/resource_mgt/downloads/JDSF/2016%20Mushroom%20Permit%20by%20Mail%20packet2.pdf.

¹² See JDSF Management Plan, Appendix II, pp. 194-196.

4.5 Written Comments and Response to Individual Comments

4.5.1 Letter A – Shirley Ann Moore

RECEIVED
5/18/2016

4964 Canyon Drive
Santa Rosa, Ca. 95409-3200
May 16, 2016
(707) 539-7007

Mendocino Solid Waste
Management Authority
3200 Taylor Drive
 Ukiah, Ca. 95482

Dear Mr. Sweeney,
General Manager

Your plan of the planned central
coast transfer station project alarms me.

My family has property, nearly
five acres, half a mile east of your
proposed project. The well water will
be affected, residential property value,
noise, traffic, odor and other measures
will be affected. A1

The Willits Road is thirty-two miles
long and offers many areas where people
do not live, or camp. Three miles from
highway I is too close for comfort for
a waste deposit business. A2

I doubt that many home owners
will welcome your proposal. Re-plan
and re-think your objective here. Help
people, yes, but away from homes, not
within half a mile to homes. Please consider
relocating a business such as this.

Sincerely,
Shirley Ann Moore

Letter A – Shirley Ann Moore – Response to Comments

Response A-1

Comment noted; no further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, it appears this comment presents generalized concerns concerning the Project's potential impacts to well water, property values, noise, traffic and odor. The commenter is referred to sections 3.9, 3.11, 3.12, and 3.3 of the DEIR and/or RDEIR, where the Project's potential water, noise, traffic and odor impacts were thoroughly discussed and analyzed. No response is required concerning the commenter's concern regarding the Project's impact on nearby property values as the California Environmental Quality Act ("CEQA") is concerned only with physical impacts on the environment such that social or economic impacts are beyond the scope of CEQA unless there is evidence that such economic impacts will themselves adversely affect the physical environment. The commenter has not provided any such evidence.

Response A-2

Comments noted; no further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, it appears this comment presents generalized support for an alternative Project site. The commenter is referred to section 4.0 of the DEIR and RDEIR, where a reasonable range of Project alternatives is discussed and analyzed.

4.5.2 Letter B – Ann Rennacker

From: Ann Rennacker <annxpress@live.com >
Sent: Wednesday, June 08, 2016 10:13 AM
To: sweeney@pacific.net
Subject: Notice of Preparation for the Central Coast Transfer Station Draft Environmental Impact Report (SCH# 2014012058) Mendocino County, California

Dear Mr. Sweeney,

I am writing to voice my opposition to the preferred alternative as articulated in the Draft Environmental Impact Report for placement of a solid waste transfer facility on property currently occupied by Mendocino Pygmy Cypress Forest and Northern Bishop Pine Forest. The preferred alternative, if implemented, will likely have a significant adverse impact on these rare forest types, and the mitigations thus far identified are not adequate to offset these significant adverse impacts. B1

The DEIR does not provide an adequate evaluation of potentially significant impacts of the preferred alternative. Furthermore, the DEIR fails to provide adequate analysis or information related to feasible, less-damaging alternatives, and fails to adequately address why the alternatives not chosen do not constitute equally feasible, less-damaging alternatives to the proposed project.

The proposed action as articulated in the DEIR is in direct conflict with several land management directives contained in the Mendocino County General Plan, and is in direct conflict with the Jackson Demonstration State Forest Management Plan. B2

I urge you to reject the preferred alternative as described in the DEIR, as this alternative is certain to have significant adverse impacts on a rare and highly vulnerable vegetation type that cannot be replaced, and for which mitigation is not possible. Equally feasible, less-damaging alternatives must be articulated and considered in order for the project to fully comply with the letter and spirit of CEQA. B3

Thank you for your consideration.

Sincerely,

Ann Rennacker
31200 Sherwood Rd
Ft Bragg, CA 95437

Letter B – Ann Rennacker – Response to Comments

Response B-1

Comment noted; no further response is required as the comment addresses the DEIR, not the RDEIR. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Section 4.0 of the RDEIR, where additional Project alternatives were analyzed in compliance with the requirements of CEQA Guidelines Section 15126.6(d) by providing "meaningful evaluation, analysis, and comparison with the proposed project."

Response B-2

This comment generally asserts that the Project would conflict with unidentified land management directives in the Mendocino County General Plan and the Jackson Demonstration State Forest Management Plan. Without knowing what particular portion of the Jackson Demonstration State Forest Management Plan the commenter is referring to, it is not possible to provide a direct response, however, the restrictions that would apply to Jackson Demonstration State Forest management of the newly-acquired 12.6 acres, should the land swap authorized by Public Resources Code Section 4659 be effectuated, are described on pages 2.0.3 to 2.0.4 of the RDEIR. Further, the Jackson Demonstration State Forest Management Plan lists a variety of goals including recreation, aesthetics, and species protection, in addition to timber production and research.

http://www.calfire.ca.gov/resource_mgt/downloads/Final_JDSF_FMP_Master_012808_HE.pdf.

See also Master Response C. Finally, as described in Section 3.10 of the DEIR and Section 3.4 of the RDEIR, the project as mitigated is consistent with all applicable policies of the Mendocino County General Plan.

Response B-3

Comment noted. As explained and demonstrated in the DEIR and RDEIR, a reasonable range of Project alternatives were considered and all of the Project's potential significant impacts will be mitigated to levels of insignificance.

4.5.3 Letter C – Carrie Durkee

From: Carrie Durkee <cdurkee@mcn.org>
Sent: Wednesday, June 08, 2016 1:56 PM
To: sweeney@pacific.net
Subject: Notice of Preparation for the Central Coast Transfer Station Draft Environmental Impact Report (SCH# 2014012058) Mendocino County, California

Dear Mr. Sweeney,

I am writing to voice my opposition to the preferred alternative as articulated in the Draft Environmental Impact Report for placement of a solid waste transfer facility on property currently occupied by Mendocino Pygmy Cypress Forest and Northern Bishop Pine Forest. The preferred alternative, if implemented, will likely have a significant adverse impact on these rare forest types, and the mitigations thus far identified are not adequate to offset these significant adverse impacts.

The DEIR does not provide an adequate evaluation of potentially significant impacts of the preferred alternative. Furthermore, the DEIR fails to provide adequate analysis or information related to feasible, less-damaging alternatives, and fails to adequately address why the alternatives not chosen do not constitute equally feasible, less-damaging alternatives to the proposed project.

The proposed action as articulated in the DEIR is in direct conflict with several land management directives contained in the Mendocino County General Plan, and is in direct conflict with the Jackson Demonstration State Forest Management Plan.

I urge you to reject the preferred alternative as described in the DEIR, as this alternative is certain to have significant adverse impacts on a rare and highly vulnerable vegetation type that cannot be replaced, and for which mitigation is not possible. Equally feasible, less-damaging alternatives must be articulated and considered in order for the project to fully comply with the letter and spirit of CEQA.

Thank you for your consideration.

Sincerely,

Carrie Durkee
PO Box 1265
M
Mendocino, CA 95460

c1

c2

c3

Letter C – Carrie Durkee – Response to Comments

Response C-1

See Response B-1.

Response C-2

See Response B-2.

Response C-3

See Response B-3.

4.5.4 Letter D – Caltrans

DEPARTMENT OF TRANSPORTATION

DISTRICT 1, P. O. BOX 3700
EUREKA, CA 95502-3700
PHONE (707) 441-4540
FAX (707) 441-5869
TTY 711



Serious drought.
Help Save Water!

June 3, 2016

Mike Sweeney
General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

1-MEN-20-2.90
FB Transfer Station – Revised EIR
DB # 19666

Dear Mr. Sweeney,

Thank you for the opportunity to comment on the Central Coast Transfer Station Revised Draft Environmental Impact Report (EIR) dated April 28, 2016. The project proposed to develop four acres along State Route (SR) 20, approximately three miles east of SR 1 in Mendocino County (1-MEN-20-2.90) for a municipal solid waste transfer station to serve the City of Fort Bragg and the surrounding coastal area.

D1

Caltrans has had the opportunity to work with the Mendocino Solid Waste Management Authority (MSWMA) during the pre-development and Notice of Preparation phase of this project. Thank you for addressing Caltrans' comments from the Draft EIR and associated Traffic Impact Study (TIS), a letter sent to MSWMA on March 13, 2015. We took note that these comments have been incorporated into the Revised Draft EIR.

As relayed in previous correspondence, the applicant must acquire an approved encroachment permit for all work within the state right of way. Encroachment permit applications are reviewed for consistency with state standards and are subject to approval by the Department. Request for Caltrans encroachment permit application forms can be sent to Caltrans District 1 Permits Office, P.O. Box 3700, Eureka, CA 95502-3700, or requested by phone at (707) 445-6389. For additional information, the Caltrans Permit Manual is available online at: <http://www.dot.ca.gov/traffops/developserv/permits/>

D2

We look forward to continue working with you as this project develops and welcome additional discussions about the project. If you have questions regarding the comments outlined in this letter, please contact me at tatiana.ahlstrand@dot.ca.gov or (707) 441-4540.

Sincerely,

Tatiana Ahlstrand
Associate Transportation Planner
District 1 Office of Community Planning

Letter D – Caltrans – Response to Comments

Response D-1

Comment noted.

Response D-2

Comment noted. Based on the lead agency's early consultation with the California Department of Transportation, both the DEIR and RDEIR acknowledged the requirement that the Project will require an encroachment permit and related approvals from the California Department of Transportation for Project-related improvements to SR 20.

4.5.5 Letter E – California Fish & Wildlife



State of California - Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Northern Region
601 Locust Street
Redding, CA 96001
(530) 225-2300
<http://www.wildlife.ca.gov>

EDMUND G. BROWN, Jr., Governor
CHARLTON H. BONHAM, Director



June 13, 2016

Mr. Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482
Sweeney@pacific.net

Subject: Review of Revised Draft Environmental Impact Report for the Proposed Central Coast Transfer Station in Fort Bragg (State Clearinghouse # 2014012058), Mendocino County, California

Dear Mr. Sweeney:

The California Department of Fish and Wildlife (Department) has reviewed the Mendocino Solid Waste Management Authority's Revised Draft Environmental Impact Report (RDEIR) for the Central Coast Transfer Station (Project). The Department provided comments on the Notice of Preparation, Draft Environmental Impact Report (DEIR), and Response to Comments/Final Environmental Impact Report (FEIR) for the Project. Several of the Department's comments on the DEIR and FEIR have not been adequately addressed in this RDEIR.

The Lead Agency for the Project is the Caspar Joint Powers Authority of the County of Mendocino (County) and the City of Fort Bragg (City). The Department has jurisdiction over the conservation, protection and management of fish, wildlife, native plants and their habitat. As a Responsible and Trustee Agency, the Department administers the California Endangered Species Act and other provisions of the Fish and Game Code that conserve the State's fish and wildlife public trust resources. The Department provides the following comments and recommendations in our role as a Trustee Agency pursuant to the California Environmental Quality Act (CEQA); California Public Resources Code (PRC) Section 21000 *et seq.*

EI

The Department's primary concerns regarding the RDEIR and proposed Project include:

1. Inadequate consideration of feasible Project alternatives that would substantially reduce or eliminate most of the significant environmental impacts of the Project.
2. Inadequate analysis of impacts of vegetation clearing for defensible space pursuant to PRC Section 4291.

3. Inadequate disclosure and analysis of direct and indirect impacts to wetlands, downstream surface water, and Sensitive Natural Communities.
4. Lack of adequate plans to mitigate impacts to Mendocino Pygmy Cypress Woodland (MPCW) and Northern Bishop Pine Forest (NBPF) to a less than significant level.
5. Deferred analysis of potential impacts to Sonoma tree vole.

Project Description

The proposed Project includes three related components:

1. Land transfer and acquisition. The County and City would acquire the Project site, consisting of 17 acres of Jackson Demonstration State Forest (JDSF)¹; JDSF would acquire 12.6 acres of Russian Gulch State Park, and the California Department of Parks and Recreation (State Parks) would be granted the option of taking ownership of 35 acres of the closed Caspar landfill.
2. Construction of a solid waste transfer facility, with a footprint of 4.72 acres, including a 30,000 square foot waste transfer building, outdoor recycling drop-off area, an office, paved driveways, parking areas, two stormwater detention basins, a groundwater well, septic tank, leach field, and perimeter fencing.
3. Operation of a solid waste transfer facility.

Feasible Alternative Project Locations

CEQA Section 15126.6(f)(2) states *"The key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location."* Public agencies have a duty to avoid or minimize environmental damage where feasible, and to give major consideration to preventing environmental damage (CEQA Section 15002). Substantial evidence shows that selection of an alternative Project site would avoid significant environmental effects, while also attaining most of the basic objectives of the Project.

The RDEIR cites proximity to residences as *"an environmental impact that the lead agency has sought to minimize throughout the siting process"* (RDEIR Section 4.3). However, the RDEIR table summarizing the distance and number of residences is

¹ JDSF is managed by the California Department of Forestry and Fire Protection (CalFire).

misleading. The RDEIR discloses the parcel boundary distances to nearby residences, but does not assess the potential distance of the actual facility footprint to nearby residences. Because the parcel acreages vary, residences near the property boundary may not be affected, depending on placement of the transfer station facility within a parcel. For example, the proposed Project parcel is 17 acres, while Alternative 4 (Leisure Time RV Park Site) is 24.3 acres, and Alternative 5 (Mendocino Parks and Recreation District Property) is 173 acres. Without an alternatives analysis that includes the proximity of the Project footprint locations to nearby residences (versus parcel boundary proximities), the RDEIR cannot adequately assess disturbance impacts of the proposed Project alternatives and thus justify the choice of the preferred Project alternative.² The RDEIR provides no other justification for the selection of the proposed Project location in preference to other environmentally superior Project alternatives.

E2

As stated in our March 2015 and July 2015 letters, the Department believes that the conclusions reached regarding feasible alternatives are poorly substantiated and do not meet the substantive mandates of CEQA to avoid or minimize environmental impacts unless doing so is not feasible (CEQA Sections 15002 and 15021). The Department supports an alternative that avoids impacts to NBPF and MPCW Sensitive Natural Communities.

E3

Vegetation Clearing for Defensible Space

In Section 2.6, the RDEIR lists "Variance from California Department of Forestry & Fire Protection for reduced setback from vegetation" as a required permit or approval, but does not indicate that consultation was completed with the California Department of Forestry & Fire Protection (CalFire) to determine whether a variance would be granted, the defensible space to be required, or what additional mitigation would be required from CalFire. In our July 2015 letter, the Department relayed information provided by CalFire to clarify requirements pursuant to PRC Section 4291 and the potential for variance issuance. CalFire Fire Prevention staff indicated that *"The approval or denial of such variances is dependent on why the project proponent is seeking the variances and what type of additional mitigations they are willing to provide to offset the departure from the normal standard. ...Until a site visit is made and the mitigation measure (sic) are made clear, it will be hard to estimate the minimum width of defensible space to be required."*³ In addition, the total required width *"will depend on if there are any other requirements by other agencies and what the proponent is willing to offer as mitigation to maintain fire safety."*

E4

² The table in RDEIR Section 4.3 provides a caveat in support of the proposed Project, stating that although a residence across Highway 20 "is closer than 360 feet to the property boundary... the transfer station facilities would be built at the far western end of the property, at least 700 feet from" that residence.

³ Shawn Zimmermaker, Fire Prevention Battalion Chief, California Department of Forestry and Fire Protection, pers. comm., 7/7/2015.

CalFire indicated that a representative from Fire Prevention staff and the Field Battalion Chief would be able to provide pre-consultation.⁴

The RDEIR does not address the Department's concern, stated in our March 2015 and July 2015 letters, that the previous documents did not disclose where defensible space vegetation removal or thinning would be required to comply with PRC Section 4291, and did not provide analysis of this increased impact. As stated in our March 2015 and July 2015 letters, our conservative estimate of increased impacts, based on 100 feet of clearance as required by State law, is an additional 1.5 acres of vegetation clearing. This impact area would consist of approximately 0.4 acre of MPCW, with the remainder comprised mostly of NBPF.

E4

In order to quantify impacts of the Project from vegetation clearing, the Lead Agency should complete consultation with CalFire regarding the required width of defensible space and any required mitigations. This new information should be used to analyze additional impacts to MPCW, NBPF, and wetlands. Alternatively, the analysis of additional impacts should be completed assuming the standard 100 feet of defensible space. Results of this analysis should be included in a recirculated DEIR, and appropriate mitigation should be proposed for the increased loss of MPCW and NBPF habitats not analyzed in the RDEIR.

Inadequate disclosure of impacts to wetlands, downstream surface water, and Sensitive Natural Communities

The RDEIR does not provide sufficient site-specific detail regarding stormwater management, although the RDEIR acknowledges that the Project could cause increased runoff, and has identified this as a potentially significant impact (Section 3.9.5). As the Department stated in our July 2015 letter, hydrological and hydraulic analyses, as well as grading and drainage plans should be prepared during the CEQA review process, and not deferred until future permitting processes as proposed (RDEIR Section 3.9.5). The RDEIR does not contain a detailed erosion control plan, which the Department has recommended in previous letters.

E5

The RDEIR cites a preliminary analysis used to determine approximate detention basin volumes, but states that the *"specific locations of these detention basins will be determined during the development of the grading and drainage plans..."* (RDEIR Section 3.9.3). In Section 3.9.3, the RDEIR also states that stormwater will be discharged through four pipes *"into an existing drainage located in the Bishop Pine Forest,"* and that *"stormwater infiltration will be promoted while not impacting the pygmy forest."* Altered hydrology due to discharged stormwater runoff has the potential to impact NBPF and MPCW Sensitive Natural Communities, as the

E6

⁴ Shawn Zimmermaker, Fire Prevention Battalion Chief, California Department of Forestry and Fire Protection, pers. comm., 7/7/2015.

Department stated in our July 2015 letter. No analysis or proposed mitigation is included in the RDEIR for this potentially significant impact.

E6

The RDEIR states that a "200-foot linear ephemeral swale is located outside of the western edge of the property, and flows westward and terminates in a Labrador tea thicket. This area is noted herein per inquiry by CDFW, but is outside the property and thus was not mapped" (Section 3.4.1). The RDEIR does not include sufficient detail for the Department to determine whether this is the same feature as the existing drainage swale that the southernmost detention basin would outlet into (Section 3.9.5), or whether it would be impacted by the Project. According to the RDEIR, "There are forested wetlands approximately 50 feet north... of the project footprint," and a "palustrine emergent wetland area is approximately... 25 feet north of the SR 20 improvements" (Section 3.4.5).

E7

As the Department stated in previous letters, given the Project's proximity to wetlands and proposed placement within Sensitive Natural Communities, specific information on the location and design of all Project components (including detention basins and outlet structures) are essential to determine Project impacts, their level of significance, and potential mitigation, if needed.

E8

Mitigation Plans

As proposed, mitigation for impacts to MPCW and NBPF would occur on two parcels (RDEIR Section 3.4.5 and Appendix L): the existing Caspar landfill and transfer station site, and a nearby parcel, which the County acquired to settle a lawsuit concerning groundwater contamination, and subsequently declared as surplus property. The parcels are referred to as the "Restoration Parcel" and "Preservation Parcel," respectively. In our February 2014, March 2015, and July 2015 letters, the Department emphasized the necessity of preparing a detailed plan for adequately mitigating impacts to MPCW and NBPF.

E9

Preservation Parcel

According to the RDEIR, a 28.3-acre parcel would be designated as a preserve by the County to mitigate for MPCW and NBPF (Section 3.4.5). Little detail is provided regarding management of the proposed Preservation Parcel. The RDEIR states that access points will be secured, signs will be posted, and quarterly inspections will be made by County personnel "along with their routine mandatory inspections of... the nearby closed Caspar Landfill" (Section 3.4.5). The RDEIR further states remedial activities will be proposed and implemented in the event that vandalism or trash dumping occurs. The Preservation Parcel is described as being threatened by encroachment from adjacent uses (RDEIR Section 3.4.5), but no measures are proposed to prevent this potential damage. In addition, the potential for infestation by invasive species is of concern. The Botanical Reconnaissance of Parcel 18-500-45 included in the FEIR states "invasive Jubata grass... occurs along the road at the

parcel's southern boundary and presents a threat if not controlled." No plans for monitoring or control of invasive species are included in the RDEIR.

E9

The RDEIR states that remedial activities would be implemented if necessary "to maintain current condition (*sic*) of the Preserve" (Section 3.4.5), but does not define current conditions or provide performance criteria. The RDEIR must include a mitigation and monitoring plan that addresses proposed changes in zoning and land use designations, the amount and nature of funding to monitor and manage the mitigation land, existing site conditions of the parcel, and measurable performance standards to ensure that the preserve's habitat quality is maintained.

E10

The Department questions whether the proposed preservation area constitutes adequate mitigation because the RDEIR lacks an adequate mitigation and monitoring plan for the preservation parcel. The RDEIR also does not explain how the proposed preservation "could reasonably be expected to reduce adverse impacts if required as conditions of approving the project" (CEQA Section 15126.4 (a)(1)(A)). Setting aside the proposed preservation area does not avoid or substantially lessen the significant environmental effect of the Project on MPCW. No revegetation or other compensatory mitigation is proposed for the permanent loss of MPCW, which includes the loss of 229 Mendocino cypress and 38 Bolander's pine trees (RDEIR Section 3.4.5).

E11

Restoration Parcel

The RDEIR includes a Bishop Pine Forest Mitigation Plan (Mitigation Plan) that would be implemented on the Restoration Parcel, which is the site of the existing Caspar transfer station and landfill. The Mitigation Plan proposes enhancement of five acres of NBPF and re-establishment of one acre of NBPF. According to the Mitigation Plan, the areas proposed for restoration are composed of degraded MPCW, NBPF, and ruderal vegetation.

E12

The RDEIR (Section 3.4.5) states that preservation, enhancement, and creation of "brand new Bishop Pine forest" would result in a mitigation ratio of 3:1. However, the RDEIR does not account for temporal loss of NBPF, or provide a comparison between the existing mature NBPF that would be impacted by the proposed Project, and the proposed NBPF that would result from enhancement and restoration activities.

The Biological Resources Assessment in the DEIR described the site to be impacted by the proposed Project as "a relatively undisturbed extensive closed-cone coniferous forest" and states "All biological communities within the Study Area are considered sensitive." In contrast, the Mitigation Plan acknowledges that for the proposed Restoration site, "Given the highly disturbed condition of the Restoration Areas, natural revegetation is not expected to be as vigorous as in a natural environment." Mitigation for NBPF should consider the entire natural community,

E13

focusing not only on establishment of Bishop Pine trees, but also the diverse assemblage of trees, shrubs, and herbaceous species that exist in natural stands.

Performance standards defined in the Mitigation Plan are not sufficient to ensure that species diversity and habitat value of the restored areas will be commensurate to that of the areas permanently impacted by the Project. The Mitigation Plan does not include performance standards for species other than Bishop pine trees. Associated native species are important components of the NBPF natural community. One minimum performance standard in the Mitigation Plan is 25% relative cover of native species. This extremely low mitigation success criteria, combined with a lack of other detailed mitigation success criteria, diminishes the effectiveness of the proposed mitigations. For example, according to this performance standard, relative cover consisting of 26% Bishop pine and 74% non-native annual grass species would be considered successful conditions, but would clearly not represent restoration of a NBPF Sensitive Natural Community. Performance criteria should be designed to create a vegetation community that more closely resembles nearby intact NBPF and that which is being converted by the proposed Project.

E14

The Mitigation Plan lists eight species of invasive plants with "High" or "Medium" California Invasive Plant Council (Cal-IPC) ranks⁵ that occur on the Restoration Parcel: gorse (*Ulex europaeus*), pampas grass (*Cortaderia jubata*), Himalayan blackberry (*Rubus armeniacus*), Scotch broom (*Cytisus scoparius*), French broom (*Genista monspessulana*), bull thistle (*Cirsium vulgare*), teasel (*Dipsacus* sp.), and periwinkle (*Vinca major*). The existence of these invasive species underscores both the level of disturbance at the proposed Restoration Parcel and the challenges of enhancing and re-establishing a functional NBPF Sensitive Natural Community on this parcel. By definition, invasive species can spread quickly and may be difficult to control. Of the species identified on the parcel, some known characteristics include seed that may last years or decades in the soil, prolific seed production, rapid growth, and propagation from cut vegetative parts (Bossard et al. 2000).

E15

Control or eradication of invasive species may take decades. Five years of monitoring, as proposed in the Mitigation Plan, is unlikely to allow adequate time to undertake or document effective control or eradication of invasive species at this site, or to determine establishment of NBPF.

E16

⁵ Cal-IPC ranks invasive plants in its inventory. Species ranked High "...have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment." Species ranked Moderate "have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance." <http://www.cal-ipc.org/ip/inventory/>

The Mitigation Plan recommends that *"supplemental measures should be conducted to meet performance goals"* if plant cover is not on track to meet the 25% threshold after the first three seasons. However, the Mitigation Plan does not provide for additional years of maintenance and monitoring if performance goals are not met at the end of five years. Adequate mitigation will require long-term monitoring and maintenance to ensure survival of native species and prevent re-infestation with invasive species. It is unclear to the Department what the consequences are, if any, for the Project mitigation not meeting the performance standards prescribed in the RDEIR.

E16

Monitoring proposed within the Restoration Areas includes photo monitoring, three by three meter plots, qualitative assessment, and fixed transects only if supplemental planting occurs. The monitoring plan should be designed to determine the success of restoration within the entirety of the enhancement and re-establishment areas, and should not simply reflect average conditions, or conditions along the transects.

E17

Northern Bishop Pine Forest

The Department's Vegetation Classification and Mapping Program (VegCAMP) develops and maintains California's version of the National Vegetation Classification System. VegCAMP implements its use through assessment and mapping projects in high-priority conservation and management areas, through training programs, and through working continuously on best management practices for field assessment, classification of vegetation data, and fine-scale vegetation mapping.

Despite information provided by the Department in its three previous letters, the RDEIR does not correctly identify the Northern Bishop Pine Forest Sensitive Natural Community at the Project site. The RDEIR applies a broader category with a lower conservation status—Bishop Pine Forest alliance with a conservation rank of G3 S3 (Sections 3.4.1 and 3.4.5). In addition, the RDEIR misinterprets the Department's position on "Holland Types." The Department's July 2015 letter included a statement from the VegCAMP Senior Vegetation Ecologist, providing information on NBPF and explaining the current status of Holland Types. As was stated in that letter, until such information is available, in some cases, Holland Types are the best available information and are still used. VegCAMP maintains and updates Natural Communities lists based on quantitative data after it is collected, analyzed, and vetted. As stated on the Department's website⁶, *"We think it imprudent to remove these elements from the CNDDDB before assessing them and reclassifying them in terms of the currently accepted State and national standards for vegetation classification."* Until new information is available, NBPF stands from Marin County to

E18

⁶ http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_background.asp

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Mendocino County will continue to be classified as G2 S2.2, as defined by Holland and the Department's current Natural Communities list.⁷ As in the FEIR, the RDEIR provides quotes from the Department's website and purports to state the Department's position (Section 3.4.5). However, the Lead Agency did not consult with the Department regarding the conservation status of NBPF. As stated in the Department's February 2014, March 2015, and July 2015 letters, NBPF has a conservation rank of G2 S2.2. This is the association and rank currently recognized by the Department, as is clearly shown on the September 2010 "Hierarchical List of Natural Communities with Holland Types" and "Full Natural Community Hierarchy" lists available on the Department's website.⁸

E18

NBPF Decline

The RDEIR relies on 1998 Calveg data (RDEIR Sections 3.4.1 and 3.4.5) to estimate the abundance of NBPF and determine the regional impact of permanent removal on the Project site. However, more current sources have determined that Bishop Pine forest on California's coast (including NBPF) is in decline. Publicly-available reports from the University of California Cooperative Extension (UCCE)⁹ and the California Forest Pest Council¹⁰ document mortality of NBPF stands in Mendocino and Sonoma counties beginning in approximately the early 2000s. There are several contributing factors, including disease (dwarf mistletoe and western gall rust), bark beetles, and thick understory vegetation (due to fire suppression), which inhibits seed germination and recruitment (Giusti 2014).

E19

Academic and agency personnel aware of the decline have sought to study its causes. In 2016, the US Forest Service provided grant funding to support a project titled "Investigating Causes of Bishop Pine (*Pinus muricata* D. Don) Mortality on California's North Coast." The project is a coordinated effort including CalFire, UCCE, California State Parks, and university researchers. Research will be conducted on California State Parks and State Forest lands in coastal Mendocino and Sonoma counties.¹¹ Given its status as a Sensitive Natural Community and the additional documented threats and decline of NBPF, permanent removal should be avoided whenever feasible.

⁷ Todd Keeler-Wolf Ph.D., Senior Vegetation Ecologist, California Department of Fish and Wildlife Vegetation Classification and Management Program, pers. comm. 6/9/2015.

⁸ http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp

⁹ "Watching the demise of a coastal forest type – Bishop Pine": <http://cemendocino.ucanr.edu/files/199447.pdf>

¹⁰ California Forest Pest Conditions reports: http://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fsbdev3_046704

¹¹ Renee Pasquinnelli, Senior Environmental Scientist (Supervisor), California Department of Parks and Recreation, Mendocino Sector, pers. comm., 6/2/2016.

Sonoma Tree Vole

The RDEIR (Section 3.4.1) states there is a high potential for the presence of Sonoma tree vole (*Arborimus pomus*) on the project site, and that impacts to this species could be significant. Sonoma tree vole is a Species of Special Concern (SSC). The Department designates certain vertebrate species as SSC because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction or extirpation in California. Though not listed pursuant to the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA), the goal of designating taxa as SSC is to halt or reverse these species' decline by calling attention to their status and addressing the issues of conservation concern early enough to help secure their long-term viability. The ultimate goal of the SSC designation is to avoid CESA or ESA listing.

E20

The RDEIR proposes to identify Sonoma tree vole habitat "No more than two weeks before tree removal activities begin" (Section 3.4.5), conduct surveys, and at that time consult with the Department regarding appropriate mitigation measures. By delaying habitat assessment and surveys to a future time, the RDEIR delays identification of potential Project impacts to Sonoma tree vole, and improperly defers mitigation. Pursuant to CEQA Section 15126.4, an environmental document cannot identify a potentially significant impact and then only fully assess the impact and propose mitigations after the project is approved. Sonoma tree vole habitat on the proposed Project site should be assessed during the CEQA review process, and, if necessary, appropriate mitigation measures should be disclosed in the DEIR.

Potential Impacts of Land Transfer

Assembly Bill 384 specifically states that the "entity acquiring title of the property shall be solely responsible for compliance with the California Environmental Quality Act in connection with the transfer of property ownership and development of the solid waste transfer station."

In our March 2015 and July 2015 letters, the Department commented that although the three-way land transfer is defined as a part of the Project, potential impacts were not evaluated for all parcels included in the transfer. We recommend that the potential impacts, including foreseeable changes in land use, should be analyzed. The RDEIR states that "DPR [State Parks] has not indicated any plans for the 35-acre Caspar property except to keep it vacant" (Section 2.5.1). The RDEIR does not indicate that the Lead Agency has contacted or consulted with State Parks. Without analysis of proposed land use or management of the Caspar Landfill parcel in the RDEIR, the Department cannot fully determine the potential impacts of the land transfer. Project proponents should work closely with State Parks to fully describe and analyze potential changes in land use and other foreseeable potential impacts.

E21

Mendocino County General Plan Policies

The RDEIR (Section 3.4.2) lists several Mendocino County General Plan Resource Management Policies, including protection of "pygmy" ecosystems (RM-84), avoiding impacts "to the maximum extent feasible" (RM-28); "avoidance of sensitive resources and environments rather than their removal and replacement" (RM-73), "no net loss of sensitive resources" (RM-74) and the fact that "offsite replacement, protection or enhancement is less desirable" (RM-75). Selection of one of the RDEIR's feasible alternative sites, which would avoid impacts to Sensitive Natural Communities, would allow the City and County to meet all of these codified General Plan goals.

E22

Summary of Comments

In summary, the Department has the following substantial concerns regarding the Project and RDEIR:

1. As proposed, the Project would have significant direct and indirect impacts to MPCW and NBPF Sensitive Natural Communities.
2. Analysis in the RDEIR shows that there are feasible environmentally superior alternative Project locations. Some Project alternatives are at developed and disturbed sites outside of Sensitive Natural Communities, with only negligible environmental concerns, thus requiring minimal mitigation.
3. Fire safe vegetation clearing to comply with PRC Section 4291 is likely to exceed the impact acreage analyzed in the RDEIR, and would degrade or remove more MPCW and NBPF Sensitive Natural Communities. Consultation with CalFire should be completed, the amount of additional vegetation clearing should be quantified, and appropriate mitigation should be proposed.
4. The RDEIR does not disclose the location of stormwater outfall structures, where stormwater will be delivered once it leaves the proposed stormwater detention system, and what effect the stormwater will have on adjacent MPCW and NBPF Sensitive Natural Communities.
5. The RDEIR does not include effective mitigation plans for the proposed MPCW and NBPF mitigation lands.
6. Identification of potential impacts to Sonoma tree vole, and appropriate mitigation measures, are improperly deferred until after the FEIR is certified and the Project is approved. Analysis of potential impacts to Sonoma tree vole, and mitigations, if necessary, must be included in the RDEIR, in order for the Lead Agency to make a determination of significant impacts to this species.

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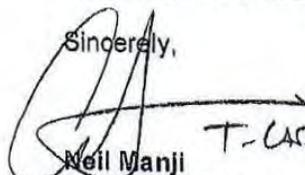
7. The three-way land transfer is defined as part of the Project. However, the RDEIR is absent any environmental impact analysis on the ultimate disposition of the Caspar landfill parcel, which is part of the land transfer.

In closing, the Department does not concur with the RDEIR's conclusion that significant impacts to biological resources and Sensitive Natural Communities would be mitigated to a less than significant level. The Lead Agency does not appear to have given adequate consideration to preventing environmental damage, pursuant to CEQA Section 15002, by selecting an alternative location. Given the inadequacies in the RDEIR described above, it is unclear to the Department that the Lead Agency has the substantial evidence to make the findings required in CEQA Section 15091 to approve the proposed Project.

The Department continues to encourage the Lead Agency to adequately identify and analyze the proposed Project's biological impacts addressed in this and previous Department comment letters, and to select an environmentally superior alternative location over the proposed alternative, or provide additional and more detailed mitigations for the environmental impacts of the proposed alternative prior to certification. Based upon the substantial evidence included in this letter, and pursuant to CEQA Section 15088.5, the Department recommends the RDEIR be revised and recirculated prior to certification.

Department staff are available to consult with you regarding these concerns. If you have questions, please contact Environmental Scientist Angela Liebenberg at (707) 964-4830 or angela.liebenberg@wildlife.ca.gov, or Senior Environmental Scientist Supervisor Gordon Leppig at (707) 441-2062 or gordon.leppig@wildlife.ca.gov.

Sincerely,


Neil Manji
Regional Manager

References: Page 13

ec: Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
sweeney@pacific.net

Carre Brown, John McCowen, Tom Woodhouse, Dan Gjerde, Dan Hamburg
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Letter E – California Fish & Wildlife – Response to Comments

Response E-1

This section of the comment letter is a summary of the commenting agency's participation in the environmental review process and summarizes concerns which are detailed later in the letter, and responded to directly below as those concerns are elaborated on.

Response E-2

See Master Response A, distance to surrounding residences, which revises distances stated in the chart on page 3.9.14 of Section 4.0 of the RDEIR based on the most likely footprint of a transfer station on the four alternative sites. The revisions made in Master Response A further support the RDEIR's analysis demonstrating that, other than the Caspar Landfill Alternative (which has other environmental deficiencies as set forth in the Alternatives chapter of the RDEIR), the proposed Project is more isolated from surrounding land uses than the alternative project sites.

Response E-3

Comment noted; no further response is required as this comment simply reiterates comments made in March and July 2015 on the DEIR and does not provide any new comments regarding the changes made thereto in the RDEIR, which made considerable substantive revisions to the discussion and analysis of project alternatives in Section 4. CDFW seems to consider impacts to certain forest species as the only environmental impacts involved with transfer station siting. As explained in the RDEIR, there are numerous other environmental impacts that must be analyzed and weighed by the lead agency in evaluating the alternatives. The comparative analysis required by CEQA mandates that all project and project alternative impacts should be compared, without emphasizing any one resource area over another. Together, the DEIR and RDEIR adequately perform the required comparative analysis and demonstrate that all of the project's potentially significant impacts will be reduced to levels of insignificance and that when all project and project alternative impacts are compared, the proposed project best meets the project objectives.

Response E-4

The lead agency consulted with CalFire during the preparation of the RDEIR concerning the amount of defensible space CalFire would require between the proposed Project facility/building and adjacent vegetation for fire protection purposes. In written correspondence to the lead agency on August 5, 2015, CalFire stated that it would grant a variance exempting the project from the 100-foot defensible space requirement because of the non-flammable nature of the transfer station buildings and the paved perimeter driveway. Accordingly, no additional vegetation will be required to be cleared for fire protection purposes and thus no additional acreage will be disturbed beyond that described in the DEIR.

Response E-5

Sufficient detail has been provided for the stormwater management plan to satisfy both CEQA and the objective of preventing environmental impacts. Figure 2-2 of the DEIR shows the location and approximate size of the two detention basins and the path of the perimeter swale that will collect and

filter stormwater. On page 3.9.19 of the RDEIR, the drawdown time and outlet design of the detention basins are specified. The RDEIR relies on the expert opinion of the consulting civil engineer that the stormwater management objectives are achievable. Until the project is approved and the lead agency selects an engineering and construction contractor and precise architectural/engineering plans to build the facility, detailed grading and drainage plans are impractical and infeasible. Mitigation Measures HWQ-1a and HWQ-1b specify that the project will require approved Storm Water Pollution Prevention Plans (SWPPP) from the North Coast Regional Water Quality Control Board that will prevent erosion both from construction activities and ongoing operation.

Response E-6

As demonstrated in the RDEIR, the Project will be required to use proven, conventional stormwater management technology that would mimic the existing stormwater flow and direction that currently exists at the project site and maintain pre-project peak runoff conditions. Therefore, the hydrology will not be significantly altered. See Mitigation Measure HWQ-4.

Response E-7

Comment noted; no further response is required as the comment addresses text from the DEIR that was not changed in the RDEIR. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the DEIR demonstrates that features to the west of the property would not be affected by drainage out of the southernmost detention basin, which would preserve the existing eastward drainage direction (DEIR p. 3.9-2).

Response E-8

All project components and wetlands were clearly identified, described and mapped in the DEIR and all aspects of the project, including its stormwater management facilities, were carefully designed and situated to avoid all such wetlands both during project construction and operational periods.

Response E-9

The "encroachment" mentioned regarding the mitigation parcel referred solely to the long-term trend of rural residential development nearby. The Preservation Parcel is isolated near the end of a gated private road and there is no evidence of pedestrian traffic or trespassing. The commenter correctly notes that the botanical reconnaissance of the Preservation Parcel contained in Appendix B to the June 2015 RTC/FEIR document prepared after the DEIR but before the RDEIR noted the existence of invasive Jubata grass along the road at the parcel's southern boundary. As noted above, Mitigation Measure BIO-1b has been modified to expressly acknowledge the planned removal of this invasive species along the Preservation Parcel's southern boundary. The Mitigation Monitoring and Reporting Plan for the project will include the following implementation procedure: "Invasive species along the southern boundary of APN 118-500-45 will be eradicated."

Response E-10

The current condition of the proposed Pygmy Forest Preserve (Preservation Parcel) is described in Appendices A and B of the Response to Comments document dated June, 2015. Those appendices include a report and map from WRA Environmental Consultants and a report from Kerry Heise Botanical Consulting. They describe a largely undisturbed parcel of mixed mature species. No changes in zoning and land use designation or active management are required to implement the mitigation measure associated with the Preservation Parcel other than to ensure it remains undisturbed. As noted on page 3.4.44 of the RDEIR, monitoring will be carried out by the existing County personnel who perform regular monitoring of the nearby closed Caspar Landfill, and whose time and mileage are already funded by a dedicated funding source set aside for landfill post-closure monitoring activities. Therefore, no additional funding is anticipated to be needed for monitoring of the mitigation parcels.

Response E-11

This comment implies that Mendocino cypress and Bolander's pine are fully protected endangered species which may not be removed under any circumstances. That is not, however, the case. These species are actually identified only as "special status" sensitive plant communities, which means that consideration in impact assessment and mitigation should be focused on the future health and continued existence of the species as a whole. This is inherent in the applicable threshold of significance in the RDEIR which asks whether the project will have a substantial adverse effect on such sensitive natural communities, not individual trees. Preservation and restoration are recognized as acceptable ways to protect such sensitive species. In fact, CDFW itself acknowledged this in its letter of February 28, 2014, which stated: "...if avoidance is not a feasible alternative, acquisition and management in perpetuity of high quality Mendocino Pygmy Cypress Woodland and Northern Bishop Pine Forest habitats may be the only feasible mitigation strategy for addressing the potential project-related loss of these sensitive endemic habitats." CDFW's letter went on to recommend higher mitigation ratios for such compensatory preservation mitigation. The lead agency took CDFW's comments regarding the use of off-site preservation and comments regarding higher mitigation ratios to heart and increased the mitigation ratio significantly beyond the mitigation originally proposed in the DEIR. Ultimately, by cancelling the County of Mendocino's previous decision to sell the 28.3 acre Preservation Parcel (APN 118-500-45) as surplus government property, and instead offering to protect it in perpetuity, the Project as mitigated will significantly increase protected acreage of pygmy forest of a higher quality than the trees affected by project construction, thus ensuring that the Project does not result in a substantial adverse effect on these species.

Response E-12

The Preservation Parcel APN 118-500-45 contains 5.76 acres of mature Bishop Pine forest, an acreage which exceeds the 4.0 acres of Bishop Pine forest that will be removed as a result of the project. The comment regarding the enhancement and restoration of Bishop Pine forest on the Restoration Parcel APN 118-500-10 is noted; however, these 6.29 acres will constitute a significant reestablishment of Bishop Pine forest to complement the preserved 5.76 acres. The significant increase in the acreage to be preserved at the Preservation Parcel (compare mitigation in DEIR to RDEIR) was proposed in part to address temporal impacts associated with the time required to complete the enhancement and restoration activities at the Restoration Parcel.

Response E-13

No special status species are specifically identified as being essential for the regeneration of Bishop Pine forest; however, there is no reason to believe that such companion species will not eventually exist in that environment through natural processes once the targeted tree species are established in accordance with the Mitigation Plan. See also Response E-14.

Response E-14

This comment expresses concern about unnamed “associated native species” that may also appear in a forest dominated by Bishop Pine. Regarding the Restoration Parcel 118-500-11, the Mitigation Plan (RDEIR, Appendix L) notes that Mendocino Manzanita, Bolander’s Pine, and pygmy cypress are already present and that the Restoration Plan will not disturb these and other associated species but will only remove invasive species. The 5.76 acres at the Preservation Parcel on APN 118-500-45 is existing mature Bishop Pine forest that currently supports associated species. See Response to Comments June 2015, Appendix A, p. 2.

Response E-15

The Mitigation Plan clearly identifies the invasive plant species on the Restoration Parcel and provides for eradication and control of invasive species as part of the Plan’s comprehensive enhancement and restoration activities.

Response E-16

Comment noted. The lead agency acknowledges that monitoring and adaptive management to ensure the success of the Mitigation Plan’s invasive species performance standards may take more than 5 years. Accordingly, the Mitigation Monitoring and Reporting Plan, which includes timing and implementation procedures to ensure mitigation performance standards are achieved, will state that continuation of active monitoring and management by the County of Mendocino of the Mitigation Parcel will continue beyond a 5-year term if necessary, following consultation with the California Department of Fish & Wildlife, to promote the objectives of reestablishing Bishop Pine forest.

Response E-17

The monitoring in the Mitigation Plan was designed by Matt Richmond, Senior Mitigation Specialist with WRA Environmental Consultants. Mr. Richmond has 15 years’ experience with successful mitigation projects on the North Coast, including Bishop Pine mitigation projects. The monitoring plan set forth in Appendix L clearly states that it includes “assessing tree and shrub regeneration” in both the enhancement and re-establishment areas of the Restoration Parcel, and explains that annual reports will assess progress towards meeting performance goals and, if necessary, recommend adaptive management actions. The lead agency believes that the Mitigation Plan and Mr. Richmond’s specifications for mitigation monitoring are sufficient and match what is normally deemed to be appropriate in the industry.

Response E-18

The lead agency consulted with CDFW at meetings on March 7, 2014 and August 13, 2015. The contradictions in CDFW's own classification of Bishop Pine forest, as well as the lead agency's justification for its classification, have been described in detail on pages 3.4.49 and 3.4.50 of the RDEIR. Despite the difference of opinion as to the proper rank/classification of the Bishop Pine forest on the Project site (i.e., Northern Bishop Pine Forest or Bishop Pine Forest Alliance) the lead agency in the RDEIR deferred to CDFW and acknowledged that the Project's impacts on Bishop Pine Forest are potentially significant, and has developed a robust suite of mitigation involving the preservation, restoration and reestablishment of Bishop Pine forest at two separate sites pursuant to CDFW's prior acknowledgement that off-site preservation was acceptable mitigation.

Response E-19

CDFW's citation of recent reports regarding the decline of Bishop Pine is consistent with the RDEIR's acknowledgment that it may be a sensitive natural community. However, none of the reports referenced in this comment include scientific surveys that contradict or update the 1998 Calveg survey data/estimate of 14,900 acres of Bishop Pine Forest in Mendocino County alone, not counting its acreage in Sonoma County and elsewhere. Accordingly, the 1998 Calveg data remains the best available scientific data on the regional distribution of Bishop Pine within Mendocino County.

Response E-20

Comment noted; no further response is required as the comment addresses text from the DEIR that was not changed in the RDEIR. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, Sonoma tree vole habitat on the proposed Project site was assessed during the CEQA review process. As demonstrated in the DEIR, neither voles nor any signs of the specie's presence were observed during biological surveys of the Project site. Despite the absence of any voles or signs of the species inhabiting the site, the DEIR conservatively finds that the Project has the potential to significantly impact this species *if present*, based on the existence of conifer habitat and the fact that the Project site is within 5 miles of documented Sonoma tree vole occurrences. In such situations when the development of a detailed Mitigation Plan is not feasible (e.g., because initial surveys failed to identify the presence of any voles in any specific trees or locations on the Project site), it is appropriate and customary for mitigation measures to call for additional future surveys so long as specific performance measures are included. Here, mitigation measure BIO-1c specifies the timing and type of vole surveys to be conducted and, if the surveys confirm the species is present within a proposed tree removal/construction area, requires all tree clearing/construction activities be suspended while the lead agency consults with CDFW to determine how best to avoid any disruption to or relocation of the species.

Response E-21

The potential impacts of the land transfers are addressed by the RDEIR. The lead agency conducted a conference call with State Parks on August 12, 2015, attempted to reach State Parks by telephone at a later date and issued an invitation to State Parks to consult on May 9, 2016 to which no response was received. The restrictions that would apply to Jackson Demonstration State Forest management of the

newly-acquired 12.6 acres, should the land swap authorized by Public Resources Code Section 4659 be effectuated, are described on pages 2.0.3 to 2.0.4 of the RDEIR. See also Master Response C, which demonstrates that no changes in land use are reasonably foreseeable as a result of the potential transfer of the 12.6 acres from State Parks to Jackson Demonstration State Forest.

Response E-22

The project complies with the Mendocino County General Plan. See Master Response #5 in the June 2015 Response to Comments received on the DEIR.

Response E-23

This comment primarily summarizes comments made more thoroughly earlier in the letter that have been responded to in Responses E-2 through E-22 above. However, this comment also appears to introduce a few new comments, which are responded to here. First, with respect to the commenter's concern regarding the disposition of the Caspar Landfill parcel under the Project's potential land swap, the EIR adequately describes the possible disposition of the site pursuant to the terms of AB 384, which was enacted in 2011 and codified in Public Resources Code Section 4659 (see RDEIR Section 2.5.1). Because State Parks has not communicated any interest in acquiring the westernmost 35 acres of the Caspar Landfill property as authorized under that State law (or indicated plans to change the land use on the Caspar Landfill property if it had such interest), no changes in land use or potential impacts are reasonably foreseeable on the Caspar Landfill. Indeed, pursuant to the project the only actions to be taken thereon will be the execution of a covenant restricting the uses and activities to prevent any impacts on the adjacent Russian Gulch State Park (Public Resources Code Section 4659(i)) and the Bishop Pine enhancement and restoration activities described in Appendix L to the RDEIR. Second, the lead agency respectfully disagrees with the commenter and believes that the EIR (the DEIR, the RDEIR and this RTC/RFEIR document) makes a good faith effort, adequately describes all of the project's potentially significant adverse impacts, and develops effective mitigation measures to reduce all such impacts to levels of insignificance. Finally, the commenter is referred to Section 4 of the RDEIR, where the required discussion and selection of the Environmentally Superior Alternative was provided. The questions regarding whether to certify the EIR and approve the Project (whether the proposed project or one of the project alternatives), will be considered by the lead agency's elected decision makers at a duly noticed public meeting.

4.5.6 Letter F – Ronnie James

Ronnie James
President Emeritus Mendocino Woodlands Board of Directors
PO Box 1336
Mendocino, CA 95460
707-937-2014 ronnie@mcn.org

Mike Sweeney
Mendocino County Solid Waste Management Authority
3200 Taylor Dr.
Ukiah, CA 95482

6/13/16

Please enter the following information and **comment into the public record** regarding the proposed transfer station agreement between the county, state parks and the department of forestry.

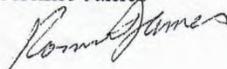
I would simply like to point out that Russian Gulch Park, the Mendocino Woodlands and its Special Treatment Area, were given to the State of California by the Federal Government with an In Perpetuity Mandate which is recorded in the deeds of transfer to the State of California and with the Federal Government. The In Perpetuity mandate clearly states the land must be "...used exclusively for public park, recreational and conservation purposes". This jeopardizes the trade agreement being considered. Please see the direct quote and citation below:

"Congress by Act of June, 1942[56 Stats. 326; 16 USCA, 459r-459t]

"PROVIDING ALWAYS, that this deed is made upon the express condition that the State of California shall use the said property exclusively for public park, recreational, and conservation purposes, and the future express condition that the United States of America assumes no obligation for the maintenance or operation of the said property after the acceptance of this deed.

PROVIDED FURTHER, that the title and right to possession of said lands, together with the improvements and equipment thereon, shall revert to the United States of America upon finding by the Secretary of the Interior, after notice to the State of California and after an opportunity for a hearing, that the said State has not complied with the aforesaid conditions during a period of more than three years, which finding shall be final and conclusive."

Submitted as public comment by Ronnie James



FI

Letter F – Ronnie James – Response to Comments

Response F-1

While portions of Russian Gulch State Park were donated to the State by the federal government, the 12.6 acres to be transferred to the Jackson Demonstration State Forest under the proposed Project's land swap authorized in AB 384 were not. Instead, according to records in the office of the Mendocino County Recorder in Document 00800 dated February 1, 1941, the 12.6 acres (portion of AP#118-520-02) were acquired from a private party.

4.5.7 Letter G – Charla Thorbecke

From: charla <charla@mcn.org>
Sent: Wednesday, June 15, 2016 10:01 AM
To: sweeney@pacific.net
Subject: Land Swap

Dear Mr. Sweeney,
Parks has taken back the land swap. That means the Pigmy Forest is no longer free. It is time to look for a new spot for the transfer station. |G1
You have not addressed the concerns of Fish and Game. They have written several letters and have asked you to address certain problems. You have not done so, why? |G2

Sincerely,
Charla Thorbecke

Sent from my iPad

Letter G – Charla Thorbecke – Response to Comments

Response G-1

State Parks does not have the authority to "take back" the land swap, which was authorized by the State Legislature when it passed AB 384. Pursuant to Public Resources Code Section 4659, the Director of General Services, subject to the approval of the Department of Forestry and Fire Protection (CalFire), may grant an option to the city or county, for either entity to acquire title to the proposed Project site. If that occurs, CalFire may be compensated for the loss of that land by acquiring the 12.6 acres of Russian Gulch State Park (which is separated from the remainder of the park by County Road 409) and State Parks may be compensated for the loss of the 12.6 acres by a grant of a restrictive easement over and an option to buy the westernmost 35 acres of the Caspar Landfill property.

Response G-2

The lead agency met with CDFW on March 7, 2014 and August 13, 2015. All comments made by that department have been adequately responded to in the Response to Comments of June 2015 as well as in this current RTC/RFEIR document.

4.5.8 Letter H – Carrie Durkee

Mr. Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Dr.
Ukiah, CA 95482

Re: Revised Draft Environmental Impact Report for the Proposed Central Coast Transfer Station in Fort Bragg

Dear Mr. Sweeney:

I support a new transfer station on Hwy. 20, but strongly encourage choosing a site that does not involve bulldozing "exceptionally high quality Mendocino Pygmy Cypress Woodland" (Dept. of Fish and Wildlife) or Bishop Pine forest. There are two sites within a mile that offer the same benefits without any new destruction.

H1

The Pygmy Forest cannot be mitigated or replaced. The only adequate plan is to pick an alternative site. All remaining Pygmy Forest should be protected, as it is unique in the world.

H2

Russian Gulch State Park lands should be kept intact and protected, not traded away to facilitate a transfer station.

H3

We need new and modern methods of dealing with waste locally, not trucking it 150 miles to another landfill.

H4

Thank you,
Carrie Durkee
Albion Resident
937-2554

Letter H – Carrie Durkee – Response to Comments

Response H-1

Comment noted, but a more specific response is not possible given that the commenter failed to specifically describe (by location or common local name) the two alternative sites she prefers. The commenter is referred to the updated discussion and comparative analysis of the Project alternatives that are analyzed in Section 4.0 of the RDEIR, which discusses and compares the project's impacts to those of the identified alternatives for all resource areas, not just biological/forest species impacts.

Response H-2

The project avoids almost all pygmy species on the 17-acre site except an approximately .58 acre portion. Conservation of high-quality pygmy on the Preservation Parcel (APN 118-500-45) will preserve, in perpetuity, much more pygmy forest than will be removed by the project. The mitigation ratio is 33:1. See RDEIR, Mitigation Measure BIO-1b.

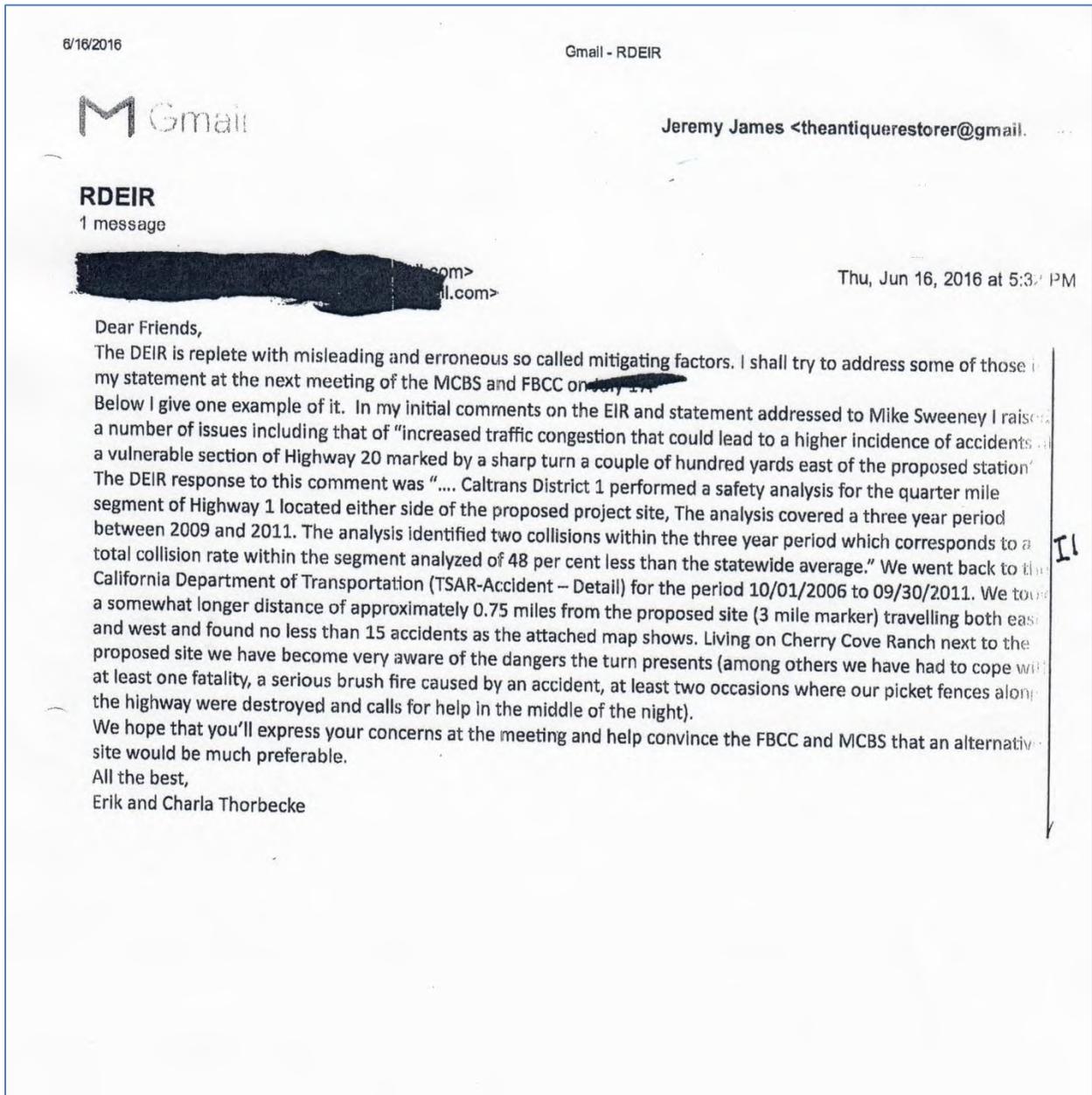
Response H-3

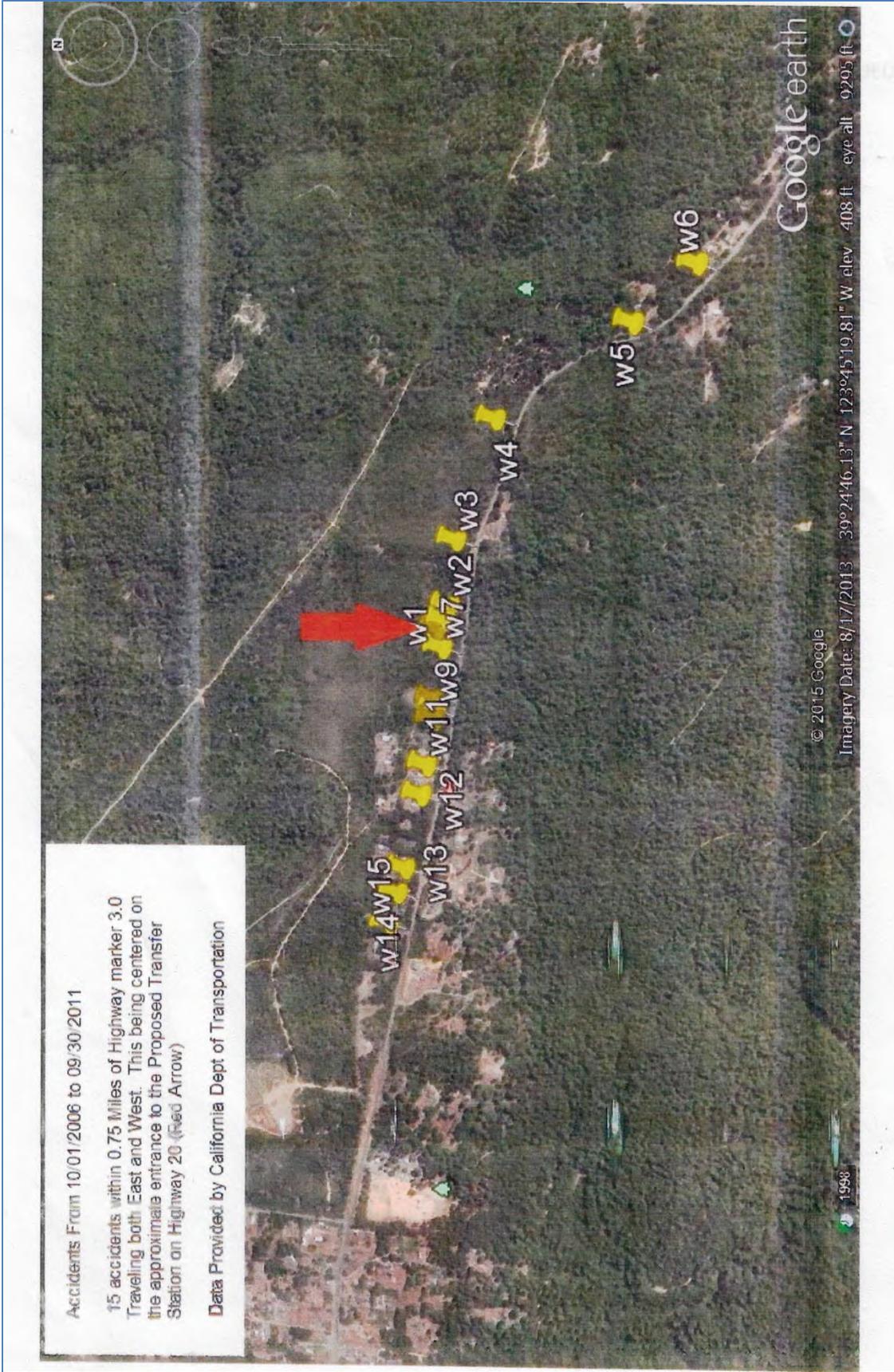
The land transfer of the Russian Gulch State Parkland to the Jackson Demonstration State Forest was authorized by the State Legislature when it passed AB 384. Moreover, the restrictions that will apply to the 12.6 acres of Russian Gulch State Parks land if it is transferred to Jackson Demonstration State Forest are described on pages 2.0.3 and 2.0.4 of the RDEIR. See also Master Response C.

Response H-4

Comment noted. No further response is required as the comment does not address the adequacy of the EIR, but rather, provides a general comment about local waste management.

4.5.9 Letter I – Erik and Charla Thorbecke





Letter I – Erik and Charla Thorbecke – Response to Comments

Response I-1

Comment noted; no further response is required as the comment addresses the DEIR, not the RDEIR at issue here. No revision was made in the RDEIR to the Transportation section of DEIR, which contains a detailed analysis of traffic on SR 20 and the necessary turn lanes to accommodate the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. However, it should be noted that the commenters did not provide copies of the accident reports cited in the comment and thus did not provide any information regarding the type or severity of the accidents, or data showing that this number of accidents is high for a heavily-traveled state highway. Moreover, the commenters do not explain why they believe it is relevant to consider accident reports beyond the .25 mile distance each way from the project's driveway to SR 20 considered adequate by Caltrans when it performed the safety analysis requested by the lead agency. In sum, the project includes extensive enlargement of SR 20 in order to accommodate the turning motions of project traffic and there is no evidence that the project will result in any potentially significant transportation safety impacts.

4.5.10 Letter J – John Fremont

30200 Hwy 20
Fort Bragg, CA 95437

Dear Councilor,

I am concerned about the transfer station proposed for Highway 20. I believe the proposed station threatens the habitat of the forest and its inhabitants and will have a negative impact on the proposed reservoir and nearby properties.

J1

I am particularly concerned with what is not addressed in the EIR, namely the future of waste management here and elsewhere. Communities will one day be charged with taking responsibility for their own garbage in order to preserve the environment and conserve resources. Shifting the location of a dump and expecting different results is absurd; plus, there are better solutions to our garbage problems.*

J2

There's a functioning transfer station on Pudding Creek with access via city streets or the GP mill site. Garbage trucks could be restricted to times the city streets are quiet.

J3

The residents of Road 409 have spoken out about the stench, traffic problems, litter, air and water pollution, and other environmental hazards, and they are forcing the joint powers to close their station. The same problems will force the early closure of the five-million-dollar boondoggle on Highway 20, and there are even more environmental hazards along the way should the operation proceed.

J4

To assert, as Mr. Sweeney has repeatedly done, that the stench of garbage would be eliminated by fully-enclosed trailers and sweetened with perfume, ignores our olfactory senses and the repugnance many people feel about dealing with stink by sweetening it. Moreover, self-haulers will not be required to perfume their loads.

J5

The proposed seventeen acres on Highway 20 is presently pristine pygmy with rare and endangered plants and nesting birds. There are some 2000 acres of pygmy in the world, mostly in California. We cannot replace the pygmy forest once the land is bulldozed and paved over, as is proposed. The proposal to move some pygmy is ludicrous according to the Fish and Wildlife commission.

J6

While promising that nearby properties will not be affected, the noise and traffic created while the garbage station is being built and the roads widened are not mitigated. It goes without saying that property values will be compromised. The potential threat to life and limb due to the proximity of the helicopter pad adjacent to the proposed station poses an even greater danger. The helipad saves lives when the local hospital is mired in fog and landing there is prohibited. The helipad is also used by CDF in times of forest fire or other emergencies. If a someone dies because helicopters cannot land or take off, there will be lawsuits.

J7

Fort Bragg's economy is based on a thriving tourist trade. With the addition of several large trucks a day and heavy construction, Highway 20 will experience logjams and vehicular accidents that will keep tourists away. Self-haulers will litter the highway, undetected by Fort Bragg's police but quite apparent to residents who will have to avoid the litter while driving at or below the posted speed limit of 55 mph.

J8

While Mr. Sweeney claims no water will be leached into the ground, cleanup and restroom effluent will undoubtedly infiltrate the ground, poisoning local wells and the reservoir that the city is building less than two miles downstream from the proposed plant. In times of drought, the deep transfer station well could dry up other area wells.

J9

In order to assess the impact of constructing and operating this plant, many tests must be undertaken. For example, a soils report by a geotechnical engineer based on a minimum of fifteen-foot borings at various locations on site should be undertaken. If the soil is sandy clay with a caliche base at, say, twelve feet, drainage can be sent downhill and the city's water poisoned.

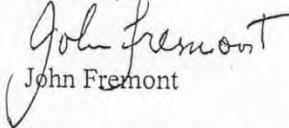
J10

The projected cost of \$5,000,000 will likely be recouped by raising rates and cutting safeguards. There are better solutions to our garbage problems. I entreat the authorities to look elsewhere. What failed to appease the residents of 409 is not going to please the residents and travelers along Highway 20.

J11

Thank you for your attention.

Sincerely,


John Fremont

* A cogeneration plant can provide electricity while burning our trash, and waste management authorities should look into acquiring cost-effective burners, now or in the near future. Controlling our own trash will create jobs that can be paid for by the bottles and cans and electronics we recycle. Presently, we have little control over how much we pay to have our trash hauled or the tipping fee charged self-haulers. The projected five million dollar cost for the new dump will be paid for by the people in the form of increased taxes or fees, despite the pretense that the dump's operator will absorb the cost of construction without raising disposal rates.

J12

While waiting for cogeneration technology to become cost effective for smaller communities, it will be cleaner and cheaper to transfer our garbage by rail. The Skunk train is ready and available to haul trash from Fort Bragg to Willits. I was surprised to learn that Mr. Sweeney had not contacted Robert Pinole, the Skunk train manager, prior to the presentation of the previous EIR. It is evident that Mr. Sweeney has already made up his mind that a transfer station on Highway 20 is the best available option. Mr. Pinole says he can do it faster and cleaner with available equipment.

J13

Meanwhile, county residents should learn how to compost their waste to fertilize their gardens. Local gardens and farmers markets are increasingly important and, in times of drought, vital to the preservation of rural economies.

Letter J – John Fremont – Response to Comments

Response J-1

Comment noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated.

Response J-2

Comment noted. No further response is required as the comment provides generalized discussion about the future of waste management and does not address any significant environmental issues concerning the project or the adequacy of the EIR.

Response J-3

This comment mentions a functioning transfer station on Pudding Creek, without making any specific comments regarding the project's potential impacts or adequacy of the RDEIR. The lead agency assumes the commenter is talking about the Empire Waste Management Pudding Creek Road site and advocating that it be selected as an alternative location for the project. As explained in Section 4 of the RDEIR at page 3.9.5, an alternative project site utilizing this Pudding Creek location was discussed and analyzed in compliance with CEQA. The lead agency decision-makers will consider the project and all alternatives when they meet to decide whether to certify the EIR and approve the project.

Response J-4

Comment noted. The comment is nonspecific. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated.

Response J-5

No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Section 3.3 and Mitigation Measure AQ-3 in the DEIR, where the Project's potential odor impacts and mitigation measures are adequately disclosed and analyzed.

Response J-6

The project has been designed to avoid almost all pygmy on the 17 acre Project site. Only a small .58 acre portion of the site containing pygmy is projected to be impacted by the project (RDEIR p. 3.4.42). As mitigation, 19.4 acres of pygmy will be preserved in perpetuity at the Preservation Parcel (APN 118-500-46) (RDEIR, p. 3.4.44).

Response J-7

Comment noted. No further response is required concerning the commenter's generalized noise and traffic concerns, but the commenter is referred to Sections 3.11 and 3.12 of the DEIR and RDEIR, which accurately and adequately analyze the project's potential noise and traffic impacts. The project would not prevent continued operation of the helipad, which will remain in CalFire ownership.

Response J-8

No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Section 3.12 of the DEIR, where the Project's potential traffic impacts are adequately analyzed and it is demonstrated that the Project's transportation impacts would be insignificant compared to the current traffic on SR 20. Further, Section 2 of the June 2015 Response to Comments on the DEIR (page 2-1) added text to the DEIR to address the issue of litter accumulating on roadsides. Not only does California Vehicle Code Section 23115 require that loads be properly secured to prevent litter and other articles from escaping, but the contract for transfer station operations would also allow the transfer station operator to levy penalty fees on any customer who arrives with an improperly covered load.

Response J-9

No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. However, it should be noted that Fort Bragg's Summers Lane Reservoir will be a lined impoundment that draws water from a different watershed, and that it is one mile away from the project site. It should also be noted that the transfer station will use very little water.

Response J-10

No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines

Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Appendix E of the DEIR, which contains a geotechnical report by LACO Associates confirming that the transfer station building could be safely designed for the site's soils.

Response J-11

Comment noted. The comment discusses potential economic impacts which are outside of the scope of environmental review required by CEQA, which is focused on a project's changes to the physical environment.

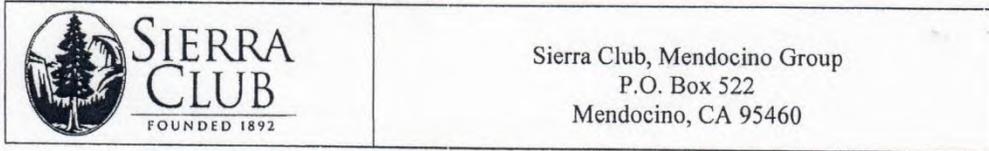
Response J-12

No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. However, it should be noted that the RDEIR adequately considered a reasonable range of alternatives in Section 4.0 and a cogeneration trash burner has never been suggested as being feasible for the Central Coast watershed.

Response J-13

The Skunk Train was invited to submit a proposal to handle waste from the region, but none was received. The use of rail haul is discussed in Section 4.4.3 of the RDEIR (Alternatives Considered but not Carried Forward in this EIR) on pages 3.9.15 to 3.9.16.

4.5.11 Letter K – Sierra Club



June 15, 2016

Board of Supervisors, Mendocino County
Fort Bragg City Council

Mr. Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482 Sweeney@pacific.net

Re: Revised Draft Environmental Impact Report for the Proposed Central Coast Transfer Station in Fort Bragg.

Upon review of the Revised Draft Environmental Impact Report (RDEIR) we would like to enter the following comments.

We are primarily concerned with the impact to the Mendocino Pygmy Cypress Woodland (Pygmy Forest) and the Northern Bishop Pine Forest (Bishop Pines), and with the impact on Russian Gulch State Park (RGSP).

1. In repeated iterations of the EIR document, the goal of “avoiding or substantially lessening” impacts to sensitive habitats is not explored completely. Both the Pygmy Forest and the Bishop Pines will be impacted during development of the transfer station if it is sited in the proposed location, yet there are two other sites within 1 mile that would avoid this impact while offering all the benefits claimed by the proposed site.

These two sites, Leisure Time RV Park and Mendocino Parks & Recreation parcel are mentioned in the Revised DEIR but with so little attention to the value of avoiding the Pygmy Forest and Bishop Pine habitats that they are dismissed out of hand. This is inadequate for analysis at this level. In addition, the use of current parcel boundaries instead of facility boundaries for determining distance to residences gives an inaccurate reading of the impacts.

K1

K2

We again urge the City/County JPA to choose a site that does NOT impact the Pygmy Forest and Bishop Pines. Since there are reasonable choices at close hand, why not chose one that fulfills the mandates of the California Environmental Quality Act and the California Fish & Game Codes? An alternative site is the only answer to avoiding this key question of impact.

K2

2. In reading the proposed mitigations for impacts (assuming the proposed site) we find that the EIR has failed to include the regulatory role of the California Coastal Commission, which has not even been notified of the project EIR. The current Caspar transfer station as well as part of the proposed Preservation parcel of Pygmy Forest lies within the Coastal Zone, and any planning for activities within those areas must have the approval of the Coastal Commission. There is no detailed plan for remediation of the Caspar Transfer station site if it is abandoned, nor monitoring of it or the proposed Preserve. In any case, protecting a preserve of Pygmy Forest is not adequate to meet the goal of “no net loss” of Pygmy Forest. Irreplaceable unique habitat cannot be planted, transplanted or “developed” for hundreds of years.

K3

K4

3. The loss of 12.6 acres of protected forest from Russian Gulch State Park is not addressed in any way. This is an essential part of the trade and must be evaluated with the same rigor as the proposed site. As state park land, the trees and other vegetation are protected from destruction and are accessible for recreation, as was mandated at the creation of the park. A transfer would mean a lesser level of protection for the marble murrelet habitat, the Mushroom Corners foraging grounds and recreational trails. The State Parks cannot simply trade these away without thorough evaluation, even to another state agency. Jackson Demonstration State Forest (JDSF) does not provide the same level of protection, so an impact is certainly probable. The restrictions mentioned in the EIR are not permanent nor complete. The State Parks letter of July 21, 2015 already stated that State Parks will not support the proposed land exchange, and no effort has been made by the JPA to reach another agreement.

K5

4. The CA Dept. of Fish & Wildlife has repeatedly stated that the analysis of all the properties involved must be included in the EIR, but the JPA has not seen fit to consult with any of the agencies concerned. CalFire, State Parks and JDSF must all be on board with the analysis and the conclusions stated before the JPA can reasonably expect the EIR to be certified.

K6

5. The analysis of the environment of the proposed site is inadequate in that it ignores the other 12 acres of Pygmy Forest and Bishop Pines that are included

K7

within the 17 acres of the proposed site. Moving this area from JDSF, where it is protected habitat by the JDSF Management Plan, to the ownership of the JPA is an impact in itself, and will open this area to further unmonitored impacts as time goes on. We believe that this should also be evaluated in this EIR because the County has no protective statues for Pygmy Forest once it becomes private County property.

K7

6. The biggest concern of all is the continued reliance of hauling trash hundreds of miles away to dispose of it. The whole proposal is dependent on this strategy, while across the country municipalities are devising much more innovative methods to deal with the waste stream. We do not see any progress in this proposal toward more efficient and life-affirming methods of disposing of waste. We want to hear new ideas and see new proposals, not just more of the same. It's inadequate planning to ship our trash 150 miles away, at great expense, and claim it is solved.

K8

Please pick a new site and propose a modern facility.

Sincerely,
Mendocino Group, Sierra Club

Rixanne Wehren

Mary Walsh, Chair
Linda Perkins, Conservation Chair
Rixanne Wehren, Coastal Committee Chair

Letter K – Sierra Club – Response to Comments

Response K-1

The project was purposefully and carefully designed and sited to avoid impacts to sensitive habitats to the greatest extent possible. As demonstrated in the DEIR and RDEIR, all of the Project's potentially significant adverse impacts will be reduced to insignificance by the imposition of a host of mitigation measures, including the Pygmy and Bishop Pine preservation, enhancement and restoration mitigation measures.

Response K-2

See Master Response A, distance to surrounding residences, which revises distances stated in the chart on page 3.9.14 of the RDEIR based on the most likely footprint of a transfer station on four alternative sites. The result is the same; that the proposed project impacts the fewest nearby residences except for the Caspar Landfill alternative. The Leisure Time RV Park and Mendocino Coast Recreation & Park District parcels are adequately discussed and analyzed in the Alternative Section 4.0 of the RDEIR, which includes a comparative analysis looking at all of the impacts of the project and its alternatives as required by CEQA.

Response K-3

See Master Response B regarding the Coastal Zone and the project.

Response K-4

The plan for the Caspar Pygmy Forest Preserve on the Preservation Parcel is set forth on page 3.4.44 of the RDEIR, and the plan for enhancement and restoration of Bishop Pine Forest on the Caspar Landfill site/Restoration Parcel is located in Appendix L of the RDEIR. See Master Response #5 in the June 2015 Response to Comments document regarding the project's compliance with applicable Mendocino County General Plan policies.

Response K-5

The restrictions which would apply to the 12.6 acres should it be transferred from Russian Gulch State Park to Jackson Demonstration State Forest are described on pages 2.0.3 and 2.0.4 of the RDEIR. See Master Response C, which demonstrates that there is no reasonably foreseeable impact on these acres from the potential transfer to Jackson Demonstration State Forest, given these protections and the stated intentions of JDSF regarding the future of the Caspar Creek Experimental Watershed.

Response K-6

In addition to early consultation with CDFW in 2013 prior to issuance of the Notice of Preparation for the EIR for the project, the lead agency met with CDFW on March 7, 2014 and August 13, 2015. The lead agency consulted with State Parks on several occasions in 2009 and 2010 to ensure buy-in to the land swap proposal prior to enactment of AB 384. The lead agency conducted a conference call with State Parks on August 12, 2015 and attempted unsuccessfully to reach State Parks representatives by

email and telephone on May 9, 2016 and May 11, 2016. Both agencies were invited by letter on May 9, 2016 to meet with the lead agency but neither replied.

Response K-7

The remaining 12 acres of the project site, outside the carefully selected and oriented project footprint, contain seasonal and emergent wetlands and therefore aren't suitable for development. Moreover, no development or changes in land use outside the footprint of the transfer station's facilities are proposed by the project or otherwise reasonably foreseeable.

Response K-8

Comment noted. No further response is required as the comment does not address the RDEIR, but rather, makes general societal comments regarding the handling of municipal waste. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated.

4.5.12 Letter L – California Coastal Commission

From: Gedik, Tamara@Coastal <Tamara.Gedik@coastal.ca.gov>
Sent: Tuesday, June 21, 2016 1:11 PM
To: 'sweeney@pacific.net'
Subject: noticing and comments re: Central Coast Transfer Station Project

Mr. Sweeney,

The Coastal Commission staff has only recently become aware that the Caspar Joint Powers Authority (JPA) of the County of Mendocino and City of Fort Bragg, as Lead Agency, has completed a Revised Draft EIR for a proposed Central Coast Transfer Station project that would affect a portion of lands occurring within the coastal zone. While we understand that a public notice was posted on the Anderson Valley Advertiser website announcing a public review period beginning May 11, 2016 and ending June 24, 2016, the notice only lists a project site that is located outside the coastal zone (APN 019-150-05).

It has been brought to our attention that the DEIR proposes to mitigate for some Project impacts on property located partially within the coastal zone (APNs 118-500-45 and 118-500-11), on lands that include, but may not necessarily be limited to, pygmy forest areas. Please be advised that any person wishing to undertake development (as defined in Section 30106 of the Coastal Act) in the coastal zone shall first obtain a coastal development permit (CDP). As we have only recently become aware that portions of the proposed project would affect lands within the coastal zone, we have not had an opportunity to review the DEIR and are not yet prepared to offer comments on the DEIR prepared for the Project.

However, please be informed that pygmy forest areas within Mendocino County and north of the Navarro River comprise a separate segment of the local coastal program (LCP) and because there is not a certified LCP for this segment, the Coastal Commission retains CDP jurisdiction within pygmy areas. As the proposed Project involves lands within the coastal zone and potentially within the Coastal Commission's retained jurisdiction and involves matters that may be affected by the policies of the Coastal Act, please provide our office with hardcopies of any Project materials and all future Project-related notices to the address listed below.

Thank you,

~Tamara L. Gedik

Coastal Program Analyst
California Coastal Commission

North Coast District Office
1385 8th Street, Ste. 130 • Arcata, CA 95521

E: Tamara.Gedik@coastal.ca.gov

P: 707.826.8950 • Fax: 707.826.8960

~To purchase a whale tail license plate or access Coastal Commission information, go to www.coastal.ca.gov



CALIFORNIA
COASTAL
COMMISSION

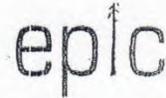
Every Californian should conserve water. Find out how at:

Letter L – California Coastal Commission – Response to Comments

Response L-1

See Master Response B, Coastal Zone.

4.5.13 Letter M – EPIC



Keeping Northwest California wild since 1977

Sent Via Electronic Mail to Address Below on Date Shown Below

June 23, 2016

Mr. Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482
Sweeney@pacific.net

Subject: Review of Revised Draft Environmental Impact Report for the Proposed Central Coast Transfer Station in Fort Bragg (State Clearinghouse# 2014012058), Mendocino County, California

Dear Mr. Sweeney:

These comments are submitted on behalf of the Environmental Protection Information Center (EPIC) with regard to the above-referenced proposed Revised Draft Environmental Impact Report (Revised DEIR). EPIC herein incorporates by reference and attachment all comments submitted before the Joint Powers Authority by EPIC regarding the DEIS dated March 26, 2015 (Attachment-A) and FEIR on August 11, 2015 (Attachment-B). EPIC respectfully requests formal written response to all comments raised herein, and within any and all associated documents or comments incorporated herein by reference.

EPIC is aware of comments received by the Joint Powers Authority regarding the Revised DEIR, from the California Department of Fish and Wildlife, dated June 11, 2016, the Mendocino Group, Sierra Club, on June 16, 2016, and by Mr. Paul Carroll on July 17, 2015. These comments, combined with EPIC's independent review of the Revised DEIR indicate that the Joint Powers Authority has failed to address substantive concerns raised by EPIC and other entities in any substantive or meaningful way in the Revised DEIR, and accordingly, EPIC contends that the Certification of the project by the Joint Powers Authority as contemplated would violate applicable law and constitute a prejudicial abuse of discretion.

EPIC shares all the substantive significant environmental and legal concerns raised by other commenters, such as CDFW, Mr. Carroll, and the Mendocino Group, Sierra Club, and are disappointed that none of the concerns raised by EPIC or these other commenters appear to have been addressed in the Revised DEIR for this Project.

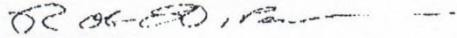
Environmental Protection Information Center
145 G Street Suite A Arcata, CA 95521
(707) 822-7711
www.wildcalifornia.org

MI

EPIC therefore urges the Joint Powers Authority to consider substantial revisions from the Revised DEIR to the FEIR, or to simply abandon the project all together.

MI

Sincerely,

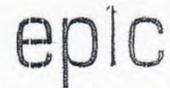


Rob DiPerna
California Forest and Wildlife Advocate
Environmental Protection Information Center
145 G Street, Suite A
Arcata, CA 95521
(707) 822-7711
rob@wildcalifornia.org

Encl:

Attachment A: EPIC March 26, 2015 Comments to Joint Powers Authority regarding DEIR.

Attachment B: EPIC August 11, 2015 Comments to Joint Powers Authority regarding FEIR.



Keeping Northwest California wild since 1977

Sent via electronic mail on date shown below

March 26, 2015

Mr. Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

Re: Comments Regarding Draft Environmental Impact Report for the Proposed Central Coast Transfer Station in Fort Bragg (SCH #2014012058) Mendocino County, California

Dear Mr. Sweeney:

The Environmental Protection Information Center (EPIC) presents the following comments on the Draft Environmental Impact Report (DEIR) for the proposed Central Coast Transfer Station in Fort Bragg, Mendocino County, California (hereafter referred to as the "project"). EPIC greatly appreciates the opportunity to provide comments on this project.

Summary

The DEIR for this project is deficient in several key areas of concern. These areas include: 1) inadequate analysis of potentially significant adverse impacts to Mendocino Pygmy Cypress woodlands (Pygmy Forests) and Northern Bishop Pine Forests; 2) inadequate mitigation for potentially significant adverse impacts to these forest types; 3) inadequate analysis of equally feasible and less-damaging alternatives to the proposed action; and 4) inadequate assessment of significant adverse cumulative effects that may result from the project as proposed.

The Mendocino County Solid Waste Management Authority (MCSWMA) must go back to the drawing board and give further consideration to the potentially significant adverse impacts of the project and to feasible, less-damaging alternatives to the project as proposed in order to fully comply with the letter, and indeed the spirit of the California Environmental Quality Act (CEQA).

Inadequate Analysis of Potentially Significant Adverse Impacts of the Project as Proposed

The DEIR for the project fails to adequately analyze the potentially significant adverse impacts of the proposed action on Pygmy Forests and Northern Bishop Pine Forests. Firstly, the DEIR has erroneously misclassified the Bishop Pine Forest community ranking. Secondly, the DEIR refers to so-called "transitional Pygmy Forest." This concept has no scientific basis or validity. Thirdly, and similarly, the DEIR erroneously attempts to classify Pygmy Forests in terms of the

Environmental Protection Information Center
145 G Street Suite A Arcata, CA 95521
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www.wildcalifornia.org

size of individual trees. There is no scientific basis or validity to this approach either. The DEIR therefore relies on information that is either inaccurate, or that has been presented without scientific basis or validity. Reliance upon this information for the assessment of potentially significant adverse impacts to Pygmy Forests and Northern Bishop Pine Forests leaves the DEIR lacking in substantial evidence in light of the whole of the record to support a finding of no significant adverse impacts. The DEIR therefore must be substantially revised.

Inadequate Mitigation of Potentially Significant Adverse Impacts

Because the DEIR is based on information that is clearly erroneous and is based on statements with no scientific basis or validity, it is not possible to develop adequate mitigation measures that would avoid or substantially lessen the potentially significant adverse impacts of the project. The mitigations identified in the DEIR are largely based on false presumptions and faulty analysis. The concept that Pygmy Forests and Northern Bishop Pine forests can be recruited elsewhere and that this factor is deemed to be a mitigation of potentially significant adverse environmental impacts is not based in either science or reality. The DEIR fails to identify mitigation measures that would actually serve to offset the potentially significant adverse impact of the project's preferred alternative. Indeed, the ecological and scientific realities regarding the rarity and sensitivity of the forest types to be affected only lead to the conclusion that mitigation of the significant adverse environmental impacts of the project may not actually be possible. The DEIR must therefore reconsider the mitigations proposed in the light of the best available science and reality, and must evaluate whether or not mitigation of any potentially significant adverse impacts is even possible.

Inadequate Alternatives Analysis

The DEIR itself acknowledges several potentially significant adverse environmental impacts of the project's preferred alternative, but then goes on to state that the preferred alternative is the environmentally superior alternative. In addition to the No Project Alternative, and Alternative 2, five alternative locations were "Considered but not Carried Forward in this EIR." Of these locations, at least two otherwise feasible alternatives are dismissed, with cost as one consideration. The discussion of feasible alternatives to the project should focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly [CEQA Section 15126.6(b)]. Clearly, the most obvious and most feasible alternative to the project and its preferred alternative is to consider alternative locations for the project to occur. The DEIR should therefore conduct and disclose an economic analysis of the proposed alternative, and should consider the potential costs and benefits of alternate sites for the project.

Inadequate Assessment of Cumulative Impacts

CEQA section 15130 states that an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in § 15065 (a)(3). As defined in section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. The DEIR is deficient in its cumulative impacts analysis because it fails to disclose or identify other projects that, when combined with the proposed action, could result in a significant adverse and cumulative impact on the environment. In particular, the DEIR does not

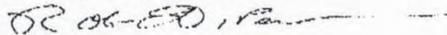
adequately evaluate the potentially significant adverse cumulative impacts of the land swap with Jackson Demonstration State Forest in light of the larger landscape issues facing Pygmy Forests and Northern Bishop Pine forests. The DEIR essentially considers the project's preferred alternative in a vacuum without adequately addressing the potentially significant adverse cumulative impacts of the project in light of past management, and related projects that may serve to combine with the impacts of the project's preferred alternative. The DEIR should therefore be revised to include consideration of all related projects in the surrounding area, and to consider the impacts of the proposed action in light of past, present, and reasonably foreseeable related projects.

Conclusion

The DEIR for the project as proposed is currently incomplete, materially misleading, and is inadequate to allow for meaningful assessment by the public and the reviewing agencies. The DEIR must therefore be revised to consider information that is actually based on science and not unsubstantiated narrative argument, as is presented in the document. The DEIR must be revised to address potentially significant adverse impacts of the project's preferred alternative, must consider feasible less-damaging alternatives to the project's preferred alternative that includes a meaningful economic and environmental analysis, and must be revised to consider the true cumulative impacts of the project's preferred alternative.

EPIC appreciates the opportunity to provide comments on the DEIR. Please do not hesitate to contact me at the number provided below in the event that there are questions.

Sincerely,



Rob DiPerna
California Forest and Wildlife Advocate
Environmental Protection Information Center
145 G Street, Suite A
Arcata, CA 95521
(707) 822-7711
rob@wildcalifornia.org



Keeping Northwest California wild since 1977

Sent via electronic mail on date shown below

August 26, 2015

Mr. Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

RE: Request for Notification

Dear Mr. Sweeney:

On behalf of the Environmental Protection Information Center (EPIC) I am hereby requesting written electronic notification of any further meetings, workshops, or hearings that may be scheduled in association with consideration of the EIR for the Mendocino Central Coast Waste Transfer Station Project proposal. I respectfully request that I be added to any and all informational distribution lists regarding this project.

My contact information is provided below. Thank you for your consideration and cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read "Rob DiPerna", with a horizontal line extending to the right.

Rob DiPerna
California Forest and Wildlife Advocate
Environmental Protection Information Center
145 G Street, Suite A
Arcata, CA 95521
(707) 822-7711
rob@wildcalifornia.org

Letter M – EPIC – Response to Comments

Response M-1

Comment noted. No further response is required as the commenter does not make any comments of its own on the RDEIR, but rather, indicates that it shares all of the substantive environmental concerns raised by other commenters, such as CDFW (in its June 13, 2016 letter), Sierra Club, Mendocino Group (in its June 15, 2016 letter), and Mr. Paul Carroll (in his July 17, 2015 letter). Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Adequate responses to the CDFW, Sierra Club and Paul Carroll letters are provided herein (Responses to Letters E, K and P). The attached letter from EPIC dated March 26, 2015 was included (as comment letter “R”) and formal responses were provided in the original Response to Comments/Final Environmental Impact Report document of June 2015, and the attached letter from EPIC dated August 26, 2015 was a request for notification that does not require any further response as it did not address the adequacy of the RDEIR.

4.5.14 Letter N – California Native Plant Society



CALIFORNIA
NATIVE PLANT SOCIETY

June 23, 2016

To: Mendocino Solid Waste Management Authority sweeney@pacific.net
Att: Mike Sweeney General Manager

From: Teresa Sholars tsholars@mcn.org
DKY Chapter Rare Plant and Vegetation Chairperson, CNPS
Professor Emeritus of Biology, College of the Redwoods

Re: Central Coast Transfer station revised Environmental Impact Report, April 16, 2016

We think that the revised EIR is inadequate due to the following points:

1. It still assumes that the land swap is going through. Is that confirmed? | N1
2. The EIR shows Bishop Pine alliance as G3. The Department of Fish and Wildlife has written letters describing the vegetation as the Northern Bishop Pine alliance rated as G2 (see Hierarchical List 2011). The Botanical consulting firm WRA cannot modify the classification of vegetation types. This is in the purview of the Department of Fish and Wildlife vegetation section, which has stated that the area has the Northern Bishop Forest and has designated its rarity status. The consulting firm has no nexus in the classification of vegetation types. They cannot deem that Fish and Wildlife's letter is not germane to the project. | N2
3. The scoping in the Table 3.4-3 is too narrow. It lists 3 habitats on the property as having no potential for rare plants that do have potential for rare plants. They are interpreting the habitat too narrowly. For example the Cypress forest (pygmy) / Forested wetland and Palustrine emergent wetlands are both habitats that contain seeps, therefore species like *Carex saliniformis*, *Juncus supiniformes* and *Sanguisorba officinalis* have the POTENTIAL for being on the site. (NOT NO POTENTIAL). * See Appendix. | N3
4. The rare Northern Bishop Pine Forest is in a state of decline. It is important to not decrease the current distribution of this protected community. This project could be in a different site that does not increase the decline of this vegetation type. | N4

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Dorothy King Young Chapter, P. O. Box 577, Gualala, California 95445
www.cnps.org

5. The project impacts 3 special status species (278 plants, table 3.4-7) page 84. There is no need to impact these plants if alternative sites are possible. N5

6. Mitigation for destroying rare species and vegetation types by protecting another site that is not yet destroyed does not help the species and vegetation type that is in decline. It still adds to the total number of impacted sites which further increases possibilities for extinction. Therefore you cannot use protection of the site by the dump to mitigate destruction of another site. N6

7. Mitigation and restoration by planting nursery stock on the site. The success of planting nursery stock on a site that does not have fairly constant care is very low. Weeding, watering and protecting species from deer herbivory and rubbing must be done on a regular basis over a period of years in order to insure success. Also, the planting palette on page 155 has the wrong species listed for the rare Bolander Pine. It lists *Pinus contorta ssp. contorta* as Bolander Pine whereas it is *Pinus contorta ssp. bolanderi*. N7

The California Native Plant Society, Dorothy King Young chapter feels that there is enough scientific evidence that the project is too destructive to rare plants and rare plant communities to go forward. Other sites should be seriously looked at that lack rare plant communities and rare plants. N8

cc:

Linda Ruffing , Fort Bragg City Manager lruffing@fortbragg.com
Angela Liebenberg, California Department of Fish and Wildlife Liebenberg,
Angela.Liebenberg@wildlife.ca.gov
Nancy Morin, President DKY chapter CNPS. Nancy.Morin@nau.edu

*Appendix

Carex saliniformis Mackenzie

Habitat: mesic.

- Coastal prairie
- Coastal scrub
- **Meadows and seeps**
- Marshes and swamps (coastal salt)

Sanguisorba officinalis is often on serpentinite

(BUT not necessarily. It is found on the coast off of serpentinite)

- Bogs and fens
- Broadleafed upland forest
- Meadows and seeps
- Marshes and swamps
- North Coast coniferous forest
- Riparian forest

CNPS, Rare Plant Program. 2016. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website <http://www.rareplants.cnps.org> [accessed 16 June 2016].

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Letter N – California Native Plant Society – Response to Comments

Response N-1

The land swap was authorized by AB 384 (codified in Public Resources Code Section 4659) and is accurately described as part of the project that is the subject of the DEIR and RDEIR. The lead agency has not received any information, from either the Director of General Services or the Department of Forestry and Fire Protection (who Section 4659 authorizes to grant the City of Fort Bragg or the County of Mendocino an option to acquire title to the property for the purpose of developing a solid waste transfer station), that they will not grant the authorized option.

Response N-2

The discussion of the current designation and classification/rank of Bishop Pine Forest, as well as the conclusion that the Project has the potential to significantly impact this sensitive natural community and the measures to be taken to fully mitigate this potential impact, appears on pages 3.4.49 and 3.4.50 of the RDEIR.

Response N-3

Comment noted. No further response is required as Table 3.4.3 referenced by the commenter was not changed by the RDEIR. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Table 3.4.3 which, contrary to the comment, does not attempt to list the potential existence of rare plants on the Project site, but rather, lists existing habitats identified and quantified on the Project site based on biological surveys.

Response N-4

The commenter asserts Bishop Pine is in decline but does not provide or cite to any more recent survey evidence which alters Calveg's 1998 finding that there are 14,900 acres of Bishop Pine Forest in Mendocino County alone, not including its range in other counties. The RDEIR conservatively finds that the removal of 4 acres of Bishop Pine Forest is a potentially significant impact that can and will be mitigated by the preservation of 5.76 acres at the Preservation Parcel (APN 118-500-45) and the restoration or enhancement of 6.29 acres at the Restoration Parcel (APN 118-500-11).

Response N-5

Comment noted. No further response is required as Table 3.4-7 referenced by the commenter was not changed by the RDEIR. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. However, it should be noted that the RDEIR finds that after imposition of all recommended mitigation measures, the Project will not result in any significant adverse impacts on special status species.

Response N-6

The commenter asserts that off-site preservation is not adequate mitigation for removal of vegetation at the Project site. This point of view is contradicted by the California Department of Fish & Wildlife, which specifically recommended off-site preservation as a mitigation measure in its letter of February 28, 2014, commenting on the scope of the proposed EIR (DEIR, Appendix A). Likewise, Mendocino County General Plan Policy RM-28 authorizes as a mitigation strategy “replacement habitat of like quantity and quality on- or off-site for special status species.”

Response N-7

The concerns that the commenter states are taken into account in the Bishop Pine Mitigation Plan prepared by WRA Environmental Consulting, which appears as Appendix L of the RDEIR. In addition, see Response E-16.

Response N-8

Comment noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the EIR’s analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated.

4.5.15 Letter O – California Parks & Recreation



State of California • Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION
P.O. Box 942886 - Sacramento, CA 94298-0001

Edmund G. Brown Jr., Governor

Lisa Ann L. Mangat, Director

June 24, 2016

Mr. Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, California 95482

Re: Comments on Revised Draft Environmental Impact Report for the Proposed Central Coast Transfer Station (SCH #2014012058) in Fort Bragg, Mendocino County, CA

Dear Mr. Sweeney:

The California Department of Parks and Recreation (State Parks) has reviewed the Revised Draft Environmental Impact Report (DEIR), dated April 2016, for the Central Coast Transfer Station. Thank you for the opportunity to provide the following comments on the proposed project as described.

The proposed project as described in the Transfer Station Revised DEIR would enable the development of a waste facility on land that is currently within the Jackson Demonstration State Forest (JDSF). The complicated multi-party land exchange that is outlined in the DEIR would transfer 17 acres of JDSF property to the County and City for development of the new Mendocino Central Coast Waste Transfer Station; 12.6 acres of mature forest land would be transferred from Russian Gulch State Park (RGSP) to JDSF as compensation for the loss of 17 JDSF acres; and, State Parks would be granted a conservation easement on the 61-acre landfill property with the option of acquiring the 35 westernmost acres of the property.

01

State Parks submitted comments to the 2015 version of the DEIR in a letter dated July 21, 2015 (attached). That letter described the State Parks' concerns with the proposed project described in the DEIR, and outlined deficiencies in the CEQA analysis. Because the Revised DEIR has no substantive changes on issues of significance to State Parks, this letter reiterates many of our 2015 comments.

Resource Values of Russian Gulch State Park Parcel

The proposed project poses significant environmental concerns that are not adequately evaluated or addressed in the Revised DEIR. Of primary concern to State Parks, the DEIR fails to address fundamental questions regarding the value of late seral forest habitat and the potentially significant adverse effects to protected species habitat that could result from the transfer of the 12.6-acre State Park property to JDSF. The RGSP parcel is comprised of sensitive plant communities such as Northern Bishop Pine Forest, remnant old growth redwood, and other significant habitats. The forest is also

02

documented habitat for the federally threatened marbled murrelet. These resources need to be described in detail in the DEIR, and the potential impacts to the parcel's resource values must be described along with actions to avoid, minimize, and mitigate those impacts. Unfortunately, this level of analysis is not in the DEIR.

02

For instance, the DEIR fails to analyze potentially significant impacts that could result from substantial differences in the mandated management objectives of JDSF and those of RGSP, and how management practices have the potential to affect sensitive resources on the property. The 2008 JDSF Forest Management Plan identifies one of JDSF's primary goals and objectives is to "*Manage the forest on the sustained yield principle, defined as management which will achieve continuous high yields of timber production that contribute to local employment and tax revenue...*" On the other hand, RGSP is a designated State Park, managed consistent with the requirements of Public Resources Code Section 5019.53 which states, in pertinent part, "*Each state park shall be managed as a composite whole in order to restore, protect, and maintain its native environmental complexes to the extent compatible with the primary purpose for which the park was established.*" JDSF management would provide less protection to significant resources on the property than what currently exists under State Park ownership, a fact that is not considered or analyzed in the DEIR.

03

Instead of documenting the resources of the 12.6 acre RGSP parcel and analyzing the potential impacts of the change in management, the DEIR proposes that impacts from reasonably foreseeable activities, such as future timber harvests, be handled as part of the Timber Harvest Plan process. It also segments the project and postpones serious discussion of the impacts associated with the project as well as the mitigation of those impacts.

Condition of Landfill Property

The proposed compensation to State Parks for the loss of 12.6 acres of prime forested property consists of an easement on 61 acres of the former landfill property as well as an option to purchase 35 acres adjacent to the landfill site. The condition of the 35 acres of the landfill property has not been thoroughly analyzed. In addition to being potentially highly disturbed, the landfill property does not contain the natural, cultural, or recreational values that typify lands acquired for the State Park System; the former landfill site's well-documented toxicity and environmental degradation would create significant management challenges and costs. Further, the DEIR lacks adequate information related to the acquisition and management of the easement and the 35-acre site by State Parks. Such impacts could include but are not limited to: public nuisance access, invasive species proliferation, unanticipated groundwater impacts, methane emissions, and a host of other environmental concerns associated with the degraded condition of the former landfill site.

04

Mr. Sweeney
June 24, 2016
Page Three

AB 384 clearly required these potential impacts to be analyzed by the beneficiaries of the land transfer, so the absence of sufficient analysis in the DEIR clearly demonstrate the project proponents have not fulfilled the requirements upon which the land transfer is predicated (PRC § 4659 (k)).

05

Additional Considerations

The California Department of Fish and Wildlife (CDFW) provided extensive comments in March 2015 and on June 13, 2016 on the impacts of the project to sensitive natural communities. State Parks concurs with CDFW's comments and observes that many of CDFW's 2015 comments were also not addressed in the Revised DEIR. Included in its 2015 comments, CDFW suggested that "Project proponents should work closely with both CalFIRE and State Parks to fully describe and analyze potential changes in land use, and other foreseeable potential impacts." Despite this suggestion and State Parks' statement in its July 2015 letter that it looked forward to working with the City and County to identify feasible alternatives, neither the City nor the County have initiated any discussions with State Parks aimed at resolving the concerns State Parks has raised.

06

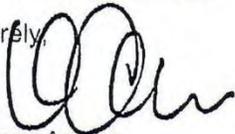
State Parks recognizes the importance of the Transfer Station project to the community and continues to be willing to work with the County and City to help find a solution that is in the best interests of all parties. However, after a thorough review of the DEIR and an internal review of records and field visits to the key sites, State Parks continues to find that the DEIR lacks sufficient analysis of the proposed project's environmental impacts, just as it provides insufficient avoidance, minimization, and mitigation for the project's environmental impacts.

07

State Parks continues to encourage the City and County to pursue other viable and lesser impactful alternatives that have been identified in the Revised DEIR. For example, Alternatives 4 and 5 provide the basis for a preferred alternative that would likely not share the significant flaws that are imbedded in the proposed project.

Thank you for the opportunity to provide these comments. If you would like to discuss the content of this letter, please contact Mike Lair at (707) 865-3121 or via email at Mike.Lair@parks.ca.gov.

Sincerely,



Kathleen Amann
Deputy Director of Park Operations

Attachment



DEPARTMENT OF PARKS AND RECREATION
Sonoma Mendocino Coast District
12301 N. Highway One
Mendocino, CA 95460

Lisa Ann L. Mangat, Director

July 21, 2015

Board of Supervisors
Mendocino County
501 Low Gap Road, Room 1010
Ukiah, CA 95482

City Council
City of Fort Bragg
416 N. Franklin St.
Fort Bragg, CA 95437

Dear Chair Brown and Members of the Board of Supervisors and Mayor Turner and Members of the City Council:

On behalf of the Sonoma Mendocino Coast District of the California Department of Parks and Recreation (State Parks), thank you for the opportunity to provide these clarifications and comments regarding the proposed Central Coast Transfer Station project ("project"), agenda item #5(d).

State Parks continues to support the closure and relocation of the Casper Landfill, an important outcome of the project. As you know, the project includes not only the development of a transfer station, but a complicated multi-party land exchange that would enable the development of the waste facility on land currently within Jackson Demonstration State Forest (JDSF).

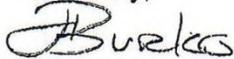
The land exchange authorized by AB 384 (PRC §4659) provided a conceptual framework to address the concerns over the existing landfill raised by the community as well as park managers. However, as a specific proposal has taken shape, it has failed to address critical issues or evaluate a robust set of alternatives. As such, the project does not appear viable without further review.

As recognized by the Department of Fish and Wildlife in comments on the draft EIR, the project suffers from insufficient environmental analysis related to sensitive habitats that would be removed from Russian Gulch State Park. Furthermore, the project reflects an incomplete appraisal and land valuation which will not support a land exchange. Finally, by contemplating the inclusion of degraded lands – potentially including the former dump site – into Russian Gulch State Park, it would require management actions that are either infeasible or un-supportable due to the cost or inconsistency with the values of Russian Gulch State Park.

State Parks looks forward to working with the City and County to identify feasible alternatives to address its many concerns. Until that time, we regrettably cannot support the proposed land exchange as currently described, in light of the potentially significant impacts to the lands, resources, and operations of Russian Gulch State Park.

If you would like to discuss any of the content of this letter, you can contact the Mendocino Sector Superintendent Loren Rex at (707) 937-3118, or contact me directly at (707) 865-3125.

Sincerely,

A handwritten signature in black ink that reads "Liz Burko". The signature is written in a cursive style with a large, prominent initial "L".

Liz Burko
Sonoma Mendocino Coast District Superintendent

Letter O – California State Parks – Response to Comments

Response O-1

This introductory comment summarizes the proposed Project and the commenter’s prior comment letter on the DEIR without discussing or addressing the adequacy of the RDEIR. No further response is required.

Response O-2

See Master Response C.

Response O-3

See Master Response C.

Response O-4

Contrary to the commenter’s implication, there is nothing in the proposed project, or in AB 384, that would require State Parks to take ownership of the westernmost 35 acres at the Caspar Landfill site (if State Parks was disinclined to do so) or cause any impacts thereon as no new or changed land uses are proposed at the former Caspar Landfill site by the project. The primary asset that AB 384 would give to State Parks is a recorded covenant requiring State Parks approval of any future use of the entire 61-acre closed landfill site, so that the existing transfer station would be closed and no future use could be made of the property that might impact Russian Gulch State Park. This has been a wish of Russian Gulch State Park management for decades, and is the reason why former State Parks Mendocino District Superintendent Marilyn Murphy proposed the land swap. State Parks’ concerns with the negative impacts of Caspar Transfer Station operations on Russian Gulch State Park are documented in a letter dated April 5, 2012 from current Mendocino District Superintendent Loren Rex to MSWMA General Manager Mike Sweeney. Also, it should be noted that the proposed 35-acres does not include the footprint of the closed landfill itself, which will remain in the ownership of the County and City. According to groundwater monitoring reports obtained by the County of Mendocino, there is no contamination on the site’s westernmost 35 acres from the closed landfill.

Moreover, the commenter’s concerns over potential impacts associated with the alleged degraded condition of the former landfill site are not only unsubstantiated, they are not required to be analyzed by CEQA, as such potential impacts fall into the category of impacts of the existing environment on the project, or the type of “CEQA in reverse” analysis recently held by the California Supreme Court to be outside the purview of CEQA. CEQA only requires analysis of a project’s effects on the environment; consideration of the potential effects of a site’s environment on a project are outside the scope of required CEQA review (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369). As stated in *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473: “[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project.” The potential impacts raised by this comment in this section relate to alleged preexisting environmental hazards, and therefore “do not relate to environmental impacts under CEQA and cannot support an argument that the effects of the environment on the project must be analyzed in an EIR.” (*Id.* at p. 474.)

Response O-5

See Response O-4 and Master Response C. The RDEIR analyzes the transfer of 12.6 acres at pages 2.0.3 and 2.0.4. The only change to the 61-acre Caspar Landfill site would be the cessation of operations of the Caspar Transfer Station, and certain Bishop Pine Forest restoration activities, which are described in the RDEIR.

Response O-6

The lead agency met with CDFW on March 7, 2014 and August 13, 2015. The lead agency conducted a conference call with State Parks on August 12, 2015 and attempted to reach State Parks representatives by telephone at later times. Both CDFW and State Parks, as well as a host of other responsible/trustee agencies, were invited by letter on May 9, 2016 to meet with the lead agency but neither agency replied. The lead agency also consulted with CalFire which, as noted in the RDEIR, intends to grant the project a variance (eliminating any requirement to clear brush beyond the project footprint) and has no intention of conducting timber operations on the 12.6 acre parcel that may be transferred from Russian Gulch State Park to the Jackson Demonstration State Forest as a result of the Project.

Response O-7

The commenter's criticisms noted here are nonspecific and of the proposed project itself, and do not raise any specific concerns with the RDEIR or its adequacy and therefore cannot be responded to further, with the exception of the commenter's expressed preference for Alternatives 4 and 5 (Leisure Time RV Park and Mendocino Coast Recreation & Park District property). Those alternatives are adequately analyzed as part of the reasonable range of project alternatives discussed in Section 4.0 of the RDEIR.

Note: The comments in Liz Burko's attached letter dated July 21, 2015 are repeated and elaborated in the Kathleen Amann letter, and are fully responded to herein.

4.5.16 Letter P – Sierra Club

PAUL V. CARROLL
Attorney at Law
1103 17th Avenue
Redwood City, California 94063
telephone (650) 839-8644
pvc Carroll@att.net

July 17, 2015

Mr. Mike Sweeney, General Manager
Mendocino Solid Waste Management Authority
3200 Taylor Drive
Ukiah, CA 95482

Re: EIR for the Proposed Central Coast Transfer Station in Fort Bragg

Dear Mr. Sweeney:

I write this letter on behalf of the Sierra Club regarding the above-referenced project.

Russian Gulch

The City and County propose to acquire the project site, comprising 17 acres of Jackson Demonstration State Forest (JDSF). For its loss, JDSF would be given 12.6 acres of Russian Gulch State Park. State Parks in turn would receive an option to take ownership of 35 acres of the closed Caspar landfill. According to the DEIR, the 12.6 acres would become part of the JDSF Caspar Creek Experimental Watershed Study Area, whose purpose is to study the effects of logging on natural resources. (Pg. 2.0-3.)

The loss of 12.6 acres of State Parkland is a significant recreational and ecological impact for which there has been no environmental review, none whatsoever. In your response to comments raised by various groups and persons regarding Russian Gulch, you state that there are no current plans to log it. Of course there are not. It is still parkland. But there will be. JDSF is after all dedicated to experimental logging operations. P1

The JDSF Management Plan makes it clear that JDSF is first and foremost devoted to logging:

- Read as a whole, the statutory direction indicates that the management of Jackson Demonstration State Forest is primarily for sustainable timber production with the primary purpose of education and research relating to economical timber management. (Pg. 15.)
- The primary focus of this Management Plan is to lay out best management practices for sustainable forestry on JDSF. (Pg. 70.)
- Additionally, this article establishes timber production as the primary land use on

Jackson Demonstration State Forest, while recognizing that recreation is a secondary but compatible land use. (Pg. 15.)

The JDSF Management Plan is incorporated here by reference and can easily be found online.¹

Under CEQA, a lead agency is required to conduct environmental review of future phases of a project that are reasonably foreseeable. (E.g., *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 396.) Here, the annexation of 12.6 acres of parkland to JDSF and its eventual logging is not merely foreseeable, it is certain.

The EIR's failure to consider the annexation is especially troubling because that area of Russian Gulch is a recreational and ecological resource. It and JDSF comprise Mushroom Corners, an area known for its abundance of mushroom species, and frequently visited "by several universities, colleges and scientific societies for educational and scientific purposes." (http://calfire.ca.gov/resource_mgt/downloads/ADEIR_Part_05_V_Setting_10.08.05.pdf.) Russian Gulch is also habitat for a number of threatened species, including northern spotted owl and marbled murrelet. P1

The 12.6 acres of parkland are also regularly used by hikers and bicyclists. Their recreational experience will be changed, when 12.6 acres of parkland is turned into a working forest, whose primary function is timber production.

In your response to CDFW's letter to you of March 24, 2015, you also claim that when the 12.6 acres are logged a timber harvest plan must be approved under CEQA and the Forest Practice Act. That is true but CEQA requires that more generalized environmental review occur now. "With public projects, at the earliest feasible time, project sponsors shall incorporate environmental considerations into project conceptualization, design, and planning. CEQA compliance should be completed prior to acquisition of a site for a public project." (Guidelines, § 15004, subd. (b)(1).)

As the Court explained in *Laurel Heights*, because the Regents had not solidified their expansion plans, a "detailed environmental analysis of every precise use that may conceivably occur is not necessary at this stage. [Citation.] The fact that precision may not be possible, however, does not mean that no analysis is required." (47 Cal.3d at pp. 398-399.) "Drafting an EIR...involves some degree of forecasting. While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can." (*Ibid.*, quoting Guidelines, § 15144.)

The EIR fails to consider—even in the most generalized way—the effect of transferring 12.6 acres of protected parkland into a state forest dedicated to timber production.

Alternatives

The EIR's consideration of alternatives violates CEQA on a number of grounds. It fails to

¹<http://www.mendorecycle.org/pdfs/MSWMA%20CCTS%20DEIR%20w%20Appendices%20Feb%202015%20print%20ready.pdf>. P2

consider a *range* of alternatives; it violates its own criteria in evaluating alternatives; it designates the proposed project as the environmentally superior alternative, even though it is *not* an alternative; it fails to support its conclusions with substantial evidence; and it fails to provide sufficient information so that decision-makers and the public can intelligently take account of environmental consequences.

One of CEQA's most fundamental requirements is that the reviewing agency consider a range of reasonable alternatives to the proposed project. (§ 21001, subd. (g); *Laurel Heights, supra*, 47 Cal.3d at p. 400.) A lead agency is not free to consider just any alternative. The analysis must "explore feasible, less damaging alternatives to the proposed harvesting project." (Guidelines, § 15126.6, subds. (c), (f).)

P2

Less damaging alternatives must be considered even if they would "impede to some degree the attainment of the project objectives, or would be more costly." (Guidelines, § 15126.6, subd. (b); *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 736-737.)

The consideration of alternatives must be sufficiently detailed to provide decision-makers and the public with information to allow them to intelligently take account of environmental consequences. (Guidelines, § 15126.6, subd. (f); *San Bernardino Valley Audubon Society, Inc. v. County of San Bernardino* (1984) 155 Cal.App.3d 738, 750-751.)

A.

The EIR fails to consider a *range* of alternatives. It considers only the no-project alternative, which is statutorily required in all EIRs, and one other, the Caspar Site. Two alternatives do not constitute a range. We know of only two cases that involved two alternatives including the no-project. In one, the court set aside the EIR for failing to consider a feasible alternative. (*Habitat and Watershed Caretakers v. City of Santa Cruz* (2013)213 Cal.App.4th 1277, 1301-1305.) In the other, the project actually had a positive effect on the environment, leading the court to wonder whether an EIR should have been prepared. (*Marin Municipal Water District v. KG Land California Corp.* (1994) 235 Cal.App.3d 1652, 1661, fn. 4; 1665-1666.)

P3

B.

Under CEQA, an EIR must identify the environmentally superior alternative: "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." (Guidelines, § 15126.6, subd. (e)(2).) Thus, if the no project is superior, another *alternative* has to be designated.

P4

The EIR inexplicably claims that the proposed project is the environmentally superior alternative. But the project is not an alternative; it is the project. It cannot be an alternative to itself. As the Guidelines make clear, there is the project, on one hand; and there are alternatives to it, on the other. (Guidelines, § 15126.6, subd. (a).)

C.

The EIR uses a simple formula for evaluating the superiority of the proposed project. It merely adds up its environmental benefits compared to the Caspar Site. (DEIR, p. 4.0-5.) But when we do the same addition, the Caspar Site wins. The EIR says that the proposed project is superior to the Caspar Site regarding aesthetics, air quality, GHG emissions, and transportation. It says that the Caspar Site is superior regarding forest resources, biological resources, hydrology and water quality, land use and planning, and noise. As to noise, the EIR explains that the Caspar Site has fewer homes in the project vicinity, and could reduce impacts further by closing the transfer building. Thus, the EIR's conclusion that the project is environmentally superior is contradicted by its own analysis.

P5

But more significantly, we are perplexed why the Leisure Time alternative did not receive serious consideration. It received a more positive score in the Mendocino Central Coast Commercial Transfer Station Siting Study (attached) than the proposed project. It clearly has numerous environmental benefits over the proposed project, relating to biological resources, hydrological resources, the absence of streams on-site, topography, water and sewer availability, and so on. (DEIR, p. 4.0-6-7.) The only apparent drawback is that, because of the proximity of residences, "it would be less successful in meeting one of the project objectives of isolation from other land uses." (DEIR, p. 4.0-7.)

P6

But this excuse fails on both factual and legal grounds. Factually, it applies different

measurements in comparing the Leisure Time alternative to the proposed project (as noted by CDFW in its March 24, 2015, letter to you.) As to Leisure Time, it measures the distance between residences and the *border* of the parcel. Yet, the real question is distances between residences and the actual installation. That distance could be much farther away.

Legally, the fact that Leisure Time might be closer to residences does not justify its lack of consideration. The DEIR states that Leisure Time “would be less successful in meeting one of the project objectives of isolation from other land uses.” (4.0-7.) But less damaging alternatives must be considered even if they would “impede to some degree the attainment of the project objectives, or would be more costly.” (Guidelines, § 15126.6, subd. (b).) Alternatives should “attain *most* of the basic objectives of the project but...avoid or substantially lessen any of the significant effects of the project.” (Guidelines, § 15126.6, subd. (a).)

P6

Defensible Space

In its letter to you, CDFW complains that the DEIR does not analyze the expansion of the project’s adverse impacts resulting from the need to remove extra vegetation to avoid fire hazard (CDFW letter, *supra*, at p. 6.) In your response to CDFW’s concern, you state that you expect to get a variance from Cal-Fire. (FEIR, p. 4-73.) Unfortunately, this is not how environmental review is supposed to work.

The lead agency has a mandatory duty to consult with responsible agencies, such as Cal-Fire, from the earliest stage, that is, when the lead agency determines that an initial study is required. (Guidelines, § 15063, subd. (g).) But it sounds from your answer that this has never occurred: You propose to add the need for the variance to the list of required approvals.

P7

The failure to settle this issue with Cal-Fire can lead to adverse consequences. If Cal-Fire does not grant the variance and the project goes forward, there will be unanalyzed impacts to the local and quite sensitive ecosystem. On the other hand, Cal-Fire may feel it has little choice but to grant the variance to save the project. “[T]he later the environmental review process begins, the more bureaucratic and financial momentum there is behind a proposed project, thus providing a strong incentive to ignore environmental concerns that could be dealt with more easily at an early stage of the project.” (*Laurel Heights, supra*, 47 Cal.3d at p. 395.)

The EIR is fundamentally flawed and violates CEQA on numerous grounds.

Thank you for your consideration of this letter.

Very truly yours,

Paul V. Carroll

Letter P – Sierra Club – Response to Comments

Response P-1

See Master Response C.

Response P-2

This comment addresses the alternatives discussed in the original DEIR. Additional alternatives were considered in Section 4.0 of the RDEIR, which satisfies CEQA’s requirement to discuss and analyze a reasonable range of alternatives.

Response P-3

See Response P-2.

Response P-4

The required discussion of the environmentally superior alternative appears on pages 3.9.13 and 3.9.14 of the RDEIR.

Response P-5

There is no fixed formula under CEQA for evaluating the relative weight of different environmental issues pertaining to a project and its alternatives. The RDEIR finds different alternatives and the project to be superior in certain categories, and discloses them. An “environmentally superior” alternative is identified based solely by counting the number of categories, without a subjective effort to give different weight to each category. See Section 4.3 of the RDEIR.

Response P-6

The RDEIR analyzes the Leisure Time RV Park as an alternative in Section 4.2.4. Also see Master Response A, distance to surrounding residences.

Response P-7

See Response E-4.

4.5.17 Letter Q – Jeremy James

From: Jeremy James <theantiquerestorer@yahoo.com>
Sent: Friday, June 24, 2016 2:56 PM
To: bos@co.mendocino.ca.us; sweeney@pacific.net; dturner@fortbragg.com; LPeters2@fortbragg.com; MCimolino@fortbragg.com; sdeitz@fortbragg.com; dhammerstrom@fortbragg.com
Subject: Re: EPA guidelines for proposed transfer station.
Attachments: To the Mendocino County board of supervisors.docx; To the Mendocino County board of supervisors.docx

To all those in concern,

According to the Water Replenishment District of Southern California, waste transfer station are a significant cause of pollution to ground water. Rain water runoff to an above ground reservoir stands a much higher likely hood of severe contamination.

Since the County Board of Supervisors and Fort Bragg City Council have been made aware of the likely hood of future health hazards caused by polluted rain water run off into the city reservoir and the gross negligence this presents, they may be held personal responsible in the future, if a Class Action suit is brought.

Q1

There are countless case law documents verifying the validity of such a claim and it would be in the best interest of all said parties if this could be avoided.

When all the facts are gathered the feasibility of the proposed site is no longer in question. An alternative location is the answer, just where it is needs to be determined.

Groundwater Contamination Prevention/Cleanup in the Central and West Coast Basins

**Groundwater Contamination
Prevention/Cleanup in the Central and West
Coast Basins**

Groundwater contamination in the Central and West Coast Basin aquifers of
Los Angeles County

Please refer to the attachment below that I have provided in my original message, this was dated 3/23/2015 and still has not been addressed by the County board of supervisors or Mr Sweeney.

Q2

The EPA guidelines are very reader friendly and specifically address the environmental concerns and the best site criteria. These guidelines have been ignored and not addressed.

Sincerely,
Jeremy James

3/23/2015

To the Mendocino County Board of Supervisors, Fort Bragg City Council, and Mike Sweeney.

We all want what's best for the coast. In order to determine what this is there are a multitude of agencies that exist to help make informed decisions and that can help save the County time and money. Unfortunately it appears that one of the most powerful agencies guidelines and manuals was overlooked by our very own waste authority.

I encourage everyone to read the EPA's guidelines for a waste transfer station titled, Waste Transfer Stations: A Manual for Decision-Making.

This document superbly outlines the proper decision making processes and the proper methodology of building a transfer station.

There are 61 pages and the main importance we seem to find on page 14, Exclusionary Siting Criteria, and I quote:

Exclusionary Siting Criteria

Siting a waste transfer station, or any type of facility, with preclusive siting criteria is often prohibited by Federal, State, or local laws or regulations, or requires facilities to incorporate special engineering design and construction techniques. Even when siting in excluded zones is allowed, the added engineering designs or strong public opposition can significantly increase construction costs. In general, it is best to avoid siting in these areas. Exclusionary criteria might include areas such as:

Wetlands and flood planes

Endangered and protected flora and fauna habitats

Protected sites of historical, archeological or cultural significance.

Prime agricultural land

Parks and preserves

:End quote

Q2

What we have in this situation on the proposed Hwy 20 location is plethora of these Exclusionary criteria that somehow has gone over looked by the Mendocino County Waste authority.

State Parks classifies Pygmy as a wetland

It contains Endangered and protected Flora and Fauna

With 1600 acres remaining in the world it has a strong likelihood of becoming a National Preserve in the near future.

Q2

Being a lifelong resident of Fort Bragg I too thought the Pygmy was of very little use and suitable for trash. This unfortunately is the same mentality that past generations used to justify deforestation and clear cutting. There is an answer.... One more point below.

There is no mention of expansion in the DEIR and how the existing pygmy will be protected.

Ability for Expansion, Starting on page 16 and I quote:

When selecting a site, consider the potential for subsequent increase in the daily tonnage of waste the facility will be required to manage, or added to the processing capabilities for recycling and diversion. It is frequently less expensive to expand an existing transfer station than to develop a new site due to the ability to use existing staff, utility connections, traffic control systems, office space and buildings.

:end quote

The above was never a consideration in the DEIR and according to the EPA there should have been a future waste increase consideration and plant expansion study. Since the concern of the DEIR was to show the plants proposed footprint and its non-impact on pygmy areas where is the allowance for future expansion?

As was stated in the DEIR by the California Native Plant Society(CNPS) "transitional pygmy" is not a correct term. It is pygmy species that have broke through the hardpan layer and are receiving nutrients from below. In light of this and the recommendation by CNPS, the over lays show the proposed transfer station right in the heart of the protected pygmy forest. So once again we find that the Waste authority has neglected to address this with proper mediation and perhaps a sleight of hand hoping no one would notice?

Q3

Q4

In Summary

These items and this guideline should have been presented to the County board of Supervisors and to the Fort Bragg City council by the head planner of this transfer station. This way all members of the panel could have been adequately informed of the dangers and potential cost run up of choosing a site that did not meet EPA standards or requirements.

Q5

Another consideration of grave importance is the likely hood of pollution from runoff into the proposed Summers lane runoff water/rain collection holding pond which is downstream. The potential for liability and future class action lawsuits could jeopardize not just the proposed transfer station but also the financial wellbeing of those allowing this highly possible hazard to come to fruition. 68% was the number given as to the percentage of captured pollutants, so in all likelihood a suit will occur involving the residents of Fort Bragg who are impacted by City water.

Q6

In Conclusion

There is a better solution that would cost less money to the county. Leisure time campground, not located in the Noyo water shed and on topographical terrain that has no waterways/creeks is for sale. The current owner would accept \$750,000 for it. It has the Hwy20 corridor, no pygmy forest, wide established turning lanes near, large shoulders for traffic easements, power and septic already in place. The benefits mentioned would already offset the cost of initial purchase.

Q7

It has also come to our attention that Fort Braggs own trash collector Waste Management has just been approved for their own transfer pit and is in the process of building it. This would incorporate the large style, trash hauling, carbon footprint saving trucks. This is the same pit minus the covered enclosure that is proposed for Hwy 20. Does Fort Bragg really need 2 recycling locations and 2 transfer stations? The EPA manual answers this question....

Q8

Sincerely,

Jeremy James

Retired Sniper US ARMY 2nd Ranger Battalion

Letter Q – Jeremy James – Response to Comments

Response Q-1

The Summers Lane Reservoir is located one mile from the proposed transfer station. The reservoir will be surrounded by a high berm and lined with an impermeable liner. It will be fed, not by the surrounding watershed, but by an existing pipeline from Waterfall Gulch. Notwithstanding the reasons why the proposed transfer station won't release any pollution or contaminate any water, there is no reasonable possibility that any contamination would affect Summers Lane Reservoir.

Response Q-2

The portions of the project parcel that are seasonal wetland are identified and avoided in the facility design, as shown by Figure 3.4-1 of the DEIR. Special status species have been identified and mapped and either avoided or mitigated as described in Section 3.4 of the RDEIR. The concern that pygmy needs preservation is more than adequately met by the project's proposed mitigation at the Preservation Parcel, which would permanently protect 19.35 acres.

Response Q-3

Pursuant to CEQA Guidelines Section 15088.5(f)(2), responses are required only to comments that relate to sections of the DEIR that were altered or added in the RDEIR. However it should be noted that the project is designed to accommodate reasonably foreseeable future growth, as described in Section 2.5.7 of the DEIR.

Response Q-4

The RDEIR describes in detail the different categories of Mendocino Pygmy Cypress on page 3.4.5 and how they differ. In the RDEIR, "transitional pygmy" isn't used as name of a species, but rather to describe woodland where pygmy isn't exclusive but is merging with other tree species.

Response Q-5

The issues highlighted in the EPA publication were explored in detail through the 9-year siting process conducted by the lead agency.

Response Q-6

This comment repeats the same concern raised at the outset of the letter. See Response Q-1 above.

Response Q-7

The Leisure Time RV Park alternative is analyzed at Section 4.2.4 of the RDEIR. The owners of Leisure Time RV Park stated an asking price of \$2 million for the property when the siting study was prepared.

Response Q-8

Empire Waste Management's Pudding Creek Road alternative is analyzed at Section 4.2.3 of the RDEIR. In 2015, Waste Management obtained permits for a new open container solid waste transfer system to load a maximum of five walking floor trailers (Wilkins trailers) at the Pudding Creek site with refuse from curbside collections. This was necessary as the company's "pod" system has become obsolete. Once loaded, these new trailers still travel to the Willits Transfer Station for off-loading into long-haul commercial transfer trailers.

4.5.18 Letter R – Ann Rennacker

From: Ann Rennacker <annxpress@live.com>
Sent: Friday, June 24, 2016 3:01 PM
To: sweeney@pacific.net
Subject: Comments on MSWMA Draft EIR for Central Coast Transfer Station

Dear Mr. Sweeney,

Your DEIR for this Waste Transfer project is deficient in several key areas of concern, mainly an inadequate mitigation of the damage to the Mendocino Pygmy Cypress woodland and Northern Bishop Pine Forest, an inadequate analysis of less damaging but equally feasible location sites for the project, and an inadequate assessment of significant damages which may result from the proposed project. It is necessary that you locate the project in an area that will not cause damage to delicate forest land protected for decades by State Parks in the Russian Gulch State Park area of the "land swap" as this old growth Redwood Forest is habitat for the endangered Marbled Murrelet, and has an iconic area called "Mushroom Corner" which has been kept undisturbed until now. Trading this Forest land for a corner of Jackson State Demonstration Forest puts it at risk for logging, as it was stated in the DEIR that the intention is to log it in 2017-18 and then leave it alone! This is unacceptable! There has been an inadequate analysis of impacts to wetlands, downstream surface water and sensitive natural communities. The report's analysis of cumulative impacts is not only inadequate in the March 10, 2016 EIR, they is not addressed in the latest DEIR. The DEIR added more information about the property transfer between the Jackson State Demonstration Forest and Russian Gulch State Park, but it glossed over project alternatives and stuck with the HWY 20 site chosen in 2013, even though there are other alternatives that would not log pygmy forest and not cause a widening of State Hwy 20, causing a dangerous left turn lane to be created into the facility. The alternative of using Hidden Village Trailer Park, a place with plenty of room for trucks and cars to turn around and it has already been logged, paved, has water and sewer, and is for sale for less than the cost of CEQA studies and widening HWY 20 to put in a new site from scratch.

The lack of mitigations in the DEIR is alarming and renders it incomplete in providing protections for endangered plants, animals, watersheds, and a narrow Highway which will need to be altered and to have double-wide possum belly trucks traveling full of trash and garbage on a winding much traveled road just to get to the Main highway. It is already a problem to follow the smaller "pods" down HWY 20 to Willits on Tuesdays to go the Board of Supervisor meetings or appointments. There will be accidents and spills.

The fact that the new Summers Lane Reservoir is on Hwy 20 just 3.5 miles from your proposed Waste Transfer Station is alarming in view of the major pollution and contamination problems in the Caspar Landfill site which was shut down years ago but continues to taint the water of residents who live nearby. The only people who did not vehemently object the the Hwy 20 site were those who live in the contaminated Caspar Landfill watershed and want it gone forever!

This three-way land swap that was brokered by Doug Bosco in 2007-2013 is objectionable due to the misrepresentation of the Forest types, the "taking" of old trees by JSDF, an outfit that likes to log trees to study the damages incurred by the roads cut and watersheds ruined and fisheries damaged. State Parks could not have foreseen that if they agreed to such a swap way back then, that later there would be damages to the old Forest and to the Pygmy Forest. Doug Bosco is not an accountable legislator, he was known as the worst money manager in California when he created a scandal by overdrawing 124 bank checks totaling \$537,985 in overdrafts and was forced to step down. That did not stop him from demolishing the North Coast RR authority which was established to maintain 316 miles of rail, purchased with public funds \$6.1 Million in 1992, then four years later public agencies put in another \$29 Million to meet freight and passenger

R1
R2
R3
R4
R5
R6

needs. Due to inaction on maintenance, non-payment of debts and gross fiscal mismanagement, CalTrans has audited NCRA and called it a "high risk" agency due to financial instability and an accounting system "not in accordance with generally accepted accounting principles". Why should we want to do any "land swap" that was brokered by such a fraud? If Bosco had not fleeced the Railroad we could have used the rail to transfer our trash out of here and not endanger the cars and RVs on the narrow Hwy 20, which was named as eligible to be a Scenic Highway but not officially adopted as such.

R7

I suggest that your permanent EIR address the project alternatives, the protection of sensitive Pygmy Forest and the protection of Russian Gulch old growth Redwoods and the endangered creatures that depend on that Forest. I also want to see a location that does not endanger our new Reservoir for clean water storage.

R8

Thank you for your consideration,

Ann Rennacker

31200 Sherwood Rd, Ft Bragg

Letter R – Ann Rennacker – Response to Comments

Response R-1

The RDEIR identifies adequate mitigation to address the Project's potentially significant impact on Mendocino Pygmy Cypress in Mitigation Measure BIO-1b of the RDEIR, and similarly identifies adequate mitigation to address the Project's potentially significant impact on Bishop Pine Forest in Mitigation Measure BIO-2b of the RDEIR. These mitigation measures ensure the conservation and protection in perpetuity of these sensitive natural communities according to mitigation ratios of 33 to 1 (Pygmy) and 3 to 1 (Bishop Pine). The RDEIR also adequately analyzes a reasonable range of project alternatives in Section 4.0. The commenter does not state in what way she believes the RDEIR's mitigation measures or alternatives analysis are inadequate, so no further response is possible or required.

Response R-2

See Master Response C. Further, the commenter misunderstood the RDEIR which demonstrates that no timber harvesting will take place within the next 15 years (or is otherwise reasonably foreseeable thereafter) in the 12.6 acres of existing Russian Gulch State Park land that could be transferred to the Jackson Demonstration State Forest's Caspar Creek Experimental Watershed Study area pursuant to the land swap authorized by Public Resources Code Section 4659.

Response R-3

The commenter does not indicate with any specificity or supporting evidence in what respects she believes the RDEIR's analyses of wetlands, downstream surface water, sensitive natural communities and cumulative impacts are inadequate, so no further response is possible or required. There is no facility named "Hidden Village Trailer Park." Assuming the commenter is referring to the Leisure Time RV Park Site, the RDEIR discusses and analyzes that as a project alternative in Section 4.2.4, on pages 3.9.8 through 3.9.11.

Response R-4

The commenter does not indicate in what respects she believes the mitigations are "alarming" or "incomplete," so no further response is possible. The project would reduce the number of large trucks on SR 20 between Fort Bragg and Willits, as described in Table 3.7-1 of the DEIR.

Response R-5

See Response Q-6.

Response R-6

No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or

portions of the earlier EIR that were revised and recirculated. Nonetheless, contrary to the commenter's assertion, Douglas Bosco had no role whatsoever in AB 384.

Response R-7

The California Western (Skunk Train) Railroad alternative is discussed at Section 4.4.3 of the RDEIR.

Response R-8

Project alternatives are analyzed in Section 4.0 of the RDEIR, pygmy forest is analyzed in Section 3.4 of the RDEIR, the Russian Gulch property is analyzed at pp. 2.0.3-2.0.4 of the RDEIR (see also Master Response C), and there is no potential for the proposed Project to impact the Summers Lane Reservoir as explained in Response Q-6.

4.5.19 Letter S – Ed Oberweiser

From: Ed Oberweiser <edoberweiser@gmail.com>
Sent: Wednesday, June 08, 2016 12:23 PM
To: sweeney@pacific.net
Subject: Notice of Preparation for the Central Coast Transfer Station Draft Environmental Impact Report (SCH# 2014012058) Mendocino County, California

Dear Mr. Sweeney,

I am writing to voice my opposition to the preferred alternative as articulated in the Draft Environmental Impact Report for placement of a solid waste transfer facility on property currently occupied by Mendocino Pygmy Cypress Forest and Northern Bishop Pine Forest. The preferred alternative, if implemented, will likely have a significant adverse impact on these rare forest types, and the mitigations thus far identified are not adequate to offset these significant adverse impacts.

S1

The DEIR does not provide an adequate evaluation of potentially significant impacts of the preferred alternative. Furthermore, the DEIR fails to provide adequate analysis or information related to feasible, less-damaging alternatives, and fails to adequately address why the alternatives not chosen do not constitute equally feasible, less-damaging alternatives to the proposed project.

The proposed action as articulated in the DEIR is in direct conflict with several land management directives contained in the Mendocino County General Plan, and is in direct conflict with the Jackson Demonstration State Forest Management Plan.

S2

I urge you to reject the preferred alternative as described in the DEIR, as this alternative is certain to have significant adverse impacts on a rare and highly vulnerable vegetation type that cannot be replaced, and for which mitigation is not possible. Equally feasible, less-damaging alternatives must be articulated and considered in order for the project to fully comply with the letter and spirit of CEQA.

S3

Thank you for your consideration.

Sincerely,

Ed Oberweiser
19244 Benson Ln
Fort Bragg, CA 95437

Letter S – Ed Oberweiser – Response to Comments

Response S-1

Comment noted; no further response is required as the comment addresses the DEIR, not the RDEIR. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Section 4.0 of the RDEIR, where additional Project alternatives were analyzed in compliance with the requirements of CEQA Guidelines Section 15126.6(d) by providing "meaningful evaluation, analysis, and comparison with the proposed project."

Response S-2

This comment generally asserts that the Project would conflict with unidentified land management directives in the Mendocino County General Plan and the Jackson Demonstration State Forest Management Plan. The restrictions that would apply to JDSF management of the newly-acquired 12.6 acres are described on pages 2.0.3 to 2.0.4 of the RDEIR. See also Master Response C. The JDSF Management Plan lists a variety of goals including recreation, aesthetics, and species protection, in addition to timber production and research.

http://www.calfire.ca.gov/resource_mgt/downloads/Final_JDSF_FMP_Master_012808_HE.pdf.

As described in Section 3.10 of the DEIR and Section 3.4 of the RDEIR, the project as mitigated is consistent with all applicable policies of the Mendocino County General Plan.

Response S-3

Comment noted. As explained and demonstrated in the DEIR and RDEIR, a reasonable range of Project alternatives were considered and all of the Project's potential significant impacts will be mitigated to levels of insignificance.

4.6 Response to Oral Comments at Public Hearing of June 16, 2016

Oral comments on the RDEIR were made at a Public Hearing on June 16, 2016 at Town Hall, 363 N. Main Street, Fort Bragg. The remarks of each person that pertain to the project are summarized and responses are made.

4.6.1 Oral Comments AA – Barbara Rice

Road 409 area resident. Expressed support for the project and the EIR.

Response AA: Comments noted.

4.6.2 Oral Comments BB – John Fremont

Believes comments should not be limited to revisions to draft EIR. Project threatens forest and its inhabitants. [Proceeded to read from written statement which is reprinted herein as Letter “J”.]

Response BB: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the RDEIR’s analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. See response to this commenter’s written Letter “J” herein.

4.6.3 Oral Comments CC – Tracy Howson

A friend is concerned about toxins at transfer station. The transfer station doesn’t put garbage on the ground. The new site won’t put garbage on the ground. Why aren’t we talking about putting garbage on the rail? In favor of the new station. The old station should be monitored. How long will that be monitored? In favor of hauling our garbage somewhere else. There won’t be any contamination on the ground if it is done right.

Response CC: The comment and its support for the proposed Project is noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the RDEIR’s analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated.

4.6.4 Oral Comments DD – James Gay

See the traffic on Highway 20. Concerned about speed of traffic in front of transfer station site. Caltrans should be asked to reduce speed limit.

Response DD: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific concerns with the RDEIR’s analysis of the project. Pursuant to the Notice of Availability published for the RDEIR

requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Section 3.12 of the DEIR, which adequately analyzes the Project's potential transportation impacts.

4.6.5 Oral Comments EE – Charla Thorbecke

Park Department is drafting a letter to stop this swap.

Response EE: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the RDEIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Response O-4 above.

4.6.6 Oral Comments FF – Jeremy James

There were 15 accidents in area. Not a good idea to have the reservoir below the transfer station. Toxins may be released from asphalt. State Parks wants swap off the board. Something positive can come out of the pygmy forest. Not a lot of acreage left. We have to find a different location. There are alternative locations that have less environmental impact.

Response FF: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific concerns with the RDEIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter mentioned a variety of issues without specifying in what respects he believed the analysis of those issues in the RDEIR is inadequate. Regarding Summers Lane Reservoir, see Response Q-6. Regarding pygmy forest, the project's impacts and mitigation are described in Section 3.4 of the RDEIR. The various environmental impacts of alternatives are set forth in Section 4.0 of the RDEIR.

4.6.7 Oral Comments GG – Rixanne Wehren

Represents Mendocino Group of the Sierra Club. Supports moving from Road 409. Mission is protecting rare habitats and the environment. There are two other sites within a mile that satisfy other requirements but do not destroy the pygmy forest. Distances to residents were measured from whole entire parcel instead of the facility. Coastal Commission has a say because Caspar Transfer Station and mitigation site are in coastal zone. State Parks is upset because they weren't contacted. Fish and Wildlife has objected but were ignored.

Response GG: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific concerns with the RDEIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR

requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. The commenter is referred to Section 4 of the RDEIR which adequately discusses and analyzes a reasonable range of project alternatives; to Master Response A above, which addresses and updates the distances to nearby residents at all project alternative sites; and to Master Response B on Coastal Zone. Further, the lead agency met with CDFW on March 7, 2014 and August 13, 2015. The lead agency also conducted a conference call with State Parks on August 12, 2015 and attempted to reach State Parks representatives by telephone at later times. Both agencies were invited by letter on May 9, 2016 to meet with the lead agency but neither replied.

4.6.8 Oral Comments HH – Mary Walsh

RDEIR inadequate in discussion of Russian Gulch State Park property to be traded to Jackson Demonstration State Forest. Covenants cover state park property arising from original gift. Lead agency hasn't met with State Parks or State Fish & Wildlife since last draft EIR nearly one year ago. These properties will suffer degradation. RDEIR has failed to contact Coastal Commission regarding mitigation property. Entire RDEIR has to be renoticed. RDEIR uses ambiguous language in describing distances of sites from residences. Trees at state parks will be likely cut if they pass out of State Parks protection and into the State Forest.

Response HH: The transfer of State Parks property to Jackson Demonstration State Forest is discussed on pp. 2.03-2.0.4 of the RDEIR. The federal government covenants on portions of Russian Gulch State Park don't apply to the 12.6 acres which were purchased from a private party. The lead agency met with CDFW representatives on August 13, 2015 and conducted a conference call with State Parks representatives on August 12, 2015, and has had several additional meetings and discussions to consult with these agencies in the course of the project. See Master Response A concerning distances to residences, Master Response B concerning the Coastal Zone, and Master Response C demonstrating that the project does not propose any timber harvesting on the 12.6 acres and that such activity is not a reasonably foreseeable consequence of the project's potential land swap concerning the 12.6 acres.

4.6.9 Oral Comments II – Ann Rennacker

We need to protect our 2,000 acres of pygmy forest. A few years ago there were 4,000 acres. Things have been built on them. County general plan policy RM 14 will be violated. State Highway 20 is eligible to be a scenic highway. It will be widened. Large trucks with trash will cause trouble. RM-80 is to be warned about. There is a wetlands in corner of the site. The land swap will cause trees in State Park area to be logged.

Response II: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. The issues mentioned by the commenter are responded to in the responses to her written Letters "B" and "R" above. Further, consistency with the County General Plan Policies is analyzed in Master Response #5 in the Response to Comments document of June 2015. The protections provided to

the 12.6 acres to be transferred to Jackson Demonstration State Forest are described on pages 2.0.3-2.0.4 of the RDEIR (see also Master Response C).

4.6.10 Oral Comments JJ – Rick Sacks

Changing Caspar from landfill to a transfer station has caused wildlife and plants to return. Will miss convenience of having transfer station next door.

Response JJ: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific environmental issues or allege any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated.

4.6.11 Oral Comments KK – Barbara Moller

Has CEQA said OK? Transfer station runoff. Would be at headwaters of runoff to city's new water reservoir. Fish and Wildlife doesn't want it. State Parks doesn't want it. Would get rid of only type of pygmy forest around.

Response KK: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Response Q-6 above regarding the Summers Lane Reservoir, and to Section 3.4 and Mitigation Measure BIO-1b of the RDEIR regarding impact and mitigation concerning pygmy forest.

4.6.12 Oral Comments LL – Micky Becker

Lives on Prairie Way. We have children and families on the road. To increase the traffic would create a problem. Appropriate to relocate. Highway 20 would be a good place for it.

Response LL: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Section 3.12 of the DEIR and Section 4 of the RDEIR which adequately discuss and analyze the Project's potential transportation impacts and alternatives.

4.6.13 Oral Comments MM – Cynthia Frank

Her brother was appalled and submitted a letter. Issues he raised don't seem to be addressed. Cleanup and rest room water will infiltrate and poison local wells and the reservoir that the city is building. Cleaner and cheaper to transfer garbage by rail. Skunk Train is ready and available to

haul trash to Willits. Sweeney hasn't contacted Skunk Train. The projected cost of \$5 million could be raised by raising rates and cutting safeguards. There are better solutions. What doesn't please the residents of Road 409 won't please residents and travelers along Highway 20.

Response MM: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Response Q-6 above regarding the Summers Lane Reservoir. On February 10, 2014, the project manager wrote to Robert Pinoli, general manager of the Skunk Train, inviting a proposal to use the train to transfer solid waste. No response was ever received.

4.6.14 Oral Comments NN – Bill Heil

EIR analyzes the wrong place; it doesn't make sense to change pygmy forest to a transfer station. Garbage should be dealt with the same place that it is made.

Response NN: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, the commenter is referred to Section 4.0 of the RDEIR which adequately discusses and analyzes a reasonable range of project alternatives. The small impact of the project on pygmy forest is analyzed in Section 3.4 and adequately addressed in Mitigation Measure BIO-1b of the RDEIR.

4.6.15 Oral Comments OO – Teri Jo Barber

You don't put garbage feature on top of the most prized thing you have in a community – water. The one chance of a spill isn't worth taking the risk.

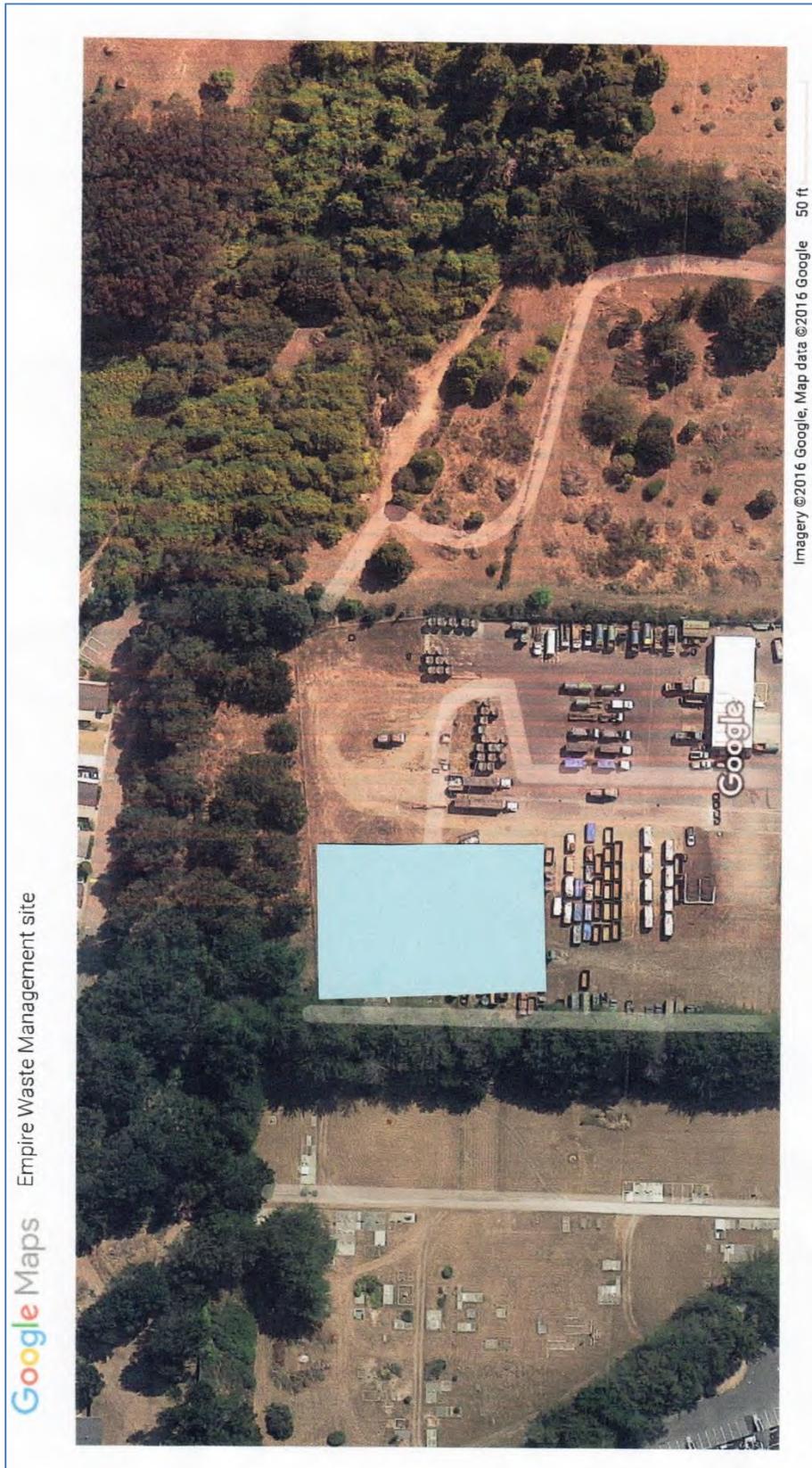
Response OO: Comments noted. No further response is required as the comment does not indicate what part or parts of the RDEIR it is referring to or raise any specific concerns with the EIR's analysis of the project. Pursuant to the Notice of Availability published for the RDEIR requesting reviewers limit their comments to the revised chapters or portions of the RDEIR and CEQA Guidelines Section 15088.5(f)(2), the lead agency need only respond to comments that relate to the chapters or portions of the earlier EIR that were revised and recirculated. Nonetheless, it is assumed that the commenter is alleging that the project poses a threat to the Summers Lane Reservoir. See Response Q-6 above.

5. Appendices

5.1 Appendix A: Figure 5-1 – Caspar Transfer Station Site



5.2 Appendix B: Figure 5-2 – Empire Waste Management Site



5.4 Appendix D: Figure 5-4 – Mendocino Coast Recreation & Park District Site



5.5 Appendix E: Figure 5-5 – Caspar Landfill Site



MEMORANDUM

TO: Board of Supervisors & Fort Bragg City Council

FROM: Mike Sweeney, General Manager, Mendocino Solid Waste Management Authority
Linda Ruffing, Fort Bragg City Manager

DATE: September 9, 2016

RE: Central Coast Transfer Station approvals, joint meeting September 19, 2016

1. EIR & Project Approval

For your consideration at this meeting is a resolution that certifies the EIR, adopts Findings of Fact, adopts the Mitigation Monitoring Program, and approves the project. Approval by both bodies would constitute an action under the Caspar Joints Powers Agreement.

The Central Coast Transfer Station is a project to enhance the efficiency of the solid waste disposal system for the central Mendocino Coast, which has benefits for both ratepayers and the environment. This project was initiated by the County and City ten years ago to mitigate the environmental harm and waste caused by the make-shift, fractured and inefficient system that is currently used for waste disposal in the central coast region.

Unnecessary truck trips, double-handling of waste, and excessive releases of greenhouse gases have been the consequences of the lack of a single efficient transfer station in the central coast region. Action to eliminate this waste would be a prime example of what Governor Brown demanded in his Executive Order of April 29, 2015 setting a statewide goal of cutting greenhouse gas emissions by 40 percent by the year 2030.

As documented in the EIR, the proposed project would eliminate 1,500 heavy-duty truck trips and save 140 metric tons of greenhouse gas emissions per year. It would cut overall trash disposal costs in the region by about \$350,000 every year.

The CEQA process has been followed meticulously for this project and it has accomplished exactly what CEQA was intended to do—it has informed the public and decision-makers of the environmental impacts and consequences of the project; and it has resulted in the identification of feasible mitigation measures to reduce the impacts of the project to a level of insignificance. Two notable mitigation measures in the EIR preserve, protect and restore Mendocino cypress habitat and Bishop pine forest at ratios well above those impacted by the project.

- Mitigation Measure BIO-1a which would establish the 28.3-acre Caspar Pygmy Forest Preserve to protect in perpetuity 7 acres of extreme short pygmy forested seasonal wetland, 8.6 acres

of transitional pygmy forest, 3.7 acres of tall pygmy species, and 5.76 acres of Bishop Pine forest. Unless preserved these acres would be open to development.

- Mitigation Measure BIO-2b to reestablish 1.01 acres and enhance 5.28 acres of new Bishop Pine forest on the Caspar Landfill property.

The acreage of forest that would be preserved is far greater than the forest that would be impacted by the project—in the case of pygmy species, 30 times more is preserved than removed.

The Board and Council designated the Highway 20 project site as the preferred site in 2013 because they believed that it would accomplish the project objectives with no significant adverse environmental impacts. The Final EIR reaches the same conclusion: that there are no adverse significant environmental impacts after mitigation, and there are several important environmental benefits.

Numerous important features are incorporated into the project to ensure that it won't harm the environment and won't be a nuisance to residents on Highway 20. Principal among these is fully enclosing the transfer building so that noise, dust, and odors can be prevented from leaving the property.

Every solid waste facility attracts controversy and this one is no exception. The two Response to Comments documents—June 2015 and September 2016— are a full exposition of the concerns that have been raised about the project and the Board and Council should review them carefully.

Issue of controversy

Several comments and responses deserve to be highlighted for the Board and Council:

- **Does the project harm pygmy forest?**

True pygmy forest is a rare ecosystem that results from shallow cemented hardpan soils where only certain trees can survive, principally Mendocino Cypress and Bolander's Pine. Our botanical consultant carefully mapped the 17-acre project site and identified 2.63 acres of "Extreme Pygmy Forest" with very stunted trees and 3.79 acres of "Transitional Pygmy Forest" with lesser stunting of growth. The Board and Council didn't designate the Highway 20 location as the preferred site until we confirmed that the transfer station could be designed to completely avoid these most-sensitive acres. They will remain untouched as part of the 12 acres on the eastern side of the site that will be undisturbed by the project.

The same pygmy species—Mendocino Cypress and Bolander's Pine—also thrive in better soils where they co-exist with other species such as Bishop Pine, and grow to normal heights up to 100 feet. In these situations, the forest isn't "pygmy" as it is commonly understood, but the Mendocino Cypress and Bolander's Pine are nevertheless identified by the State as a sensitive species. The project footprint would remove .58 acres of forest with these "tall" pygmy species, along with other individual Mendocino Cypress and Bolander's Pine that are mixed into a predominantly Bishop Pine forest of 4 acres.

The project mitigates for this minor impact on the Mendocino Cypress and Bolander's Pine by establishing the Caspar Pygmy Forest Preserve where 30 times as much pygmy habitat is preserved.

- **Is there a misclassification or significant impact on Bishop Pine Forest?**

The project footprint would require the removal of 4 acres of Bishop Pine Forest. The EIR states that the California Fish & Wildlife Department's CALVEG survey shows that the amount of Bishop Pine Forest in Mendocino County alone is 14,900 acres, so that 4 acres constitutes only 0.03% of its range in this county alone.

The EIR of February 2015 states that Bishop Pine Forest is a "S3" species under the State's ranking, meaning it is a special-status species that is "vulnerable." The EIR provides exact references to the State's own vegetation database to justify the S3 designation (See Response to Comments, p. 4-3). Commenters from the California Department of Fish & Wildlife have disputed this finding, claiming that Bishop Pine is "S2," meaning "imperiled," citing contradictory vegetation identifications. These CDFW commenters feel generally that no special-status species should be disturbed anywhere, anytime. This narrow-focus is commendable and necessary but it ignores the other environmental and public policy priorities that the Board and Council must weigh.

On the Bishop Pine issue, we have chosen to accept CDFW's claim that the Bishop Pine impact is "significant" for CEQA compliance purposes. Accordingly, the revised EIR so declares, and Mitigation Measures BIO-1a and BIO-2b provide a total of 12.05 acres of preserved, restored or enhanced Bishop Pine forest.

- **Will stormwater harm the surrounding forest?**

The EIR states that pollution from stormwater leaving the project would be prevented by the enclosed transfer building and the roof protecting certain recycling drop-off areas. Further, all stormwater would exit through bioswales that filter any pollutants, and then enter one of two stormwater detention basins that would control the velocity of discharge flows in order to mimic the existing conditions. The stormwater basins would discharge into the same swales that presently drain the site. The extreme pygmy hardpan areas, which are sensitive to hydrological changes, would be completely avoided.

- **Can the project pollute the City's Summers Lane Reservoir?**

The claim that the transfer station could endanger the water supply has been an effective tool to alarm city residents, but it lacks any basis whatsoever in fact. The reservoir is one mile from the transfer station site. The reservoir is protected from surface runoff by a berm and from infiltration by an High Density Polyethylene (HDPE) liner. The water supply for the reservoir comes from Waterfall Gulch which is in a different watershed.

- **Will the "land swap" harm the 12.6 acres to be transferred from Russian Gulch State Park to Jackson Demonstration State Forest?**

Under AB 384, JDSF may be made whole for the loss of the Highway 20 transfer station site by the acquisition of 12.6 acres from the northeastern corner of Russian Gulch State Park. This is essentially an accounting measure that the State wanted so that JDSF wouldn't decline in asset value as a consequence of the project. It was the Superintendent of State Parks' Mendocino District, Marilyn Murphy, who suggested that the 12.6 acres be offered to JDSF. She pointed out that those acres were undeveloped and separated from the State Park by Road 409, and that few people were even aware that they belonged to the State Park and not to JDSF, which surrounds the site on three sides.

Last year, opponents of the project succeeded in getting State Parks to reverse its position on the land swap. Objections were raised that JDSF might cause a significant impact by some future logging on the 12.6 acres.

These concerns are answered by the revised Draft EIR which points out that:

- The 12.6 acres will become part of JDSF's Caspar Creek Watershed Study Area which allows timber harvests only sparingly and for research purposes.
- No timber harvesting is contemplated by JDSF for this Study Area that might affect the property for at least 15 years.
- Any timber harvest would be subject to a Timber Harvest Plan which is the functional equivalent of an EIR under CEQA, with the same mandate of avoiding or mitigating any significant environmental impact.
- The portion of the 12.6 acres close to Road 409 is protected from disturbance by JDSF's Road and Trail Corridor Policy, which preserves its scenic values.
- Marbled murrelet habitat has been documented on the 12.6 acres which is an effective protection against any disturbance that might affect this endangered species.

Therefore, no significant impact, or indeed any impact, on the 12.6 acres is reasonably foreseeable. However, State Parks certainly can seek whatever assurances or covenants may be appropriate from its sister department—CalFire--within the State Resources Agency.

- **Does the project conflict with the Mendocino County General Plan?**

The Mendocino County General Plan has policies that call for protection of special-status species. These policies, however, do not prevent the removal of special-status species if avoidance and replacement are pursued. The EIR states that the project complies with these General Plan policies because the project was carefully designed to minimize on-site impacts to special species, and fully mitigates the small impacts through the creation of the Caspar Pygmy Forest Preserve and the Bishop Pine restoration work on the Caspar Landfill property.

- **Why weren't other alternative sites chosen?**

The Board and Council have the unrestricted authority to choose the transfer station site, provided that alternatives are sufficiently analyzed. As all impacts of the project are

adequately addressed by the mitigation measures, the alternative sites including the site identified as the “Environmentally Superior Alternative” do not need to be rejected as infeasible.

Some project opponents say the transfer station should be built at the Caspar Landfill site. This alternative was analyzed in detail by the EIR which found that it was inferior in aesthetics, energy use, greenhouse gases and transportation safety.

Other project opponents say the transfer station should be placed on Empire Waste Management’s property at 219 Pudding Creek Road. The EIR explains that this alternative was passed over because it would worsen traffic congestion on Main Street in Fort Bragg, it is close to 62 residences, and because it isn’t available for public ownership, which is a basic objective of the project.

Other project opponents say that the Leisure Time RV Park on Highway 20 or the Mendocino Parks & Recreation property on Highway 20 should have been chosen because they have sites that have already been stripped of vegetation so there would be no vegetation impacts. The EIR states that a basic siting goal was to minimize proximity to other land uses. A chart is provided in the Response to Comments document at 4-1 which shows that many more residences lie in the vicinity of Leisure Time RV Park and the Mendocino Parks & Recreation Property, compared to the project site.

In addition, the Mendocino Parks & Recreation site hasn’t been offered for sale at a price close to the appraised value which is the maximum that public agencies may pay under law.

Recommended action and future steps

Under CEQA, the Board and Council must exercise their independent judgment to decide whether the EIR has adequately analyzed the environmental issues, and certify the EIR as adequate if they believe it is.

Also under CEQA, Findings of Fact must be approved which identify the individual impacts and state that the mitigation measures are sufficient. And finally, a Mitigation Monitoring Plan must be adopted which identifies who is responsible for carrying out each mitigation and who is responsible for verifying compliance.

All these approvals, together with the general approval of the project, are encompassed in the resolution for your consideration.

2. Amend the Caspar JPA

The Caspar Joint Powers Agreement (revised 2011) between the County and City provides that the JPA will be amended as necessary when a transfer station project is approved. The proposed First Amendment continues the close partnership between the County and City but simplifies administration of the transfer station project.

Under the amendment, the County would take ownership of the project site pursuant to AB 384. The County would take a series of additional steps with City consent at each step:

- Prepare and issue a Request for Proposals (RFP) for a qualified private corporation to design, build and operate the transfer station.
- Evaluate the responses to the RFP.
- Negotiate a long-term contract for design, construction and operation of the transfer station.

The County would serve as contract administrator. Any significant amendments to the contract would require City approval.

There are other provisions in the amendment concerning indemnification, insurance, liability, contract administration fee, solid waste flow covenant, conservation easement on the Caspar property, and the closure of the Caspar self-haul facility.

RESOLUTION NO. ____-2016

RESOLUTION OF THE FORT BRAGG CITY COUNCIL CERTIFYING THE ENVIRONMENTAL IMPACT REPORT FOR THE CENTRAL COAST TRANSFER STATION PROJECT, ADOPTING FINDINGS OF FACT, ADOPTING A MITIGATION MONITORING PROGRAM, AND APPROVING THE IMPLEMENTATION OF THE PROJECT

WHEREAS, the County of Mendocino (“County”) and City of Fort Bragg (“City”) are partners in management of solid waste in the central coast region of Mendocino County pursuant to the Joint Powers Agreement between the County of Mendocino and the City of Fort Bragg for Caspar Landfill and Solid Waste Transfer Station dated January 2011 (“JP Agreement”). When acting together by mutual consent pursuant to the JP Agreement, the County and City are collectively referred to herein as the Joint Powers Agencies (“JPA”); and

WHEREAS, pursuant to the JP Agreement, on August 13, 2013, the JPA designated a preferred site for a new Central Coast Transfer Station and directed the preparation of an Environmental Impact Report (EIR). The JPA, through its representing partner agency Mendocino Solid Waste Management Authority (“MSWMA”), retained GHD, Inc., an environmental consulting firm, to assist in the preparation of the EIR for the Central Coast Transfer Station Project (“Project”); and

WHEREAS, pursuant to the JP Agreement, the County and City agreed to serve as co-lead agencies for the EIR pursuant to CEQA Guidelines section 15051(d); and

WHEREAS, a Notice of Preparation of the EIR was prepared and distributed on January 27, 2014 in conformance with the California Environmental Quality Act (CEQA), triggering a 30-day scoping period that ended on February 25, 2014; and

WHEREAS, approximately 18 comments on the scope of the EIR were received from State agencies and members of the public and a public Scoping Meeting on the EIR was held at Fort Bragg Town Hall on February 19, 2014; and

WHEREAS, responsible and trustee agencies were consulted on the contents of the EIR; and

WHEREAS, an original Draft EIR (given State Clearinghouse Number 2014012058) was prepared and issued, public notice of the availability of the Draft EIR and request for comments thereon was provided, and the Draft EIR and a Notice of Completion were filed with the State Clearinghouse, all in compliance with CEQA, triggering a 45-day public review and comment period that began on February 9, 2015 and ran through March 26, 2015, with a public hearing held before the Board of Supervisors and City Council on March 19, 2015; and

WHEREAS, a Notice of Completion and Availability of the Draft EIR, the public comment period, and the time and place of the public hearing were published in the Fort Bragg Advocate-News on February 12, 2015; and

WHEREAS, copies of the original Draft EIR were provided to the State Clearinghouse (which forwarded the Draft EIR to responsible and trustee agencies) and made available to the public at Fort Bragg City Hall, the Fort Bragg Library, and the Mendocino Solid Waste Management Authority, and posted online at www.MendoRecycle.org; and

WHEREAS, the JPA considered all the comments it received on the original Draft EIR and prepared a Response to Comments/Final EIR document that contains: (1) an introduction and summary of the CEQA process; (2) a list of proposed minor revisions to the Draft EIR; (3) a list of all public agencies and persons that commented in writing or through oral comments on the Draft EIR; and (4) copies of all the comments on the Draft EIR and formal responses thereto (“RTC/Final EIR”); and

WHEREAS, the RTC/Final EIR was published on June 30, 2015 and provided on July 7, 2015 to all agencies that commented on the original Draft EIR in compliance with CEQA; and

WHEREAS, the adequacy of the Final EIR, the Findings of Fact, the Mitigation Monitoring and Reporting Program, and the proposed project were considered at a joint meeting held by the Board of Supervisors and City Council on July 21, 2015, with additional public comment; and

WHEREAS, the JPA decided to continue the July 21, 2015 public hearing to allow City and County staff to consult with the two State agencies that submitted comments on the day prior to and the day of the hearing and, as a result of those consultations, the JPA decided to revise and recirculate the Draft EIR; and

WHEREAS, the JPA prepared a Revised Draft EIR, which incorporates the original Draft EIR by reference but amended and superseded six of its chapters (2.0 Project Description, 3.1 Aesthetics, 3.2 Air Quality & Odor, 3.4 Biological Resources, 3.9 Hydrology & Water Quality, 4.0 Alternatives Description & Analysis) and added Appendix L: Bishop Pine Mitigation Plan; and

WHEREAS, public notice of the availability of the Revised Draft EIR and request for comments thereon was provided on May 11, 2016 and a 45-day public review and comment period ran through June 24, 2016, with a public hearing held before the City Council on June 16, 2016; and

WHEREAS, a Notice of Completion and Availability of the Revised Draft EIR which identified the public comment period and the time and place of the public hearing were filed with the Mendocino County Clerk on May 6, 2016 and published in the Fort Bragg Advocate-News on May 12, 2016; and

WHEREAS, copies of the Revised Draft EIR were provided to the State Clearinghouse (which forwarded the Revised Draft EIR to responsible and trustee agencies) and made available to the public at Fort Bragg City Hall, the Fort Bragg Library, and the Mendocino Solid Waste Management Authority, and posted online at www.MendoRecycle.org; and

WHEREAS, the JPA considered all the comments it received on the Revised Draft EIR and prepared a Response to Comments/Revised Final EIR (“RTC/Revised FEIR”) document that contains: (1) an introduction and summary of the CEQA process; (2) a list of proposed revisions to the original Draft EIR; (3) a list of all public agencies and persons that commented in writing or through oral comments on the Revised Draft EIR; and (4) copies of all the written comments and summaries of all the oral comments on the Revised Draft EIR and formal responses thereto; and (5) appendices; and

WHEREAS, the RTC/RFEIR document was mailed to all agencies that commented on the original Draft EIR and/or the Revised Draft EIR on September 2, 2016 and published to the general public on September 7, 2016 in compliance with CEQA; and

WHEREAS, notices of the September 19, 2016 public hearing before the Board of Supervisors and the City Council to consider Resolutions certifying the EIR for the Central Coast Transfer Station Project, Adopting Findings of Fact, Adopting a Mitigation Monitoring and Reporting Program, and Approving the implementation of the Project were published in the September 8, 2016 edition of the Fort Bragg Advocate-News and in the September 8, 2016 edition of the Ukiah Daily Journal; and

WHEREAS, on September 9, 2016 a full agenda packet for the September 19, 2016 public hearing (including a staff report, all of the EIR documents, Resolution with Findings of Fact and a Mitigation Monitoring and Reporting Program) was made available to the public on both the City and County websites and available for public inspection at Fort Bragg City Hall, 416 North Franklin Street, Fort Bragg, California; and

WHEREAS, the RTC/Revised Final EIR, the Findings of Fact, the Mitigation Monitoring and Reporting Program, and the proposed project were considered at a joint meeting held by the Board of Supervisors and City Council on September 19, 2016, with additional public comment.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Fort Bragg ("City Council"), based on the foregoing findings and on the whole of the record of proceedings before them, hereby find, determine, declare, order and resolve as follows:

1. The foregoing recitals are true and correct, are supported by substantial evidence in the record, and are hereby adopted as findings as set forth herein.
2. The Revised Final EIR (comprised of the Draft EIR and the original RTC/Final EIR document along with the Revised Draft EIR and the RTC/Revised Final EIR document) was presented to the City Council and the City Council has independently reviewed, analyzed and considered the Revised Final EIR and all written documentation and public comments related thereto prior to making these findings, determinations and recommendations on the EIR and taking action on the Project.
3. The information and analysis contained in the Revised Final EIR reflects the independent judgment and analysis of the City Council.
4. The Revised Final EIR was prepared and completed in full compliance with the provisions of CEQA and the CEQA Guidelines and includes minor revisions to three sections of the Revised Draft EIR (Project Description - Required Permits and Approvals; Biological Resources; and Alternatives Description & Analysis), and the City Council hereby certifies the Revised Final EIR.

BE IT FURTHER RESOLVED that the City Council, based on the foregoing findings and on the whole of the record of proceedings before them, hereby finds, determines, declares, orders and resolves as follows:

1. After first considering and certifying the Revised Final EIR, and all information in the administrative record, and in conjunction with making these findings, the City Council hereby finds that, pursuant to Section 15092 of the CEQA Guidelines, approval of the Project without any mitigation measures could result in significant effects on the

environment; however, the City Council has eliminated or substantially lessened all of the Project's potentially significant effects on the environment as demonstrated in the Findings of Fact set forth in Exhibit A, attached hereto. The City Council hereby adopts and makes the findings set forth in Exhibit A pursuant to Section 15091 of the CEQA Guidelines.

2. The City Council hereby finds all of the proposed mitigation measures described in the Revised Final EIR and in Exhibit A are feasible and thus are included in the Mitigation Monitoring and Reporting Program ("MMRP") attached hereto as Exhibit B and incorporated herein by reference. The City Council hereby adopts the MMRP as set forth in Exhibit B and affirms that compliance with the MMRP will be a condition of all subsequent permits and contracts associated with the construction and operation of the Project.
3. The City Council hereby approves the Central Coast Transfer Station Project and authorizes staff to proceed with carrying out and implementing the Project forthwith, starting with taking action to: (1) request the option for the County to acquire title to the Project site and secure the option agreement authorized by Public Resources Code section 4659; and (2) preparing a Request for Proposals for the design, construction and operation of the Central Coast Transfer Station by a qualified solid waste organization.

BE IT FURTHER RESOLVED that the City Council designates the MSWMA General Manager as the custodian of the documents and other materials that constitute the record of proceedings upon which the decisions herein are based. These documents are kept and may be found at MSWMA's offices located at 3200 Taylor Drive, Ukiah, CA 95482.

BE IT FURTHER RESOLVED that the MSWMA General Manager, or a person he/she may designate, is hereby directed to file a Notice of Determination concerning this EIR certification and Project approval with the County Clerk of Mendocino County.

The above and foregoing Resolution was introduced by Councilmember _____, seconded by Councilmember _____, and passed and adopted at a regular meeting of the City Council of the City of Fort Bragg held on the 19th day of September, 2015, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

DAVE TURNER,
Mayor

ATTEST:

June Lemos
City Clerk

EXHIBIT A

STATEMENT OF FINDINGS & FACTS PURSUANT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT IN SUPPORT OF CERTIFICATION OF THE ENVIRONMENTAL IMPACT REPORT FOR THE CENTRAL COAST TRANSFER STATION

1. Introduction

In certifying the Final Environmental Impact Report (State Clearinghouse No. 2014012058) for the Central Coast Transfer Station Project, the Board of Supervisors of the County of Mendocino (“County”) and the City Council of the City of Fort Bragg (“City”), acting jointly as co-lead agencies pursuant to the Caspar Joint Powers Agreement (“JPA”) and CEQA Guidelines Section 15051(d), make the Findings described below based on the entire record before them, including but not limited to: the January 2014 Notice of Preparation, the February 2015 Draft Environmental Impact Report, the June 2015 Response to Comments/Final Environmental Impact Report, the April 2016 Revised Draft Environmental Impact Report, and the September 2016 Response to Comments/Revised Final Environmental Impact Report. These documents are collectively referred to herein as the “EIR.” The EIR was prepared by the City’s and County’s partner agency, the Mendocino Solid Waste Management Authority, in conjunction with the environmental consulting firm GHD Inc., acting pursuant to the California Environmental Quality Act.

2. Project Background

The City and County plan to develop a commercial transfer station to serve the Central Coast area of Mendocino County. A commercial transfer station is a facility that allows all vehicles, including franchise collection trucks, to dump waste, which can then be loaded for direct haul to a destination landfill. The facility will serve self-haul and commercial customers in the watershed, which consists of the City of Fort Bragg and the surrounding unincorporated area described as Mendocino County Solid Waste Refuse Collection Area #2.

Solid waste disposal in the central coast region of Mendocino County has been a joint responsibility of the County of Mendocino and City of Fort Bragg for more than 40 years. When the jointly-owned Caspar Landfill closed in 1992, the site was converted to a self-haul transfer station.

Empire Waste Management, the franchised collector for the City of Fort Bragg and the surrounding unincorporated area, recently replaced its “pod” system which used specialized collection trucks with detachable pod bodies for medium distance transfer of compacted

waste, with a “Wilkins Transfer” system. The new system achieves similar payloads to the pods. Once the Wilkins Transfer trailers are full, they are hauled 37 miles to the Willits Transfer Station, where they are dumped and reloaded for transfer to the Potrero Hills Landfill in Suisun, California.

The inefficiency and expense of a disposal system which relies on reloading at the Willits Transfer Station for long-haul to a landfill led to a decision in 2006 to identify a site for construction of a commercial transfer station that would receive the entire wastestream from the central Mendocino Coast area and ship it directly to a destination landfill. A 2007 study evaluated 25 sites. In 2011, the City and County narrowed those 25 sites down to and evaluated six semi-final sites, which were then further narrowed down to two finalist sites, the Jackson Demonstration State Forest (JDSF) property on State Route 20 (Project site) and the existing Caspar Landfill property. In 2013, the City and County designated the JDSF property on SR 20 as the preferred site.

Based on the current wastestream, the solid waste throughput would average 35 tons per day. To accommodate potential peak periods, future growth and technological changes, the facility would be designed to handle an average of 75 tons per day and daily peak throughput of 120 tons per day.

3. Project Summary

The Central Coast Transfer Station project would replace the existing solid waste transfer and disposal system for the Central Coast region of Mendocino County with a new transfer station facility on State Route 20. The new transfer station would be publicly owned and operated by a private contractor, and would allow direct haul of all solid waste to a destination landfill.

The proposed project site for the new transfer station is located in unincorporated Mendocino County approximately 3.5 miles southeast of downtown Fort Bragg. The 17-acre site will be removed from Jackson Demonstration State Forest (JDSF) at 30075 State Route 20 (EIR Figure 2- 1 - Vicinity Map), and includes a portion of Assessor’s Parcel Number (APN) 019-150-05 (EIR Figure 2-2 - Site Plan). The removal of the site from JDSF for the purpose of developing a solid waste transfer station was authorized by AB 384 (2011).

Following a decision by the City and County to certify the EIR and approve the project, the next steps would be for the City and County to pursue and exercise their option to take ownership of the site pursuant to AB 384 (2011) and pursue a contract for the design, construction and operation of the facility.

At the request of the County of Mendocino and City of Fort Bragg, AB 384 was enacted in 2011 and added new Section 4659 to the Public Resources Code, which includes provisions authorizing a multi-party/multi-property land swap whereby the state would transfer ownership of the 17-acre JDSF site (project site) to the County/City.

Under AB 384, the 61-acre Caspar site including the footprint of the closed landfill would be

the subject of a conservation easement granted to the California Department of Parks & Recreation (DPR). DPR would also have the option of taking ownership of the 35 westernmost acres of the site. The interest of DPR in the property results from the site's adjacent proximity to Russian Gulch State Park. DPR has stated in the past that operations of the Caspar self-haul transfer station (and prior to 1992, the Caspar Landfill) cause a conflict with the State Park. DPR has not indicated any plans for the 35-acre Caspar property except to keep it vacant.

Further, under the land swap authorized by AB 384, 12.6 acres of redwood forest at the northeastern corner of Russian Gulch State Park, comprising the portion of the Park northeast of County Road 409, may be transferred to Jackson Demonstration State Forest (JDSF). The purpose of this transfer would be to offset the loss of forest resources caused to JDSF at the Central Coast Transfer Station site. These 12.6 acres would become part of JDSF's Caspar Creek Experimental Watershed Study area. The Caspar Creek Experimental Watershed Study area serves as a research area for evaluating the effects of timber management on streamflow, sedimentation, and erosion. The study area was established in 1961 as a cooperative effort between CalFire and the United States Forest Service Pacific Southwest Research Station (PSW). PSW and CalFire have a 100-year Memorandum of Understanding to continue research at the site at least through 2099. Caspar Creek is one of 11 USFS Experimental Forests and Ranges selected in 2007 to complement the national network of Long Term Ecological Research sites.

The Central Coast Transfer Station facility would include a solid waste transfer building (with loading bay and unloading and waste areas), an outdoor recycling drop-off area, two scales and office (scalehouse), paved driveways, parking areas for the public and transfer trailers, two stormwater detention areas, a groundwater well, a septic tank and leachfield, and perimeter fencing immediately outside the developed project footprint. A single gate on SR 20 would accommodate all vehicle entry and exit. Vehicles would pull up at the scalehouse for inspection, weighing or volume measurement, and to pay applicable charges. The transfer building would be approximately 30,000 square feet and enclosed. Enclosure would reduce or prevent off-site noise, odors, and dust. In addition, the design would be compatible with installation of control measures such as negative-pressure ventilation with biofiltered exhaust, automated roll-up doors, and/or doorway air curtains, should they be necessary to prevent off-site transmission of odor.

Some equipment would operate outdoors in the recycling area, most likely a single loader and occasional roll-off trucks to change-out debris boxes as necessary. These vehicles would use "white-sound" OSHA-approved backup alarms such as the Brigade which replaces the typical loud "ping" with a directional buzzing sound with much less range.

All solid and green waste (leaves, brush, landscape trimmings, and unfinished wood) would be deposited inside the transfer building. These materials would be loaded into transfer trailers using a method to be determined by the operator, such as a grapple crane. When a transfer trailer is fully loaded, it would be driven directly to a destination landfill to be specified under the operator's contract. The facility may utilize high-volume possum belly trailers to transport solid waste. These high-volume trailers can legally haul up to

10 percent more waste than a standard waste hauling trailer. More tons per load equates to less trips. Solid waste would typically be removed within 24 hours; however, it is possible that in some situations, such as weekends/holidays, waste could remain for up to 48 hours. Among the fully-permitted regional landfills that might receive the solid waste are Potrero Hills in Suisun City, Redwood in Novato, Sonoma Central in Petaluma, Anderson in Anderson, Ostrum Road in Wheatland, Lake County in Clearlake, Recology Hay Road in Vacaville, and Keller Canyon in Pittsburg. Green waste would be hauled to Cold Creek Compost in Potter Valley or another fully-permitted compost facility. Transfer vehicles leaving the facility would proceed east on State Route 20.

The recycling drop-off area would duplicate and replace the drop-off services presently provided at the Caspar self-haul transfer station. Cans, bottles, cardboard, paper and mixed plastics would be collected together in debris boxes. Scrap metal, appliances and concrete rubble would be received in paved bunkers or debris boxes. Used motor oil and used antifreeze would be collected in secure tanks with secondary containment. The motor oil recycling tank, antifreeze recycling tank, appliance recycling drop-off area, and electronics drop-off area will be roofed and graded to prevent rainwater infiltration. The facility use permit will require daily clean-up of any spills or staining.

Other recyclable household hazardous waste items, including electronics, fluorescent lights, and batteries, would be collected in secure containment areas. All other hazardous wastes would be prohibited at the facility and customers would be referred to the periodic HazMobile household and small business hazardous waste mobile collection system.

A total of 4.72 acres is assumed to be disturbed by the project-- approximately 3.76 acres within the project footprint, and 0.96 acre for a 10-foot buffer (construction/temporary).

The site is heavily forested and as much of the original vegetation as possible would be preserved. No new landscaping is planned.

After obtaining the required permits, the company that is awarded the design-construction-operations contract would build the facility within the parameters set forth in the certified EIR. As described in the EIR, the construction would entail land clearing, road improvements to State Route 20, building and paving, and on-site utilities.

Site preparation would take approximately two weeks, followed by grading/excavation which would take approximately one month. Trenching would take approximately three weeks. Construction of the buildings would take approximately four months, and paving approximately two weeks. Construction equipment for site preparation and grading/excavation would include: excavator, rubber tired dozer, backhoe, dump truck, water truck, and vibratory roller. Building construction and paving would include the following additional equipment: crane, forklift, generator sets, welders, flatbed truck, mini-bobcat, and cement and mortar mixers.

Soil hauling volume is estimated at 5,000 cubic yards of export and 6,000 cubic yards of import, for a net import of 1,000 cubic yards. Asphalt has been estimated at approximately 1,200 cubic yards.

4. Project Objectives

The proposed project has the following objectives:

- To provide cost-effective and environmentally-sound waste management services to the citizens of Fort Bragg and Mendocino County.
- To construct and operate a commercial transfer station able to accommodate waste from the wasteshed, peak periods and technological changes.
- To allow the Central Coast region's solid waste to be loaded for direct haul to a destination landfill, rather than being dumped and reloaded at the Willits Transfer Station.
- To increase the efficiency of solid waste transfer from the Central Coast region in order to minimize energy use, greenhouse gas emissions, truck trips, and costs.
- To achieve public ownership of the transfer station facility to ensure long-term protection of the public interest, while accommodating private operation by a qualified solid waste entity under a contract that ensures compliance with all federal, state and local regulations and requirements.
- To isolate the transfer station, as much as possible, from potentially conflicting land uses.
- To control the rising costs of managing solid waste and recyclables for the City of Fort Bragg and Mendocino County.

5. Environmental Review

The City and County, as co-lead agencies under CEQA, determined that preparation of an EIR was necessary for the project because there was "substantial evidence that the project may have a significant effect on the environment" in twelve topic areas.

On January 27, 2014, the City and County sent the Notice of Preparation to governmental agencies, organizations and persons interested in the project and to the State Clearinghouse for distribution to State agencies to solicit input and to identify any concerns or issues that should be included in the EIR. A scoping meeting was held on February 19, 2014 in Fort Bragg.

On February 4, 2015, the City and County released for public review the Draft EIR (State Clearinghouse No. 2014012058). A 45-day public review and comment period on the Draft EIR began on February 9, 2015, and closed on March 26, 2015, and included a public hearing on March 19, 2015. During and following the end of the public review period, comments were received on the Draft EIR. The City and County reviewed those comments to identify specific environmental concerns and to determine whether any additional environmental analysis would be required to respond to issues raised in the comments. The City and County initially determined that the comments raised no new significant issues, and responses to all substantive comments received on the Draft EIR were prepared and included in a Response to

Comments/Final EIR, which was made available on June 30, 2015 to all public agencies and citizens who commented on the Draft EIR. The City and County conducted a joint special meeting and held a public hearing on July 21, 2015, and continued action to allow additional time for City and County staff to consult with state agencies. On or about September 18, 2015, the City and County provided public notice of its decision to revise and recirculate the Draft EIR. A Revised Draft EIR was subsequently prepared and published pursuant to CEQA. A 45-day public review and comment period on the Revised Draft EIR began on May 11, 2016 and ended on June 24, 2016, and included a public hearing on June 16, 2016. The City and County reviewed comments received during the public comment period to identify specific environmental concerns and to determine whether any additional environmental analysis would be required to respond to issues raised in the comments. The City and County determined that the comments raised no new significant issues, and responses to all substantive comments received on the Revised Draft EIR were prepared and included in a Response to Comments/Revised Final EIR document which was made available on September 7, 2016 to all public agencies and citizens who commented on the Revised Draft EIR and to the general public.

The *CEQA Guidelines* (14 CA Code of Regs. § 15132) requires a Final EIR to include:

- (a) The Draft EIR or a revision of that draft;
- (b) Comments and recommendations received on the Draft EIR either verbatim or in a summary;
- (c) A list of persons, organizations, and public agencies commenting on the Draft EIR;
- (d) The responses of the Lead Agency to significant environmental points raised in the review and consultation process; and
- (e) Any other information added by the Lead Agency.

The City and County have reviewed all of the documents comprising the EIR, including the Response to Comments/Revised Final Environmental Impact Report (September 2016), prepared for this project and determined that the EIR contains each of the items required by CEQA Guidelines §15132. Therefore, the City and County certify that the EIR has been completed in compliance with CEQA.

The documents and other materials that constitute the record of the proceedings on which the CIPA's decision is based are located at the Mendocino Solid Waste Management Authority, 3200 Taylor Drive, Ukiah CA 95482. The custodian for these documents and materials is Michael Sweeney, General Manager, Mendocino Solid Waste Management Authority. This information is provided in compliance with Public Resources Code §21081.6(a)(2) and CEQA Guidelines §15091(e).

6. Findings Required Under CEQA

These findings have been prepared in accordance with CEQA and the CEQA Guidelines. Public Resources Code §21002 provides that “public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects[.]”

The principles in Public Resources Code §21002 are implemented, in part, through the requirement that agencies must adopt findings before approving projects for which EIRs are required. Pursuant to CEQA Guidelines §15091, the approving agency must issue a written finding reaching one or more of three permissible conclusions for each significant environmental effect identified in an EIR for a project:

1. Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid the significant effects on the environment; OR
2. Those changes or alterations are within the responsibility and jurisdiction of another agency and have been, or can and should be, adopted by that other agency; OR
3. Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers make infeasible the mitigation measures or alternatives identified in the EIR.

The City’s and County’s findings with respect to the Project’s potentially significant adverse effects and mitigation measures are set forth below. The discussion below does not attempt to describe the full analysis of each environmental impact contained in the EIR. Instead, the discussion summarizes each potentially significant impact, describes the applicable mitigation measures identified in the Revised Final EIR and adopted by the City and County, and states the City’s and County’s findings on the significance of each impact after imposition of the adopted mitigation measures. In making these findings, the City and County ratify, adopt, and incorporate into these findings the analysis and explanation in the EIR and the determinations and conclusions of the EIR relating to environmental impacts and mitigation measures, except to the extent any such determinations and conclusions are specifically and expressly modified by these findings. The facts, analysis and rationale provided in the EIR are incorporated by reference into these findings.

6.1 Findings of Potentially Significant Impacts That Cannot Be Mitigated to a Less Than Significant Level

The EIR did not identify any potentially significant impacts that cannot be mitigated to a less than significant level.

6.2 Findings of Potentially Significant Impacts That Can Be Mitigated to a Less Than Significant Level

This section includes findings for Project impacts which are potentially significant, but can be mitigated to a less than significant level with the implementation of mitigation measures. The City and County find, pursuant to CEQA Section 21081, that all potentially significant impacts of this project listed below can and will be mitigated and reduced to levels of insignificance or avoided by implementation of mitigation measures. Specific findings for each category of such impacts are set forth below in this section 6.2.

Impact AQ-1: Violate Any Air Quality Standard or Result in Cumulatively Considerable Net Increase of Any Criteria Pollutant for which the Project Region is in Nonattainment.

By its very nature, air pollution is largely a cumulative impact, in that individual projects are rarely sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. In developing thresholds of significance for air pollutants, Bay Area Air Quality Management District (BAAQMD) considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions (BAAQMD 2011). Mendocino County is considered non-attainment for PM₁₀.

Most of the construction would occur over a 6-month period, or about 132 days. Table 3.3-4 in the EIR presents the Project's construction period emissions, based on the CalEEMod model results. Construction period emissions would not exceed significance thresholds. During grading and construction activities, dust would be generated. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed at any given time, amount of activity, soil conditions, and meteorological conditions. Unless controlled, fugitive dust emissions during construction of the proposed project would be a significant impact. In addition to measuring the construction-related emissions against specified thresholds, the BAAQMD recommends that all proposed projects implement "basic construction mitigation measures" whether or not construction-related emissions exceed applicable thresholds. Incorporation of these measures also meets the construction-related threshold for fugitive dust identified in Table 3.3-3, which is to use best management practices during construction of a project. In addition, the Project would be subject to requirements of MCAQMD Regulation 1, Rule 1-430. Therefore, without inclusion of the basic construction mitigation measures as defined by the BAAQMD, the impact during construction would be significant.

Mitigation Measure AQ-1: Air Quality Control Measures during Construction.

The contractor shall implement the following Best Management Practices:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible and feasible. Building pads shall be laid as soon as possible and feasible, as well, after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.
9. Include all applicable requirements contained in District Regulation 1, Rule 1-430.

Finding: Implementation of Mitigation Measure AQ-1 would prevent the violation of any Air Quality Standard or significant impact in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment. Implementing this Mitigation Measure for air quality during construction is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact AQ-1 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure AQ-1. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Most of the construction would occur over a 6-month period, or about 132 days. EIR Table 3.3-4 presents the project's construction period emissions, based on the CalEEMod model results. Construction period emissions would not exceed significance thresholds. During grading and construction activities, dust would be generated. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed at any given time, amount of activity, soil conditions,

and meteorological conditions. In addition to measuring the construction-related emissions against specified thresholds, the Air Quality Management District recommends that all proposed projects implement “basic construction mitigation measures” whether or not construction-related emissions exceed applicable thresholds. Incorporation of these measures also meets the construction-related threshold for fugitive dust identified in EIR Table 3.3-3, which is to use best management practices during construction of a project. Operation of the project would have less-than-significant impacts on air quality.

Impact AQ-2: Expose Sensitive Receptors to Substantial Pollutant Concentrations.

Construction of the project would result in emissions of diesel particulate matter, a toxic air contaminant that may cause cancer. Emissions of diesel particulate matter and fugitive PM_{2.5} were predicted. These emissions were input to a dispersion model to predict the exposure at sensitive receptors near the project. Cancer risk computations were performed (refer to EIR Appendix B for the outputs).

Mitigation Measure AQ-2: Select Equipment during Construction to Minimize Emissions.

The Contractor shall follow the following standard: All diesel-powered off-road equipment larger than 50 horsepower and operating at the site for more than two days continuously shall meet U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent.

Finding: Mitigation Measure AQ-2 would reduce to insignificance the exposure of sensitive receptors to substantial pollutant concentrations. Implementing this mitigation measure for air quality during construction is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact AQ-2 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure AQ-2. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Modeling shows that requiring compliance with U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent reduces the impact to insignificance. The modeling results with this mitigation in place would have a child cancer risk of 5.87 in one million with the adult incremental cancer risk of 0.3 in one million, which is below the significance threshold of 10 in one million. Therefore, implementation of Mitigation Measure AQ-2 would reduce the impact to less than significant.

Impact AQ-3: Create Objectionable Odors Affecting a Substantial Number of People.

The handling of waste material has the potential to cause odors. Potential odor issues would be a function of the strength of the odors emanating from the project, combined with the distance to the receptors (i.e., residences) and meteorological conditions.

Mitigation Measure AQ-3: Implement Odor Reduction Measures.

The County and City shall require as an enforceable provision of the operations contract for the facility that no odors are detectable beyond the site boundaries. When approving the final building design, the County and City will ensure that it is compatible with installation of any necessary odor control systems. The operations contract will require:

Design & Construction

1. Design of facility to ensure all transfer, handling and storage of solid waste material occurs within the fully enclosed building.

The County Environmental Health Division, Local Enforcement Agent (LEA) for CalRecycle, has jurisdiction over odor impacts of a solid waste facility and conducts periodic inspections and responses to complaints. If the LEA confirms off-site odor at any time, the operator will be required to implement any or all of the following controls:

- A. Air curtains at doorways
- B. Overhead misting system
- C. Negative pressure ventilation with exhaust air directed through biofilters

Operation

1. Close all doors when facility is not operating.
2. Ensure material is not stored on site for more than 48 hours.
3. Develop and implement best management practices to clean the facility on a daily basis, including removing all odor-producing food waste from facility floors and equipment.
4. Provide neighbors with a contact name and phone number to report odor or dust complaints. Such complaints shall be documented. The source or cause of any odor will be identified and actions taken to mitigate the odors shall also be documented.
5. The County and City shall designate a staff member to receive, document, and follow-up on odor complaints. A record shall be kept of each complaint for a minimum of five years from the date the complaint is received.

Finding: Mitigation Measure AQ-3 would reduce to insignificance the creation of objectionable odors affecting a substantial number of people. Implementing this mitigation measure for air quality is feasible and enforceable. Based upon the Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact AQ-3 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure AQ-3. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: The handling and transfer of solid waste would occur inside of a fully enclosed building. The nearest residence is about 600 feet west of the project facility building where material transfer would occur. Odor problems from solid waste transfer stations are well understood because of the experience of thousands of such facilities throughout the United States. Municipal solid waste creates significant

amounts of objectionable odor only when it degrades over time. Therefore, the primary means of odor avoidance is to transfer waste out of the facility quickly, with regular cleaning to ensure that residual waste does not build up. If transfer cannot be carried out rapidly enough to control odor, a variety of measures are available. The most important measure is to fully enclose the transfer building, with minimal door openings, so that spread of odor by dispersion or wind is reduced. Additional measures, in approximate order of cost and impact, include:

- Roll-up doors which can be automated to open only when a vehicle approaches.
- Air curtains on doorways. These help confine odors to the inside of the transfer station building.
- Deodorizing misting spray. Overhead sprays can neutralize odorous material.
- Negative pressure ventilation with biofiltered exhaust.

Biofilters are typically a large container filled with wood chips or compost that will scrub noxious odors out of exhaust air. An example is CR&R's Perris Transfer Station in Perris, California, which receives up to 3,000 tons per day and has reportedly eliminated odor problems after installation of a biofilter.

Typically, solid waste would be removed from the facility within 24 hours and would not remain at the site for more than 48 hours. Mitigation Measure AQ-3 implements basic, proven odor minimization measures to be integrated into the project design and operation, with further measures that require "pre-plumbing" for additional odor-control systems, so that if complaints approach the established threshold, these additional measures would be implemented. Implementation of Mitigation Measure AQ- 3 would reduce the impact to less than significant.

Impact BIO-1: Substantial Adverse Effect on Special-Status Species.

The project would permanently impact five individual Coast Lily (CRPR List 1B) plants within the project footprint. In addition, a 0.003 acre area where this plant is mapped would be temporarily impacted, either directly or indirectly, during construction. A portion of the 0.003 acres is within the construction buffer, with the remaining habitat close to the construction area and therefore threatened indirectly. The 0.003 acre potential impact area is estimated to include an additional five individual plants based on percent of the subpopulation polygon being impacted, with individual plant counts for the entire property provided by field biologist during seasonally-appropriate plant surveys. Temporary and permanent impacts to Coast lily would be significant.

The project would permanently impact approximately 0.58 acre of Mendocino cypress and Bolander's pine (both CRPR List 1B) (within areas categorized as cypress forest-tall and cypress forest-intermediate). Additionally, there are scattered cypress and Bolander's pine within the Bishop pine map unit. Impact to these individual trees is based on tree counts conducted within plots, and not based on acreage due to the scattered nature and low percent cover of these two species within the Bishop pine map unit. In total, approximately 229 Mendocino cypress and approximately 38 Bolander's pine are estimated to be impacted

within the Bishop pine forest, cypress forest-tall, and cypress forest-intermediate based on estimates from tree counts conducted within plots at the property (WRA 2013). Impacts to Bolander's pine and Mendocino cypress would be significant.

The biological evaluation for the project site (WRA 2013) stated that the Sonoma tree vole, a State species of special concern, could be present at the site since conifer habitat is present and the site is within the known species range, and if present could be impacted during construction due to tree removal. Impacts to the Sonoma tree vole would be significant.

The biological evaluation for the project site (WRA 2013) determined the following special-status bird species could be present at the site, and could be impacted during construction due to tree removal: Vaux's swift, Olive-sided fly catcher, purple martin, Allen's hummingbird, all of which are State Species of Special Concern. These are summer resident avian species. There is also the potential for passerine migratory bird species to fly over or stop at the site. Nesting habitat for such species is not high quality, yet seasonal or occasional presence and/or nesting cannot be ruled out at this point in time. Impacts to special-status bird species and birds protected under the Migratory Bird Act would be significant. Project construction occurring during the March 15 through August 15 breeding season may have an adverse impact on breeding success for special-status bird species. Impacts to special-status birds would be significant.

The biological evaluation for the project site (WRA 2013) determined that the site has moderate potential to support roosting locations for some bat species listed as having "moderate to high priority for survey" per Western Bat Working Group (WBWG), and could be impacted through tree removal if present at the site. Several special-status bat species, including the Townsend's big-eared bat, silver-haired bat, hoary bat, little brown bat, and fringed myotis, have the potential to occur on the project site. No bats were observed during site evaluations, and none of the bat species are expected to occur in substantial numbers at the project site. Breeding and foraging habitat for these species on the project site and in adjacent areas is generally marginal because rock outcrops, decadent trees, and caves with suitable bat habitat are sparse to non-existent for these bat species. However, they still could forage over the project site and roost under bark or in cavities of trees. Project construction occurring during the March 1 through August 31 bat breeding season may have an adverse impact on breeding success for special-status bat species. Impacts to special-status bats could be significant.

Mitigation Measure BIO-1a: Mitigate Impacts to Coast Lily.

The County and City shall implement the following measures to mitigate the temporary and permanent impacts to Coast lily plants during construction and operation of the project:

During Construction (0.003 acre subpopulation polygon)

The building contractor shall install construction avoidance fencing at the interface of project footprint and the edge of the 0.003 acre coast lily subpopulation present on the south edge of the project site (refer to Figure 3.4-1 of the Draft EIR). The fencing will be at a minimum 100 linear feet in length to provide a barrier between the construction footprint and adjacent coast lily subpopulation. The construction fencing will be placed so that there is no

“construction buffer” in this area, so as to avoid direct impacts to coast lily individuals. The construction avoidance fencing shall be installed by a qualified biologist and inspected weekly for the duration of construction to ensure that the fencing remains installed properly.

During Operation (0.003 acre subpopulation polygon)

Permanent fencing shall be installed prior to operation of the project. The fencing shall be approximately 100 feet in length and placed between the driveway leading to the scalehouse and the subpopulation polygon so as to create a permanent barrier from project operation. Perimeter fencing installed around the perimeter of the transfer station facility may suffice as protection of the subpopulation polygon from operational activities.

Five Individual Coast Lily Plants

The five individual coast lily plants, as identified within the project footprint on Figure 3.4- 1 of the Draft EIR, shall be relocated, if possible, to the south subpopulation area. If relocation is not possible a nursery will be contracted to provide locally sourced plant stock and the five plants will be replaced at a 2:1 ratio. The plant stock or plantings shall be placed in an area adjacent to the south subpopulation. The plant replacement (whether through relocation and/or replanting) shall require annual monitoring for two years, with 100% success. To ensure meeting the 100% success criteria it is recommended that supplemental planting occur at a minimum of 20% (i.e.: 1 additional plant for relocation or two additional plants for nursery-provided plant stock).

Finding: Mitigation Measure BIO-1a would mitigate the impact to Coast Lily to insignificance through a combination of avoidance, minimization, and replacement or relocation of individual plants and is consistent with County General Plan RM-28. Implementing this mitigation measure is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County finds that the potentially significant project impact identified in Impact BIO-1 regarding Coast Lily plants will be mitigated to a less- than-significant level by the implementation of Mitigation Measure BIO-1a. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: The botanical survey mapped all Coast Lily plants in the vicinity of the project footprint. The majority of the plants can be fully protected by permanent fencing to protect them during both construction and operation. The remaining 5 plants can be relocated to a safe and suitable area or replaced, ensuring that there will be no net loss of Coast Lily plants onsite as a result of the Project.

Mitigation Measure BIO-1b: Mitigate Impact to CRPR Listed Tree Species: Mendocino Cypress and Bolander’s Pine.

The impacts to individual CRPR-listed tree species associated with pygmy cypress forest (cypress intermediate and tall morphotypes) and Bolander’s pine shall be mitigated through preservation at an offsite location. To mitigate for the removal of individual Mendocino cypress trees (approximately 229 individuals of intermediate and tall morphotypes) and

Bolander's pine (approximately 38 individuals), present within 0.58 acre impact area mapped as Pygmy cypress Alliance (tall and intermediate morphotypes), as well as where individual CRPR listed trees are scattered within the Bishop Pine Alliance proposed for removal, the County shall create the Caspar Pygmy Forest Preserve encompassing a 28.3 acre County-owned parcel off Prairie Way in Caspar (APN 118-500-45). The County shall execute appropriate legal documents to guarantee that the Caspar Pygmy Forest Preserve will remain undeveloped in perpetuity and only accessible for botanical research and other activities consistent with undiminished protection of the habitat. The preservation may be accomplished by transferring title or an easement to an established conservation organization subject to a preservation covenant, or, if no such organization is found, by the County recording a covenant creating a conservation easement on behalf of the public. In that instance, the County shall secure all access points to the property and post warning signs. Quarterly inspection of the Caspar Pygmy Forest Preserve will be made by County personnel along with their routine mandatory inspections of the cover of the nearby closed Caspar Landfill. The inspections of the Preserve shall ensure all access points remain secure and signage is in place, and that no vandalism or trash dumping occurs, and propose and implement remedial activities if necessary to maintain current condition of the Preserve. Invasive plants along the southern boundary of the Caspar Pygmy Forest Preserve/Preservation Parcel shall be eradicated. Invasive plants along the southern boundary of the Caspar Pygmy Forest Preserve/Preservation Parcel shall be eradicated. A vegetation description and map of the mitigation parcel are included in Appendix L of the Revised DEIR.

Finding: Mitigation Measure BIO-1b would reduce the project's impact on Mendocino cypress and Bolander's pine to insignificance and is consistent with Mendocino General Plan Policy RM-28. Implementing this Mitigation Measure for botanical impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact BIO-1 regarding Mendocino cypress and Bolander's pine will be mitigated to a less-than- significant level by the implementation of Mitigation Measure BIO-1b. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Mitigation Measure BIO-1b would preserve Mendocino cypress (short, intermediate, and tall morphotypes) mixed with Bolander's pine at an approximate 30:1 ratio based on acreage, to compensate for impacts to Mendocino cypress intermediate and tall morphotypes, and scattered individual Mendocino cypress and Bolander's pine within the Bishop Pine Forest map unit. Mitigation Measure BIO-1b is consistent with the intent of Mendocino County General Plan Policy RM-28 which calls for implementation of site-specific or project-specific effective mitigation strategies including preservation. Preservation will provide an immediate and permanent protection of an existing habitat similar or higher quality to that being impacted, at an appropriate mitigation ratio to compensate for the use of offsite location and the proposed activity of preservation. The impact to Mendocino cypress and Bolander's

pine is less than significant with mitigation.

Mitigation Measure BIO-1c: Minimize and Avoid Impacts to Sonoma Tree Vole.

The County and City shall consult with CDFW to minimize and avoid potential impacts to Sonoma tree vole during tree removal and project construction activities. Trees shall be removed during the non-breeding season (October to January). If seasonal avoidance of breeding time (February through September) cannot be implemented for tree removal activities, pre-construction surveys shall be conducted by a qualified biologist, in a manner such as follows (to be refined if necessary in consultation with CDFW):

1. No more than two weeks before tree removal activities begin, a biologist will assess what portions, if any, of the tree removal area and areas within 50 feet of tree removal, is potential tree vole habitat, based on species composition and discussion with CDFW.
2. If tree vole habitat is located on portions of the property within 50 feet of tree removal areas, a qualified biologist shall conduct a survey for presence of the species on the property in areas within 50 feet of tree removal and construction footprint.
3. A standard survey methodology shall include at least two trained observers conducting visual searches for tree vole nests while walking along transects spaced 25 meters apart. When either fecal pellets, resin ducts, or potential nests are observed, vole nests must be confirmed by climbing trees and examining all potential nests to see if they contain evidence of occupancy by tree voles (fecal pellets, resin ducts, and conifer branch cuttings).
4. If occupied habitat is identified during pre-construction surveys, clearing/ construction activities shall be suspended while the biologist consults with CDFW to determine how to avoid disruption to breeding activity or if individual relocation is possible.

Finding: Mitigation Measure BIO-1c will avoid impacts to the Sonoma Tree Vole and reduce any impacts to insignificance. Implementing this Mitigation Measure for biological impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact BIO-1 regarding Sonoma Tree Vole will be mitigated to a less-than-significant level by the implementation of Mitigation Measure BIO-1c. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Mitigation Measure BIO-1c identifies avoidance measures, and if avoidance is not possible outlines the process for identifying occupied habitat, and then requiring, in accordance with General Plan Policy RM-28, consultation with CDFW to determine appropriate avoidance measures if occupied habitat is found. The proposed mitigation outlines the procedure for avoidance and is consistent with the Mendocino County

General Plan, therefore the impact is less than significant after mitigation.

Mitigation Measure BIO-1d: Conduct pre-construction Avian Surveys for Nesting Passerine Birds and Avian Species of Special Concern.

The building contractor shall conduct vegetation clearing activities if possible during the fall and/or winter months from August 16 to March 14, outside of the active nesting season for migratory bird species (i.e., March 15 to August 15). If vegetation cannot be removed during the non-breeding season, the applicant shall have a qualified biologist conduct preconstruction surveys within impact area from ground disturbance and tree removal, to check for nesting activity of migratory and special-status bird species. The biologist shall conduct the preconstruction surveys within the 14-day period prior to vegetation removal and ground-disturbing activities (on a minimum of three separate days within that 14-day period). If ground disturbance and tree removal work lapses for 15 days or longer during the breeding season, a qualified biologist shall conduct supplemental avian preconstruction survey before project work may be reinitiated.

If nesting activity is detected within the project footprint or within 300 feet of construction activities, the applicant shall have trees flagged that are supporting breeding, and will not remove those trees until the nests have fledged. Construction activities shall avoid nest sites until the biologist determines that the young have fledged or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within 300 feet of the construction area, buffers will be implemented if deemed appropriate in coordination with CDFW.

Finding: Mitigation Measure BIO-1d will reduce to insignificance any potential impacts on nesting passerine birds and avian species of special concern. Implementing this Mitigation Measure for biological impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact BIO-1 regarding Nesting Passerine Birds and Avian Species of Special Concern will be mitigated to a less-than-significant level by the implementation of Mitigation Measure BIO-1d. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Implementation of Mitigation Measure BIO-1d provides protection measures during construction for special-status birds and would mitigate potential impacts on special-status and migratory birds to less-than-significant levels by requiring pre- construction surveys by a qualified biologist to determine whether special-status or migratory bird nests are present at or near the project site and ensuring protection of nests and young until they have fledged.

Mitigation Measure BIO-1e: Avoid Impacts to Special-Status Bat Species.

The County and City shall conduct tree removal activities outside of the bat breeding period of March 1 through August 31 if possible, so ideally tree removal would occur from September 1 to February 28. If trees cannot be removed during this time, the following measures shall be implemented:

1. A qualified biologist shall be retained to conduct a habitat assessment at least 30 days and no more than 90 days prior to construction activities (i.e., ground-clearing and grading, including removal or trimming of trees) of all trees on the site that are proposed for removal. The assessment shall be designed to identify trees containing suitable roosting habitat for bats and to identify mitigation measures needed to protect roosting bats.
2. If the habitat assessment identifies suitable special-status bat habitat and/or habitat trees, the biologist shall identify and evaluate the type of habitat present at the project site and specify methods for habitat and/or habitat tree removal in coordination with CDFW based on site-specific conditions. If bat habitat is present, removal of trees or areas that have been identified as habitat shall occur in two phases over two days under the supervision of a qualified biologist. In the afternoon on day one, limbs and branches of habitat trees without cavities, crevices and deep bark fissures would be removed by chainsaw. On day two, the entire tree can be removed. If trees with cavities, crevices and deep bark fissures are proposed for removal, CDFW shall be consulted for removal methods.

Finding: Mitigation Measure BIO-1e will reduce to insignificance any potential impacts on special-status bat species. Implementing this mitigation measure for biological impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact BIO-1 regarding Special-Status Bat Species will be mitigated to a less-than-significant level by the implementation of Mitigation Measure BIO-1e. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Implementation of Mitigation BIO-1e provides protection measures for special-status bats during tree removal and would reduce the impacts to special-status bats. Removing the tree the next day prevents re-habituation and reoccupation of the altered tree, thereby reducing impacts to roosting bats to less-than-significant levels.

Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact BIO-1 will be mitigated to a less-than-significant level by the implementation of Mitigation Measures BIO-1a through BIO-1e. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Impact BIO-2: Substantial Adverse Effect on Sensitive Natural Community.

The proposed project has the potential to permanently impact habitats considered sensitive natural communities by CDFW. Potential impacts are shown in Table 3.4-8 of the Revised DEIR.

The County and City have minimized the project footprint, and eliminated impact to the cypress forest—pygmy morpho-type, where Bolander’s pine and Mendocino/pygmy cypress are growing in a unique ecosystem connection with restrictive soil conditions. This effort to minimize impact to cypress forest-pygmy was conducted during the project planning and layout phase. The project layout has also minimized fragmentation to the more sensitive habitats at the property by placing the project site centered within Bishop pine forest alliance area and completely out of the cypress forest-pygmy morpho-type habitat area..

The project footprint and construction buffer will permanently impact a total of up to 0.6 acres of cypress forest (State Rank S2) consisting of two morpho-types (cypress forest—tall, and cypress forest—intermediate). The impact to cypress forest—intermediate is 0.3 acre. The cypress forest—intermediate has similar species composition as true cypress forest—pygmy with the similar species assemblage with presence of Bolander’s pine, yet a more established and denser understory.

Additionally, the intermediate tree height indicates the area is not limited in tree growth pattern from restrictive soil conditions, and it is therefore assumed that some of the restrictive soil conditions typical of true pygmy forest ecosystem may not be present within this map unit at the property. Still, due to species composition as well as with the State Rank (S2) of imperiled for the habitat type, and for the purposes of this analysis in regards to requirements of County General Plan and priority for minimization of impacts to pygmy forest, as well as project significance thresholds set at impact above zero (0) acres, impacts to this area are considered potentially significant. Similarly, the impact to cypress forest (tall) is 0.3 acre. The cypress forest (tall) map unit, with dense shrub and herbaceous understory, and with the low coverage of Bolander’s pine (a component of the pygmy forest ecosystem), does not show signs of restrictive soil conditions that are a part of the unique ecosystem relationship between vegetation and soils within the true pygmy forest. This area is considered to lack some of the soil and vegetation components typical of the pygmy forest ecosystem. Still, for the purposes of this analysis and given the State Rank (S2) of imperiled for this habitat type based on dominant species of tree, as well as project significance thresholds set at impact above zero (0) acres, impacts to this area are also considered potentially significant.

The project will also impact approximately 4.0 acres of Bishop pine forest alliance habitat. This Bishop pine forest alliance is evaluated as to whether the area is considered high priority natural community based on the following three CDFW criteria (CDFW 2014):

- 1) Lack of invasive species: Although the site has not specifically been evaluated from an invasive species perspective, multiple site visits did not document extensive coverage of invasive species listed as high-priority by CalIPC (Invasive Plant Council) within the Bishop pine forest, although there are likely non-native species present in

varying coverages depending on proximity to roads and modified areas. The Bishop pine forest is likely to be of moderate to high priority based on this criterion.

- 2) No evidence of human caused disturbance such as roads or excessive livestock grazing, or high-grade logging: There are roads on the perimeter of the property, evidence of historic logging and site access, and an almost barren helicopter pad to the west of the Bishop pine forest. The Bishop pine forest is determined to be of moderate priority based on this criterion.
- 3) Evidence of reproduction present (sprouts, seedlings, adult individuals of reproductive age), and no significant insect or disease damage, etc.: Evidence of reproduction within the Bishop pine forest was not specifically evaluated, yet the area is a relatively even- age stand and sprouts and seedlings were not noted. The area does not appear to have insect or disease damage. The Bishop pine forest is determined to be of moderate priority based on this criterion.

The Bishop pine forest alliance on the property is therefore potentially moderate to high priority per the above CDFW criteria. The CEQA Checklist and CEQA Guidelines Section 15065, however, do not restrict impact analysis to “high priority” or “vulnerable” natural communities. The *CEQA Guidelines Section 15382* sets forth the following definition for significant effect, and as further addressed in the project significance thresholds developed by the lead agency and described in the EIR’s Significance Criteria section: “Significant effect on the environment” means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including ... flora, fauna..”, etc. The *CEQA Guidelines Section 15064(b)* indicates that a strict definition of significant effect is not always possible because the significance of an activity may vary with the setting. According to *Public Resources Code Section 21083* and *CEQA Guidelines Section 15065* a project is considered to have a significant effect on the environment if: “The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of fish or wildlife population, cause a fish or wildlife species to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or significantly reduce the number or restrict the range of an endangered, rare, or threatened species.” With this regional context in mind, the impacts to Bishop pine forest alliance are evaluated under project-specific significance thresholds provided in EIR Section 3.4.3. As provided in EIR Table 3.4-8 at the beginning of the Impact BIO-2 discussion, it is estimated that in relation to regional extent and quantity of Bishop pine mapped as occurring in Mendocino County (CDF 2005), the project impacts of 4.0 acres constitute approximately 0.03% of areas regionally mapped as Bishop pine forest. However, as noted in the Revised Draft EIR, as a result of the uncertainty as to Bishop Pine’s true CNDDDB vegetation alliance rank and current extent of its regional distribution, the project’s potential to remove 4.0 acres of Bishop pine forest alliance is conservatively considered to be a significant impact requiring mitigation.

Mitigation Measure BIO-2a: Mitigate Impacts to Cypress forest - tall and Cypress forest – intermediate.

The impacts to 0.6 acres of Cypress forest habitat shall be mitigated through preservation at

an offsite location. The County and City propose to use a site identified as Assessor's Parcel Number (APN) 118-500-45 which is adjacent to and north of the Caspar transfer station parcel. A conservation easement will be placed over the preservation site to permanently preserve an area to compensate for areas of impact at the proposed project site (Cypress forest-tall and Cypress forest – intermediate). The conservation easement may consist of a mixture of the three cypress morphotypes; pygmy, intermediate, and/or tall cypress and Bolander's pine forest.

To mitigate for the removal of 0.6 acre of cypress forest (tall and intermediate morphotypes) [12.6% of onsite map units], the County will designate the Caspar Pygmy Forest Preserve encompassing a 28.3 acre parcel. The County will execute appropriate legal documents to guarantee that the Caspar Pygmy Forest Preserve will remain undeveloped in perpetuity and accessible for botanical research and other activities consistent with undiminished protection of the habitat. This may be accomplished by transferring title or an easement to an established conservation organization subject to a preservation covenant, or, if no such organization is found, by the County recording a covenant creating a conservation easement on behalf of the public. In that instance, the County will secure all access points to the property and post warning signs. Periodic inspection of the Caspar Pygmy Forest Preserve will be made by County personnel at the same times as mandatory inspections are made of the cover of the nearby closed Caspar Landfill.

Finding: Mitigation Measure BIO-2a will reduce to insignificance any impacts on Cypress forest - tall and Cypress forest – intermediate. Implementing this mitigation measure for biological impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County finds that the potentially significant project impact identified in Impact BIO-2 concerning Cypress forest will be mitigated to a less-than-significant level by the implementation of Mitigation Measure BIO-2a. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: The preservation site is identified as APN 118-500-45, and is adjacent and to the north of the current Caspar facility. The preservation site has similar, if not more pygmy-forest oriented species composition, compared to the area of impact, with a mixture of true pygmy forest (stunted with both cypress and Bolander's pine present) as well as intermediate cypress and Bolander's pine areas, and some Bishop pine (per GHD May 2014 site visit). Unless preserved, portions of this site could be threatened by future development and/or encroachment from adjacent uses. For potential impacts to cypress forest habitats, preservation is deemed an appropriate mitigative activity for these areas since attempts for direct replacement of the habitats would be linked to a unique ecosystem relationship, which in this case includes slow growing species within a setting of restrictive soil conditions. Preservation will provide an immediate and permanent protection of an existing habitat similar to that being impacted, at an appropriate mitigation ratio to compensate for the use of offsite location and the proposed activity of preservation. It provides compensation for the

use of an offsite location (versus onsite) as well as the use of preservation as opposed to other mitigation strategies such as replacement. A temporal loss is not anticipated. The mitigation approach is consistent with County General Plan RM-28 which allows for preservation as a mitigative approach for impacts to special-status species habitat, and RM-74 that prioritizes minimization and avoidance prior to employing replacement, protection, or enhancement measures. In conjunction with the avoidance and minimization activities conducted during project planning, and after proposed preservation/protection activities associated with this mitigation measure, the impact is determined to be less than significant.

Mitigation Measure BIO-2b: Mitigate impacts to Bishop Pine Forest Alliance.

The impacts from removal of 4.0 acres of Bishop Pine Forest Alliance at the project site will be mitigated as follows:

1. Preservation of 5.76 acres of Bishop Pine Forest at the Caspar Pygmy Forest Preserve (APN 118-500-45), which is described above in Mitigation Measures BIO-1b and BIO-2a. As shown on the vegetation map (included in Appendix L attached to the Revised Draft EIR), a substantial area in the center of this parcel is Bishop Pine Forest. Unless preserved, this parcel would be surplus property available for sale and residential development. The provisions for protection, ownership and management of the mitigation parcel are described above in Mitigation Measures BIO-1b and BIO-2a.
2. Restoration of 6.29 acres of Bishop Pine Forest at the closed Caspar Landfill property (APN 118-500-11) owned by the County of Mendocino and the City of Fort Bragg. The restoration will consist of reestablishment of 1.01 acres where Bishop Pine is absent and enhancement of 5.28 acres where the Bishop Pine habitat currently exists but is seriously degraded. The plan for reestablishment and enhancement was prepared by WRA Associates and is attached to the Revised DEIR as Appendix L.

Finding: Mitigation Measures BIO-2b will reduce to insignificance any impacts on Bishop Pine Forest Alliance. In combination, these mitigation measures will increase the acreage of protected Bishop Pine Forest under public ownership and will add new Bishop Pine Forest. Implementing this mitigation measure for biological impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact BIO-2 concerning Bishop Pine forest alliance will be mitigated to a less-than-significant level by the implementation of Mitigation Measures BIO-2b. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: The Project's potentially significant adverse impacts to 4.0 acres of Bishop pine forest will be adequately mitigated by a combination of preservation, restoration and enhancement actions which, together, will preserve and protect 12.05 acres of Bishop pine forest, resulting in a 3:1 ratio of acres preserved versus acres impacted.

Impact CR-1: Cause Substantial Change in the Significance of a Historic or Archaeological Resource.

Based on previous research and the results of ASC’s cultural resources study, no cultural resources, including archaeological, tribal or historical resources, were identified within or immediately adjacent to the project site. However, ground visibility was poor throughout most of the project area due to dense brush, heavy duff, and pine needle cover, therefore, it is possible that significant (as defined by CEQA) historical or unique archaeological resources that could not be observed during the course of the field survey may be buried on the project site. The disturbance of these resources during site excavation activities would be a significant impact.

Mitigation Measure CR-1: Disturbance of Undiscovered Archaeological Resources.

During the course of ground-disturbing activities associated with project construction activities, if any cultural resources are discovered, work shall be halted immediately within 50 feet of the discovery, and the Mendocino County Planning Department shall be immediately notified. At that time, the County will coordinate any necessary investigation and evaluation of the discovery with a qualified archaeologist. If the archaeological resources are Native American, representatives of the appropriate culturally affiliated tribe shall also be enlisted to help evaluate the find and suggest appropriate treatment.

The County shall consult with the archaeologist and agree upon implementation of treatment of the resources that is deemed appropriate and feasible. Such treatment may include avoidance, curation, documentation, excavation, preservation in place, or other appropriate measures.

Finding: Mitigation Measure CR-1 will prevent any significant impact from disturbance of undiscovered archaeological resources. Implementing this Mitigation Measure for cultural resources impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact CR-1 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure CR-1. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Mitigation Measure CR-1 will reduce potentially significant impacts on undiscovered archaeological resources to a less-than-significant level by providing a process for evaluation of any unknown resources encountered during construction, and avoidance or data recovery of resources that meet the CEQA definition of historical or unique archaeological resources. This mitigation measure is in accordance with Mendocino County General Plan Policy DE-115.

Impact CR-2: Potential Impacts to Unknown Paleontological Resources.

There are no known unique paleontological resources or geologic features in the project area, however, there is the possibility of unanticipated discovery of paleontological resources during ground-disturbing activities associated with construction of the project. Therefore, implementation of the project could impact significant paleontological resources. Impacts to unknown paleontological resources would be a significant impact.

Mitigation Measure CR-2: Potential Disturbance of Undiscovered Paleontological Resources.

During the course of ground-disturbing activities associated with project construction activities, if any paleontological resources are discovered, work shall be halted immediately within 50 feet of the discovery, and the Mendocino County Planning Department shall be immediately notified. At that time, the County will coordinate any necessary investigation of the discovery with a qualified paleontologist.

The County shall consider the mitigation recommendations of the qualified paleontologist for any unanticipated discoveries of paleontological resources. The County shall consult with the paleontologist and agree upon implementation of a measure(s) that are deemed appropriate and feasible. Such mitigation measures may include avoidance, curation, documentation, excavation, preservation in place, or other appropriate measures.

Finding: Mitigation Measure CR-2 will prevent any significant impact from disturbance of undiscovered paleontological resources. Implementing this mitigation measure for cultural resources impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact CR-2 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure CR-2. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Mitigation Measure CR-2 will reduce potentially significant impacts on undiscovered paleontological resources to a less-than-significant level by providing a process for evaluation of any unknown resources encountered during construction, and avoidance or data recovery of resources that meet the CEQA definition of unique paleontological resources.

Impact CR-3: Potential Disturbance of Human Remains.

While no evidence exists for the presence of historic or prehistoric burials at the project site, this does not preclude the existence of buried subsurface human remains. If any human remains were unearthed during project construction, particularly those that were determined to be Native American, a potentially significant disturbance of human remains would occur.

Mitigation Measure CR-3: Potential to Uncover Human Remains.

If construction activities result in the discovery of human remains during ground disturbing construction activities, in accordance with California Health and Safety Code Section 7050.5, no further disturbance shall occur until the Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The Coroner shall be notified of the find immediately and there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the Coroner makes the required determinations regarding the remains. If the human remains are determined to be prehistoric, the Coroner shall notify the NAHC, which shall determine and notify a Most Likely Descendant. The Most Likely Descendant shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and non-destructive analysis of human remains and items associated with Native American burials.

Finding: Mitigation Measure CR-3 will prevent any significant impact from disturbance of undiscovered human remains. Implementing this Mitigation Measure for cultural resources impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact CR-3 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure CR-3. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Mitigation Measure CR-3 will reduce potentially significant impacts related to the potential disturbance of undiscovered human remains to a less-than-significant level by providing direction on what to do and who to notify in the event human remains are found.

Impact GEO-1: Expose People or Structures to Potential Substantial Adverse Effects Involving Strong Seismic Ground Shaking or Seismic-Related Ground Failure, Including Liquefaction.

Past seismic history suggests that the project area is susceptible to moderate to strong seismic ground shaking (LACO 2012). The project includes reinforced structures that would be at risk of collapse from ground shaking and a groundwater well, sewage treatment system, and road improvements that would be susceptible to damage during strong seismic ground shaking. The soils encountered during test borings at the project site are not considered to be liquefiable (LACO 2012). However, it is possible that some isolated, thin lenses of loose, saturated sands near the ground may liquefy during severe ground shaking, based on the relatively thin lenses of loose sand encountered, which could damage structures, foundations, concrete slabs, asphalt pavement, and utilities (LACO 2012). The impact from liquefaction is considered significant.

Because a design-level geotechnical study has not yet been prepared for the project, the impact related to strong seismic ground shaking or seismic-related ground failure including liquefaction is potentially significant.

Mitigation Measure GEO-1: Conduct a Geotechnical Study and Implement Recommendations.

The County and City shall require a California registered Geotechnical Engineer to conduct a design-level geotechnical study for the project. The geotechnical study shall address all areas of ground disturbance, evaluate seismic hazards, and provide recommendations to mitigate the effects of: strong ground shaking, liquefiable soils, lateral spreading, and subsidence in adherence with applicable design standards, including applicable CBC and Mendocino County Building Code standards for earthquake resistant construction. The seismic criteria shall take into account the active faults that will affect the project site, and ground motions and shaking related to the faults.

The geotechnical study shall also include evaluation of unstable soils in the project area, including areas susceptible to liquefaction or subsidence, and areas containing expansive soils. The study shall provide measures to repair, stabilize, or avoid such soils, and include grading, drainage, paving, and foundation design recommendations such that adherence with current applicable standards for earthquake resistant construction would be achieved. This may include, but would not be limited to, one or more of the following measures (or equivalent measures) to meet the performance standards:

- Maintain wet optimum moisture content of clay soils where the soils will support foundations, concrete slabs, and asphalt concrete pavements, until covered with permanent construction and install moisture barriers.
- Remove organic topsoil from planned structure areas prior to construction.

The project shall be designed and constructed in conformance with the specific recommendations contained in the design-level geotechnical study, including recommendations for grading, ground improvement, foundations, concrete slabs and asphalt concrete pavements. The recommendations made in the geotechnical study shall be incorporated into the final plans and specifications and implemented during construction. Professional inspection of foundation and excavation, earthwork and other geotechnical aspects of site development shall be performed during construction in accordance with the current version of the CBC.

Finding: Mitigation Measure GEO-1 will reduce impacts to insignificance from exposure of people or structures to potential substantial adverse effects involving strong seismic ground shaking or seismic-related ground failure, including liquefaction. Implementing this mitigation measure for geology and soils impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact GEO-1 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure GEO-1. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Project design would be required to conform to the Mendocino County Building Code, California Building Code, and the State Earthquake Protection Law, which set design criteria for seismic resistant structures and construction in areas with liquefiable soils. Mitigation Measure GEO-1 would reduce impacts to a less than significant level by requiring a site specific geotechnical study and design and construction in conformance with applicable design standards that would reduce the risk to life or property during a seismic event.

Impact GEO-2: Result in Substantial Soil Erosion or Loss of Topsoil.

The project site is within a mostly undeveloped, forested parcel in the Jackson Demonstration State Forest (JDSF), and is covered with an approximately 12-inch layer of organic laden topsoil. The project site is relatively flat to gently sloping. The natural erosion rate of the soils present at the project site is slight to moderate (USDA 2006). Grading, earthwork, and stockpiling during construction could result in increased potential for erosion or loss of topsoil on and off-site, which would be a potentially significant impact.

Mitigation Measure HWQ-1a: Manage Construction Storm Water.

The County and City shall obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by Order No. 2012-0006. In compliance with the NPDES requirements, a Notice of Intent (NOI) shall be prepared and submitted to the North Coast Regional Water Quality Control Board (NCRWQCB) providing notification and intent to comply with the State of California General Permit. In addition, a Construction Storm Water Pollution Prevention Plan (SWPPP) will be prepared for pollution prevention and control prior to initiating site construction activities. The Construction SWPPP shall identify and specify the use of erosion sediment control BMPs for control of pollutants in stormwater runoff during construction related activities, and will be designed to address water erosion control, sediment control, off-site tracking control, wind erosion control, non-stormwater management control, and waste management and materials pollution control. A sampling and monitoring program shall be included in the Construction SWPPP that meets the requirements of the NCRWQCB to ensure the BMPs are effective. A Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee implementation of the Plan, including visual inspections, sampling and analysis, and ensuring overall compliance.

[Note: Mitigation Measure HWQ-1a is inadvertently and incorrectly referred to as “HYD-1” on pages 1.0-8 and 3.6-9 of the draft EIR.]

Finding: Mitigation Measure HWQ-1a would reduce the potential impact concerning Substantial Soil Erosion or Loss of Topsoil to insignificance. Implementing this mitigation measure for geology and soils impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact GEO-2 will be mitigated to a

less-than-significant level by the implementation of Mitigation Measure HWQ-1a. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Mitigation Measure HWQ-1a would reduce construction-related impacts to a less than significant level by requiring a Storm Water Pollution Prevention Plan (SWPPP) to be prepared for the project. The SWPPP would include erosion and sediment control measures, such as the use of temporary sediment basins, filter screens, and gravel bags, which would prevent substantial soil erosion during construction.

Following construction, stormwater runoff would be managed onsite. As described in EIR Section 3.09, Hydrology and Water Quality, project stormwater conveyance capabilities and capacities would not substantially exceed pre-development conditions. The site is relatively flat and trucks and other vehicles and equipment would utilize designated paved access roads and loading/unloading areas at the proposed Transfer Station site. The potential for erosion or loss of topsoil to occur during operation would be minimal. Therefore, the operational impact from soil erosion would be less than significant.

Impact GEO-3: Be Located on Geologic Unit or Soil that is Unstable, or would become Unstable as a Result of the Project, and Potentially Result in Liquefaction, Lateral Spreading, Subsidence, or Collapse.

The soils encountered during test borings at the project site are generally not considered to be liquefiable, but it is possible that some isolated, thin lenses of loose, saturated sands near the ground may liquefy during severe ground shaking, based on the relatively thin lenses of loose sand encountered (LACO 2012). Because of the potential for liquefaction and the 2 percent to 9 percent slopes present on site, the project site is potentially susceptible to lateral spreading from liquefaction. Subsidence from liquefaction also could occur. Structures could be susceptible to damage or collapse, and other project improvements such as the roadway widening, utilities, or sewage treatment systems could be damaged. Because a design-level geotechnical study has not yet been prepared for the project, the impact would be potentially significant.

Mitigation Measure GEO-1: Conduct a Geotechnical Study and Implement Recommendations.

The County and City shall require a California registered Geotechnical Engineer to conduct a design-level geotechnical study for the project. The geotechnical study shall address all areas of ground disturbance, evaluate seismic hazards, and provide recommendations to mitigate the effects of: strong ground shaking, liquefiable soils, lateral spreading, and subsidence in adherence with applicable design standards, including applicable CBC and

Mendocino County Building Code standards for earthquake resistant construction. The seismic criteria shall take into account the active faults that will affect the project site, and ground motions and shaking related to the faults.

The geotechnical study shall also include evaluation of unstable soils in the project area, including areas susceptible to liquefaction or subsidence, and areas containing expansive soils. The study shall provide measures to repair, stabilize, or avoid such soils, and include grading, drainage, paving, and foundation design recommendations such that adherence with current applicable standards for earthquake resistant construction would be achieved. This may include, but would not be limited to, one or more of the following measures (or equivalent measures) to meet the performance standards:

- Maintain wet optimum moisture content of clay soils where the soils will support foundations, concrete slabs, and asphalt concrete pavements, until covered with permanent construction and install moisture barriers.
- Remove organic topsoil from planned structure areas prior to construction.

The project shall be designed and constructed in conformance with the specific recommendations contained in the design-level geotechnical study, including recommendations for grading, ground improvement, foundations, concrete slabs and asphalt concrete pavements. The recommendations made in the geotechnical study shall be incorporated into the final plans and specifications and implemented during construction. Professional inspection of foundation and excavation, earthwork and other geotechnical aspects of site development shall be performed during construction in accordance with the current version of the CBC.

Finding: Mitigation Measure GEO-1 would prevent significant impact from location on a geologic unit or soil that is unstable, or would become unstable as a result of the project, and potentially result in liquefaction, lateral spreading, subsidence, or collapse. Implementing this mitigation measure for geology and soils impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact GEO-3 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure GEO-1. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Mitigation Measure GEO-1 would reduce impacts to a less than significant level by requiring a site-specific geotechnical study for project design and construction to be in conformance with applicable design standards that would reduce the risk to life or property due to unstable soils.

Impact GEO-4: Be Located on Expansive Soil, as Defined in Table 18-1-B of Uniform Building Code (1994), Creating Substantial Risks to Life or Property.

Sandy clay/sandy silt soils encountered in boring SE-3 have a high to very high expansion potential (LACO 2012). Expansive soils can damage structures, foundations and buried

utilities. Because only a preliminary geotechnical study was prepared for the project site, the extent of expansive soils present onsite is not known, therefore, the impact from expansive soils would be potentially significant.

Mitigation Measure GEO-1: Conduct a Geotechnical Study and Implement Recommendations.

The County and City shall require a California registered Geotechnical Engineer to conduct a design-level geotechnical study for the project. The geotechnical study shall address all areas of ground disturbance, evaluate seismic hazards, and provide recommendations to mitigate the effects of: strong ground shaking, liquefiable soils, lateral spreading, and subsidence in adherence with applicable design standards, including applicable CBC and Mendocino County Building Code standards for earthquake resistant construction. The seismic criteria shall take into account the active faults that will affect the project site, and ground motions and shaking related to the faults.

The geotechnical study shall also include evaluation of unstable soils in the project area, including areas susceptible to liquefaction or subsidence, and areas containing expansive soils. The study shall provide measures to repair, stabilize, or avoid such soils, and include grading, drainage, paving, and foundation design recommendations such that adherence with current applicable standards for earthquake resistant construction would be achieved. This may include, but would not be limited to, one or more of the following measures (or equivalent measures) to meet the performance standards:

- Maintain wet optimum moisture content of clay soils where the soils will support foundations, concrete slabs, and asphalt concrete pavements, until covered with permanent construction and install moisture barriers.
- Remove organic topsoil from planned structure areas prior to construction.

The project shall be designed and constructed in conformance with the specific recommendations contained in the design-level geotechnical study, including recommendations for grading, ground improvement, foundations, concrete slabs and asphalt concrete pavements. The recommendations made in the geotechnical study shall be incorporated into the final plans and specifications and implemented during construction. Professional inspection of foundation and excavation, earthwork and other geotechnical aspects of site development shall be performed during construction in accordance with the current version of the CBC.

Finding: Mitigation Measure GEO-1 would reduce to insignificance any potential impact from locating the Project on expansive soil. Implementing this Mitigation Measure for geology and soils impact is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact GEO-4 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure GEO-1. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub.

Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1).

Rationale: Mitigation measure GEO-1 would reduce impacts to a less than significant level by requiring a site-specific geotechnical study and for project design and construction to be in conformance with applicable design standards that would reduce the risk to life or property due to expansive soils.

Impact HAZ-1: Create Significant Hazard through Routine Transport, Use, or Disposal of Hazardous Materials.

Certain recyclable hazardous wastes will be collected from the public at the transfer station. Construction of the project would involve site grading, excavation, trenching, backfilling, and the construction of facilities that could result in the exposure of construction workers and residents in the project area to routine hazardous materials used in construction including chemicals, contaminated debris, petroleum hydrocarbons, and other hazardous substances that could be inadvertently spilled or otherwise spread.

Mitigation Measure HAZ-1: Prepare Hazardous Materials Business Plan.

The County and City shall ensure that the owner/operator of the facility prepare a Hazardous Materials Business Plan prior to operations pursuant to the Business Plan Act. The Hazardous Materials Business Plan would include, but not be limited to, an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures. In addition, the Hazardous Materials Business Plan would also include a Spill Prevention Plan. The Spill Prevention Plan would include, but not be limited to, restrictions and procedures for fuel storage location, fueling activities, regular equipment maintenance, and training and lines of communication to facilitate the prevention, response, containment, and cleanup of spills during construction activities would also outlined.

Finding: Mitigation Measure HAZ-1 would reduce to insignificance any potential impact from the hazard of routine transport, use, or disposal of hazardous materials. Implementation of this mitigation measure is feasible and enforceable. Based upon the Final EIR and the entire record, the CIPA finds that the potentially significant project impact identified in Impact HAZ-1 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure HAZ-1. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Used motor oil and used antifreeze would be collected in secure tanks with secondary containment (reference EIR Figure 2-2 #2, #3). Secondary containment regulations are designed and issued to prevent hazardous liquids from discharging into the surrounding land if a leak or spill occurs. Other recyclable household hazardous waste items, including electronics, fluorescent lights, and batteries, would

be collected in secure containment areas (reference EIR Figure 2-2 #6). All other hazardous wastes would be prohibited at the facility and customers would be referred to the periodic HazMobile household and small business hazardous waste mobile collection system. The gate attendant would routinely inspect incoming loads for any prohibited hazardous waste items and prohibit the customer from depositing them with trash, and instead refer the customer to the periodic HazMobile household hazardous waste collection events. If any prohibited hazardous waste items are discovered on the tipping floor of the facility, they would be removed by facility employees to a secure hazardous waste locker for later removal by HazMobile technicians. Numerous laws and regulations ensure the safe transportation, use, storage, and disposal of hazardous materials (see Section 3.8.2, Regulatory Framework). Caltrans and the CHP regulate the transportation of hazardous materials and wastes, including container types and packaging requirements, and licensing and training for truck operators, chemical handlers, and hazardous waste haulers. Worker safety regulations cover hazards related to the prevention of exposure to hazardous materials and a release to the environment from hazardous materials use. Cal-OSHA also enforces hazard communication program regulations, which contain worker safety training and hazard information requirements, such as procedures for identifying and labelling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees. Because hazardous materials brought to, and stored at, and then removed from the site would follow existing regulations for the safe transportation, storage, and disposal of hazardous materials the impact from exposure to people or the environment during operation of the proposed Central Coast Transfer Station would be less than significant with the preparation of a Hazardous Materials Business Plan per the Business Plan Act per Mitigation Measure HAZ-1.

The site is undeveloped forest land and is not known to contain any contaminated soils. The EDR report (EIR Appendix F) prepared for the project did not identify any hazardous materials mapped sites at the project site.

Because the project site is undeveloped forest land, no hazardous sites are in the project vicinity. The operator and its contractors would be required to comply with existing and future hazardous materials laws and regulations covering the transport, use, and disposal of hazardous materials. The impacts associated with the potential to create a significant hazard to the public or the environment during construction of the proposed project would be less than significant.

Mitigation Measure HAZ-1 would reduce potentially significant impacts associated with hazardous materials handling, storage, and emergency response to a less-than-significant level.

Impact HAZ-2: Create Significant Hazard Through Reasonably Foreseeable Upset and Accident Conditions Involving Release of Hazardous Materials.

There are two types of accidental releases that could occur during construction: 1) accidental spills; and 2) discovery of existing contaminated soil or groundwater at the construction sites. The project site is undeveloped and does not appear on a list of hazardous materials sites. Encountering existing contaminated soil or groundwater is unlikely. Accidental spills could occur during construction as hazardous materials would be used in varying amounts during construction of the proposed project. Construction activities would use hazardous materials including but not limited to cleaning products; fuels (diesel and gasoline); lubricants and oils; paints and paint thinners; and glues. Construction workers and residents in the project vicinity could be exposed to hazards and hazardous materials as a result of improper handling and storage.

The project would prohibit acceptance of hazardous waste delivered or mixed in with the municipal solid waste loads; however, there is a potential that hazardous materials may be transported unknowingly in the Municipal Solid Waste (MSW) loads brought to the site.

Mitigation Measures: Mitigation Measure HAZ-1.

The County and City shall ensure that the owner/operator of the facility prepare a Hazardous Materials Business Plan prior to operations pursuant to the Business Plan Act. The Hazardous Materials Business would include, but not be limited to, an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures. In addition, the Hazardous Materials Business Plan would also include a Spill Prevention Plan. The Spill Prevention Plan would include, but not be limited to, restrictions and procedures for fuel storage location, fueling activities, regular equipment maintenance, and training and lines of communication to facilitate the prevention, response, containment, and cleanup of spills during construction activities would also outlined.

Finding: Mitigation Measure HAZ-1 would reduce to insignificance the potential impact of reasonably foreseeable upset and accident conditions involving release of hazardous materials. Implementation of this mitigation measure is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact HAZ-2 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure HAZ-1. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Construction specifications would include the following requirements in compliance with applicable regulations and codes, including, but not limited to CCR Titles 8 and 22, Uniform Fire Code, and Division 20 of the California Health and Safety Code: all reserve fuel supplies and hazardous materials must be stored within the confines of a designated construction area; equipment refueling and maintenance must take place only within the staging area; and construction vehicles shall be

inspected daily for leaks. Off-site activities (e.g., utility construction) would also be required to comply with these regulations. These regulations and codes must be implemented, as appropriate, and are monitored by the State and/or local jurisdictions, including the Fort Bragg Rural Fire Protection District and CalFire.

Contractors would be required to comply with Cal/EPA's Unified Program; regulated activities would be managed by Mendocino County Environmental Health department, the designated CUPA for Mendocino County, in accordance with the regulations included in the unified Program. Such compliance would reduce the potential for accidental release of hazardous materials during construction of the proposed project. As a result, it would lessen the risk of exposure of construction workers and the public to accidental release of hazardous materials, as well as the demand for incident emergency response. The impact from potential release of hazardous materials would be less than significant.

Recyclable household hazardous waste items, including electronics, fluorescent lights, and batteries, would be collected in secure containment areas. If such materials are found prior to unloading, the driver would not be allowed to unload the hazardous materials. If hazardous wastes are found, specific notification, future load inspection, and appropriate handling, storage, and disposal procedures would be implemented per state and federal regulations noted above.

Occasionally hazardous materials are discovered on the tipping floor of a transfer station. The spotters working in the transfer station would be trained to recognize hazardous materials and to deal with them appropriately. Such materials would be segregated in a hazardous waste locker kept on or near the tipping floor for that purpose. They would be kept in locked storage until they can be removed from the site by a licensed hauler. Depending on the quantities and types of materials found, materials found on the tipping floor may be stored in the household hazardous waste (HHW) locker until removed.

Most of the hazardous material brought to the facility would be common household items that require special recycling or disposal approaches, such as batteries, paint, used oil and oil filters, and aerosol cans, as well as smaller quantities of herbicides, pesticides, solvents, antifreeze and similar materials. The facility would not accept explosives, medical waste, or radioactive materials. The materials would be stored temporarily inside the designated HHW locker in segregated containers that separate incompatible substances. All HHW would be removed at regular intervals by licensed haulers and transported to off-site facilities for recycling or disposal (California Health and Safety Code, Division 20, Chapter 6.95). The process of isolating and only temporarily storing hazardous materials at the site combined with transporting the materials to proper off-site facilities in accordance with applicable local, State and federal requirements would minimize the project's potential to create a hazard to the environment or the public.

A Spill Prevention Plan would be prepared to control any accidental spills or fuel leaks. Provisions of the plan are likely to include: storage of petroleum products,

solvents, paints, and other potentially hazardous liquids in a secured location with secondary containment; maintenance of emergency response contact information on-site; maintenance of spill response materials and equipment in a readily accessible location; training of all workers in spill control and emergency response procedures; designation of a specific individual as primary on-site contact for emergency response to spills; regular maintenance of heavy equipment and vehicles to prevent leakage of fuel or lubricants; immediate cleanup of spills, however small, in accordance with established procedures; and adherence with established reporting procedures for all spills, regardless of size.

As with construction, operation of the proposed project is required to be consistent with federal, State, and local laws and regulations addressing hazardous materials management and environmental protection, including, but not limited to 49 CFR 173 and 177, and CCR Title 26, Division 6 for transportation of hazardous materials, and CCR Titles 8 and 22, Uniform Fire Code, and Division 20 of the California Health and Safety Code for routine use of hazardous materials. These regulations and codes must be implemented, as appropriate, and are monitored by the State and/or local jurisdictions, including Caltrans, the Mendocino County Environmental Health Department, and CalFire.

The Mendocino County Environmental Health Department, as the local CUPA, oversees hazardous materials registrations, aboveground petroleum storage tank spill prevention control and countermeasure plans, UST programs, monitoring wells, and the California Accidental Release Program. Additionally, businesses are regulated as employers by Cal/OSHA and are therefore required to ensure employee safety. Specific requirements include identifying hazardous materials in the workplace, providing safety information to workers that handle hazardous materials, and providing adequate training to workers.

The proposed project would be required to comply with all applicable federal, State, and local regulations pertaining to spill prevention, safe-transit practices, workplace safety, explosions, fires, and other hazardous materials-related concerns. The Mendocino County Environmental Health Department, CalFire, and other agencies would be required to enforce compliance, including issuing permits and tracking and inspections of hazardous materials storage and transportation. Additionally, existing regulatory requirements would ensure that the proposed project does not pose a significant hazard to off-site receptors including nearby residents. As a result, construction and operation of the proposed project would not create a significant hazard to the environment and general public involving the release of hazardous materials into the environment. Therefore, this impact, for both construction and operation, is considered less than significant with implementation of Mitigation Measure HAZ-1.

Impact HWQ-1: Violate any Water Quality Standards or Waste Discharge Requirements.

Potential significant impacts arise from the following:

1. The proposed Central Coast Transfer Station site is anticipated to disturb up to 4.72 acres of land.
2. The proposed project would require a groundwater well to be drilled and operated for on-site water use.
3. Some liquids could be generated on the tipping floor from cleaning, odor reduction misting, or solid waste trucks when unloading solid waste after rainstorms.

Mitigation Measure HWQ-1a: Manage Construction Storm Water.

The County and City shall obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by Order No. 2012-0006. In compliance with the NPDES requirements, a Notice of Intent (NOI) shall be prepared and submitted to the NCRWQCB, providing notification and intent to comply with the State of California General Permit. In addition, a Construction Storm Water Pollution Prevention Plan (SWPPP) will be prepared for pollution prevention and control prior to initiating site construction activities. The Construction SWPPP shall identify and specify the use of erosion sediment control Best Management Practices (BMPs) for control of pollutants in stormwater runoff during construction related activities, and will be designed to address water erosion control, sediment control, off-site tracking control, wind erosion control, non-stormwater management control, and waste management and materials pollution control. A sampling and monitoring program shall be included in the Construction SWPPP that meets the requirements of the NCRWQCB to ensure the BMPs are effective. A Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee implementation of the Plan, including visual inspections, sampling and analysis, and ensuring overall compliance.

Mitigation Measure HWQ-1b: Industrial Storm Water General Permit.

The County and City shall obtain coverage under State Water Resources Control Board Order No. 97-03-DWQ, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities. This shall include submittal of a notice of intent to obtain permit coverage, and preparation, retention on site, and implementation of a SWPPP. The SWPPP shall identify the sources of pollution that affect the quality of industrial storm water discharges and authorized non-storm water discharges, and describe and ensure the implementation of best management practices to reduce or prevent pollutants in industrial storm water discharges. The SWPPP shall also include a monitoring program and other requirements contained in Order No. 97-03. Implementation of the SWPPP shall include the necessary inspections, monitoring, and overall compliance.

Mitigation Measure HWQ-1c: Well Development According to Mendocino County and California State Standards.

The contractor shall ensure that any well development and well pump test water is disposed

of in accordance to the discharge limitations of the NCRWQCB general permit for Dewatering and Other Low Threat Discharges to Surface Waters if disposed of in the drainage system. If sediment concentrations are in excess of surface discharge standards then compliance shall be achieved through the on-site detention of water in a storage tank to allow for the settlement of suspended solids. In addition, the contractor shall discharge all well development disinfection discharges containing chlorine residuals after treating the discharge to meet discharge requirements. With implementation of the above mitigation measures, the water quality impacts due to well development would be reduced to a less-than-significant level.

Finding: Mitigation Measures HWQ-1a, HWQ-1b, and HWQ-1c will reduce to insignificance any potential water quality impact from stormwater during facility construction, facility operation, and well development. Implementation of these mitigation measures is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact HWQ-1 will be mitigated to a less-than-significant level by the implementation of Mitigation Measures HWQ-1a, HWQ-1b and HWQ-1c. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Projects that discharge stormwater runoff to waters of the U.S. from land disturbances greater than one acre require a General Construction Stormwater Discharge Permit from the RWQCB, as required under NPDES Order No. 2009-0009, as amended by Order No. 2010-0014. To obtain a permit, a discharger files a Notice of Intent to be included under the State's NPDES permit. General conditions of the permit require that dischargers must eliminate non-stormwater discharges to stormwater systems, develop and implement a Storm Water Pollution Prevention Plan (SWPPP), and perform inspections of stormwater pollution prevention measures. SWRCB Order No. 2009-0009 applies to public and private construction projects that include one or more acres of soil disturbance. Because the proposed Central Coast Transfer Station site is anticipated to disturb up to 4.72 acres of land, compliance with Order No. 2009-0009 would be required. Implementation of Mitigation Measure HWQ-1a would mitigate potential impacts on water quality standards and waste discharge requirements to a less than significant level by complying with, and receiving coverage under, the NPDES General Permit for Discharge of Stormwater associated with construction activities. The implementation of BMPs, consistent with the requirements of the site's NPDES General Permit for Discharge of Stormwater associated with Construction Activity and the SWPPP, would ensure that the project does not violate any water quality standards or waste discharge requirements.

Stormwater discharges from operation of the project are required to comply with applicable provisions and performance standards stated in the National Pollutant Discharge Elimination System (NPDES) permit. As required by the NPDES permit, County and NCRWQCB requirements, waste materials will not be discharged to

drainage areas. Because the Central Coast Transfer Station has the potential to discharge pollutants from a point source (e.g., leaking oil from hauling trucks), the facility would be required to obtain an Industrial SWPPP under California Water Code Section 13260.

The design of the main indoor drainage control system would direct liquids from the waste and unloading areas to flow through a clarifier to remove solids, then to an on-site 500-gallon above ground storage tank. Liquids would not be allowed to leave the site and stormwater would not be allowed to enter the building. Facility and equipment inspections, combined with monitoring of the storage tank containment area, allow for the detection of potential sources of leachate leaks to the environment and early corrective actions to be implemented if necessary. The amount of wastewater generated is expected to be of such minimal quantity that most of the water is anticipated to evaporate. Facility operations would include removal of the wastewater by a licensed waste hauler with disposal at a permitted wastewater treatment facility when the tank becomes full. Therefore, impacts related to wastewater generated from operations would be less than significant. Implementation of Mitigation Measure HWQ-1b would mitigate potential impacts on water quality standards and waste discharge requirements to a less than significant level by complying with, and receiving coverage under, the NPDES General Permit for Discharge of Stormwater associated with operational activities.

The contractor would utilize large on-site tanks for well drilling and testing operations. The drilling mud would be contained in these tanks and removed from the site. The slurry would not be discharged but would be contained and removed. Mitigation Measure HWQ-1c would mitigate potential impacts on water quality standards and waste discharge requirements to a less than significant level by complying with NCRWQCB general permit for Dewatering and Other Low Threat Discharges to Surface Waters. With implementation of Mitigation Measures HWQ-1c, the project's construction water quality impacts would be reduced to a less than significant level.

Impact HWQ-3: Substantial Additional Sources of Polluted Runoff or Otherwise Substantially Degrade Water Quality.

The development of the proposed project would alter the types, quantities, and timing of stormwater contaminants relative to existing conditions. If this stormwater runoff is uncontrolled and not treated, the water quality of the discharge could affect off-site drainage channels and downstream water bodies.

Construction activities could result in stormwater discharges of suspended solids and other pollutants into local drainage channels from the project site. Construction related chemicals (e.g., fuels, paints, adhesives, etc.) could be washed into surface waters by stormwater runoff. The deposition of pollutants (e.g., gas, oil, etc.) onto the ground surface by construction equipment could similarly result in the transport of pollutants to surface waters by stormwater runoff or in seepage of such pollutants into groundwater.

The operation of the proposed project site could also introduce new stormwater pollutant sources. These pollutant sources would include oils and greases, petroleum hydrocarbons (e.g., gas and diesel fuels), nitrogen, phosphorous, and heavy metals. These pollutants could adversely affect stormwater discharges from the site.

The Local Enforcement Agency's Solid Waste Facilities permit for the potential site would prohibit the discharge of drainage containing solids, wash water, or leachate from solid wastes (14 CCR Article 6). The proposed project would be required to comply with these requirements by containing waste processing operations within the interior of the transfer station building and directing contact water into the building's interior collection system. Therefore, the discharge of drainage during operation from the solid waste processing area would not occur.

The type and concentration of stormwater discharge contaminants for developed areas varies based on a variety of factors, including intensity of urban uses such as vehicle traffic, types of activities occurring on site, types of chemicals used on-site (e.g., pesticides, herbicides, cleaning agents, petroleum by-products), road surface pollutants, and rainfall intensity. The design of the facility's stormwater management system would incorporate Low Impact Development (LID) strategies including minimization of the amount of stormwater generated and treated, retention and detention in vegetated bioswales, rain gardens, and oil/water separators in order to limit the contaminants entering stormwater flows. However, due to the industrial nature of the proposed project, there is the potential to contribute additional sources of polluted runoff and to degrade water quality during site operations if not handled properly and done in compliance with State regulations. The potential impact to water quality is considered significant.

Mitigation Measures HWQ-1a: Manage Construction Storm Water and HWQ-1b: Industrial Storm Water General Permit.

Mitigation Measure HWQ-1a: The County and City shall obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by Order No. 2012-0006. In compliance with the NPDES requirements, a Notice of Intent (NOI) shall be prepared and submitted to the NCRWQCB, providing notification and intent to comply with the State of California General Permit. In addition, a Construction Storm Water Pollution Prevention Plan (SWPPP) will be prepared for pollution prevention and control prior to initiating site construction activities. The Construction SWPPP shall identify and specify the use of erosion sediment control Best Management Practices (BMPs) for control of pollutants in stormwater runoff during construction related activities, and will be designed to address water erosion control, sediment control, off-site tracking control, wind erosion control, non-stormwater management control, and waste management and materials pollution control. A sampling and monitoring program shall be included in

the Construction SWPPP that meets the requirements of the NCRWQCB to ensure the BMPs are effective. A Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee implementation of the Plan, including visual inspections, sampling and analysis, and ensuring overall compliance.

Mitigation Measure HWQ-1b: The County and City shall obtain coverage under State Water Resources Control Board Order No. 97-03-DWQ, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities. This shall include submittal of a notice of intent to obtain permit coverage, and preparation, retention on site, and implementation of a SWPPP. The SWPPP shall identify the sources of pollution that affect the quality of industrial storm water discharges and authorized non-storm water discharges, and describe and ensure the implementation of best management practices to reduce or prevent pollutants in industrial storm water discharges. The SWPPP shall also include a monitoring program and other requirements contained in Order No. 97-03. Implementation of the SWPPP shall include the necessary inspections, monitoring, and overall compliance.

Finding: Mitigation Measures HWQ-1a and HWQ-1b will prevent significant impact from substantial additional sources of polluted runoff or otherwise substantially degrade water quality. Implementation of these mitigation measures is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County finds that the potentially significant project impact identified in Impact HWQ-3 will be mitigated to a less-than-significant level by the implementation of Mitigation Measures HWQ-1a and HWQ-1b. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: The project is required to obtain and comply with necessary permits and comply with other Mendocino County and the NCRWQCB requirements, acting to prevent, or essentially reduce the potential for the project to violate any water quality standards or waste discharge requirements.

The implementation of Best Management Practices, consistent with the requirements of the site's NPDES General Permit for Discharge of Stormwater associated with construction and operational activities, would ensure that the project does not violate any water quality standards. With implementation of the Mitigation Measures HWQ-1a and HWQ-1b, the project's construction and operational water quality impacts would be reduced to a less than significant level.

Some liquids could be generated on the tipping floor from cleaning, odor reduction misting, or solid waste trucks when unloading solid waste after rainstorms. The design of the main indoor drainage control system would direct liquids from the waste and unloading areas to flow through a clarifier to remove solids, then to an on-site 500-

gallon above ground storage tank. Liquids would not be allowed to leave the site and stormwater would not be allowed to enter the building. Facility and equipment inspections, combined with monitoring of the storage tank containment area, allow for the detection of potential sources of leachate leaks to the environment and early corrective actions to be implemented if necessary. The amount of wastewater generated is expected to be of such minimal quantity that most of the water is anticipated to evaporate. Facility operations would include removal of the wastewater by a licensed waste hauler with disposal at a permitted wastewater treatment facility when the tank becomes full. Therefore, impacts related to wastewater generated from operations would be less than significant.

The motor oil recycling tank and antifreeze recycling tank planned for the recycling drop-off area are standard features used at many transfer stations. The existing motor oil tank at Caspar Transfer Station would be moved to the new facility. It has double-containment and is encased in concrete to protect it from any rupture. Likewise, the antifreeze recycling tank would have external containment to prevent any leaks from escaping.

Impact HWQ-4: Substantially Alter Existing Drainage Pattern, or Substantially Increase Rate or Amount of Runoff in a Manner which would Result in Flooding On- or Off-site.

The project would not significantly alter the existing drainage patterns at the site. However, development of the project could lead to increased runoff due to removal of vegetation and the creation of impervious surfaces. Culverts, storm drains, seasonal drainage swales, and inlet and outlet structures would need to be constructed to manage stormwater.

Mitigation Measure HWQ-4: Reduce Potential for Increased Offsite Runoff.

The applicant shall design and construct detention basins within the project area to reduce stormwater runoff volume, rates, and sedimentation in addition to allowing stormwater to infiltrate. The specific locations of these detention basins will be determined during the development of the grading and drainage plans, as required by Mendocino County. To facilitate this, the applicant shall submit a final detailed design-level hydrologic and hydraulic analysis as necessary to Mendocino County detailing the implementation of the proposed drainage plans, including detention basin facilities that will conform to the following standards and include the following components, at a minimum:

1. The project shall ensure the peak runoff for the 2-, 10-, 50- and 100-year/24-hour storm events for post-development conditions is not greater than under existing conditions. The final grading and drainage plan, including detention basin designs, shall be prepared by a California licensed Professional or Civil Engineer. All design and construction details shall be depicted on the grading and drainage plans and shall include, but not be limited to, inlet and outlet water control structures, grading, designated maintenance access, and connection to existing drainage facilities.
2. Mendocino County shall review and approve the grading and drainage plans prior to implementation to ensure compliance with County standards. The project shall incorporate

any additional improvements deemed necessary by the County.

3. Once constructed, the drainage components, including detention basins and conveyance structures will be inspected by the County and maintained per the guidelines outlined in the projects SWPPP.
4. The detention basins shall be designed to completely drain within 24 to 96 hours (also referred to as “drawdown time”). The 24-hour limit is specified to provide adequate settling time; the 96-hour limit is specified to mitigate vector control concerns (e.g., mosquitoes). The project shall employ erosion control practices (i.e., temporary seeding and mulching) to reduce the amount of sediment flowing into the basin. The outlet structures shall be armored (e.g., riprap lined or equivalent) and designed to evenly spread stormwater where appropriate and slow velocities to prevent erosion and re-suspension of sediment. Specifically, the northern most detention basin shall have a vertical outlet pipe located within the detention basin that is connected to a pipe manifold that discharges stormwater in a regulated manner through a minimum of four equally spaced discharge pipes. By spacing the diffuser pipes a minimum of 25 feet from each other and discharging into an existing drainage located in the Bishop Pine Forest, stormwater infiltration will be promoted while not impacting the pygmy forest. The southernmost detention basin shall utilize a similar approach to managing stormwater, but will only consist of one outlet pipe that discharges directly to the existing drainage swale on Highway 20.

Finding: Mitigation Measure HWQ-4 will prevent any significant impact from substantial alteration of existing drainage pattern, or substantial increase in the rate or amount of runoff in a manner which would result in flooding on- or off-site. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact HWQ-4 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure HWQ-4. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: The contractor will be required to ensure that all disturbed areas of the project are graded in conformance with the approved grading and drainage plans in such a manner as to direct stormwater runoff to properly designed detention basins.

The County requires that drainage features be designed in accordance with the Mendocino County Drainage Standards, and that peak runoff for the 2, 10, 50 and 100- year/24-hour storm events following development are not greater than under pre- development conditions.

A surface water hydrologic analysis has been performed for the project, considering pre- and post-development conditions (GHD 2014) and can be found in EIR Appendix G.

Stormwater captured in the project area will be conveyed through sheet flow to a series of bioswales that surround the facility. The purpose of the bioswales is to control the concentration of flow from the project area as well as filter out sediment and chemical constituents that could impair water quality. This would be achieved by allowing stormwater to partially infiltrate and pass through the bioswale before being released to the detention basins.

Bioswales have been shown to remove pollutants such as phosphorous, metals (e.g., Cu, Zn, Pb), nitrogen, solids, organics, and bacteria at removal rates ranging from 68-98% (CASQA 2003). In order to handle runoff effectively, a bioswale needs to be sized appropriately for the area that it collects stormwater.

Based on the results of the surface water hydrologic analysis performed for the project, water surface elevations for the receiving stormwater channels are approximately 1-foot or less (assuming a 2-foot wide channel) and channel velocities are not expected to be above 4 feet per second (fps), under all storm events.

Implementation of Mitigation Measure HWQ-4 would reduce the impact to less than significant by requiring the project to incorporate all necessary drainage and stormwater management systems, and to comply with all stormwater system design, construction, and operational requirements in the mitigation measure and by Mendocino County. In combination, the project's stormwater management components and compliance with mitigation measures and regulatory requirements act to preclude potentially adverse drainage and stormwater runoff impacts.

More specifically, the project drainage concepts will maintain the site's primary drainage patterns, and will modify and enhance drainage areas in order to accept developed stormwater discharged from the project site. Stormwater conveyance capabilities and capacities provided by the project will ensure that post-development stormwater runoff volumes and velocities do not exceed pre-development conditions. In addition, long term maintenance of stormwater controls would be required for compliance with the project's SWPPP.

Impact TR-1: Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System.

Construction of the acceleration and deceleration lanes adjacent to SR 20 may require a temporary partial lane closure along SR 20 adjacent to the project site. Although such closures are anticipated to be of short-duration, they would temporarily alter the normal functionality of the highway and result in a temporary decrease in its overall performance and safety, including the potential for conflicts between construction vehicles with slower speeds and wider turning radii than autos and vehicles sharing the roadway, as well as confusion or frustration of drivers related to construction activities and traffic routing. The impact would be potentially significant.

Mitigation Measure TR-1: Traffic Control Plan.

The County and City shall require the construction contractor to prepare and implement an approved traffic control plan for the proposed construction activities. The plan shall conform to applicable provisions of the State's Manual of Traffic Controls for Construction and Maintenance Work Areas, shall include measures that address work that would occur within the Caltrans right-of-way, and shall include, but not necessarily be limited to, the following measures as applicable to site-specific conditions:

- Flaggers and signage shall be used to guide vehicles through and/or around the construction zone.
- Lane closures shall be limited during peak hours to the extent feasible. In addition, outside of allowed working hours, or when work is not in progress, roadways shall be restored to normal operations, where feasible, with all trenches covered with steel plates.
- Signs shall be provided to advise bicyclists and pedestrians of temporary detours around construction zones.
- Access to the CalFire helipad shall be maintained during construction by using steel trench plates. If access must be restricted for brief periods (more than one hour), CalFire shall be notified in advance of such closures.
- The contractor(s) shall be required to have ready at all times the means necessary to accommodate access by emergency vehicles, such as plating over excavations, short detours, and/or alternate routes.

Finding: Mitigation Measure TR-1 would reduce to insignificance potential impacts on traffic flows and safety hazards during construction. Implementation of this mitigation measure is feasible and enforceable. Based upon the Revised Final EIR and the entire record, the City and County find that the potentially significant project impact identified in Impact TR-1 will be mitigated to a less-than-significant level by the implementation of Mitigation Measure TR-1. Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant effects of the project on the environment (Pub. Res. Code §21081(a)(1); Cal. Code Regs. §15091(a)(1)).

Rationale: Proper management of traffic during road construction is well understood and applied by Caltrans for work on State Highways, and this project wouldn't be an exception.

6.3 Impacts Found Not to be Significant, Thus Requiring No Mitigation

CEQA does not require a lead agency to make individual findings for impacts that are determined to be less than significant without mitigation (CEQA Guidelines §15091(a)). Impacts associated with the project deemed to be less than significant prior to mitigation are discussed in the EIR. For the following resource areas there either would be no impact or

impacts would be less than significant:

- Aesthetics
- Agriculture and Forest Resources
- Greenhouse Gas Emissions
- Land Use and Planning
- Noise

In addition, certain impacts on other resources were deemed to be less than significant without mitigation or no impact, despite the need for mitigation on other impacts with respect to that same resource area, as listed below:

- **Air Quality and Odor** – The project would not conflict with or obstruct implementation of the applicable air quality plan (No impact, Draft EIR p. 3.3-7; Revised Draft EIR, p. 3.3-7).
- **Biological Resources** – The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan (No impact, Draft EIR p. 3.4-39; Revised Draft EIR, p. 3.3-39).
- **Biological Resources** – The project would not have a substantial adverse effect on federally protected wetlands (No impact, Impact BIO-3, Draft EIR pp. 3.4-48 to 3.4-49; Revised Draft EIR, p. 3.4.53).
- **Biological Resources** – The project would not interfere substantially with movement of native resident or wildlife species or with established native resident or migratory wildlife corridors, or impede use of native wildlife nursery (Less than significant, Impact BIO-4, Draft EIR p. 3.4-49; Revised Draft EIR, p. 3.4.53).
- **Biological Resources** – The project would not conflict with local policies or ordinances protecting biological resources (Less than significant, Impact BIO-5, Draft EIR p. 3.4-49; Revised Draft EIR p. 3.4.53; Revised Draft EIR, p. 3.4.53).
- **Biological Resources** – The project would not result in cumulatively considerable contribution to cumulative impacts related to biological resources (Less than significant, Impact BIO-C-1, Draft EIR pp. 3.4-49 to 3.4-50; Revised Draft EIR p. 3.4.54).
- **Cultural Resources** – The project would not result in cumulatively considerable contribution to cumulative impacts related to cultural resources (Less than significant, Impact CR-C-1, Draft EIR p.3.5-9).
- **Geology and Soils** – The project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State

Geologist for the area or based on other substantial evidence of a known fault (No impact, Draft EIR p. 3.6-7).

- **Geology and Soils** – The project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving landslides, or be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslides (No impact, Draft EIR p. 3.6-7).
- **Geology and Soils** – The project would not have soils incapable of adequately supporting use of septic tanks or alternative waste water disposal systems (Less than significant, Impact GEO-5, Draft EIR pp. 3.6-10 to 3.6-11).
- **Geology and Soils** – The project would not result in cumulatively considerable contribution to cumulative impacts related to geology and soils (No impact, Impact GEO-C-1, Draft EIR p. 3.6-11).
- **Hazards and Hazardous Materials** – The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school (No impact, Draft EIR p. 3.8-7).
- **Hazards and Hazardous Materials** – The project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment (No impact, Draft EIR pp. 3.8-7 to 3.8-8).
- **Hazards and Hazardous Materials** – The project would not be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and thus would not result in a safety hazard for people residing or working in the project area (No impact, Draft EIR p. 3.8-8).
- **Hazards and Hazardous Materials** – The project would not be located within the vicinity of a private airstrip and thus would not result in a safety hazard for the people residing or working in the project area (No impact, Draft EIR p. 3.8-8).
- **Hazards and Hazardous Materials** – The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands (Less than significant, Impact HAZ-3, Draft EIR p. 3.8-12).
- **Hazards and Hazardous Materials** – The project would not result in cumulatively considerable contribution to a significant cumulative impact

related to hazards or hazardous materials (Less than significant, Impact HAZ-C-1, Draft EIR pp. 3.8-12 to 3.8-13).

- **Hydrology and Water Quality** – The project would not place housing within a 100-year flood hazard area as mapped on the federal Flood Hazard Boundary or Flood Insurance Rate map or other flood hazard delineation map (No impact, Draft EIR p. 3.9-9; Revised Draft EIR, p. 3.9.9).
- **Hydrology and Water Quality** – The project would not place structures within a 100-year flood hazard area which would impede or redirect flood flows (No impact, Draft EIR p. 3.9-9; Revised Draft EIR, p. 3.9.9).
- **Hydrology and Water Quality** – The project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam (No impact, Draft EIR pp.3.9-9 to 3.9-10; Revised Draft EIR, p. 3.9.9 to 3.9.10).
- **Hydrology and Water Quality** – The project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow (No impact, Draft EIR p. 3.9-10; Revised Draft EIR, p. 3.9.10).
- **Hydrology and Water Quality** – The project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge (Less than significant, Impact HWQ-2, Draft EIR pp. 3.9-13 to 3.9-14; Revised Draft EIR, p. 3.9.13 to 3.9.14).
- **Hydrology and Water Quality** – The project would not result in a cumulatively considerable contribution to cumulative impacts related to hydrology and water quality (Less than significant, Impact HWQ-C-1, Draft EIR p. 3.9-18; Revised Draft EIR, p. 3.9.20).
- **Noise** – The project is not located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and thus would not expose people residing or working in the project area to excessive noise levels (No impact, Draft EIR p. 3.11-9).
- **Transportation** – The project would not conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways (No impact, Draft EIR pp. 3.12-4 to 3.12-5).
- **Transportation** – The project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks (No impact, Draft EIR p. 3.12-5).
- **Transportation** – The project would not substantially increase hazards due to a design feature or incompatible use (Less than significant, Impact TR-2, Draft EIR pp. 3.12-10 to 3.12-11).

- **Transportation** – The project would not result in inadequate emergency access (Less than significant, Impact TR-3, Draft EIR p. 3.12-11).
- **Transportation** – The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities (No impact, Impact TR-4, Draft EIR p. 3.12-11).

Transportation – The project would not result in cumulatively considerable contribution to cumulative impacts related to transportation (Less than significant, Impact TR-C-1, Draft EIR pp. 3.12-12 to 3.12-14).

7. Findings Regarding Alternatives to the Project

The EIR evaluated five alternatives to the proposed project: the No Project Alternative, the Caspar Landfill Site Alternative, the Empire Waste Management Pudding Creek Road Site Alternative, the Leisure Time RV Park Site Alternative, and the Mendocino Parks & Recreation District Property Alternative. These alternatives were selected for discussion and analysis because, together, they represent a reasonable range of alternatives given that they all (1) could potentially attain some of the project objectives or) are currently used for solid waste activities; and (2) could reduce or avoid some of the project’s potentially significant impacts

CEQA only requires a lead agency to consider environmentally superior alternatives and to make findings that any such alternatives are infeasible before approving a project if one or more of a project’s potentially significant adverse environmental effects will not be avoided or substantially lessened by mitigation measures. In other words, a lead agency need not make findings regarding the feasibility of alternatives described in the EIR if all of the project’s significant impacts will be avoided or reduced to levels of insignificance by mitigation measures. (See, e.g., *Laurel Hills Homeowners Ass’n v. City Council* (1978) 83 Cal.App.3d 515, 521; *Stevens v. City of Glendale* (1981) 125 Cal.App.3d 986, 996; *No Slo Transit, Inc. v. City of Long Beach* (1987) 197 Cal.App.3d 241; *Laurel Heights Improvement Ass’n v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 402; *Rio Vista Farm Bureau Ctr. v. County of Solano* (1992) 5 Cal.App.4th 351, 379 This is because a lead agency need make only one of the findings listed in Public Resources Code Section 21081(a) for each of the project’s potentially significant impacts, so if it makes a mitigation finding for each such potentially significant impact, no further findings are required. As demonstrated in the EIR and described above, all of the Project’s potentially significant impacts can and will be avoided or reduced to insignificant levels through implementation of the mitigation measures identified in the EIR. Accordingly, no findings are required regarding the project alternatives discussed in the EIR.

Nonetheless, for public informational purposes, the City and County agree with the EIR’s comparative analysis and conclusions concerning the project alternatives and make the following findings consistent therewith:

Finding: The No Project Alternative does not meet the objectives of the Project (reference Section 2.3, Project Objectives, of the Draft EIR on page 2.0-1) and waste hauling inefficiencies would remain the same as under existing conditions. Further,

impacts of the No Project Alternative on air quality, GHG emissions and energy would be greater than with the project.

Rationale: Under the No Project Alternative, solid waste in the coastal watershed would continue to be handled in the same inefficient manner as under existing conditions. Waste would be hauled to the Willits Transfer Station and self-haul would continue to occur at the Caspar facility. The significant beneficial impacts of the project on air quality, GHG emissions, and energy use would be lost with this alternative. The No Project Alternative has greater impacts than the project under two resource categories (GHG emissions and energy) and lesser impacts under the other ten categories.

Finding: The Caspar Landfill Site Alternative would meet the project's objectives but would be less successful than the proposed Project and use of the Project site in efficiency of hauling, minimizing hauling costs, isolation from potentially conflicting land uses, and controlling future solid waste costs.

Rationale: Under the Caspar Site Alternative, a commercial transfer station would be placed at the existing Caspar site, toward the southern end of the existing facilities. The Caspar site is not as optimally located in the watershed as the sites on the Highway 20 corridor. In addition, the Caspar Site is constrained by the configuration of the Highway 1/Road 409 intersection which cannot support a lengthened southbound left-turn pocket due to the proximity of the Caspar Creek bridge. The Caspar Site Alternative has greater impacts than the project under five resource categories (aesthetics, air quality, GHG emissions, energy, and traffic) with three other resource impacts being the same (cultural, geology, and hazards) and five resource impacts being less (forest resources, biological resources, hydrology, and land use).

Finding: The Empire Waste Management alternative would meet some of the project's objectives but not the objective calling for public ownership of the transfer station site. It would be less successful than the proposed Project site in efficiency of transfer, hauling expense, isolation from potentially conflicting land uses, and controlling rising solid waste costs.

Rationale: Under the Empire Waste Management Pudding Creek Road Site Alternative, a facility would be built on the northern edge of the property. The facility would be owned and operated by Empire Waste Management. The Empire Waste Management Pudding Creek Road Site Alternative has greater impacts than the project under three resource categories (land use, noise, transportation), similar impacts under five resource categories (aesthetics, air quality geology, GHG emissions, hazards) and lesser impacts under four resource categories (forest resources, biological resources, cultural resources, hydrology).

Finding: The Leisure Time RV Park Site Alternative would meet most of the project's objectives but would be less successful than the preferred site in isolating the project from potentially conflicting land uses. This alternative would also require the removal/displacement of current residents of the RV Park.

Rationale: Under the Leisure Time RV Park Site Alternative, a facility would be built in

the cleared area on the central portion of the site. The Leisure Time RV Park Alternative has greater impacts than the project under three resource categories (aesthetics land use, noise), similar impacts under five resource categories (air quality, geology, GHG emissions, hazards, hydrology, transportation), and lesser impacts under three resource categories (forest resources, biological resources, cultural resources).

Finding: The Mendocino Parks & Recreation District Property Alternative would meet most of the project's objectives but would be less successful than the preferred site in isolation from potentially conflicting land uses. In addition, the key public ownership objective would only be possible if the property was available at a price not greater than the appraised value, which has not been the case in the past, and fails to compare to the lack of any acquisition costs associated with the proposed Project site.

Rationale: Under the Mendocino Parks & Recreation District Property Alternative, a facility would be built in the cleared area near the southwestern corner of the property. The Mendocino Park & Recreation District Alternative has greater impacts than the project under two resource categories (land use, noise), similar impacts under six resource categories (aesthetics, air quality, geology, GHG emissions, hazards, transportation), and lesser impacts under three resource categories (forest resources, biological resources, cultural resources). Greater impacts on hydrology are possible but undetermined.

The EIR determined that the No Project Alternative is the environmentally superior alternative based solely on the fact that it has the fewest number of impacts to environmental resources, without giving weight to the relative importance of different impacts. According to CEQA Guidelines Section 15126.6(e), if the No Project Alternative is determined to be the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. Measured solely by the number of categories of impacts, among the other alternatives, the EIR determined that the environmentally superior alternative is the Mendocino Parks & Recreation District Property Alternative. As noted at the outset of this section, however, because all of the proposed Project's impacts can and will be avoided or reduced to insignificant levels by implementing the mitigation measures identified in the EIR, no further discussion or formal findings concerning the feasibility of any environmentally superior alternatives or any other project alternative is required by CEQA. (See, e.g., *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477; *Protect Our Water v. County of Merced* (2003) 110 Cal.App.4th 362, 373; *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692.

EXHIBIT B

MITIGATION MONITORING AND REPORTING PROGRAM CENTRAL COAST TRANSFER STATION

Section 21081.6 of the California Environmental Quality Act (CEQA) requires a lead agency to adopt a Mitigation Monitoring and Reporting Program (MMRP) whenever it approves a project for which measures have been identified and required to mitigate or avoid potentially significant adverse effects on the environment. The purpose of the MMRP is to ensure compliance with the mitigation measures during project implementation.

The Final EIR for the Central Coast Transfer Station Project concluded that implementation of the project could result in significant adverse effects on the environment and mitigation measures were developed to avoid or reduce all such potential impacts to levels of insignificance. This MMRP addresses those measures in terms of how and when they will be implemented. **Table A-1** on the following pages provides the MMRP for the proposed project in accordance with CEQA. Clarifications to the mitigations identified in the response to comments on the original Draft EIR and in the response to comments on the Revised Draft EIR have been incorporated into this MMRP.

Upon certification of the EIR and approval of the project, the City and County will request proposals from qualified waste management companies to design, build and operate the Central Coast Transfer Station. Accordingly, for purposes of this MMRP, "Project Contractor/Operator" means the company or companies that the City and County select to construct and operate the project. After project construction and operation contract(s) are awarded, the City of Fort Bragg and the County of Mendocino have agreed that the County will represent both agencies in all further contract oversight and mitigation monitoring activities.

TABLE A-1
MITIGATION MONITORING AND REPORTING PROGRAM

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
|---|---|--|-----------------------------|---|----------------------------------|
| <p>3.3 Air Quality and Odor</p> <p>AQ-1 Air Quality Control Measures during Construction. The Project Contractor/Operator shall implement the following Best Management Practices:</p> <ol style="list-style-type: none"> 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible and feasible. Building pads shall be laid as soon as possible and feasible, as well, after grading unless seeding or soil binders are used. 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified | <p>Project Contractor/Operator</p> | <p>Mendocino County Planning & Building Services; Mendocino County Air Quality Management District</p> | <p>Project construction</p> | <p>Project construction</p> | <p>County/District standards</p> |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| <p>mechanic and determined to be running in proper condition prior to operation.</p> <p>8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.</p> <p>9. Include all applicable requirements contained in District Regulation 1, Rule 1-430.</p> | | | | | |
| <p>AQ-2 Select Equipment during Construction to Minimize Emissions. The Project Contractor shall follow the following standard: All diesel-powered off-road equipment larger than 50 horsepower and operating at the site for more than two days continuously shall meet U.S. EPA particulate matter emissions standards for Tier 2 engines or equivalent.</p> | Project Contractor/ Operator | Mendocino County Planning & Building Services; Mendocino County Air Quality Management District | Project construction | Project construction | County/ District standards |
| <p>AQ-3 Implement Odor Reduction Measures. The County and City shall require as an enforceable provision of the operations contract for the facility that no odors are detectable beyond the site boundaries. When approving the final building design, the County and City will ensure that it is compatible with installation of any necessary odor control systems. The operations contract will require: <u>Design & Construction</u></p> <p>1. Design of facility to ensure all transfer, handling and storage of solid waste material occurs within the fully enclosed building. The County Environmental Health Division, Local Enforcement Agent (LEA) for CalRecycle, has jurisdiction over odor</p> | Project Contractor/ Operator | Mendocino County Planning & Building Services; Mendocino County Air Quality Management District; Mendocino County Solid Waste Director | Project construction and operation | Project construction and operation | County/ District standards |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
|--|---|--|------------------------------------|--|-----------------------------------|
| <p>impacts of a solid waste facility and conducts periodic inspections and responses to complaints. If the LEA confirms off-site odor at any time, the operator will be required to implement any or all of the following controls: A. Air curtains at doorways B. Overhead misting system C. Negative pressure ventilation with exhaust air directed through biofilters</p> <p><u>Operation</u></p> <ol style="list-style-type: none"> 1. Close all doors when facility is not operating. 2. Ensure material is not stored on site for more than 48 hours. 3. Develop and implement best management practices to clean the facility on a daily basis, including removing all odor producing food waste from facility floors and equipment. 4. Provide neighbors with a contact name and phone number to report odor or dust complaints. Such complaints shall be documented. The source or cause of any odor will be identified and actions taken to mitigate the odors shall also be documented. <p>The County and City shall designate a staff member to receive, document, and follow-up on odor complaints. A record shall be kept of each complaint for a minimum of five years from the date the complaint is received.</p> | | | | | |
| <p>3.4 Biological Resources</p> <p>Bio-1a Mitigate Impacts to Coast Lily</p> <p>The County and City shall implement the following measures to mitigate the temporary and permanent impacts to Coast lily plants during construction and operation of the project:</p> <p><u>During Construction (0.003 acre subpopulation polygon)</u></p> | Project Contractor/ Operator | Mendocino County Planning & Building Services; Mendocino County Solid Waste Director | Project construction and operation | Project construction and annual monitoring for two years | 100% success rate after two years |

| Mitigation Measure | Individual Responsible for Implementing/ Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| <p>The building contractor shall install construction avoidance fencing at the interface of project footprint and the edge of the 0.003 acre coast lily subpopulation present on the south edge of the project site (refer to Figure 3.4-1 of the Draft EIR). The fencing will be at a minimum 100 linear feet in length to provide a barrier between the construction footprint and adjacent coast lily subpopulation. The construction fencing will be placed so that there is no “construction buffer” in this area, so as to avoid direct impacts to coast lily individuals. The construction avoidance fencing shall be installed by a qualified biologist and inspected weekly for the duration of construction to ensure that the fencing remains installed properly.</p> <p><u>During Operation (0.003 acre subpopulation polygon)</u> Permanent fencing shall be installed prior to operation of the project. The fencing shall be approximately 100 feet in length and placed between the driveway leading to the scalehouse and the subpopulation polygon so as to create a permanent barrier from project operation. Perimeter fencing installed around the perimeter of the transfer station facility may suffice as protection of the subpopulation polygon from operational activities.</p> <p><u>Five Individual Coast Lily Plants</u> The five individual coast lily plants, as identified within the project footprint on Figure 3.4-1 of the Draft EIR, shall be relocated, if possible, to the south subpopulation area. If relocation is not possible a nursery will be contracted to provide locally sourced plant stock and the five plants will be replaced at a 2:1 ratio. The plant stock or plantings shall be placed in an area adjacent to the south subpopulation. The plant replacement (whether through relocation and/or replanting) shall require annual monitoring for two years, with 100% success. To ensure meeting the 100% success criteria it is recommended that supplemental planting occur at a minimum of 20% (i.e.: 1 additional plant for relocation</p> | | | | | |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| or two additional plants for nursery-provided plant stock). | | | | | |
| <p>Bio-1b Mitigate Impact to CRPR Listed Tree Species: Mendocino Cypress and Bolander's Pine</p> <p>The impacts to CRPR-listed tree species Mendocino cypress and Bolander's pine (a 0.58 acre area) shall be mitigated through preservation at an offsite location. To mitigate for the removal of Mendocino pygmy cypress trees (approximately 229 individuals of intermediate and tall morphotypes) and Bolander's pine (approximately 38 individuals), present within 0.58 acre impact area mapped as Pygmy cypress Alliance (tall and intermediate morphotypes), as well as where individual CRPR listed trees are scattered within the Bishop Pine Alliance proposed for removal, the County shall create the Caspar Pygmy Forest Preserve encompassing a 28.3 acre County-owned parcel off Prairie Way in Caspar (APN 118-500-45). The County shall execute appropriate legal documents to guarantee that the Caspar Pygmy Forest Preserve will remain undeveloped in perpetuity and only accessible for botanical research and other activities consistent with undiminished protection of the habitat. The preservation may be accomplished by transferring title or an easement to an established conservation organization subject to a preservation covenant, or, if no such organization is found, by the County recording a covenant creating a conservation easement on behalf of the public. In that instance, the County shall secure all access points to the property and post warning signs. Quarterly inspection of the Caspar Pygmy Forest Preserve will be made by County personnel along with their routine mandatory inspections of the cover of the nearby closed Caspar Landfill. The inspections of the Preserve shall ensure all access points</p> | County & Project Contractor/ Operator | Mendocino County Planning & Building Services; CDFW; Mendocino County Solid Waste Director | Prior to operation | Quarterly inspections in perpetuity | Successful transfer of title or a conservation easement |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| <p>remain secure and signage is in place, and that no vandalism or trash dumping occurs, and propose and implement remedial activities if necessary to maintain current condition of the Preserve. Invasive plants along the southern boundary of the Caspar Pygmy Forest Preserve/Preservation Parcel shall be eradicated. A vegetation description and map of the mitigation parcel are included in Appendix L of the Revised DEIR.</p> | | | | | |
| <p>Bio-1c Minimize and Avoid Impacts to Sonoma Tree Vole. The County and City shall consult with CDFW to minimize and avoid potential impacts to Sonoma tree vole during tree removal and project construction activities. Trees shall be removed during the non-breeding season (October to January). If seasonal avoidance of breeding time (February through September) cannot be implemented for tree removal activities, pre-construction surveys shall be conducted by a qualified biologist, in a manner such as follows (to be refined if necessary in consultation with CDFW):</p> <ul style="list-style-type: none"> • No more than two weeks before tree removal activities begin, a biologist will assess what portions, if any, of the tree removal area and areas within 50 feet of tree removal, is potential tree vole habitat, based on species composition and discussion with CDFW. • If tree vole habitat is located on portions of the property within 50 feet of tree removal areas, a qualified biologist shall conduct a survey for presence of the species on the property in areas within 50 feet of tree removal and construction footprint. • A standard survey methodology shall include at least two trained observers conducting visual searches for tree vole nests while walking along transects spaced 25 meters apart. When either fecal pellets, resin ducts, | <p>County & City/ Project Contractor</p> | <p>Mendocino County Planning & Building Services; CDFW; Mendocino County Solid Waste Director</p> | <p>Project construction</p> | <p>Project construction</p> | <p>CDFW standards</p> |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| <p>or potential nests are observed, vole nests must be confirmed by climbing trees and examining all potential nests to see if they contain evidence of occupancy by tree voles (fecal pellets, resin ducts, and conifer branch cuttings).</p> <ul style="list-style-type: none"> If occupied habitat is identified during pre-construction surveys, clearing/construction activities shall be suspended while the biologist consults with CDFW to determine how to avoid disruption to breeding activity or if individual relocation is possible. | | | | | |
| <p>Bio-1d Conduct pre-construction Avian Surveys for Nesting Passerine Birds and Avian Species of Special Concern. The Project Contractor shall conduct vegetation clearing activities if possible during the fall and/or winter months from August 16 to March 14, outside of the active nesting season for migratory bird species (i.e., March 15 to August 15). If vegetation cannot be removed during the non-breeding season, the Project Contractor shall have a qualified biologist conduct preconstruction surveys within impact area from ground disturbance and tree removal, to check for nesting activity of migratory and special-status bird species. The biologist shall conduct the preconstruction surveys within the 14-day period prior to vegetation removal and ground-disturbing activities (on a minimum of three separate days within that 14-day period). If ground disturbance and tree removal work lapses for 15 days or longer during the breeding season, a qualified biologist shall conduct supplemental avian preconstruction survey before project work may be reinitiated. If nesting activity is detected within the project footprint or within 300 feet of construction activities, the Project Contractor shall have trees flagged that are supporting breeding, and will not remove those trees until the nests have fledged. Construction activities shall avoid nest sites</p> | Project Contractor | USFWS; CDFW | Pre-construction | Pre-construction | CDFW standards |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| <p>until the biologist determines that the young have fledged or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within 300 feet of the construction area, buffers will be implemented if deemed appropriate in coordination with CDFW.</p> | | | | | |
| <p>Bio-1e Avoid Impacts to Special-Status Bat Species. The County and City shall conduct tree removal activities outside of the bat breeding period of March 1 through August 31 if possible, so ideally tree removal would occur from September 1 to February 28. If trees cannot be removed during this time, the following measures shall be implemented:</p> <ul style="list-style-type: none"> • A qualified biologist shall be retained to conduct a habitat assessment at least 30 days and no more than 90 days prior to construction activities (i.e., ground-clearing and grading, including removal or trimming of trees) of all trees on the site that are proposed for removal. The assessment shall be designed to identify trees containing suitable roosting habitat for bats and to identify mitigation measures needed to protect roosting bats. • If the habitat assessment identifies suitable special-status bat habitat and/or habitat trees, the biologist shall identify and evaluate the type of habitat present at the project site and specify methods for habitat and/or habitat tree removal in coordination with CDFW based on site-specific conditions. If bat habitat is present, removal of trees or areas that have been identified as habitat shall occur in two phases over two days under the supervision of a qualified biologist. In the afternoon on day one, limbs and branches of habitat trees without cavities, crevices and deep bark fissures would be removed by chainsaw. On day two, the entire tree can be removed. If trees | Project Contractor | Mendocino County Planning & Building Services; CDFW; Mendocino County Solid Waste Director | Pre-construction | Pre-construction | CDFW standards |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| with cavities, crevices and deep bark fissures are proposed for removal, CDFW shall be consulted for removal methods. | | | | | |
| <p>Bio-2a Mitigate Impacts to Cypress forest-tall and Cypress forest – intermediate.</p> <p>The impacts to 0.58 acres of Cypress forest habitat shall be mitigated through preservation at an offsite location. The County and City propose to use a site identified as Assessor's Parcel Number (APN) 118-50-045 which is adjacent to and north of the Caspar transfer station parcel. A conservation easement will be placed over the preservation site to permanently preserve an area to compensate for areas of impact at the proposed project site (Cypress forest-tall and Cypress forest-intermediate). The conservation easement may consist of a mixture of the three cypress morphotypes; pygmy, intermediate, and/or tall cypress and Bolander's pine forest. The acreage is in addition to the area being preserved for impacts to sensitive-listed individual tree species within the habitats mitigated for under BIO-2a (cypress forest-tall and intermediate-map units) and shall be coincident to the area placed under conservation easement per Mitigation Measure BIO-1b.</p> <p>To mitigate for the removal of 0.58 acre of Mendocino pygmy cypress (tall and intermediate morphotypes) [12.6% of onsite map units], the County will designate the Caspar Pygmy Forest Preserve encompassing a 28.3 acre parcel. The County will execute appropriate legal documents to guarantee that the Caspar Pygmy Forest Preserve will remain undeveloped in perpetuity and accessible for botanical research and other activities consistent with undiminished protection of the habitat. This may be accomplished by transferring title or an easement to an established conservation organization subject to a preservation covenant, or, if no such organization is found,</p> | Project Contractor | Mendocino County Planning & Building Services; Mendocino County Solid Waste Director | Prior to operation | Quarterly inspections in perpetuity | Successful transfer of title or a conservation easement |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| <p>by the County recording a covenant creating a conservation easement on behalf of the public. In that instance, the County will secure all access points to the property and post warning signs. Periodic inspection of the Caspar Pygmy Forest Preserve will be made by County personnel at the same times as mandatory inspections are made of the cover of the nearby closed Caspar Landfill.</p> | | | | | |
| <p>Bio-2b Mitigate Impacts to Bishop Pine Forest Alliance. The impacts from removal of 4.0 acres of Bishop Pine Forest Alliance at the project site will be mitigated as follows:</p> <ol style="list-style-type: none"> 1. Preservation of 5.76 acres of Bishop Pine Forest at the Caspar Pygmy Forest Preserve (APN 118-500-45), which is described above in Mitigation Measure BIO-2a. As shown on the vegetation map (included in Appendix L), a substantial area in the center of this parcel is Bishop Pine Forest. Unless preserved, this parcel would be surplus property available for sale and residential development. The provisions for protection, ownership and management of the mitigation parcel are described above in Mitigation Measure BIO-2a. 2. Restoration of 6.29 acres of Bishop Pine Forest at the closed Caspar Landfill property (APN 118-500-11) owned by the County of Mendocino and the City of Fort Bragg. The restoration will consist of reestablishment of 1.01 acres where Bishop Pine is absent and enhancement of 5.28 acres where the Bishop Pine habitat currently exists but is seriously degraded. The plan for reestablishment and enhancement was prepared by WRA Associates and is attached to the Revised DEIR as Appendix L. | County/ Project Contractor | Mendocino County Planning & Building Services; Mendocino County Solid Waste Director | Prior to operation | Quarterly inspections in perpetuity | Transfer of title or a conservation easement; implementation of Bishop Pine Mitigation Plan (WRA Associates-2016) |

| Mitigation Measure | Individual Responsible for Implementing/ Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| <p>3.5 Cultural Resources</p> <p>CR-1 Disturbance of Undiscovered Archaeological Resources. During the course of ground-disturbing activities associated with project construction activities, if any cultural resources are discovered, work shall be halted immediately within 50 feet of the discovery, and the Mendocino County Planning Department shall be immediately notified. At that time, the County will coordinate any necessary investigation and evaluation of the discovery with a qualified archaeologist. If the archaeological resources are Native American, representatives of the appropriate culturally affiliated tribe shall also be enlisted to help evaluate the find and suggest appropriate treatment.</p> <p>The County shall consult with the archaeologist and agree upon implementation of treatment of the resources that is deemed appropriate and feasible. Such treatment may include avoidance, curation, documentation, excavation, preservation in place, or other appropriate measures.</p> | Project Contractor | Mendocino County Planning & Building Services | Project construction | Project construction | County/ State standards |
| <p>CR-2 Potential Disturbance of Undiscovered Paleontological Resources. During the course of ground-disturbing activities associated with project construction activities, if any paleontological resources are discovered, work shall be halted immediately within 50 feet of the discovery, and the Mendocino County Planning Department shall be immediately notified. At that time, the County will coordinate any necessary investigation of the discovery with a qualified paleontologist.</p> <p>The County shall consider the mitigation recommendations of the qualified paleontologist for any unanticipated discoveries of paleontological resources. The County shall consult with the paleontologist and agree upon</p> | Project Contractor | Mendocino County Planning & Building Services | Project construction | Continuously during construction | State standards |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| implementation of a measure(s) that are deemed appropriate and feasible. Such mitigation measures may include avoidance, curation, documentation, excavation, preservation in place, or other appropriate measures. | | | | | |
| <p>CR-3 Potential to Uncover Human Remains. If construction activities result in the discovery of human remains during ground disturbing construction activities, in accordance with California Health and Safety Code Section 7050.5, no further disturbance shall occur until the Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The Coroner shall be notified of the find immediately and there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the Coroner makes the required determinations regarding the remains. If the human remains are determined to be prehistoric, the Coroner shall notify the NAHC, which shall determine and notify a Most Likely Descendant. The Most Likely Descendant shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and non-destructive analysis of human remains and items associated with Native American burials.</p> | Project Contractor | County Coroner; NAHC | Project construction | Continuously during construction | State standards |
| <p>3.6 Geology and Soils GEO-1 Conduct a Geotechnical Study and Implement Recommendations. The County and City shall require a California registered Geotechnical Engineer to conduct a design-level geotechnical study for the project. The geotechnical study shall address all areas of ground disturbance, evaluate seismic hazards, and provide recommendations to mitigate the effects of: strong ground shaking, liquefiable soils, lateral spreading, and subsidence in adherence with applicable design standards, including applicable CBC and Mendocino County Building Code standards for earthquake resistant construction. The seismic criteria shall take into</p> | Project Contractor | Mendocino County Planning & Building Services | Pre-construction | Pre-construction | County and CBC standards |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| <p>account the active faults that will affect the project site, and ground motions and shaking related to the faults.</p> <p>The geotechnical study shall also include evaluation of unstable soils in the project area, including areas susceptible to liquefaction or subsidence, and areas containing expansive soils. The study shall provide measures to repair, stabilize, or avoid such soils, and include grading, drainage, paving, and foundation design recommendations such that adherence with current applicable standards for earthquake resistant construction would be achieved. This may include, but would not be limited to, one or more of the following measures (or equivalent measures) to meet the performance standards:</p> <ul style="list-style-type: none"> • Maintain wet optimum moisture content of clay soils where the soils will support foundations, concrete slabs, and asphalt concrete pavements, until covered with permanent construction and install moisture barriers. • Remove organic topsoil from planned structure areas prior to construction. <p>The project shall be designed and constructed in conformance with the specific recommendations contained in the design-level geotechnical study, including recommendations for grading, ground improvement, foundations, concrete slabs and asphalt concrete pavements. The recommendations made in the geotechnical study shall be incorporated into the final plans and specifications and implemented during construction. Professional inspection of foundation and excavation, earthwork and other geotechnical aspects of site development shall be performed during construction in accordance with the current version of the CBC.</p> | | | | | |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| <p>3.8 Hazards and Hazardous Materials HAZ-1 Prepare Hazardous Materials Business Plan</p> <p>The County and City shall ensure that the Project Contractor/Operator of the facility prepare a Hazardous Materials Business Plan prior to operations pursuant to the Business Plan Act. The Hazardous Materials Business would include, but not be limited to, an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures. In addition, the Hazardous Materials Business Plan would also include a Spill Prevention Plan. The Spill Prevention Plan would include, but not be limited to, restrictions and procedures for fuel storage location, fueling activities, regular equipment maintenance, and training and lines of communication to facilitate the prevention, response, containment, and clean-up of spills during construction activities would also outlined.</p> | Project Contractor/Operator | Mendocino County Planning & Building Services Department | Prior to operation | Quarterly during operation | County CUPA standards |
| <p>3.9 Hydrology and Water Quality HWQ-1a Manage Construction Storm Water.</p> <p>The County and City shall obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by Order No. 2012-0006. In compliance with the NPDES requirements, a Notice of Intent (NOI) shall be prepared and submitted to the NCRWQCB, providing notification and intent to comply with the State of California General Permit. In addition, a Construction Storm Water Pollution Prevention Plan (SWPPP) will be prepared for pollution prevention and</p> | Project Contractor/Operator | Mendocino County Planning & Building Services; NCRWQCB; Mendocino County Solid Waste Director | Pre-construction | Project construction | County and State standards |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
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| <p>control prior to initiating site construction activities. The Construction SWPPP shall identify and specify the use of erosion sediment control best management practices (BMPs) for control of pollutants in stormwater runoff during construction related activities, and will be designed to address water erosion control, sediment control, off-site tracking control, wind erosion control, non-stormwater management control, and waste management and materials pollution control. A sampling and monitoring program shall be included in the Construction SWPPP that meets the requirements of the NCRWQCB to ensure the BMPs are effective. A Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee implementation of the Plan, including visual inspections, sampling and analysis, and ensuring overall compliance.</p> | | | | | |
| <p>HWQ-1b Industrial Storm Water General Permit. The County and City shall obtain coverage under State Water Resources Control Board Order No. 97-03-DWQ, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities. This shall include submittal of a notice of intent to obtain permit coverage, and preparation, retention on site, and implementation of a SWPPP. The SWPPP shall identify the sources of pollution that affect the quality of industrial storm water discharges and authorized non-storm water discharges, and describe and ensure the implementation of best management practices to reduce or prevent pollutants in industrial storm water discharges. The SWPPP shall also include a monitoring program and other requirements contained in Order No. 97-03. Implementation of the SWPPP shall include the necessary inspections, monitoring, and overall compliance.</p> | Project Contractor/Operator | Mendocino County Planning & Building Services; SWRCB, Mendocino County Solid Waste Director | Pre-operation | Pre-operation through operation | County and State standards |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
|--|---|---|--------------------------|---|----------------------------|
| <p>HWQ-1c Well Development According to Mendocino County and California State Standards. The Project Contractor shall ensure that any well development and well pump test water is disposed of in accordance to the discharge limitations of the NCRWQCB general permit for Dewatering and Other Low Threat Discharges to Surface Waters if disposed of in the drainage system. If sediment concentrations are in excess of surface discharge standards then compliance shall be achieved through the on-site detention of water in a storage tank to allow for the settlement of suspended solids. In addition, the contractor shall discharge all well development disinfection discharges containing chlorine residuals after treating the discharge to meet discharge requirements. With implementation of the above mitigation measures, the water quality impacts due to well development would be reduced to a less-than-significant level.</p> | Project Contractor/Operator | Mendocino County Planning & Building Services; NCRWQCB | Pre-construction | Pre-construction through operation | County and State standards |
| <p>HWQ-4 Reduce Potential for Increased Offsite Runoff. The Project Contractor shall design and construct detention basins within the project site area to reduce stormwater runoff volume, rates, and sedimentation in addition to allowing stormwater to infiltrate. The specific locations of these detention basins will be determined during the development of the grading and drainage plans, as required by Mendocino County. To facilitate this, the Project Contractor shall submit a final detailed design-level hydrologic and hydraulic analysis as necessary to Mendocino County detailing the implementation of the proposed drainage plans, including detention basin facilities that will conform to the following standards and include the following components, at a minimum:</p> <ol style="list-style-type: none"> 1. The project shall ensure the peak runoff for the 2-, 10-, 50- and 100-year/24-hour storm events for post-development conditions is not greater than under existing conditions. The final grading and drainage | Project Contractor/Operator | Mendocino County Planning & Building Services | Pre-construction | Pre-construction through operation | County and State standards |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
|--|---|---|--------------------------|---|----------------------|
| <p>plan, including detention basin designs, shall be prepared by a California licensed Professional or Civil Engineer. All design and construction details shall be depicted on the grading and drainage plans and shall include, but not be limited to, inlet and outlet water control structures, grading, designated maintenance access, and connection to existing drainage facilities.</p> <ol style="list-style-type: none"> 2. Mendocino County shall review and approve the grading and drainage plans prior to implementation to ensure compliance with County standards. The project shall incorporate any additional improvements deemed necessary by the County. 3. Once constructed, the drainage components, including detention basins and conveyance structures will be inspected by the County and maintained per the guidelines outlined in the project's SWPPP. 4. The detention basins shall be designed to completely drain within 24 to 96 hours (also referred to as "drawdown time"). The 24-hour limit is specified to provide adequate settling time; the 96-hour limit is specified to mitigate vector control concerns (e.g., mosquitoes). The project shall employ erosion control practices (i.e., temporary seeding and mulching) to reduce the amount of sediment flowing into the basin. The outlet structures shall be armored (e.g., riprap lined or equivalent) and designed to evenly spread stormwater where appropriate and slow velocities to prevent erosion and re-suspension of sediment. Specifically, the northernmost detention basin shall have a vertical outlet pipe located within the detention basin that is connected to a pipe manifold that discharges stormwater in a regulated manner through a minimum of four equally spaced discharge pipes. By spacing the diffuser pipes a minimum of 25 feet from each other and discharging into an existing drainage located in the Bishop Pine Forest, stormwater | | | | | |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
|---|---|---|--------------------------|---|-------------------------------|
| <p>infiltration will be promoted while not impacting the pygmy forest. The southernmost detention basin shall utilize a similar approach to managing stormwater, but will only consist of one outlet pipe that discharges directly to the existing drainage swale on Highway 20.</p> | | | | | |
| <p>3.12 TR-1 Transportation Traffic Control Plan. The County and City shall require the Project Contractor to prepare and implement an approved traffic control plan for the proposed construction activities. The plan shall conform to applicable provisions of the State's Manual of Traffic Controls for Construction and Maintenance Work Areas, shall include measures that address work that would occur within the Caltrans right-of-way, and shall include, but not necessarily be limited to, the following measures as applicable to site-specific conditions:</p> <ul style="list-style-type: none"> • Flaggers and signage shall be used to guide vehicles through and/or around the construction zone. • Lane closures shall be limited during peak hours to the extent feasible. In addition, outside of allowed working hours, or when work is not in progress, roadways shall be restored to normal operations, where feasible, with all trenches covered with steel plates. • Signs shall be provided to advise bicyclists and pedestrians of temporary detours around construction zones. • Access to the CalFire helipad shall be maintained during construction by using steel trench plates. If access must be restricted for brief periods (more than one hour), CalFire shall be notified in advance of such closures. • The contractor(s) shall be required to have ready | Project Contractor | Mendocino County Planning & Building Services, Caltrans | Pre-project construction | Project construction and operation | County and Caltrans standards |

| Mitigation Measure | Individual Responsible for Implementing/Complying with Mitigation Measure | Individual or Organization Responsible for Verifying Compliance | Timing of Initial Action | Frequency and/or Duration of Monitoring | Performance Criteria |
|---|---|---|--------------------------|---|----------------------|
| at all times the means necessary to accommodate access by emergency vehicles, such as plating over excavations, short detours, and/or alternate routes. | | | | | |

[Cal Pub Resources Code § 4659](#)

Deering's California Codes are current with urgency legislation through Chapter 248 of the 2016 Regular Session and Chapter 8 of the 2015-16 2nd Extraordinary Session, and ballot measures approved by the electorate at the June 7, 2016, Presidential Primary Election.

[Deering's California Code Annotated](#) > [PUBLIC RESOURCES CODE](#) > [Division 4. Forests, Forestry and Range and Forage Lands](#) > [Part 2. Protection of Forest, Range and Forage Lands](#) > [Chapter 9. State Forest](#) > [Article 3. State Forests](#)

§ 4659. Development of solid waste transfer station by the City of Fort Bragg or the County of Mendocino; Option to take title to Jackson Demonstration State Forest site; Compensation for loss of specified sites; Requirements

- (a) For purpose of this section, the following definitions shall apply:
- (1) "City" means the City of Fort Bragg.
 - (2) "County" means the County of Mendocino.
 - (3) "Entity acquiring title" means either the city or the county, whichever exercises the option specified in subdivision (c) to take title to the property.
 - (4) "Property" means the certain real property described as the easterly 17 acres, more or less, of that portion of Mendocino County Assessor's Parcel Number 019-150-05 which is north of State Highway 20, located in a portion of the Jackson Demonstration State Forest.
 - (5) "Solid waste transfer station" has the same meaning as transfer station, as defined in Section 40200.
- (b) Notwithstanding any other law, the Director of General Services, subject to the approval of the Department of Forestry and Fire Protection, may grant an option to the city or to the county, for either entity to acquire title to the property for the purpose of developing a solid waste transfer station.
- (c) The option agreement shall have a term of five years, from the date of execution, for the city or county to exercise the option and take title to the site.
- (d) Following the transfer of title, the entity acquiring title shall complete the development of, and open, a solid waste transfer station no later than 10 years from the date of recordation of the transfer document or the title to the property shall revert back to the Department of Forestry and Fire Protection and the entity shall reimburse the state for the administrative costs incurred by the state to process the reversionary documents.
- (e) If the entity acquiring title to the property is successful in opening a solid waste transfer station on the site, all delivery and acceptance of solid waste shall cease at the existing Caspar Landfill property, also known as Mendocino County Assessor's Parcel Numbers 118-500-10 and 118-500-11.
- (f) The Department of Forestry and Fire Protection, on behalf of the state, may be compensated for loss of up to 17 acres of the Jackson Demonstration State Forest by

transfer from the Department of Parks and Recreation, on behalf of the state, of 12.6 acres in Russian Gulch State Park, which is separated from the remainder of the state park by a county road.

- (g)** The Department of Parks and Recreation, on behalf of the state, may be compensated, in turn, for loss of the 12.6 acres in Russian Gulch State Park specified in subdivision (f) by the grant of a restrictive covenant on 60 acres of city and county property on the northern boundary of the state park, which is currently a closed landfill and small volume transfer station, and by an option to buy 35 acres of the city and county property.
- (h)** If the city or county exercises the option to take title to the property pursuant to this section, the Department of Parks and Recreation, with the approval of the Director of General Services, may transfer to the Department of Forestry and Fire Protection jurisdiction over that portion of Russian Gulch State Park northeast of Mendocino County Road 409, being 12.6 acres, more or less, and being a portion of Mendocino County Assessor's Parcel Number 118-520-02, to be included as a part of the Jackson Demonstration State Forest under the direction of the Department of Forestry and Fire Protection.
- (i)** If the option to acquire the property is exercised, the entity acquiring title to the property shall execute and record in favor of the Department of Parks and Recreation both of the following:

 - (1)** A covenant restricting the uses and activities at the Caspar Landfill property to prevent any significant nuisance impacts on Russian Gulch State Park. The form of this restrictive covenant shall be approved, prior to recordation, by the Department of Parks and Recreation.
 - (2)** An option with a term of 99 years and a price of one dollar (\$1) to purchase the westernmost 35 acres of the Caspar Landfill property, described in subdivision (e), with road access to that property.
- (j)** The entity acquiring title to the property shall reimburse the state for the difference in the appraised value of the assets that are to be exchanged, if the state is found to be receiving less value, and for reasonable administrative costs incurred to complete the transfer of title.
- (k)** The entity acquiring title of the property shall be solely responsible for compliance with the California Environmental Quality Act (Division 13 (commencing with Section 21000) in connection with the transfer of property ownership and development of the solid waste transfer station.
- (l)** The exchange of lands carried out pursuant to this section shall be based on current fair market value and subject to the terms and conditions, and with the reservations, restrictions, and exceptions that the Director of General Services determines are in the best interests of the state, including the condition that the exchange shall result in no net cost or loss to the state.
- (m)**

 - (1)** If the state exercises the option to purchase the westernmost 35 acres of the Caspar Landfill property, pursuant to paragraph (2) of subdivision (i), the city or county shall

indemnify the state against any liability that arises from any injury caused by, or any remediation required by, any contamination on the Caspar Landfill property that is transferred to the state.

- (2) The Department of Parks and Recreation shall authorize access to the property described in paragraph (1) to the county in order for the county to perform monitoring, including monitoring of groundwater to ensure that there is no leakage or contamination from the landfill.

History

Added [Stats 2011 ch 173 § 2 \(AB 384\)](#), effective January 1, 2012.

Annotations

Notes

Note

[Stats 2011 ch 173](#) provides:

SECTION 1. The Legislature finds and declares all of the following:

(a) The City of Fort Bragg and the County of Mendocino seek to improve solid waste management in the greater Fort Bragg area by developing a commercial transfer station capable of efficiently managing all solid waste generated in the vicinity.

(b) Following a comprehensive siting study, a potential site of up to 17 acres was identified for a transfer station located within a portion of the Jackson Demonstration State Forest, on its northern boundary.

(c) The State Board of Forestry and Fire Protection adopted a resolution on April 7, 2010, that stated that transfer of this site to the city or county would not cause significant adverse programmatic impacts to the Jackson Demonstration State Forest.

(d) The Department of Forestry and Fire Protection, on behalf of the state, may be compensated for loss of the up to 17-acre site by transfer from the Department of Parks and Recreation, on behalf of the state of 12.6 acres in Russian Gulch State Park, which is separated from the remainder of the state park by a county road.

(e) The Department of Parks and Recreation, on behalf of the state, may be compensated, in turn, for loss of the 12.6 acres in Russian Gulch State Park specified in subdivision (d) by the grant of a restrictive covenant on 60 acres of city and county property on the north boundary of the state park, which is currently a closed landfill and small volume transfer station, whose continued operation causes undesirable impacts on the state park, and by an option to buy 35 acres of the city and county property.

(f) The interests and welfare of the state will be advanced by granting an option to the city and the county to take title to the Jackson Demonstration State Forest site, subject to the additional

terms described in subdivisions (d) and (e), if the city and the county complete a site selection process and environmental review that finds that this site shall be the selected alternative.

Research References & Practice Aids

Hierarchy Notes:

[*Div. 4 Note*](#)

Deering's California Codes Annotated

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September 18, 2016

To: City Manager, Linda Ruffing
Fort Bragg City Council
Mendocino County Board of Supervisors

Subject: Central Coast Transfer Station Project

What I'm hearing from the proponents of this project is that *we cannot afford to continue the waste management process as it is today*, and I agree. However, neither can we afford to destroy part of an ancient and endemic forest to streamline the current process. We would still be paying a private company to burn fossil fuels in order to take our waste to another landfill, contributing to the toxicity levels of land closer to where other people live, while not decreasing our own CO2 emissions. We can do much better than that.

We need to handle our own waste, which has two significant components - reducing consumption and creatively managing the things we do use. This becomes easier to manage when more products are produced locally. There are now five Rs that represent the current trend in managing our personal waste streams: Refuse, Reduce, Reuse, Recycle and Rot. Refuse what you don't need, Reduce what you do need and whenever possible Reuse, Recycle what you use, and Rot compostable items.

Cities all over the country have adopted Zero Waste Ordinances. San Francisco adopted such an ordinance in 2005 with the goal to achieve zero waste by 2020, and they are now diverting about 90% (approx. 900,000 tons annually) from landfills. Partnering with *Recology*, an employee-owned, locally-based waste management company, they hope to become the first zero-waste city in the U.S. Among their repurposed waste streams are reusable construction materials and food scraps and yard clippings (some 400 tons per day) that are turned into compost.

Earth has entered her *Sixth Mass Extinction Event*, only this time degradation, collapse and extinctions are occurring at an extremely accelerated rate. Nobody knows exactly when, how or where each of the impending crises will reach their respective tipping points. However, with the tremendous leap in scientific discoveries and the latest in technological advancements, that we are facing cataclysmic planetary changes can no longer be denied.

The "Climate 21" case is a lawsuit filed against the U.S. Government by the nonprofit *Our Children's Trust* on behalf of 21 plaintiffs ages 8-19. This case is going to trial, after a favorable ruling in a federal District Court in April, that after being reviewed by the U.S. District Court was upheld last week. According to *Our Children's Trust*, "the plaintiffs are suing the federal government for violating their constitutional rights to life, liberty and property and their right to essential public trust resources, by permitting, encouraging and otherwise enabling continued exploitation, production and combustion of fossil fuels."

We cannot afford to continue "business as usual" practices. Now is the time for creative, new thinking and bold actions.

Tammy Davis
16556 Canyon Drive
Fort Bragg, CA 95437

Zero Waste: 'Nil to Landfill' Is Now a Practical Goal

Mar 06, 2014

The push to divert virtually all material from landfills and incinerators is strongest in Europe, but it has also gained a foothold in the U.S. Zero waste goals are increasingly being embraced by progressive communities and companies that see value in turning waste streams into profit streams. And with more than 70 extended producer responsibility (EPR) laws enacted on the state and local level, some with industry support, corporate America is becoming a partner in waste reduction.

Europe is the world's high achiever when it comes to zero waste. Some municipalities there are well on their way to conserving and recovering all the resources that used to be lost to landfills and incinerators, without burying or burning any waste at all — the definition of zero-waste established by the international alliance on the subject.

Capannori, Italy, for instance, has earned enough from selling its former "garbage" to recycling plants that its zero waste scheme (now at more than 80% diversion) is self-sufficient, and even saved the local council more than \$2.7 million in 2009. The city has plowed the savings back into further waste-reduction efforts.

Capannori is likely to achieve zero waste by 2020, which is an overall European Union goal. In 2012, the European Commission and the European Parliament outlined their ambitions: "By 2020 waste is managed as a resource. Waste generated per capita is in absolute decline." That remains a big challenge, especially with Europe's economic downturn. According to Zero Waste Europe, a non-profit coalition bringing together groups and governments, in 2011 the European Union countries were still burning or burying 60% of their waste, and recycling or composting just 40%. That's a long way from the ultimate goal, but better than the United States.

Another early zero waste pioneer is New Zealand. As noted in Paul Connett's *The Zero Waste Solution*, by early 2005 some 72% of the country's local councils had established no-landfill targets, and by 2008 it was adopted as a national goal. New Zealand's effort later lost momentum, but it has pockets of great success, including a 90% diversion rate by the Opotiki District Council.

American Grassroots Progress

According to the Environmental Protection Agency (EPA), America recycled only 35% of its municipal solid waste in 2011, a considerable improvement from the 6% rate of 1960, but far behind other nations. In fact, according to Elizabeth Royte in her book *Garbage Land*, Americans throw out "more stuff, per capita, than any other nation in the world, and 2.5 times the per-capita rate of Oslo, Norway." The latest per-person figure is 4.4 pounds daily (with 1.53 pounds of that recycled or composted).

And yet achieving zero waste has become part of the national conversation, embraced by American corporations with a zeal that would have been unthinkable a decade ago. As the Initiative for Global Environmental Leadership (IGEL) noted in its recent report, [The Green Sports Movement](#), professional and college leagues and teams have endorsed zero waste concepts with fervor, and many have achieved high diversion rates.

To a significant degree, zero waste in the U.S. is being driven by regional, state and private initiatives, including strong corporate participation, without any foreseeable support from Washington. In California, the statewide Integrated Waste Management Board has a zero waste goal, as do the counties of Santa Cruz, Del Norte, San Luis Obispo and San Diego. California cities voting for zero waste

include San Francisco, Berkeley and Palo Alto. Austin and San Antonio in Texas, New York City and Seattle are also leaders.

San Francisco makes an interesting case study, because with partner Recology, an employee-owned and locally based waste management company, it is vying to become the first zero waste city in the U.S., with a goal of 2020. As recently as 1989, 90% of San Francisco's garbage ended up in landfills (some 900,000 tons annually). But now that ratio has been nearly reversed. Among the repurposed waste streams in the city are soda cans that have been crushed and baled as raw material for more aluminum cans, used construction materials that are reused for new buildings, and food scraps and yard clippings (some 400 tons a day) that are turned into compost.

In some San Francisco neighborhoods, consumers can get a 10% discount off the trash bill for each week they don't put out their garbage cans. If they skip collection day twice in one month, they get a 20% discount. Businesses can get waste audits, and households can schedule meetings to talk about reducing garbage streams. "We're proud of the 80% diversion rate, the highest in the country, certainly of any city in North America," Mayor Ed Lee told *PBS*. "And we're not going to be satisfied with that. We want 100% zero waste. This is where we're going."

According to Heather Achilles, an engineer from IBM's Next Generation Computing Research, "Cities have a lot of data related to the collection of trash, including billing, truck routing, frequency of pickup and materials taken in. The problem is that there are no standards, so it's hard to put the information together and use it to make good decisions — such as maybe having only one pickup a week instead of two, if the collections are going out half empty. Our software takes data from many sources and pulls it into IBM's Smarter Cities computing platform that many cities are already using. The data can be analyzed and used to put pilot programs in place for zero waste, if that's the city's goal."

Many cities perform annual trash inventories known as waste audits, Achilles said, but don't always optimize their use of the information that comes out of them. "We can take that data and produce a breakdown that will help identify which waste streams can and should be diverted — like valuable scrap aluminum, if there's enough of it being collected." The city of Dubuque, Iowa is also working with IBM on more efficient waste management.

According to the Institute for Local Self-Reliance, some 30 years ago, "many solid waste planners thought no more than 15% to 20% of the municipal waste stream could be recycled. Today, numerous communities have surpassed 50% recycling, and many individual establishments — public and private sector — such as office buildings, schools, hospitals, restaurants, and supermarkets, have approached 90% and higher levels." The growing zero waste buy-in on the corporate level is impressive. Zero waste programs that advanced rapidly in Europe, Canada, Japan, Israel and China have run into business lobbying roadblocks in the United States, but that opposition is eroding as companies, realizing there is revenue in waste, set their own ambitious waste reduction goals.

Industries have begun to make striking zero waste claims. General Motors has 110 landfill-free facilities worldwide, with 97% of generated waste either recycled or reused — an average of 3% is converted to energy, a process not allowed by some zero waste guidelines. For its 109th plant, in Rochester, New York, GM spent four years and seven attempts to figure out a recycling process for a stubborn, oily filter sludge. The 110th was GM's 12,000-worker, 5.5-million-square-foot corporate headquarters in Detroit, announced in December of 2013. Other U.S. automakers are not far behind. According to Andy Hobbs, director of the Ford Environmental Quality Office, 14 of the company's plants worldwide are "nil to landfill." In 2012, Ford recycled 586,000 tons of scrap metal in North America, and generated \$225 million in revenue through the process. Ten of Honda's 14 American plants are also zero waste to landfill.

In something of a milestone, California's Sierra Nevada Brewing Company, with a closed-loop approach, has achieved a 99.8% diversion rate from landfill, incineration and the environment. A number of things helped Sierra get there, including reducing packaging and ensuring it was recyclable, capturing and reusing carbon dioxide (such as for pressurizing tanks), addressing transportation, and recycling or composting nearly all the solid waste produced in the brewing process.

Founding members of the U.S. Zero Waste Business Council (USZWBC) include the City of Los Angeles, Austin Resource Recovery (with a 90% reduction goal by 2040 or sooner), the Walt Disney Company (which calls zero waste a "journey"), Raytheon, Earth Friendly Products and the American Licorice Company. In March of 2013, the USZWBC issued zero waste business certificates to Whole Foods for its achievement at three stores in San Diego County. The stores achieved more than 90% diversion from landfill, incinerator and the environment, and that entitled them to a bronze-level award. Sierra Nevada was the first to reach the highest level, which is platinum.

Is Zero Waste Possible?

Many experts say it's possible to divert all of America's waste from its landfills. But such a zero waste achievement would require a national consensus involving manufacturers, the federal government, the non-profit sector, states, municipalities and consumers.

"Yes, zero waste is possible, but I don't think it's likely," said [Robert Giegengack](#), a professor in the department of earth and environmental science at the University of Pennsylvania. "It's not a new idea — it characterized subsistence agrarian societies for millennia; it was sought as a goal during World War II, and it has been resurrected in the last 30 years or so — and we are making progress in getting there. People are working together on the common goal, particularly on food waste." Giegengack pointed out that landfill dependence is in many ways a post-World War II phenomenon, as the U.S. switched to a disposable society.

High diversion rates — and even zero waste — are increasingly practical as waste streams are turned into revenue streams for companies and municipalities. For companies such as Rubicon Global, Terracycle and Heritage Interactive, the prime directive is repurposing materials and keeping them out of landfills. "Zero waste is absolutely possible," said Nate Morris, co-founder and CEO of Rubicon Global, which services clients such as 7-Eleven, and Wegmans. Wegmans' uniforms, for example, are transformed into car insulation. "Waste is the biggest piece of low-hanging fruit out there, with bigger environmental results than installing solar panels or changing fleets to biodiesel. Eighty percent to 90% diversion is possible today."

"A future without waste and toxic materials is not just a dream, it's a necessity," says the Zero Waste Alliance (ZWA), based in Oregon. "Waste reduces the effectiveness of our businesses and harms the vitality of our communities." ZWA counsels companies to "map" their waste streams, identifying volume, make-up and sources, and locate opportunities to turn that often-useful material into a revenue stream. If your organization wants to compost its garbage stream, is there local infrastructure that can accept the material?

According to Lynn Landes, founder of Zero Waste America, "Under current conditions, it is possible to achieve zero waste. It has to be that way, so we don't burn or bury our waste. Landfills and incineration should be off the table. Zero waste is the only practical way of managing our resources — and minimizing the harmful results of manufacturing and production."

The federal government has zero waste on its radar screen. According to Mathy Stanislaus, assistant administrator in the Environmental Protection Agency's (EPA) Office of Solid Waste and Emergency Response, "It's being discussed at every level, including states, local governments and the corporate

sector. We're seeing a big trend to re-engineer and remanufacture material that would otherwise go to landfills. We're not sure how many companies and organizations have actually adopted zero waste policies, but many are set on reusing as many materials as possible."

The EPA, Stanislaus said, is "moving the marketplace" by recognizing companies that have voluntarily committed to achieving a certain recovery rate — and then achieved that goal. For stakeholders looking at zero waste, the agency provides scientific information and risk analysis. "And we're working on streamlining regulations to foster innovation in the recycling realm. We're providing more certainty for manufacturers that reuse materials."

The EPA believes that recycling is good for the economy. "If you divert one ton of waste from landfills, it pays \$101 more than if it were just managed as waste," Stanislaus said. "There's a delta of increase in salary and wages. And with that same diversion, sales go up \$135." He also noted the value hidden in the waste stream, since a metric ton of obsolete cell phones contains 6.6 pounds of silver, more than half a pound of gold and almost three tenths of a pound of palladium. Landfill elimination "is a goal we want to strive for. If waste goes to landfills, it means we're not doing a good job of managing it."

In July of 2013, Wharton turned its annual human resources lunch into its first-ever zero waste event. According to Rafael de Luna III, the associate director of sustainability for Wharton Operations, the plates and utensils at the lunch were compostable, and not only were waste bins set up with explanatory signage, but three of the five stations had volunteer monitors making sure waste was properly directed. That last precaution proved vital. "The stations with monitors had no contamination," de Luna said. "And those without people being stationed were in some cases so contaminated with non-compostable material that the contents just ended up being thrown out as trash."

Wharton is averaging between 75% and 90% diversion rate at its zero waste events. On average the school hosts 15,000 annual events, many of which serve food (almost half of the school's garbage stream) and now many of the event planners are working with Wharton Operations to make them zero waste. "I approached Amy Reese, the special events manager at Wharton Operations, and asked for an audience with the caterers," de Luna said. "We explained what we're trying to do, and that we want zero waste events to be an option. We don't think we've even scratched the surface of what we can achieve with zero waste, and now we're getting weekly requests for it."

"Numerous communities have surpassed 50% recycling, and many individual establishments — public and private sector — have approached 90% and higher levels."

—The Institute for Local Self-Reliance

Wharton was the first school within the university to perform a waste stream audit, initially only for one of its academic buildings and one of its cafes. Now in its fourth year, the audit program has expanded to another Wharton building, and other schools at Penn are doing the same for their buildings. Besides food waste, the largest categories are plastic (11%) and Styrofoam (10%) containers, reflecting the large amount of takeout meals consumed. Paper in its myriad forms is 18%. After one event, de Luna said he found "200 pounds of perfectly good food that was being thrown away," and the university is taking steps to minimize that kind of waste.

The road to zero waste can be bumpy, says Dan Garofalo, environmental sustainability director for the University of Pennsylvania. "Although we're on a good trajectory for traditional recycling, food waste is really a challenge for us right now." But Penn came up with a comprehensive solution — beginning in 2010, it began sending four tons of organic waste per week to the Wilmington Organic Recycling Center in Delaware, the largest composting facility on the East Coast.

“In theory, it’s pretty straightforward,” Garofolo said. “Students scrape waste into compost bins, and the material ends up on the loading docks, where it’s collected twice a week by Waste Management. Unfortunately, it wasn’t happening.” Garofalo noticed during spot checks that the bins were often empty at the end of a shift, and he discovered that although the system was in place, it was poorly understood by a kitchen staff with high turnover. “The process had temporarily broken down. And there was no feedback loop to report when it wasn’t working.” The university facilities and dining staff worked together over the winter break to get the system back on track – first by holding a training program for all kitchen staff and cafeteria managers, and then implementing a program for regular review and quality control.

Composting has been a trial and error process at the university, with some early experiments in on-site processing failing (in part because of challenges in finding on-campus uses for the end product). Now, Garofalo says, BiobiNs (locally made containers based on a design licensed from an Australian company) are used to store organic waste in an aerobic and odor-free state before it’s collected.

The university uses its own garbage compactor trucks to collect municipal solid waste in the morning and recycling in the afternoon. “I’m confident that what is supposed to get recycled actually does,” Garofalo said. Meanwhile the university purchasing department is “doing an incredible job” of reducing packaging for office supplies and other projects. A printer management project, using consultants, has greatly reduced the amount of campus paper waste. And students are being recruited through a program called Rethink Your Footprint that includes the distribution of reusable water bottles and coffee cups. As part of the campaign, student Eco Reps set up a mini-bin challenge. At one Penn zero-waste event, QuakerFest 2013 (staffed by student volunteers), 600 pounds of waste was diverted by the 1,400 participants, and only 37 pounds ended up in landfills.

The university’s overall recycling rate, if construction waste diversion is included, is 50%. Total waste to landfill is going down 2% per capita annually. The University of Pennsylvania does not yet have a zero waste goal, but it’s heading in that direction.

Extended Producer Responsibility

Zero waste made a giant leap forward in 1990, when the Der Grüne Punkt (“Green Dot”) program was first enacted in Germany. It made practical the tough national packaging law passed the following year in response to a growing landfill crisis. The law requires companies to either take back their own packaging, or (far more likely) pay a licensing fee and have it recycled through a scheme set up by Duales System Holding. By 1993, 12,000 companies (often branches of U.S. firms that loaded up on packaging at home) had become members. When packaging bears the Green Dot label (now seen in 28 countries) it can be dropped into household bins (paralleling already well-established recycling programs).

Green Dot gave companies a powerful incentive to reduce their packaging, and that’s exactly what happened as what’s known as Extended Producer Responsibility (EPR) spread throughout Europe and on to Canada, Japan, Israel, Brazil and other countries. “There are more than 30 EPR packaging laws in Europe alone, many of them in place for more than 20 years,” says Scott Cassel, CEO of the Product Stewardship Institute (PSI), a U.S. organization that focuses on sustainable end-of-life management for waste streams. In the 1990s, EPR remained below the radar in the U.S., with only a few determined advocates pointing to the success of the German program. Bette Fishbein of the group INFORM, one such pioneer, wrote in 2000, “Since it is the producer that decides how products are designed, providing industry with a direct economic incentive seems the most efficient and effective approach [to reducing waste].”

PSI has been working to change the U.S. status quo. According to Cassel, Massachusetts' director of waste planning from 1993 to 2000, "I came to the conclusion that a key barrier for state waste programs was financing — there wasn't enough money in the system. And so I decided to start an institute aimed at bringing the EPR concept to the U.S." That led to PSI's founding in 2000 as a joint project with the state of Massachusetts. Its first forum that year brought together 100 government officials from 20 states. According to Cassel, 32 states now have at least one EPR law, and more than 76 individual "producer pays" statutes have been enacted. In 2013 alone, nine state or local bills became law. EPR programs for electronics are also growing at the state and local level. More than 25 laws have already been enacted, spurred in part by horrific images of unsafe dismantling operations in Asia.

Connecticut is currently working with PSI through the state's environmental agency to set up product stewardship policies. The initial focus, announced in late 2013, will be on carpeting, batteries, packaging, pesticides and fertilizers. "Recovering the materials in discarded products helps protect the environment, creates jobs and boosts the economy," said Daniel Esty, former commissioner of the Connecticut Department of Energy and the Environment. The prospect for any federal legislation is still slim, though there's been legislative interest in bills on pharmaceuticals and electronics. "Over the next five years, I expect the concept to become much more prevalent at the national level," Cassel said. "It's more efficient to cover all the states with one EPR policy."

Today, companies such as Nestlé Waters North America are embracing EPR. "We've seen the potential power of EPR, and we are bullish on its prospects for recycling in the United States," said Kim Jeffrey, the former president and CEO of Nestlé Waters. When industry signs on, EPR laws can move quickly. The paint industry, via the American Coatings Association (ACA), signed on to an initiative sponsored by PSI to do something about the 75 million gallons of leftover paint, worth \$500 million, that is generated annually and usually ends up in landfills or incinerators. Municipalities spend an average of \$8 a gallon to manage unused consumer paint. The first state law — with manufacturers responsible for collecting and processing waste paint — was enacted by Oregon in 2009, but Cassel says another seven to 10 states are likely to pass similar laws, and seven (including Oregon) already have.

The path isn't always smooth — ACA sued California's environmental agency in 2012, claiming that it had overreached in implementing its paint EPR statute by requiring too much data. According to Alison Keane, a vice president of government affairs at ACA, the state's program was upheld in court, but an appeal is underway. "We want regulatory relief, because the law as currently constituted is unnecessarily burdensome," she said. "But we absolutely remain supportive of EPR laws, and the program in California is ongoing as the case proceeds." Zero waste, said Cassel, "is a concept and a motivator — it's what we all want to see. As we breathe and live, there will always be waste, and getting it down to zero will always be a goal." The good news is that the goal is a lot closer than it has ever been, and an increasing number of advocates dare to think that it's achievable.

Visit <http://knowledge.wharton.upenn.edu/article/zero-waste-nil-landfill-now-practical-goal/> to download booklet

BERKELEY ADOPTS *Zero Waste* GOAL!

ON MARCH 22, BERKELEY'S CITY COUNCIL UNANIMOUSLY APPROVED A ZERO WASTE RESOLUTION — ONE OF THE FIRST IN THE NATION. THE RESOLUTION OFFICIALLY ADOPTS A 75 PERCENT WASTE REDUCTION GOAL FOR 2010, AND ESTABLISHES A ZERO WASTE GOAL FOR 2020.

What does Zero Waste mean? If it can't be reduced, reused, repaired, rebuilt, refurbished, refinished, resold, recycled, or composted, then it should be restricted, redesigned, or removed from production. The goal is to combine aggressive resource recovery and industrial redesign to eliminate the very concept of waste. Eventually, the community's resource-use system will emulate natural cyclical processes, where no waste exists.

While Zero Waste may seem like an ambitious aim, Berkeley's history is full of people taking chances on new ideas. The idealism that seems to thrive here has produced many tangible demonstration projects that have helped spawn programs in cities across the globe.

For example, over thirty years ago, the Ecology Center pioneered curbside

residential recycling. Much has changed since those early days, when a single flatbed truck roamed the streets collecting bundled newspaper. Today, Berkeley's recycling programs (residential, commercial, and drop-off) are a multimillion-dollar enterprise providing over 40 green-collar jobs and saving nearly 20,000 tons of resource-rich material from the landfill. Curbside recycling has gone from a "crazy" vision to an environmentally sane, mainstream service offered across the country.

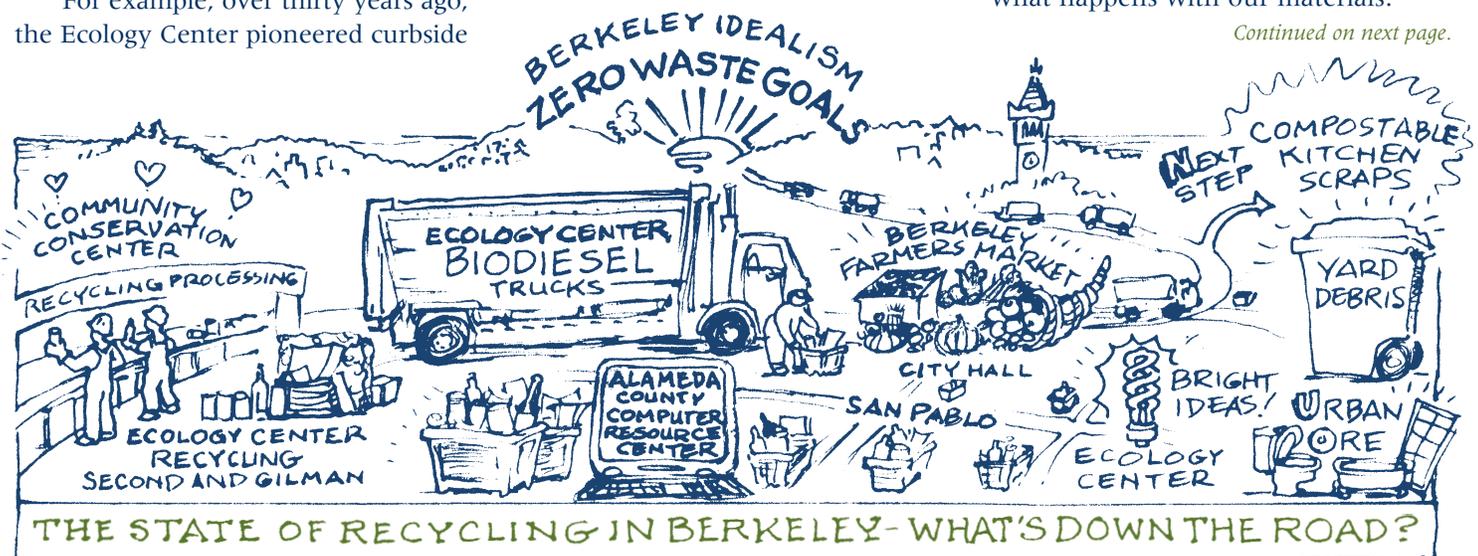
While citizens of Berkeley may take pride in our lengthy and persistent commitment to reducing waste, conserving resources, and creating jobs, much remains to be done. Berkeley has yet to reach the 75 percent diversion goal set by the voters of Alameda County under 1990's Measure D. We need to continue innovating if we hope to edge closer to the Zero Waste future the Berkeley City Council envisions for 2020.

WHAT MAKES BERKELEY DIFFERENT?

Unlike most of our neighboring communities, Berkeley possesses its own recycling and solid waste facility, which is operated by the city and three local nonprofits — the Ecology Center, Community Conservation Centers (CCC), and Urban Ore. This unique situation offers many important benefits. Local control allows for higher environmental standards and greater efficiency, as well as familiarity with our own waste stream. Costs for these services are kept low, and good green-collar jobs remain in the city rather than being sent elsewhere or automated out of existence.

Other East Bay cities contract their solid waste programs out to corporate waste haulers, who transport their garbage and recycleables to large-scale regional facilities, where little is known about what actually happens to it. Because Berkeley's solid waste program is in-house, we get to decide what happens with our materials.

Continued on next page.



STAYING TRUE TO THE VISION

As an example of local control, Berkeley voters mandated that collected recyclable materials be put to their “highest and best use.” This is why we sort glass into three color camps — green, brown, and clear — while many other recyclers have eliminated this step. The bottles we collect are melted down and turned into bottles again at a regional foundry. Some end up back in Berkeley at Pyramid Brewery.

The energy and resources that went into making the glass in the first place are conserved. When glass of different colors is mixed and melted, a murky color results that is unfit for new bottles. Mixed glass can be “down-cycled” into asphalt or fiberglass insulation, but often it is used instead of dirt as “alternative daily coverage”—the sandy covering heaped over trash at the landfill every day to keep flies and odors down. But when Berkeley’s residents place glass bottles in their recycling bins, they can be sure those bottles actually get recycled and don’t end up in the dump.

FOR-PROFIT VS. NON-PROFIT

In 2001, the Ecology Center transitioned its fleet of recycling trucks to run on biodiesel, an alternative fuel made from recycled restaurant grease. Later, Berkeley’s garbage trucks, school buses, heavy equipment, and fire trucks also made the switch to biodiesel. This significantly lowered asthma and cancer-causing emissions released by our fleets as well as the city’s dependence on foreign oil. Had Berkeley’s recycling program been handled by corporate haulers, such a forward-thinking initiative would never have gotten off the ground. Unlike the Ecology Center, corporate waste haulers are rarely proactive on issues unrelated to their bottom line, such as air quality and vehicle emissions.

Furthermore, for-profit solid waste companies such as Waste Management, Inc. or BFI own landfills. They charge per ton for every scrap of waste that goes to the landfill; therefore they have a financial interest in communities

continuing to generate large quantities of garbage. It is a core part of their business. They also offer recycling services because most cities demand it, but minimizing waste is not their mission.



JOBS & REVENUE STAY IN BERKELEY

Because Berkeley’s solid waste operation is locally based, the jobs generated by the city’s waste stream remain local. The city has its own fleet and unionized crew, as does the Ecology Center and the Community Conservation Centers (CCC). A model “green-blue” partnership, recycling is an environmental endeavor that provides local, good-paying, green-collar jobs. Recycling helps support the local nonprofits, businesses, and community agencies that partner with the city to handle discards.

Between the Ecology Center and CCC, Berkeley’s institutional recycling programs constitute a multi-million-dollar industry. This money stays here; it doesn’t leave in the form of shareholder profits or CEO bonuses.

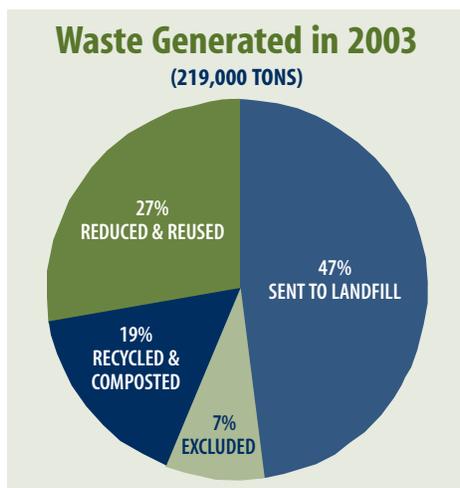
COMMUNITY RECYCLING SAVES \$\$\$

Even with all the extra steps required — sorting, baling, cleaning, and selling of those bottles, cans, and papers — recycling remains a cheaper alternative than paying landfill fees, thanks to the income generated by selling the materials. Recycling contradicts the myth that communities must choose between jobs and the environment. Recycling creates jobs while costing the residents less.

BERKELEY UPS THE ANTE

In 1976, Berkeley was the first city to officially include household recycling in its solid waste management plan. In 1984, the citizens of Berkeley passed a ballot measure that set a recycling goal of 50 percent. At the time, many people said this was an impossible goal.

Five years later, the California legislature passed AB939, the California Integrated Waste Management Act, which required each county to reduce the tons of garbage sent to landfill by 50 percent compared to their 1990 base level, by the year 2000. AB939 also established stiff penalties for those that failed to meet that goal. In 1990, Alameda County residents passed Measure D, a ballot initiative that created a disposal fee at county landfills to help pay for recycling programs as well as establishing a 75 percent countywide diversion goal for 2010. Pushing the commitment to waste reduction to its natural conclusion, this year the Berkeley City Council approved a goal of Zero Waste by 2020.



HOW ARE WE DOING?

“Diversion” refers to how much of a city or county’s waste — waste that would otherwise end up in the landfill — is recycled, reused, or not generated in the first place. In 1990, Berkeley was generating an estimated 188,000 tons of garbage a year. In 2003, due to increased population and economic activity, that calculated figure had risen to 219,000 tons. However, only 105,000 tons were reported as garbage sent to landfills, resulting in a 53 percent diversion rate.

The remaining 114,000 tons were recycled, composted, excluded, or assumed to be eliminated from the waste stream or diverted to destinations such as yard sales and thrift stores. While we have now officially surpassed the state and county's 50 percent diversion rate, we are only actually recycling or composting through measurable programs about 19 percent of the total calculated generated waste. We can do better.

The good news is that we have strong programs and have made steady progress. The curbside recycling program has grown significantly over the last decade and the composting programs have almost doubled in just the last four years.

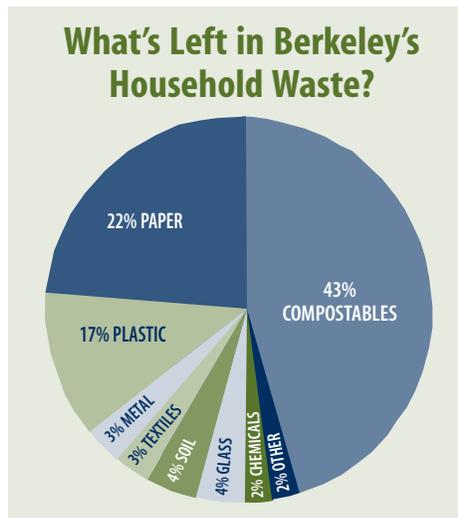
By having a local solid waste and resource recovery system, Berkeley has been able to closely track the materials that pass through our transfer station and to fine-tune our waste management plan to our specific waste stream. Our Cash for Trash study shows that there are very few bottles and cans left in the waste stream. However, fully 22 percent is recyclable paper, and 43 percent of what is left in household "waste" is compostable!

Berkeley is currently developing a plan to reach the next benchmark set by the county: 75 percent diversion. Composting more material will be central to the plan.

ZERO WASTE

We at the Ecology Center envision a future without waste. Some people say that zero waste is a dream that can never be achieved. This is the same refrain we heard when the Ecology Center insisted that residential curbside recycling could save money, recover resources, and create jobs. This begs the question: If you are not for zero waste, then how much waste are you for?

A few barriers stand in the way of Berkeley's 2010 goal of 75 percent diversion. Much waste flows from construction and demolition operations, and recycling participation is low in apartment buildings. We also have no control over manufacturers' choices to make un-recyclable products with



extraneous packaging. These obstacles and others can be overcome with the same imagination and dedication Berkeley residents displayed over thirty years ago, when a group of volunteers put their vision to work, and the modern recycling movement was born.

KITCHEN SCRAPS AT THE CURB

How can we capture the kitchen scraps and other compostables that are currently in household garbage cans? Compostable materials need to be collected weekly; Berkeley does not want to generate new odors with our perishable discards. But weekly collection involves more trucks and drivers on the road, which means more expense. Or does it?



If residents placed all compostable material (yard debris, kitchen scraps, soiled paper) into the green cart, yard debris and food scraps could be collected weekly at the curb. Some neighboring cities are already doing this. Our recycling would continue to be collected weekly in three streams, as it is now: paper in one stream, cardboard in another, and containers in the third. The remaining rubbish in the gray cart could then be collected every other week.

In this plan, those trucks and drivers currently picking up trash weekly would shift to picking up food and yard debris, and drivers currently picking up yard debris biweekly would shift to picking up rubbish biweekly. Without the food waste, the remaining garbage would be mostly dry rubbish — plastic film, packaging, broken ceramics, etc. — and therefore could sit for two weeks without problem. Weekly rubbish collection could still be offered for those with special needs. The same number of trucks and basic resources would be dedicated, but a considerable tonnage would be taken out of the garbage stream and redirected into the compost stream.

THE PROBLEM WITH SINGLE STREAM

Some municipalities have added food waste to the weekly pickup by commingling recyclables: combining cardboard, paper, glass, aluminum, and plastic in a single cart. With this approach (called "single-streaming"), the quality of the recyclable materials is significantly downgraded. Glass gets broken, making it hard to sort. Paper gets glass bits in it, which can destroy paper-processing mills. With single-streaming, the cost of collection is reduced, but the new carts and trucks are expensive, sorting and processing costs are increased, and the revenue from material sales is reduced due to the degraded quality of the materials. While more tons are collected, less of it may actually end up recycled. We don't want to compromise the quality of our recycling in order to add the compost program. To meet Alameda County's 75 percent diversion goal, we'll need both. **RC**

Get Wise WITH YOUR Waste!

WHAT YOU CAN DO WITH ALL THAT GOOD STUFF YOU WANT TO GET RID OF

PAPER, PLASTIC, BOTTLES, AND CANS

The Ecology Center picks up recyclables in bins left at the curb. We accept glass beverage bottles, glass food containers, glass jars, glass soda bottles, aluminum cans, aluminum foil and pans, cat and dog food cans, food cans, soda cans, tin cans, and #1 and #2 plastic narrow-necked bottles. We also accept cardboard, catalogues, cereal boxes, computer paper, cracker boxes, junk mail, magazines, mixed paper, newspaper, phone books, and white paper.

- To order recycling bins, call 527-5555

FOOD SCRAPS

Composting turns kitchen scraps into soil conditioner. It improves fertility, helps soil retain moisture, and reduces runoff. The average composting household diverts 750 pounds per year from the landfill. The following services are available to Alameda County residents who want to begin composting: discount compost bins, how-to brochures (in English, Spanish, and Chinese), master composter classes, hands-on workshops, and a free video entitled "Do the Rot Thing: The Simple Art of Home Composting."

- Call the Composting Information Rotline: 444-SOIL

YARD WASTE AND WOODY WASTE

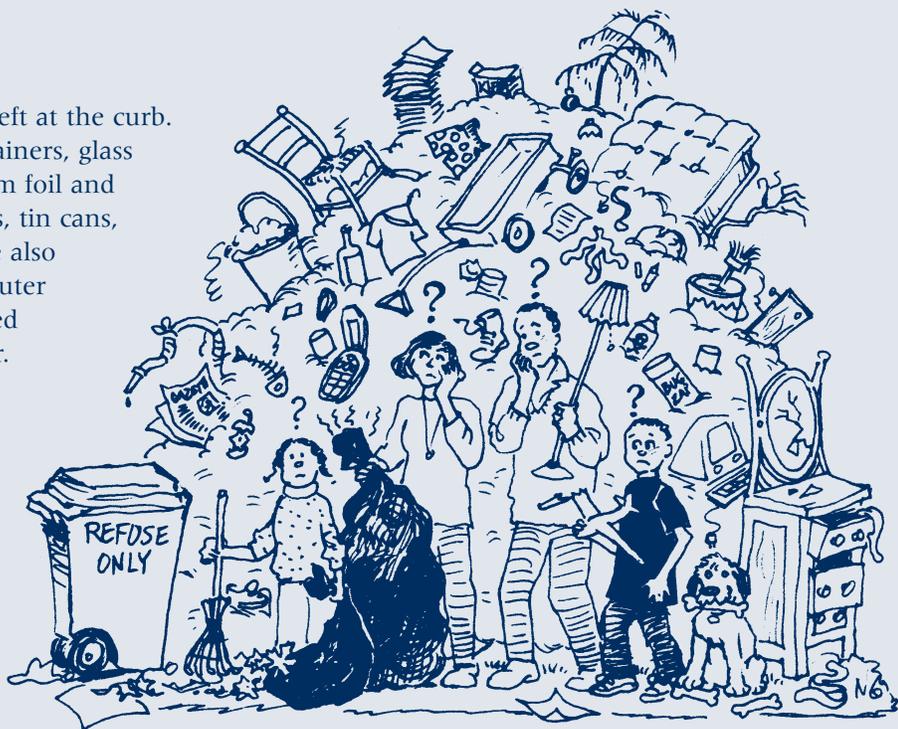
About one fifth of a typical Berkeley resident's discards are plant debris. The City of Berkeley collects plant debris every other week in biodegradable paper bags or green plant debris carts. Grass clippings, leaves, pruning, brush, and unpainted wood scraps can be tossed into these containers, and the discards will be turned into compost and mulch for agricultural uses. After the holidays, Christmas trees may be placed at the curb next to the plant debris cart.

- For more info or to order a cart, call 981-7270

SHOES

Nike's Reuse-A-Shoe Program gives worn-out athletic shoes new life as sporting surfaces. The shoe components are transformed into ball fields, weight room flooring, running track, basketball courts, tennis courts, and playground surfacing.

- Drop off your athletic shoes at Transports: 655-4809



NEED TO LIGHTEN YOUR LOAD?

CLOTHING

Over four million tons of post-consumer textiles enter the waste stream every year, and most of it goes to the landfill. The following businesses accept used clothing for rags, reuse, or resale:

- CCC: 524-0113
- Goodwill: 534-6666
- Square Meals Project: 649-8154
- Urban Ore: 841-SAVE

COMPUTERS AND ELECTRONICS

The Alameda County Computer Resource Center recycles and/or refurbishes computers, monitors, laptops, keyboards, mice, cell phones, pagers, modems, cables, circuit boards, hard drives, copy & fax machines, printers, scanners, hand-helds, televisions, VCRs, radios, tape players, video games, electric typewriters, generators, radio transmitters, walkie talkies, speakers, cables, wires, CDs, laser disks, jewel cases, diskettes, video tapes, audio tapes, cathode ray tubes (CRTs), and tools such as nail guns, circular saws, and soldering tools. Read more about ACCRC on page 6.

- ACCRC at 528-4052.

CELL PHONES AND RECHARGEABLE BATTERIES

An estimated 500 million used cell phones will be stockpiled and awaiting disposal in 2005. Cell phones can be shipped to a facility where they are either refurbished or recycled. Both working and non-working cell phones can be taken to:

- ACCRC: 528-4052
- CCC: 524-0113

In addition to cell phones, these businesses accept the rechargeable batteries found in cordless electronics:

- ATT&T Wireless: 486-0668
- Office Depot: 525-0176

The nickel, iron, and cadmium in the batteries are reclaimed for use in stainless steel production or to make new batteries.

APPLIANCES

Your old refrigerators, freezers, air conditioners, washers, and dryers can be recycled at:

- Berkeley Transfer Station: 981-7270
- J. Caseber Washers and Dryers: 548-4419
- CCC: 524-0113

Typically, recyclers will charge a fee for the proper disposal of freon, a hazardous material found in refrigerators, freezers, air conditioners, and water coolers. Take your small, working appliances to:

- Urban Ore: 841-SAVE
- The Square Meals Project: 649-8154

ODDS & ENDS

Used Sporting Equipment

- Sports4Kids Swap Shop: 868-1591
- Wilderness Exchange: 525-1255

Bicycles & Bike Parts

- Missing Link: 843-4763
- Tinker's Workshop: 644-2577
- Recycles Bike Shop: 665-1889

Mattresses & Box Springs

- Berkeley Transfer Station: 981-7270

Toys, Games

- Goodwill: 534-6666

Books, Music, Videotapes

- Berkeley Public Library: 981-6100

Shipping & Packing Material

Most shipping and packaging stores will accept and reuse packing peanuts and wrapping material.

Office Supplies, Art Supplies, Zippers, Fabric, Buttons, Beads, etc.

- East Bay Depot for Creative Reuse: 547-6470

Furniture, Cabinets, Housewares, Collectables, Art, Doors, Windows, Sinks, Tubs, Lumber, Bricks, Lighting, Locks, Tools, and Motors

- Urban Ore: 841-SAVE

Less Waste Equals:

- Less landfill eating up open space
- Decreased cost of waste handling and disposal
- Less energy and water used to process virgin products
- Less wilderness decimated for resource extraction
- Fewer landfill leaks contaminating groundwater
- Less foul-smelling, flammable, landfill gases contributing to global warming
- More jobs

Visit Alameda County's best guide to recycling and reuse:

www.STOPWASTE.org

Or call:

1-877-STOPWASTE



FREE AT LAST!

CLOSING the LUBE LOOP:

Motor Oil Recycling

Motor oil never wears out. It just gets dirty. Once water and contaminants are removed from collected used oil, it is given new life as a "re-refined" base oil.



When motor oil leaks from trashcans or is poured onto the ground or into storm drains, it can contaminate soil, groundwater, streams, and rivers. By recycling it, you protect the environment and conserve energy and natural resources. Producing motor oil from re-refined stock requires less energy than making it from crude oil.

According to the California Oil Recycling Enhancement, oil manufacturers must pay the state 16¢ for each gallon of lubricating oil sold in California. Individuals who recycle get paid 16¢ for every gallon of used motor oil returned to a Certified Used Oil Collection Center.

Testing has confirmed that re-refined oil performs equal to virgin oil, and the price is also comparable. Re-refined oil certified by the American Petroleum Institute complies fully with carmakers' warranty requirements and is subject to the same stringent refining, compounding, and performance standards applied to virgin oil products.

The California Highway Patrol, the County of Los Angeles, the City of Sacramento, CalTrans, the City of San Francisco, and Ventura County all use re-refined oil in their fleets. Strengthen the recycling loop by buying recycled product. Ask your local auto supply store or oil change business to carry re-refined oil.

Certified Used Oil Collection Centers:

- Art's Automotive
- Firestone
- Berkeley Transfer Station
- Kragen Auto Parts
- Jim Doten's Honda
- Oil Changers
- Jiffy Lube

For a free used oil recycling kit, call 525-1630.

Treasure & Training in Hi-Tech Trash

The Alameda County Computer Resource Center (ACCRC) embodies the recycling spirit at its very best: resourceful, environmentally responsible, and beneficial to those in need.

ACCRC: 1501 Eastshore Highway • (510) 528-4052 • www.accrc.org

When old computers are dropped off at ACCRC, the employees and volunteer technicians fix the equipment and donate it to people who cannot afford to buy similar technology. Each year ACCRC recycles up to 15,000 computers and donates an average of 100 refurbished computers per month to schools, nonprofits, and low-income people. Even Cuba's medical system has benefited from ACCRC's computers!

ACCRC also bridges the digital divide by providing free computer training to local, low-income people. Interns learn how to fix and identify computer parts, install and use Suse Linux, and identify the quirks and capabilities of various models. Volunteer technicians produce 5 to 30 computers a week by rebuilding old machines.

Donated equipment that is beyond repair is recycled responsibly. Machines are stripped of useful parts, and the remaining glass, metal, and plastics go to raw-materials recyclers. Nothing goes to Asia, where electronics recycling is notoriously toxic. A handling fee is charged for most types of equipment, which covers transportation, domestic scrap plastic and metal recycling fees, and the logistics associated with hazardous materials. We think manufacturers should pay for this, not residents!

It's Not Waste 'til You Waste It!

The majority of consumer products cannot be recycled. That's why the other two "R"s — reuse and reduce — are so important.

FURNITURE: Buy furniture with washable slipcovers. Fabric stores have lists of seamstresses who can make custom slipcovers for your old favorites. Reupholster, repair, and refinish.

FOOD PACKAGING: Buy in bulk, bring your own bags, and buy concentrated drink mixes, juices, and cleaners. Purchase items packaged in refillable containers, recyclable materials, or minimal packaging. Bring a cloth bag or a backpack when you shop. Store leftovers in reusable storage containers.

PAPER: Make double-sided copies, use email, and avoid unnecessary print-outs. Print on the backside of used paper. Turn used paper into notepads. Remove your name from mailing lists.

DISPOSABLES: Avoid single-use or disposable products like disposable razors, pens, lighters, foam/paper cups, plastic utensils, cameras, and batteries.

APPLIANCES: Before buying, determine if a product is designed to be discarded when it malfunctions. Spending more to buy a quality product may save money in the long run.

TOOLS: Borrow or rent items such as power tools and motorized yard equipment from Berkeley's tool lending library.

TREASURE HUNT: Shop at thrift stores, consignment shops, garage sales, flea markets, and antiques shops.

MATERIALS EXCHANGE: The East Bay Depot For Creative Reuse is one place to find or donate almost anything that is useful, clean, and non-toxic.



The Wastie Awards: *The latest landfill-bound products*



As *SF Gate* columnist Mark Morford writes, “Thank God... for modern ultraconvenience. Thank God for the corporate household-product industry, so thoroughly glutted on excess merchandise and overinvention they can’t possibly think of things we actually need anymore. Who knew you needed a new toilet brush to replace that tough metal one you had that lasted years? No one, that’s who!”

And so, in the spirit of those who buy SUVs as oil prices soar and greenhouse gases accumulate overhead, we would like to honor some of the new products on the market that exemplify defiance and/or denial in the face of great waste. Neither cost-effective, necessary, nor environmentally reasonable, these products run short on justification and long on landfill space.

Disposable Toilet Brushes: Clorox ToiletWand and Scrubbing Bubbles Fresh Brush feature single-use heads that click on to a flimsy plastic handle. Clorox advertises, “You can do something you’ve never done before: toss the ick away for good!” The Scrubbing Bubbles marketers aim their pitch squarely at the 1950s housewife in all of us when they coyly suggest that ordinary toilet brushes “can hold onto germs when you put them away.” Fresh Brush, which degrades into a pulpy, chemical flotilla in the toilet, has even trademarked this eco-conscious phrase for the new millenium: “Flush the Mess Away.”

Disposable DVDs: With Flexplay’s disposable DVD, consumers have 48 hours after opening the package to watch movies before an oxidation process renders the disks unusable. Flexplay uses the language of perishability that worked so well for mass-produced beer: “Unopened discs stay ‘fresh’ in the package for about one year.” Unfortunately for the makers of Flexplay, consumers burdened by rental returns and late fees already have an alternative. It’s called Netflix — one of several tried and true movie reuse programs..

Disposable Dishcleaning Products: Dawn Wash ‘n Toss and Palmolive DishWipes, single-use dish pads injected with detergent, are the latest revolution in dish technology. Both come in big tubs made from virgin plastics and are marketed as means to “simplify your life.” Apparently, simplification in this case involves spending more and generating more trash. Thanks to “durable tri-layer construction,” DishWipes “last a full load of dishes.” Since when did “durable” describe something that only survives a single dishwashing?

Where Do My *Recyclables* Go?

- 1 The recycling crew picks up your recycling bins from the curb and empties the contents into two separate compartments in the truck** — one for containers and one for fibers. When they have finished their route, the crew transports your materials to the Berkeley Recycling Yard, where they are off-loaded into two processing streams.
- 2 The fiber stream is sorted by hand into mixed paper, newspaper, and cardboard on a specially designed conveyor system.** It is then compacted into bales for shipment.
- 3 The mixed paper and newspaper is exported to China, where it is made into newspaper or boxboard,** the material from which shoe and cereal boxes are made. Cardboard is trucked to a mill in Washington, where it is made into new cardboard. Sometimes it is exported to China for the same purpose.
- 4 Containers are sorted into commodities (glass bottles, tin cans, aluminum cans, and plastic narrow-necked bottles) on a partially mechanized conveyor system.** Tin is separated from aluminum by a large magnet and an eddy current separator — a type of electromagnetic field that repels aluminum, blowing cans onto the aluminum conveyor. Plastic bottles are pulled off the conveyor by hand, and the remaining glass is hand-sorted into three color categories.
- 5 Tin cans are compacted into bales and trucked to Schnitzer Steel in Oakland,** where the metal is shredded and shipped to a steel mill in Tacoma for manufacture into various products.
- 6 Aluminum cans are compacted into bales and shipped to Anheuser-Busch.** It is then distributed to smelters, where it is manufactured into new aluminum cans.
- 7 Color-sorted glass is trucked to a “beneficiator” in San Leandro, where it is cleaned of labels and impurities.** It is then shipped to factories in San Leandro, Oakland, and Lodi and made into new bottles.
- 8 Narrow-neck plastic containers are perforated mechanically and compacted into PET(#1) and HDPE(#2) bales for shipment.** Currently, HDPE bales are exported to China to be made into benderboard (flexible garden border) and other products. PET bales are exported to China to be made into carpet and other products.

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INTRODUCTION



Disrupting the World's Oldest Industry

Nature wastes nothing. Human beings are less frugal. We have been generating garbage for thousands of years, and are only now starting to confront the reality that our waste streams are poisoning the planet. Governments have begun to regulate how we dispose of what we no longer want; large corporations are working to find sustainable solutions that are also profitable; and smaller “green” companies and non-profits are aiming for zero-waste-to-landfill, which may be as close as we can come to the example set by nature. This special report, sponsored by the Initiative for Global Environmental Leadership (IGEL) and Rubicon Global, looks at where we have been, where we are going and how we are getting there.

The Commercialization of Garbage 1

For much of human history, people have found ways to profitably reuse their waste. But the rising tide of consumerism that followed World War II brought with it TV dinners, disposable razors and an ever-changing stream of new gadgets, clothes and automobiles. It also began to fill the world with trash. Encouraged by environmental legislation, and financed by Wall Street, large corporations were created to make the garbage disappear. Years later, and billions of dollars richer, these giants are looking for ways to join the “green revolution.”

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At the start of the 21st century, new companies began to tackle the environmental problem created by the country's fast-accumulating trash. Rather than generating revenue from the use of their own landfills and other assets, these pioneers began creating profits for themselves by sharing savings with their customers. Data is at the heart of these approaches, which range from local to international. All are working to dramatically reduce, and possibly eliminate, the need for landfills.

Zero Waste: ‘Nil to Landfill’ Is Now a Practical Goal 9

The push to divert virtually all material from landfills and incinerators is strongest in Europe, but it has also gained a foothold in the U.S. Zero waste goals are increasingly being embraced by progressive communities and companies that see value in turning waste streams into profit streams. And with more than 70 extended producer responsibility (EPR) laws enacted on the state and local level, some with industry support, corporate America is becoming a partner in waste reduction.



The Commercialization of Garbage

FOR MUCH OF HUMAN HISTORY, people have found ways to profitably reuse their waste. But the rising tide of consumerism that followed World War II brought with it TV dinners, disposable razors and an ever-changing stream of new gadgets, clothes and automobiles. It also began to fill the world with trash. Encouraged by environmental legislation, and financed by Wall Street, large corporations were created to make the garbage disappear. Years later, and billions of dollars richer, these giants are now looking for ways to join the “green revolution.”

It’s not surprising that the ancient Romans, who engineered the world’s first sewage system, also created the first landfill, a mammoth mound of broken pots that eventually stretched more than half a mile across at its base and rose in terraces to a height of more than 135 feet. This small mountain of refuse was so skillfully constructed that today, more than 2,000 years later, archaeologists are carefully exploring its 55 million amphorae, many still with legible inscriptions, to learn all they can about the civilization that built Monte Testaccio (“Broken Pot Hill.”)

Robert Moses ... transformed the foul-smelling Corona Ash Dump, immortalized in *The Great Gatsby*, into the site of the 1939 World’s Fair.

The citizens of ancient Rome were effectively the first recyclers, but they were not always so fastidious about their trash. Dumping garbage out of windows was common enough around the Coliseum to warrant legal remedies. But the laws were no match for the convenience of street dumping and the practice persisted.

Waste disposal has gone through several cycles of since those days in Rome, and today there is a rising trend away from the equivalent of the mound of pots — i.e. huge landfills — and toward a way of recycling that more than pays for itself.

It’s been a long road. A millennium after the terraced landfills, what had been a nuisance in ancient Rome turned deadly in medieval Europe, as accumulating waste provided a breeding ground for flea-infested rats carrying the bubonic plague. As the Black Death raged through Europe, governments finally began to regulate waste disposal. People still tossed trash out of windows, but now provisions were being made to remove it. In England, King Edward III ordered all refuse raked from streets and alleys, loaded onto carts and removed once a week. In medieval Germany, those who brought produce into the city were now required to carry their customers’ garbage out.

NEW PROBLEMS, NEW SOLUTIONS.

To feed the growing urban centers of 19th century America, U.S. farmers turned to manufactured fertilizer, thereby destroying an important market for the natural fertilizers found in urban waste: hay, “night soil” (human feces), food scraps and horse droppings.

Scavengers took over, combing through the cities’ trash and becoming the oppressed recyclers of their day. Rags, bottles, rubber, horse carcasses, food scraps — all were scavenged and either sold or consumed by the desperate poor.

The plight of these impoverished foragers did not go unnoticed. Reformers began to advocate change, hoping to quell social unrest among the poor, and to prevent the spread of disease within and beyond the slums. Noting the deplorable conditions of “pestiferous stench and filth” in which the scavengers themselves lived, the New York Association for the Improvement of the Condition of the

Poor noted, “Though the poor may fall in greater numbers because of their proximity to the causes of disease ... the rich, who inhabit the splendid squares and spacious streets ... often become the victims of the same disorders which afflict their poorer brethren.”

Eventually, the reformers succeeded. In 1866, New York State passed the Metropolitan Health Bill, which regulated and professionalized sanitation. Similar laws were enacted in other states as well.

It is no accident that these new regulations emerged in the wake of the Civil War. According to Heather Rogers, author of *Gone Tomorrow: The Hidden Life of Garbage*, the war brought about “a new scale of battle-related industrialization,” which led in turn to rising urbanization. As the fighting ended, factories began to churn out manufactured products for citizens on a massive scale, triggering mass consumption and drawing workers into rapidly growing urban centers. And with less time to repair what was broken, and less space to store what might later be re-used, these urban dwellers began generating huge amounts of trash.

A new profession, sanitation science, emerged to deal with this new and growing problem, and reform-minded “sanitarians” set about finding solutions. Foremost among them was Col. George E. Waring, Jr., who assumed command of New York City’s Street Cleaning Department in 1895. During his brief tenure, Waring created an efficient system of sanitation that cleaned the streets and extracted whatever value could be found in the garbage that was collected.

New Yorkers of the time were required to separate their garbage and to put a “call card” in the window when it was ready for collection. A highly disciplined and well-paid army of licensed workers known as Waring’s White Wings (for the starched white uniforms they wore) collected the trash and brought it by barge to a processing center on Barren Island in Jamaica Bay. Workers at the center picked out items of value as they whisked by on a 104-foot conveyer belt. Organic waste was cooked and compressed into fertilizer and grease, which was used to make soap and candles, among other products.

The Barren Island processing center remained in operation, profitably reducing New York’s waste until 1936, when Robert Moses closed it down in favor of landfills that actually created land. Among his many accomplishments, Moses transformed the foul-smelling Corona Ash Dump, immortalized in *The Great Gatsby*, into the site of the 1939 World’s Fair, attracting visitors from every part of the globe with its motto “The World of Tomorrow” and preserving for future archaeologists the detritus of 20th century America.

THE COMMERCIALIZATION OF GARBAGE

In the first years of the 20th century, the world of sanitation shifted. Instead of looking for ways to extract value from waste, those in charge of the nation’s garbage focused instead on removing trash from sight as quickly and efficiently as possible. Intentionally or not, their success supported the growth of a new consumer culture. As waste disposal became more proficient, the value in waste grew more obscure and throwing things away became routine.

The Great Depression and World War II kept consumer culture in check for some time, but once victory was declared in 1945, years of pent-up demand and manufacturing capability brought consumerism roaring back. The baby boom meant a rapid rise in customers, and increasingly efficient manufacturing meant an equally rapid rise in things people could buy. Companies continually introduced new models of everything from cars to hats, while advertising stoked the public’s desire for the latest fashion. According to historian Elaine Tyler May, consumer spending skyrocketed 60% between 1945 and 1950.

According to the EPA, the amount of waste going to landfills has declined from 89% of total municipal solid waste (MSW) in 1980 to 54% in 2011.

The result of all this consumption was an enormous increase in the volume of garbage that needed to be collected and disposed of. “Sanitary landfills” proliferated. Most were located away from population centers in rural and often impoverished areas. Within the city limits, garbage was used to fill in swampy areas and create new real estate.

Kitchen-sink garbage disposals, the modern compaction garbage truck, small-scale incinerators for individual buildings and numerous other innovations helped sustain and fuel the unfettered growth of consumerism for decades. But gradually America’s growing waste stream began to raise concerns, even in Washington.

In 1976 Congress responded by enacting the Resource Conservation and Recovery Act (RCRA), which focused primarily on hazardous waste. A statement by the House Committee on Interstate and Foreign Commerce explains why: “Current estimates indicate that approximately 30 to 35 million tons of hazardous waste are literally dumped on the ground each year. Many of these substances can blind, cripple, or kill. They can defoliate the environment,

contaminate drinking water supplies and enter the food chain under present, largely unregulated disposal practices.”

Congress significantly expanded and strengthened RCRA, passing the Hazardous and Solid Waste Amendments (HSWA) in 1984. According to a history of RCRA published by the Environmental Protection Agency (EPA) in 2002, the amendments established more than 70 statutory provisions requiring EPA action, including an investigation of the “environmental soundness of municipal solid waste landfills (MSWLFs), and on amounts of waste being processed by them.” One of the more significant findings in the EPA’s final report was that thousands of municipal solid waste landfills “inconsistently used environmental controls, and that they posed significant threats to ground and surface water resources.”

In 2012, San Jose announced that it wanted to divert 75% of its municipal solid waste from landfills and increase that percentage over time.

The EPA quickly published new goals and recommendations for municipal solid waste management, but it was not until 1991 that new federal standards were established. Among other things, the regulations specified design and operating standards, restricted landfill locations, required liners and groundwater monitoring and required the closing of all landfills that did not meet these standards.

According to the EPA, there were 6,500 landfills operating in 1988. By 2002, that number had dropped to 2,500. This decline did not signal a diminution of waste or of landfill capacity. Quite the opposite: in 1985, the country produced 166.3 million tons of municipal solid waste (MSW); by 2005 the volume had grown more than 50%, to 253.7 million tons. The average size of America’s landfills skyrocketed as their numbers shrank.

GARBAGE GOES PUBLIC

The drop in the number of landfills was due primarily to the high cost of meeting the stringent new standards. Many small companies and public facilities simply could not afford to upgrade their landfills and ended up shutting them down. Two large publicly traded companies had the resources to buy up and consolidate many of these smaller operations, and to create mammoth new state-of-the-art landfills that dwarfed all previous facilities. Browning-

Ferris Industries (BFI) and Waste Management Inc., both launched in 1968, emerged as the dominant players in what had quickly become a new corporate era of garbage collection and disposal.

BFI was sold to Allied Waste Industries (AWI) and private investors in 1999. Nine years later, a smaller competitor, Republic Services, acquired AWI, growing into the second-largest public waste company virtually overnight. In 2012, Republic generated \$8.1 billion in revenue. Waste Management, the largest waste company in the U.S., had 2012 revenues of \$13.6 billion. Together these two companies represent nearly two-thirds of the publicly owned waste services sector and about 40% of the total United States non-hazardous solid waste services industry.

Both Waste Management and Republic have grown strongly over the years. Their business models look similar: Each company invests heavily in long-term fixed assets, such as trucks, landfills and recycling centers (also known as material recovery facilities). These investments generate revenue over long periods through customer fees. Once the capital investment is fully amortized, much of this revenue drops to the bottom line.

While landfills, some of which are observable from space, are among the more visible of Waste Management and Republic’s assets, they account for just 12% of Republic’s revenue and 20% of Waste Management’s. Both companies derive the bulk of their revenue (77% and 62% respectively) from collection, the use of trucks to collect and haul garbage to landfills, recycling centers or transfer stations, where material from several areas is consolidated before being transported to its final destination.

Traditional waste streams are changing, however. According to the EPA, the amount of waste going to landfills has declined from 89% of total municipal solid waste (MSW) in 1980 to 54% in 2011. During this same time period, the amount of material being recycled has grown from less than 10% of total MSW to more than 34%. With volumes of traditional waste declining, and many indicators suggesting that recycling, reuse and perhaps energy generation are the growth markets of the future, there could be changes in the structure of traditional waste handlers. (Waste Management’s total revenue from recycling in 2012, for example, was \$1.4 billion, about 1% of total revenue.)

Waste Management and Republic are now investing in material recovery facilities, which in addition to processing fees, generate revenue from fluctuating prices for commodities like plastics, cardboard, metal, aluminum, glass and the like.

Elsewhere, Waste Management is pursuing a number of other large-scale strategies aimed at reducing its carbon footprint. Its website, in one example, notes, “At about 130 disposal sites, we use naturally-occurring landfill gas to power homes and businesses. Just recently, we even developed the technology to convert landfill gas into a fuel our fleet vehicles can run on.”

ADAPTATION

Republic Services is approaching the change in the marketplace differently. “We believe that our business is a local business,” notes Peter Keller, vice president of recycling for Republic. “People in Portland, Ore., Seattle or San Francisco have a different outlook on life than people in Phoenix or Tuscaloosa, Ala. Different communities behave differently; not every market is the same.”

Keller points to San Jose, Calif., which for years deposited most of its MSW in Republic’s landfill. Then in 2012, the city announced that it wanted to divert 75% of its MSW from the landfill and increase that percentage over time.

“We said OK, we’ll do that and we made a significant investment [in a recycling facility] and are now processing 100% of the commercial material that comes out of San Jose.” The change has meant an 80% reduction in the volume San Jose sends to Republic’s landfill but “we have the opportunity to make reasonable returns on the recycling facility, too,” Keller notes.

Before building a recycling center in a specific location, Republic looks at a number of critical factors, including population density and growth, the density of its commercial routes in the area, the relative cost of disposal, and the local regulatory framework and culture. In San Jose, the decision was to make the investment in recycling. Every year, says Keller, Republic adds three to five new recycling plants to its current inventory of 74 plants.

“At the end of the day, we are service providers,” Keller notes. “We want to provide services that our customers demand, and to the fullest extent possible create business models that are sustainable and work for both parties.”





The Elimination of Garbage

AT THE START OF THE 21ST CENTURY, new companies began to tackle the environmental problem created by the United States' fast-accumulating trash. Rather than generating revenue from the use of their own landfills and other assets, these pioneers began creating profits for themselves by sharing savings with their customers. Data is at the heart of these approaches, which range from local to international. All are working to dramatically reduce, and possibly eliminate the need for landfills.

Today two companies, Waste Management Inc. and Republic Services, dominate the waste industry, but a large number of smaller players handle about the same amount of business as the two giants. As a result, even a modest-sized company, such as regional supermarket chain Wegmans Food Markets, says it can find itself dealing with an unwieldy number of suppliers.

“Our goal is moving all of our material into something more sustainable than a landfill by 2022.”

— Nate Morris

Not long ago, Wegmans had just one person overseeing all of its waste management, handling interactions and invoices from haulers, recyclers and other suppliers throughout the chain's six-state region. As the company grew, says Jason Wadsworth, Wegmans' sustainability coordinator, “There was really no way that one person could manage all of that.”

Such problems led to the development of waste brokers who could help ease the burden of companies by providing

a few key services: managing day-to-day interactions with suppliers, consolidating invoices and leveraging the combined purchasing power of the broker's multiple customers to obtain better pricing for each.

THE BEGINNING OF A NEW APPROACH TO WASTE

In 1995, Oakleaf Global Holdings took the broker concept in a new direction. Key to Oakleaf's approach was a concept inherent, but largely unappreciated, in the broker model: Oakleaf owned no waste facilities of any kind — no landfills, garbage trucks, dumpsters or recycling plants. It was, in the language of Wall Street, asset-light. This asset-light approach did offer two advantages. The company could take on huge national customers without investing in major assets. And without trucks and landfills of its own, Oakleaf could choose solutions for its clients from among all the available suppliers in each market.

Using this asset-light approach and fueled by Wall Street, Oakleaf grew rapidly, attracting major clients. By 2007, Oakleaf was working with 2,500 haulers, employing 650 people and generating \$580 million in revenue. New Mountain Capital acquired the company that year for \$655 million. Later, Waste Management acquired the company for \$425 million in 2011.

Launched in 2000 to provide comprehensive waste disposal, Heritage Interactive is not strictly an asset-light company. Its parent, Heritage Environmental Services (HES), owns a nationwide network of Treatment, Storage and Disposal Facilities (TSDFs) as well as in-house transportation services. But Kurt Wirgau, director of international business development for Heritage Interactive, stresses that location is the determining factor in whether or not his company makes use of HES assets. “Using HES assets gives us a distinct advantage in the

marketplace, but whenever necessary we use a network of independent audited and approved service providers,” he says. Heritage Interactive itself owns a single recycling plant in Iowa City, Iowa constructed for the benefit of a client in the area.

Cost reduction drives Heritage Interactive’s business model. Because the company shares whatever savings it can find with its customers, the more it reduces costs, the more money it makes. “When we find more sustainable solutions for our customers, that in turn pays our bills because that’s how we are incentivized through all of our contracts,” says Wirgau.

“Our sell is: we will take over all of your waste services as they stand today with no up-charge, and as we find ways to reduce your waste, we share those savings with you,” Wirgau notes, “whether it’s just a financial gain that both parties can split by reducing waste, or the financial gain we can uncover by pulling materials from the waste stream and turning them into valuable commodities on the back end.”

To do this, Heritage Interactive relies on an extensive network of service providers. “Just the number we need for our current customers,” says Wirgau. New suppliers are added only as needed and are monitored for compliance, since risk reduction is one of the key benefits the company’s customers seek.

Since these suppliers are crucial to its business, Wirgau adds, “We look at them more as partners rather than just suppliers we can beat up on pricing.” Instead of simply negotiating price with a supplier, “We take a closer look at the details of the service to target inefficiencies.” If the customer’s dumpsters are being picked up when only half full, for instance, (dumpsters sensors can gauge this), Heritage will refine the pick-up schedule to cut customers’ costs.

With costs critical for all stakeholders, sustainability has become the decisive factor in the company’s success. When the company started in 2000, Wirgau believed that cost savings would drive the business. But now he says, “All of our contracts have sustainability goals. That’s our bread and butter. If a customer is not interested in diversion, we would probably not be as effective as a big asset-owning company.”

The company currently services thousands of sites in a range of sectors. One customer is the Subaru plant in Lafayette, Ind., which joined Heritage Interactive in 2002 and three years later achieved its goal of being landfill free, well ahead of schedule.

CROSSING THE RUBICON

Rubicon Global is an asset-light waste and recycling company focused on sustainability. Its customers are

primarily in the retail, food service and hospitality industries, as opposed to the heavy industrial sector that Heritage Interactive primarily serves. But the two firms have similar business models: Rubicon Global aims to cut costs for environmentally concerned customers by working with suppliers to reduce inefficiencies and divert material from landfills.

“Our goal,” says CEO Nate Morris, “is moving all of our material into something more sustainable than a landfill by 2022.”

Still, the conversation with customers often starts out focusing on cost savings, rather than sustainability. The company’s first point of contact in most corporations is a procurement officer preoccupied with reducing costs, according to Lane Moore, executive chairman of Rubicon Global and managing partner of QuarterMoore Capital, an Atlanta-based private investment firm. “So it’s important that Rubicon Global starts out focusing on cost reduction – renegotiating contracts and adjusting the frequency of pickups.... But then we start asking what materials are in the waste stream and what can be done with them.”

The non-profit Appalachia Ohio Zero Waste Initiative (AOZWI) is developing a model zero-waste plan for two local counties.

Although new technologies are being developed, there is currently no way other than physical inspection to determine the full contents of a waste-stream. And the piles of waste can be very large, indeed. One Rubicon customer, Martin Brower, a division of Reyes Holdings and McDonald’s largest distributor, looks to recycle about 950,000 pounds of cardboard, stretch-wrap, organics and other materials every month, according to Steve Kinney, Martin Brower’s vice president of supply chain solutions.

Once the materials are identified, however, technology takes over. Rubicon Global’s national database catalogues customers’ waste streams and the suppliers that recycle the materials. That enables even small, local suppliers to bid on the individual outlets of large companies.

Since 2012, for instance, Rubicon has been employing numerous small suppliers to service 3,000 7-Eleven stores. “We’ve been able to reduce our waste management spending from stores in the Rubicon Global recycling program by over 25%,” says Tom Brennan, vice president of infrastructure services for 7-Eleven.

Examples like that lead Peter Kellner, founder of Richmond Global and senior advisor to Rubicon Global, to view the waste industry as ripe for disruption.

NON-PROFIT COLLABORATIONS

At first glance, the group Rural Action bears little resemblance to Rubicon Global. It is a relatively small non-profit seeking to foster social and economic justice and fight the impact of waste in rural Ohio. The area has the lowest recycling rates in the state, and landfills that receive millions of tons of waste every year from New York City and New Jersey.

“I believe this form of [sustainability] network, allowing companies to collaborate and differentiate, will play an absolutely critical role in everything having to do with waste management or recycling in the future.”

— Thomas Odenwald

But four years ago, with sustaining support from a local foundation and in partnership with Ohio University’s Voinovich School for Leadership and Public Affairs, Rural Action launched Appalachia Ohio Zero Waste Initiative (AOZWI), a program that offers on a small scale many of the same benefits Rubicon Global does nationally. Michelle Decker, CEO of Rural Action, compares the two organizations. “Rubicon Global is working in a for-profit context for companies that want to bring down the cost of waste and improve their environmental impact; communities want the same thing, with the added element of wanting to grow jobs.”

AOZWI helps connect entrepreneurial suppliers with companies looking to reduce waste. “We are having entrepreneurs come to us with ideas about how to help other companies reduce waste, or how to use a material as a feedstock or if they are already doing that, how they can grow,” says Kyle O’Keefe, the coordinator of AOZWI. “What’s really unique about our project is that we are very much an intermediary type of organization. We know where people are collecting certain materials, where various feed stocks are and which companies need those materials, so we help them connect with each other.”

Rural Action also has connections with economic development agencies that can assist with planning and

even potentially with start-up capital, “And as a well-established member organization in the area,” O’Keefe says, “we can also help market these fledgling businesses by giving them lots of visibility.”

The Rural Action initiative does not have a sophisticated technology platform, but O’Keefe says that the group is essentially “an information broker.” In this capacity, AOZWI is also working with a national consulting company called Resource Recycling Systems to prepare an in-depth database of all the businesses in the region that are using materials from waste streams, whether they are buying cardboard and turning it into new fiberboard or pelletizing plastics. The database will document these businesses and “help build out a network that can feed them more materials and gain them visibility around their products,” according to O’Keefe. “This is something that’s never been done before, not in the state of Ohio at least, and probably not to the depth we’re going. We’ll even be working with cottage industries.”

For customers looking to find more productive approaches, AOZWI is developing a model zero-waste plan for two local counties. The plan is helping more than 60 different organizations including surrounding cities, solid waste districts and nearby Ohio University agree on common goals around recycling, education and outreach, illegal dumping and economic development. Once the plan is complete, says O’Keefe, “We are going to use the action plan as a guide to influence future solid waste district plans and new programs that get developed.”

This level of zero-waste activity is rare among non-profits, possibly unique, but it is, says Decker, replicable across the country.

USING DATA TO ELIMINATE WASTE

Data has become increasingly important to the drive for zero waste. The AOZWI database is helping divert waste from landfills at the grassroots level by connecting suppliers and buyers within the organization’s regional marketplace. Rubicon Global’s database is helping the organization connect suppliers and buyers nationwide. Suppliers see information about the accounts they are invited to bid on, and customers see information about available solutions and costs.

“Big Data” is also being used to reduce waste at the global level. SAP, the multi-national software company, recently spent \$4.3 billion to purchase Ariba, which Thomas Odenwald, senior vice president of sustainability at SAP, describes as “one of the largest B2B network communities in the world, where buyers and sellers can meet and exchange data.”

According to Odenwald, a segment of the Ariba network, the Product Stewardship Network (SAP PSN), is already allowing suppliers and product manufacturers to share relevant sustainability data, including, for example, detailed information about the waste generated in the manufacturing of a product. Companies using PSN can then “put their own scoring algorithm on top of that,” says Odenwald.

The resulting scorecard helps buyers make more sustainable sourcing decisions, which in turn, encourages suppliers to improve their scores by offering more sustainable raw materials and products. “I believe this form of network, allowing companies to collaborate and differentiate, will play an absolutely critical role in everything having to do with waste management or recycling in the future,” says Odenwald.

A similar approach is underway at Walmart. The company’s Sustainability Index, a measurement system used to track the environmental impact of products, has been rolled out across hundreds of product categories and thousands of suppliers. CEO Mike Duke announced in 2012 that

by the end of 2017, the giant retailer will buy 70% of the goods it sells in U.S. stores only from suppliers who use the Sustainability Index to evaluate and share information about the sustainability of their products.

In addition to helping companies connect, Big Data is likely to become a vital asset if, as many expect, sustainability regulations continue to expand. Bob Wickham, a partner in the investment firm Rotunda Capital Partners and a member of the Rubicon’s global advisory board, sees “growing scrutiny around sustainability reporting, particularly for public companies.” And Perry Moss, president of Rubicon Global, believes regulations and restrictions that are already law in some states will spread nationwide, making compliance and sustainability reporting critical for U.S. companies.

Whether it’s the carrot of better business decisions or the stick of growing regulation, databases that provide easy access to sustainability data are only going to grow more essential to the drive for zero waste.





Zero Waste: ‘Nil to Landfill’ Is Now a Practical Goal

THE PUSH TO DIVERT VIRTUALLY ALL MATERIAL FROM LANDFILLS and incinerators is strongest in Europe, but it has also gained a foothold in the U.S. Zero waste goals are increasingly being embraced by progressive communities and companies that see value in turning waste streams into profit streams. And with more than 70 extended producer responsibility (EPR) laws enacted on the state and local level, some with industry support, corporate America is becoming a partner in waste reduction.

Europe is the world’s high achiever when it comes to zero waste. Some municipalities there are well on their way to conserving and recovering all the resources that used to be lost to landfills and incinerators, without burying or burning any waste at all — the definition of zero-waste established by the international alliance on the subject.

“We’re proud of the 80% [waste] diversion rate — the highest in the country, certainly of any city in North America... We want 100% zero waste.”

— Mayor Ed Lee, San Francisco

Capannori, Italy, for instance, has earned enough from selling its former “garbage” to recycling plants that its zero waste scheme (now at more than 80% diversion) is self-sufficient, and even saved the local council more than \$2.7 million in 2009. The city has plowed the savings back into further waste-reduction efforts.

Capannori is likely to achieve zero waste by 2020, which is an overall European Union goal. In 2012, the European Commission and the European Parliament outlined their

ambitions: “By 2020 waste is managed as a resource. Waste generated per capita is in absolute decline.” That remains a big challenge, especially with Europe’s economic downturn. According to Zero Waste Europe, a non-profit coalition bringing together groups and governments, in 2011 the European Union countries were still burning or burying 60% of their waste, and recycling or composting just 40%. That’s a long way from the ultimate goal, but better than the United States.

Another early zero waste pioneer is New Zealand. As noted in Paul Connett’s *The Zero Waste Solution*, by early 2005 some 72% of the country’s local councils had established no-landfill targets, and by 2008 it was adopted as a national goal. New Zealand’s effort later lost momentum, but it has pockets of great success, including a 90% diversion rate by the Opotiki District Council.

AMERICAN GRASSROOTS PROGRESS

According to the Environmental Protection Agency (EPA), America recycled only 35% of its municipal solid waste in 2011, a considerable improvement from the 6% rate of 1960, but far behind other nations. In fact, according to Elizabeth Royte in her book *Garbage Land*, Americans throw out “more stuff, per capita, than any other nation in the world, and 2.5 times the per-capita rate of Oslo, Norway.” The latest per-person figure is 4.4 pounds daily (with 1.53 pounds of that recycled or composted).

And yet achieving zero waste has become part of the national conversation, embraced by American corporations with a zeal that would have been unthinkable a decade ago. As the Initiative for Global Environmental Leadership (IGEL) noted in its recent report, The Green Sports Movement, professional and college leagues and teams have endorsed zero waste concepts with fervor, and many have achieved high diversion rates.

To a significant degree, zero waste in the U.S. is being driven by regional, state and private initiatives, including strong corporate participation, without any foreseeable support from Washington. In California, the statewide Integrated Waste Management Board has a zero waste goal, as do the counties of Santa Cruz, Del Norte, San Luis Obispo and San Diego. California cities voting for zero waste include San Francisco, Berkeley and Palo Alto. Austin and San Antonio in Texas, New York City and Seattle are also leaders.

San Francisco makes an interesting case study, because with partner Recology, an employee-owned and locally based waste management company, it is vying to become the first zero waste city in the U.S., with a goal of 2020.

As recently as 1989, 90% of San Francisco's garbage ended up in landfills (some 900,000 tons annually). But now that ratio has been nearly reversed. Among the repurposed waste streams in the city are soda cans that have been crushed and baled as raw material for more aluminum cans, used construction materials that are reused for new buildings, and food scraps and yard clippings (some 400 tons a day) that are turned into compost.

In some San Francisco neighborhoods, consumers can get a 10% discount off the trash bill for each week they don't put out their garbage cans. If they skip collection day twice in one month, they get a 20% discount. Businesses can get waste audits, and households can schedule meetings to talk about reducing garbage streams.

"We're proud of the 80% diversion rate, the highest in the country, certainly of any city in North America," Mayor Ed Lee told *PBS*. "And we're not going to be satisfied with that. We want 100% zero waste. This is where we're going."

According to Heather Achilles, an engineer from IBM's Next Generation Computing Research, "Cities have a lot of data related to the collection of trash, including billing, truck routing, frequency of pickup and materials taken in. The problem is that there are no standards, so it's hard to put the information together and use it to make good decisions — such as maybe having only one pickup a week instead of two, if the collections are going out half empty. Our software takes data from many sources and pulls it into IBM's Smarter Cities computing platform that many cities are already using. The data can be analyzed and used to put pilot programs in place for zero waste, if that's the city's goal."

Many cities perform annual trash inventories known as waste audits, Achilles said, but don't always optimize their use of the information that comes out of them. "We can take that data and produce a breakdown that will help identify which waste streams can and should be diverted — like valuable scrap aluminum, if there's enough of it being

collected." The city of Dubuque, Iowa is also working with IBM on more efficient waste management.

According to the Institute for Local Self-Reliance, some 30 years ago, "many solid waste planners thought no more than 15% to 20% of the municipal waste stream could be recycled. Today, numerous communities have surpassed 50% recycling, and many individual establishments — public and private sector — such as office buildings, schools, hospitals, restaurants, and supermarkets, have approached 90% and higher levels."

"Our software takes data from many sources and pulls it into IBM's Smarter Cities computing platform.... The data can be analyzed and used to put pilot programs in place for zero waste...."

— Heather Achilles, an engineer from IBM's Next Generation Computing Research

The growing zero waste buy-in on the corporate level is impressive. Zero waste programs that advanced rapidly in Europe, Canada, Japan, Israel and China have run into business lobbying roadblocks in the United States, but that opposition is eroding as companies, realizing there is revenue in waste, set their own ambitious waste reduction goals.

Industries have begun to make striking zero waste claims. General Motors has 110 landfill-free facilities worldwide, with 97% of generated waste either recycled or reused — an average of 3% is converted to energy, a process not allowed by some zero waste guidelines. For its 109th plant, in Rochester, New York, GM spent four years and seven attempts to figure out a recycling process for a stubborn, oily filter sludge. The 110th was GM's 12,000-worker, 5.5-million-square-foot corporate headquarters in Detroit, announced in December of 2013.

Other U.S. automakers are not far behind. According to Andy Hobbs, director of the Ford Environmental Quality Office, 14 of the company's plants worldwide are "nil to landfill." In 2012, Ford recycled 586,000 tons of scrap metal in North America, and generated \$225 million in revenue through the process. Ten of Honda's 14 American plants are also zero waste to landfill.

In something of a milestone, California's Sierra Nevada Brewing Company, with a closed-loop approach, has achieved a 99.8% diversion rate from landfill, incineration and the environment. A number of things helped Sierra get there, including reducing packaging and ensuring it

was recyclable, capturing and reusing carbon dioxide (such as for pressurizing tanks), addressing transportation, and recycling or composting nearly all the solid waste produced in the brewing process.

Founding members of the U.S. Zero Waste Business Council (USZWBC) include the City of Los Angeles, Austin Resource Recovery (with a 90% reduction goal by 2040 or sooner), the Walt Disney Company (which calls zero waste a “journey”), Raytheon, Earth Friendly Products and the American Licorice Company.

“... Numerous communities have surpassed 50% recycling, and many individual establishments — public and private sector — such as office buildings, schools, hospitals, restaurants and supermarkets, have approached 90% and higher levels.”

— The Institute for Local Self-Reliance

In March of 2013, the USZWBC issued zero waste business certificates to Whole Foods for its achievement at three stores in San Diego County. The stores achieved more than 90% diversion from landfill, incinerator and the environment, and that entitled them to a bronze-level award. Sierra Nevada was the first to reach the highest level, which is platinum.

IS ZERO WASTE POSSIBLE?

Many experts say it’s possible to divert all of America’s waste from its landfills. But such a zero waste achievement would require a national consensus involving manufacturers, the federal government, the non-profit sector, states, municipalities and consumers.

“Yes, zero waste is possible, but I don’t think it’s likely,” said Robert Giegengack, a professor in the department of earth and environmental science at the University of Pennsylvania. “It’s not a new idea — it characterized subsistence agrarian societies for millennia; it was sought as a goal during World War II, and it has been resurrected in the last 30 years or so — and we are making progress in getting there. People are working together on the common goal, particularly on food waste.”

Giegengack pointed out that landfill dependence is in many ways a post-World War II phenomenon, as the U.S. switched to a disposable society.

High diversion rates — and even zero waste — are increasingly practical as waste streams are turned into revenue streams for companies and municipalities. For companies such as Rubicon Global, Terracycle and Heritage Interactive, the prime directive is repurposing materials and keeping them out of landfills.

“Zero waste is absolutely possible,” said Nate Morris, co-founder and CEO of Rubicon Global, which services clients such as 7-Eleven, and Wegmans. Wegmans’ uniforms, for example, are transformed into car insulation. “Waste is the biggest piece of low-hanging fruit out there, with bigger environmental results than installing solar panels or changing fleets to biodiesel. Eighty percent to 90% diversion is possible today.”

“A future without waste and toxic materials is not just a dream, it’s a necessity,” says the Zero Waste Alliance (ZWA), based in Oregon. “Waste reduces the effectiveness of our businesses and harms the vitality of our communities.” ZWA counsels companies to “map” their waste streams, identifying volume, make-up and sources, and locate opportunities to turn that often-useful material into a revenue stream. If your organization wants to compost its garbage stream, is there local infrastructure that can accept the material?

According to Lynn Landes, founder of Zero Waste America, “Under current conditions, it is possible to achieve zero waste. It has to be that way, so we don’t burn or bury our waste. Landfills and incineration should be off the table. Zero waste is the only practical way of managing our resources — and minimizing the harmful results of manufacturing and production.”

The federal government has zero waste on its radar screen. According to Mathy Stanislaus, assistant administrator in the Environmental Protection Agency’s (EPA) Office of Solid Waste and Emergency Response, “It’s being discussed at every level, including states, local governments and the corporate sector. We’re seeing a big trend to re-engineer and remanufacture material that would otherwise go to landfills. We’re not sure how many companies and organizations have actually adopted zero waste policies, but many are set on reusing as many materials as possible.”

The EPA, Stanislaus said, is “moving the marketplace” by recognizing companies that have voluntarily committed to achieving a certain recovery rate — and then achieved that goal. For stakeholders looking at zero waste, the agency provides scientific information and risk analysis. “And we’re working on streamlining regulations to foster innovation in the recycling realm. We’re providing more certainty for manufacturers that reuse materials.”

The EPA believes that recycling is good for the economy. “If you divert one ton of waste from landfills, it pays \$101 more than if it were just managed as waste,” Stanislaus said. “There’s a delta of increase in salary and wages. And with that same diversion, sales go up \$135.” He also noted the value hidden in the waste stream, since a metric ton of obsolete cell phones contains 6.6 pounds of silver, more than half a pound of gold and almost three tenths of a pound of palladium. Landfill elimination “is a goal we want to strive for. If waste goes to landfills, it means we’re not doing a good job of managing it.”

ZERO WASTE AT THE UNIVERSITY OF PENNSYLVANIA

In July of 2013, Wharton turned its annual human resources lunch into its first-ever zero waste event. According to Rafael de Luna III, the associate director of sustainability for Wharton Operations, the plates and utensils at the lunch were compostable, and not only were waste bins set up with explanatory signage, but three of the five stations had volunteer monitors making sure waste was properly directed. That last precaution proved vital. “The stations with monitors had no contamination,” de Luna said. “And those without people being stationed were in some cases so contaminated with non-compostable material that the contents just ended up being thrown out as trash.”

Wharton is averaging between 75% and 90% diversion rate at its zero waste events. On average the school hosts 15,000 annual events, many of which serve food (almost half of the school’s garbage stream) and now many of the event planners are working with Wharton Operations to make them zero waste. “I approached Amy Reese, the special events manager at Wharton Operations, and asked for an audience with the caterers,” de Luna said. “We explained what we’re trying to do, and that we want zero waste events to be an option. We don’t think we’ve even scratched the surface of what we can achieve with zero waste, and now we’re getting weekly requests for it.”

Wharton was the first school within the university to perform a waste stream audit, initially only for one of its academic buildings and one of its cafes. Now in its fourth year, the audit program has expanded to Steinberg Hall and Dietrich Hall (a Wharton building), and other schools at Penn are doing the same for their buildings. Besides food waste, the largest categories are plastic (11%) and Styrofoam (10%) containers, reflecting the large amount of takeout meals consumed. Paper in its myriad forms is 18%. After one event, de Luna said he found “200 pounds of perfectly good food that was being thrown away,” and the university is taking steps to minimize that kind of waste.

The road to zero waste can be bumpy, says Dan Garofalo, environmental sustainability director for the University of Pennsylvania. “Although we’re on a good trajectory for traditional recycling, food waste is really a challenge for us right now.” But Penn came up with a comprehensive solution — beginning in 2010, it began sending four tons of organic waste per week to the Wilmington Organic Recycling Center in Delaware, the largest composting facility on the East Coast.

“In theory, it’s pretty straightforward,” Garofalo said. “Students scrape waste into compost bins, and the material ends up on the loading docks, where it’s collected twice a week by Waste Management. Unfortunately, it wasn’t happening.” Garofalo noticed during spot checks that the bins were often empty at the end of a shift, and he discovered that although the system was in place, it was poorly understood by a kitchen staff with high turnover. “The process had temporarily broken down. And there was no feedback loop to report when it wasn’t working.” The university facilities and dining staff worked together over the winter break to get the system back on track — first by holding a training program for all kitchen staff and cafeteria managers, and then implementing a program for regular review and quality control.

Composting has been a trial and error process at the university, with some early experiments in on-site processing failing (in part because of challenges in finding on-campus uses for the end product). Now, Garofalo says, BiobiNs (locally made containers based on a design licensed from an Australian company) are used to store organic waste in an aerobic and odor-free state before it’s collected.

The university uses its own garbage compactor trucks to collect municipal solid waste in the morning and recycling in the afternoon. “I’m confident that what is supposed to get recycled actually does,” Garofalo said. Meanwhile the university purchasing department is “doing an incredible job” of reducing packaging for office supplies and other projects. A printer management project, using consultants, has greatly reduced the amount of campus paper waste.

And students are being recruited through a program called Rethink Your Footprint that includes the distribution of reusable water bottles and coffee cups. As part of the campaign, student Eco Reps set up a mini-bin challenge. At one Penn zero-waste event, QuakerFest 2013 (staffed by student volunteers), 600 pounds of waste was diverted by the 1,400 participants, and only 37 pounds ended up in landfills.

The university’s overall recycling rate, if construction waste diversion is included, is 50%. Total waste to landfill

is going down 2% per capita annually. The University of Pennsylvania does not yet have a zero waste goal, but it's heading in that direction.

EXTENDED PRODUCER RESPONSIBILITY

Zero waste made a giant leap forward in 1990, when the Der Grüne Punkt ("Green Dot") program was first enacted in Germany. It made practical the tough national packaging law passed the following year in response to a growing landfill crisis. The law requires companies to either take back their own packaging, or (far more likely) pay a licensing fee and have it recycled through a scheme set up by Duales System Holding. By 1993, 12,000 companies (often branches of U.S. firms that loaded up on packaging at home) had become members. When packaging bears the Green Dot label (now seen in 28 countries) it can be dropped into household bins (paralleling already well-established recycling programs).

Green Dot gave companies a powerful incentive to reduce their packaging, and that's exactly what happened as what's known as Extended Producer Responsibility (EPR) spread throughout Europe and on to Canada, Japan, Israel, Brazil and other countries. "There are more than 30 EPR packaging laws in Europe alone, many of them in place for more than 20 years," says Scott Cassel, CEO of the Product Stewardship Institute (PSI), a U.S. organization that focuses on sustainable end-of-life management for waste streams.

In the 1990s, EPR remained below the radar in the U.S., with only a few determined advocates pointing to the success of the German program. Bette Fishbein of the group INFORM, one such pioneer, wrote in 2000, "Since it is the producer that decides how products are designed, providing industry with a direct economic incentive seems the most efficient and effective approach [to reducing waste]."

PSI has been working to change the U.S. status quo. According to Cassel, Massachusetts' director of waste planning from 1993 to 2000, "I came to the conclusion that a key barrier for state waste programs was financing — there wasn't enough money in the system. And so I decided to start an institute aimed at bringing the EPR concept to the U.S." That led to PSI's founding in 2000 as a joint project with the state of Massachusetts. Its first forum that year brought together 100 government officials from 20 states.

According to Cassel, 32 states now have at least one EPR law, and more than 76 individual "producer pays" statutes have been enacted. In 2013 alone, nine state or local bills became law. EPR programs for electronics are also growing at the state and local level. More than 25 laws have already been enacted, spurred in part by horrific images of unsafe dismantling operations in Asia.

Connecticut is currently working with PSI through the state's environmental agency to set up product stewardship policies. The initial focus, announced in late 2013, will be on carpeting, batteries, packaging, pesticides and fertilizers. "Recovering the materials in discarded products helps protect the environment, creates jobs and boosts the economy," said Daniel Esty, former commissioner of the Connecticut Department of Energy and the Environment.

The prospect for any federal legislation is still slim, though there's been legislative interest in bills on pharmaceuticals and electronics. "Over the next five years, I expect the concept to become much more prevalent at the national level," Cassel said. "It's more efficient to cover all the states with one EPR policy."

Today, companies such as Nestlé Waters North America are embracing EPR. "We've seen the potential power of EPR, and we are bullish on its prospects for recycling in the United States," said Kim Jeffrey, the former president and CEO of Nestlé Waters.

When industry signs on, EPR laws can move quickly. The paint industry, via the American Coatings Association (ACA), signed on to an initiative sponsored by PSI to do something about the 75 million gallons of leftover paint, worth \$500 million, that is generated annually and usually ends up in landfills or incinerators. Municipalities spend an average of \$8 a gallon to manage unused consumer paint. The first state law — with manufacturers responsible for collecting and processing waste paint — was enacted by Oregon in 2009, but Cassel says another seven to 10 states are likely to pass similar laws, and seven (including Oregon) already have.

The path isn't always smooth — ACA sued California's environmental agency in 2012, claiming that it had overreached in implementing its paint EPR statute by requiring too much data. According to Alison Keane, a vice president of government affairs at ACA, the state's program was upheld in court, but an appeal is underway. "We want regulatory relief, because the law as currently constituted is unnecessarily burdensome," she said. "But we absolutely remain supportive of EPR laws, and the program in California is ongoing as the case proceeds."

Zero waste, said Cassel, "is a concept and a motivator — it's what we all want to see. As we breathe and live, there will always be waste, and getting it down to zero will always be a goal."

The good news is that the goal is a lot closer than it has ever been, and an increasing number of advocates dare to think that it's achievable.

USEFUL LINKS:

U.S. Zero Waste Business Council

<http://www.uszwb.org/>

Product Stewardship Institute

<http://www.productstewardship.us/>

Waste Management

<http://www.wm.com>

Republic Services

<http://www.republicservices.com/corporate/home.aspx>

Rubicon Global

<http://rubiconglobal.com/>

Rural Action

<http://ruralaction.org/>

When Recycling, Remember to Separate Bones, Flint and Animal Skins

http://www.denverpost.com/ci_24292454/when-recycling-remember-separate-bones-flint-and-animal

The Case for Zero Waste

<http://www.zerowaste.org/case.htm>

Zero Waste Emissions From Factories

http://panasonic.net/sustainability/en/eco/resources_recycling/zero_emission/

The Zero Waste Office: Is it Possible?

<http://www.greenbiz.com/news/2008/04/09/zero-waste-office-it-possible>

Eliminating Plant Waste to Keep the Earth Clean

<http://web-japan.org/atlas/technology/tec13.html>

Zero Waste is Not Zero Waste Emissions

<http://terrapass.com/uncategorized/wasted-opportunity-reduce-emissions/>

Promotion of Zero Emission (At Production Sites)

http://www.fujixerox.com/eng/company/ecology/internal/zero_establishment/index.html

Zero Waste at Walmart

<http://corporate.walmart.com/global-responsibility/environment-sustainability/waste>

Waste Reduction at Nikon

http://www.nikon.com/about/csr/environment/plants/plants_03/index.htm

Russia's Zero Waste Olympic Pledge

http://www.huffingtonpost.com/2013/10/29/russia-zero-waste-olympics_n_4175374.html

Disney Targets Zero Emissions

http://www.sustainablebrands.com/news_and_views/articles/disney-targets-zero-emissions-zero-waste

A Zero Waste Olympics? Nice Try, But No Gold Medal.

<http://www.alternet.org/visions/zero-waste-olympics-nice-try-no-gold-medal>

Zero Waste Projects Becoming Firmly Established Throughout the World

<http://www.natureinterface.com/e/ni04/P060-061/>

Is Zero Waste Conceivable?

<http://www.zerowaste.co.nz/assets/Conferencepaperfinal.pdf>

Zero Waste

http://www.sfenvironment.org/sites/default/files/editor-uploads/zero_waste/sfe_zw_strategic_plan_14.pdf

CASE STUDY: Altamont Landfill and Resource Recovery Facility

http://www.wm.com/documents/pdfs-for-services-section/Case-studies-municipal/PSS_CsStdyAltamLndfillREVISE_rFjgg.pdf

The Future of Garbage...Is No More Garbage

<http://www.cnbc.com/id/100470730>

Municipal Solid Waste

<http://www.epa.gov/epawaste/nonhaz/municipal/index.htm>

Zero Waste Communities

<http://zwia.org/news/zero-waste-communities/>

Automakers Work to Achieve Zero Waste Goals

http://wheels.blogs.nytimes.com/2013/03/01/automakers-work-to-achieve-zero-waste-goals/?_r=0

Iconic GM World Headquarters Sends No Waste to Landfill

<http://fastlane.gm.com/2013/12/10/iconic-gm-world-headquarters-sends-no-waste-to-landfill/>

Garbage In, Nutrient-Rich Compost Out

<http://www.upenn.edu/pennnews/current/node/3410>

The Story of Capannori, a Zero Waste Champion

<http://www.zerowasteurope.eu/2013/09/the-story-of-capannori-a-zero-waste-champion/>

Duales System Holding: Sustainability is our Business Objective

http://www.dsd-holding.de/fileadmin/dsd-holding/doc/pdfs/NBH_2012_engl.pdf

Sending Waste Back to the Source

<http://www.utne.com/environment/sending-waste-back-to-the-source.aspx#ixzz2pZ1sCodv>

Paint Industries File Lawsuit

http://www.cmta.net/page/legupdate-article.php?legupdate_id=21425



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Text File

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File Type: Staff Report

Agenda Number: 2A.

Receive Report and Consider Adoption of City Council Resolution Approving First Amendment to the Joint Powers Agreement Between the County of Mendocino and the City of Fort Bragg for the Caspar Landfill and Solid Waste Transfer Station and Authorizing City Manager to Execute Same



AGENCY: City Council/BOS
MEETING DATE: September 19, 2016
DEPARTMENT: Administration
PRESENTED BY: M. Sweeney (MSWMA)

AGENDA ITEM SUMMARY

TITLE:

RECEIVE REPORT AND CONSIDER ADOPTION OF CITY COUNCIL RESOLUTION APPROVING FIRST AMENDMENT TO THE JOINT POWERS AGREEMENT BETWEEN THE COUNTY OF MENDOCINO AND THE CITY OF FORT BRAGG FOR THE CASPAR LANDFILL AND SOLID WASTE TRANSFER STATION AND AUTHORIZING CITY MANAGER TO EXECUTE THE SAME

ISSUE:

If the City Council and the Board of Supervisors certify the Environmental Impact Report for the proposed Central Coast Transfer Station and approve implementation of the project, the Joint Powers Agreement (JPA) between the City and the County which addresses the jointly-owned Caspar Landfill and Solid Waste Transfer Station must be modified to address the new facility. The Caspar Joint Coordinating Committee has reviewed and recommends adoption of the First Amendment to the JPA that was entered into on January 25, 2011.

RECOMMENDED ACTION:

Adopt Resolution approving First Amendment to the Joint Powers Agreement between the County of Mendocino and the City of Fort Bragg for the Caspar Landfill and Solid Waste Transfer Station and authorizing City Manager to execute the same.

ALTERNATIVE ACTION(S):

1. No action. If the City Council and/or Board of Supervisors do not take the necessary actions to proceed with implementation of the Central Coast Transfer Station project, amendment to the JPA is unnecessary and no action should be taken.
2. Continue action on the JPA amendment. If the City Council and Board of Supervisors do not reach agreement on the amendment, action should be continued and direction should be provided to staff and/or the Joint Coordinating Committee regarding further revisions.

ANALYSIS:

On January 25, 2011, the City and the County entered into an updated JPA for the Caspar Landfill and Solid Waste Transfer Station which included a provision stating that replacement or expansion of the Caspar Transfer Station is necessary to accommodate commercial solid waste collection trucks and allow long-haul direct transfer to a destination landfill, and that the County and City shall cooperate in a siting and development project to provide such an expanded facility, either at the Caspar property or another site.

On August 13, 2013, the City Council and the Board of Supervisors designated a site located at 30075 Highway 20, Fort Bragg, as the preferred site for a new solid waste transfer station and authorized preparation of an Environmental Impact Report (EIR). The draft EIR was issued on February 9, 2015, and a final EIR was issued on June 30, 2015. Subsequently, a revised draft EIR was issued on May 11, 2016 and a revised final EIR was issued on September 9, 2016.

If the City Council and Board of Supervisors certify the EIR and authorize further steps to proceed with the new transfer station project, the JPA amendment must be amended to address the new facility.

The attached resolution includes the proposed JPA amendment as "Exhibit A." The amendment establishes the basic structure of the City-County relationship with regard to the new facility as follows:

- The County would exercise the option to take title to the property, and City and County would execute required conservation easement and purchase option for the Caspar Landfill property in favor of the California Department of Parks & Recreation.
- The County and City would prepare a Request for Proposals for a private-industry entity (Contractor) to design, build and operate the new transfer station facility.
- The County and City would select the Contractor and negotiate a contract between the County and Contractor. Any amendments to the contract would require City consent.
- The County would administer the Contract which may include a provision for a contract administration fee to cover County's actual costs.
- County and City would both commit their solid waste streams from the coastal region to the new transfer station.
- While liability for design, construction and operation of the new transfer station would be contractually assigned to the Contractor, the County and City would equally share in any judgment not paid by Contractor or Contractor's insurers.
- Upon opening of the new transfer station, the Caspar Self-Haul Transfer Station would be closed.
- The Caspar Joint Coordinating Committee would continue its role in mediating discussions between County and City regarding issues relating to the JPA and solid waste facilities. The amendment includes a dispute resolution process.

FISCAL IMPACT:

Review and identification of the amount and source of any funds required to implement the recommendation. The fiscal impact analysis should also include any significant issues related to the proposed expenditure such as any need to transfer funds, amend the budget, appropriate additional (unbudgeted) funds or defer other expenditures.

IMPLEMENTATION/TIMEFRAMES:

If the City Council and Board of Supervisors agree to move forward with the new transfer station project, the next step is for the County to exercise the option to acquire the project site. Then a request for proposals will be issued, followed by negotiation of a contract with a private-industry entity that will design, build and operate the facility.

ATTACHMENTS:

1. Resolution
2. Exhibit A – First Amendment to Caspar JPA Agreement
3. Existing Caspar JPA Agreement (January 25, 2011)

NOTIFICATION:

Notices of the September 19, 2016 meeting were mailed to approximately 400 property owners; emailed to the City's and MSWMA's interested parties email list; published in Fort Bragg Advocate-News and the Ukiah Daily Journal; posted on City and MSWMA websites; posted in the City's notice case; and a press release was issued.

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|--|-----------------------------------|---------------------------------|--|
| Agency Action | <input type="checkbox"/> Approved | <input type="checkbox"/> Denied | <input type="checkbox"/> Approved as Amended |
| Resolution No.: | _____ | Ordinance No.: | _____ |
| Moved by: | _____ | Seconded by: | _____ |
| Vote: | _____ | | |
| <input type="checkbox"/> Deferred/Continued to meeting of: | _____ | | |
| <input type="checkbox"/> Referred to: | _____ | | |

RESOLUTION NO. ____-2016

RESOLUTION OF THE FORT BRAGG CITY COUNCIL APPROVING FIRST AMENDMENT TO THE JOINT POWERS AGREEMENT BETWEEN THE COUNTY OF MENDOCINO AND CITY OF FORT BRAGG FOR CASPAR LANDFILL AND SOLID WASTE TRANSFER STATION AND AUTHORIZING CITY MANAGER TO EXECUTE THE SAME

WHEREAS, the County of Mendocino (hereinafter, "County") and City of Fort Bragg (hereinafter, "City") entered into the Joint Powers Agreement Between the County of Mendocino and the City of Fort Bragg for Caspar Landfill and Solid Waste Transfer Station ("Agreement") on January 25, 2011 to revise and update their relationship concerning the Caspar Landfill and solid waste disposal generally in the greater Fort Bragg area; and

WHEREAS, the Agreement states that replacement or expansion of the Caspar Transfer Station is necessary to accommodate commercial solid waste collection trucks and allow long-haul direct transfer to a destination landfill, and that County and City shall cooperate in a siting and development project to provide such an expanded facility, either at the Caspar property or another site, and shall amend this Agreement as necessary to implement the expansion; and

WHEREAS, the County Board of Supervisors and City Council designated 30075 Highway 20 as the preferred site for a new solid waste transfer station (hereinafter, "Transfer Station") on August 13, 2013 and authorized the preparation of an Environmental Impact Report; and

WHEREAS, a draft Environmental Impact Report was issued on February 9, 2015 and a final Environmental Impact Report was issued on June 30, 2015; and

WHEREAS, a revised draft Environmental Impact Report was issued on May 11, 2016 and a revised final Environmental Impact Report was issued on September 9, 2016; and

WHEREAS, the County Board of Supervisors and City Council certified the Environmental Impact Report as fulfilling the requirements of the California Environmental Quality Act on September 19, 2016 and authorized further steps to proceed with the Transfer Station project; and

WHEREAS, based on all the evidence presented, the City Council finds as follows:

1. An amendment to the Agreement is necessary to stipulate how the County and City will cooperate in development and operation of the Transfer Station; and
2. The First Amendment to the Agreement, attached as "Exhibit A" to this resolution and incorporated herein establishes appropriate shared and individual roles and responsibilities for the County and City with regard to the new Transfer Station project.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Fort Bragg does hereby approve the First Amendment to the Joint Powers Agreement between the County of Mendocino and City of Fort Bragg for Caspar Landfill and Solid Waste Transfer Station and authorizes the City Manager to execute the same.

The above and foregoing Resolution was introduced by Councilmember _____, seconded by Councilmember _____, and passed and adopted at a regular meeting of the City Council of the City of Fort Bragg held on the 19th day of September, 2016, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

DAVE TURNER,
Mayor

ATTEST:

June Lemos
City Clerk

**FIRST AMENDMENT TO THE JOINT POWERS AGREEMENT BETWEEN
THE COUNTY OF MENDOCINO AND CITY OF FORT BRAGG FOR
CASPAR LANDFILL AND SOLID WASTE TRANSFER STATION**

This First Amendment to the Joint Powers Agreement between the County of Mendocino and City of Fort Bragg for Caspar Landfill and Solid Waste Transfer Station (hereinafter, "Agreement") is made and entered into on this 19th day of September 2016.

WHEREAS, the County of Mendocino (hereinafter, "County") and City of Fort Bragg (hereinafter, "City") entered into the Agreement on January 25, 2011 to revise and update their relationship concerning the Caspar Landfill and solid waste disposal generally in the greater Fort Bragg area; and

WHEREAS, the Agreement states that replacement or expansion of the Caspar Transfer Station is necessary to accommodate commercial solid waste collection trucks and allow long-haul direct transfer to a destination landfill, and that County and City shall cooperate in a siting and development project to provide such an expanded facility, either at the Caspar property or another site, and shall amend this Agreement as necessary to implement the expansion; and

WHEREAS, the County Board of Supervisors and City Council designated 30075 Highway 20, Fort Bragg, as the preferred site for a new solid waste transfer station (hereinafter, "Transfer Station") on August 13, 2013 and authorized the preparation of an Environmental Impact Report; and

WHEREAS, a draft Environmental Impact Report was issued on February 9, 2015 and a final Environmental Impact Report on July 1, 2015; and

WHEREAS, a revised draft Environmental Impact Report was issued on May 11, 2016 and a revised final Environmental Impact Report on September 9, 2016; and

WHEREAS, the County Board of Supervisors and City Council certified the Environmental Impact Report as fulfilling the requirements of the California Environmental Quality Act on September 19, 2016 and authorized further steps to proceed with the Transfer Station project; and

WHEREAS, an amendment to the Agreement is necessary to stipulate how the County and City will cooperate in development and operation of the Transfer Station;

THEREFORE BE IT RESOLVED that this First Amendment to the Agreement is made as follows:

I. Section 10 is added:

10. A. County shall exercise the option provided by Public Resources Section 4659 to take title to the Transfer Station site.

B. City and County shall prepare a Request for Proposals (RFP) for a private industry contract (hereinafter, "Contract") to design, build and operate the Transfer Station for a term of twenty-five (25) years. With the City's consent, County shall issue the RFP. City or County may authorize staff to perform their participation and review.

C. City and County shall jointly evaluate responses to the RFP, negotiate with proposers, and either decline all proposals and reissue an RFP or make a recommendation for acceptance of a proposal. If the City consents, County shall execute a design, build and operate Contract with a private-industry entity with the County alone as the contracting party. City or County may authorize staff to perform their participation and review.

D. The Contract shall require the private-industry entity (i.e., "Contractor") to indemnify the County and City for any and all claims, actions or liabilities that may arise from Contractor's design, construction and/or operation of the Transfer Station. The Contract shall require the Contractor to name the County and City as additional insured under all of the Contractor's insurance policies, including but not limited to the Contractor's general liability and vehicle liability insurance policies. Any judgment or assessment concerning the Transfer Station that is not paid by Contractor or Contractor's insurer pursuant to the indemnification and insurance provisions of this subsection, and that is assessed against either the County and/or the City, shall be shared equally (50% City/50% County) by the County and the City.

E. The Contract may include a provision for a contract administration fee to be paid by the users of the Transfer Station to reimburse County's actual cost of administering the Contract, pursuant to subsections C and G of this Section.

F. The Contract shall include provisions authorizing the County to act independently to address emergency situations affecting public health and safety.

G. County shall independently administer and monitor the Contract to ensure compliance with all contract obligations and that the Transfer Station is self-supporting. No amendment to the Contract or increase in tipping fees, beyond annual rate adjustments made in accordance with contract provisions, shall be approved by the County without the prior consent of the City.

H. Insofar as it is sufficient, the Caspar self-haul transfer station rent, as described in Section 5 of the Agreement, shall be used to pay expenses associated with the City and County administrative costs in the further advancement of the project, including but not limited to: (1) any in-kind contributions by the City and County but excluding personnel costs of City and County staff; (2) all legal fees incurred by the City and/or County during the pre-approval administrative CEQA process, the post-approval RFP process and/or any related post-approval litigation. Additional costs exceeding the funding available from the Caspar rent shall be shared equally by City and County (50% City/50% County) and each party shall approve in advance any activity that will require its direct financial contribution.

I. In accordance with Public Resources Code Section 4659, County and City shall execute when necessary the required conservation easement and purchase option for the Caspar Landfill property in favor of the California Department of Parks & Recreation.

J. County shall exercise its authority to direct all solid waste disposal from the region identified as County Solid Waste Refuse Disposal Area No. Two, Coastal Division, to the Transfer Station and City shall exercise its authority to direct all solid waste disposal from within the City Limits to the Transfer Station.

K. Upon the opening of the Transfer Station, the Caspar self-haul transfer station shall cease operations, all portable equipment and structures shall be removed, and the operations contract with Solid Wastes of Willits, Inc., shall be terminated by County. County shall continue to perform landfill post-closure duties as provided by Section 3 of the Agreement and shall additionally supervise, monitor and control the entire 61-acre Caspar Landfill site.

L. The Caspar Joint Coordinating Committee shall review all activities of City and County staff in furtherance of the Transfer Station project, including future contract administration concerning the operation of the Transfer Station, and shall make recommendations as appropriate to the City Council and Board of Supervisors. If any dispute or disagreement arises between County and City

concerning the Transfer Station, the Caspar Joint Coordinating Committee shall meet to seek resolution. If the JCC cannot recommend an acceptable resolution and/or County and City do not mutually agree to that resolution, the County and City shall mutually agree to the selection and equally share the cost of hiring a mediator to attempt to settle the dispute. If the County and City cannot mutually agree on the selection of a mediator, either entity may apply to the Presiding Judge of the Mendocino Superior Court to name a mediator. No civil action may be initiated for enforcement of the Joint Powers Agreement prior to completion of good faith efforts to resolve the dispute through mediation.

M. City approval as required herein may be made by either the City Manager or City Council as the City shall designate.

N. County approval as required herein may be made by either the Chief Executive Officer or Board of Supervisors as the County shall designate.

II. All other terms and conditions of the Agreement remain in effect.

IN WITNESS WHEREOF, County and City, by their duly authorized representatives, have executed this First Amendment on the day and year first written above.

COUNTY OF MENDOCINO

Dan Gjerde
Chair, Board of Supervisors

Date: _____

ATTEST:

Carmel Angelo, Clerk of the Board

By: _____

CITY OF FORT BRAGG

Linda Ruffing
City Manager

Date: _____

ATTEST:

June Lemos, City Clerk

By: _____

APPROVED AS TO FORM:

Katharine L. Elliott, County Counsel

APPROVED AS TO FORM:

Samantha Zutler, City Attorney

JOINT POWERS AGREEMENT BETWEEN THE COUNTY OF MENDOCINO AND
CITY OF FORT BRAGG FOR CASPAR LANDFILL AND SOLID WASTE
TRANSFER STATION

This Joint Powers Agreement (hereinafter, "Agreement") is made and entered into on this 25th day of January, 2011, between the County of Mendocino (hereinafter, "County") and the City of Fort Bragg (hereinafter "City"):

WHEREAS, County and City are authorized to enter into an agreement for joint exercise of any common power under Sections 6500 et. seq. of the California Government Code; and

WHEREAS, County and City are each authorized to provide for solid waste disposal services to their residents and businesses; and

WHEREAS, County and City jointly own 60 acres, more or less, in the Caspar area at the terminus of Prairie Way, also known as Assessor's Parcel Numbers 118-50-010 and 118-50-011 (hereinafter "Caspar property"); and

WHEREAS, County and City first entered into a joint powers agreement for use of the Caspar property for solid waste disposal purposes on or about October 31, 1967, amended the agreement on August 25, 1970, enacted a new joint powers agreement on August 16, 1977, and amended it on October 10, 1978, April 24, 1989, and February 4, 1993; all of which are collectively referred to hereinafter as the "Original Agreement," and

WHEREAS, pursuant to the Original Agreement, County and City used the Caspar property for solid waste landfill purposes from 1968 to 1992, and thereafter have used the Caspar property for a solid waste transfer station; and

WHEREAS, County and City wish to terminate the Original Agreement and adopt a new joint powers agreement for clarity and to respond to new circumstances.

NOW THEREFORE BE IT RESOLVED, that County and City, for and in consideration of the mutual agreements herein stated and the performance thereof, and for other valuable and adequate consideration, do hereby agree for and on behalf of themselves and their successors in interest as follows:

1. The Original Agreement is hereby terminated and replaced by this Agreement.
2. Costs for the continuing post-closure management, maintenance and repair of the closed Caspar solid waste landfill are the joint responsibility of County and City. Any costs for corrective action which are mandated by federal, state or local regulatory authorities, which exceed the financial resources already dedicated by County and City for post-closure functions, shall be paid equally by County and City.
3. County shall manage all post-closure maintenance, monitoring and reporting requirements for the closed Caspar solid waste landfill (California Solid Waste Information System #23-AA-0003). County shall prepare an annual fiscal year budget for post-closure and submit it by May 1 of each year to City for comment and review. If City disagrees with the proposed budget, City shall request a meeting with County to resolve any disagreements. County shall submit to City and City shall pay an annual invoice that shall provide detailed documentation of all expenditures and City and County shall each be responsible for 50% of the previous fiscal year's post-closure expenditures. Both parties acknowledge that unforeseen events, such as winter storm damage, slide or collapse, can occur to closed landfills and that emergency expenditures may be required that cannot be accurately anticipated in an annual budget.
4. County shall enter into a "Caspar Transfer Station Operations Agreement and Lease"(hereinafter, "Operations Agreement") with Solid Wastes of Willits, Inc. to convert the existing Caspar Transfer Station, from County operation to operation by Solid Wastes of Willits, Inc. City has reviewed and approved the Operations Agreement and consents to it in all respects that affect City's rights, powers, ownership, interests and liabilities. The Operations Agreement is attached hereto as Exhibit A. Any amendments to the Operations Agreement that pertain to the Caspar Transfer Station will require the prior written consent of City and County, including, but not limited to, changes in destinations of materials received at the transfer station.

5. The Operations Agreement specifies that the operator shall pay a specified amount of money to County per cubic yard of solid waste and recyclables entering Caspar Transfer Station as rent for the use of the property. The amount of the rent, and any change thereto, must be mutually agreed to by City and County. The proceeds from rent will be held in a dedicated account by the County to be used for site improvements at Caspar Transfer Station or development of a new transfer station facility in the greater Fort Bragg area, and disbursements from this account shall be made with mutual consent of City and County.
6. Replacement or expansion of the Caspar Transfer Station is necessary to accommodate commercial solid waste collection trucks and allow long-haul direct transfer to a destination landfill. County and City shall cooperate in a siting and development project to provide such an expanded facility, either at the Caspar property or another site, and shall amend this Agreement as necessary to implement the expansion.
7. Any future change in use of the Caspar property, change in management or disposition of the closed landfill, or sale of the property or portions thereof shall require consent of both City and County.
8. A Joint Coordinating Committee consisting of two City Council members appointed by the City Council and two County Supervisors appointed by the County Board of Supervisors, augmented by staff from County and City, shall meet as necessary to review the budget and operations of Caspar Transfer Station under private operation, the post-closure of Caspar landfill, the project to expand transfer station facilities, and other issues concerning this Agreement. The Joint Coordinating Committee shall serve in an advisory capacity to the Board of Supervisors and City Council and shall comply with the provisions of the Brown Act.
9. This Agreement shall continue in effect unless written notice of withdrawal shall have been served by one party upon the other not less than one year in advance of the termination date. In case of termination:
 - (A) County and City responsibility for post-closure maintenance, repair and monitoring of the closed Caspar Landfill, as stated herein, shall continue to be managed and assigned in accordance with section 3, above.
 - (B) The Operations Agreement shall be unaffected regarding Caspar Transfer Station, for any remaining term of the Operations Agreement.

(C) Except for the activities described in subsections 9(A) and 9(B) above, neither party will make any use of the Caspar property that is not approved in writing by the other party, except that neither party shall unreasonably deny the other party authorization to continue operation of a self-haul transfer station at the Caspar site if no other self-haul disposal site exists in the greater Fort Bragg coastal area.

IN WITNESS WHEREOF, County and City, by their duly authorized representatives, have executed this Joint Powers Agreement on the day and year first above written.

COUNTY OF MENDOCINO

Kendall Smith

Chair, Board of Supervisors

Date: JAN 25 2011

ATTEST:

Ann M. Peters DEPUTY
Clerk of the Board

APPROVED AS TO FORM:

Jeanine Nagel
Jeanine Nagel
County Counsel

CITY OF FORT BRAGG

Linda Ruffing

Linda Ruffing
City Manager

Date: 2-1-11

ATTEST:

Cynthia M. VanWormer
Cynthia M. VanWormer, CMC
City Clerk

APPROVED AS TO FORM:

Michael Gogna
Michael Gogna
City Attorney

I hereby certify that according to the provisions of Government Code sections 25103, delivery of this document has been made.

CARMEL J ANGELO
Clerk of the Board

By: Carmel J Angelo
Deputy