

Appendix A: Standards for Mitigation Monitoring Programs for Wetlands and Other Sensitive Environmental Habitats in the Coastal Zone

Require the following standards in Mitigation Monitoring Programs for projects that include Wetlands and Other Sensitive Environmental Habitats in the Coastal Zone.

When wetlands cannot be avoided and there is a potential loss of existing wetland habitat or value, a mitigation plan must be included that, when implemented, will result in the replacement of all lost wetland functions and provide a net gain in wetland acreage. A mitigation plan can take several forms, although restoration is the most common form submitted to the City and the California Coastal Commission. The list below assumes that wetland restoration is the type of mitigation chosen.

Establish specific and measurable goals for the Mitigation Monitoring Program. The City shall administer the Mitigation Monitoring Program; preparation and administration of the plan shall be paid for by the project applicant. A bond or other method acceptable to the City shall be established to guarantee successful completion of the mitigation project.

1. Establish clearly stated goals and objectives that provide for the establishment of functions and values at least equal to those occurring at the impact site. The stated goals and objectives should also be consistent with established regional habitat goals where possible. These regional goals must identify functions and/or habitats most in need of replacement or restoration and must be as specific as possible. A schedule to complete the restoration program shall be included.
2. Provide adequate baseline data regarding the biological, physical, and chemical criteria for the restoration area. For a restoration plan to be deemed acceptable, it must include evidence or other conclusive information that:
 - a) The site can be purchased prior to commencement of the development project and dedicated to a public agency or otherwise permanently restricted in use to "open space."
 - b) The site is located in an area no longer functioning in a manner beneficial to wetland species, such as a formerly productive wetland or estuary that is now biologically unproductive dry land.
 - c) The site can be restored to "equal or greater biological productivity" (Coastal Act Section 30607.1) than the area lost, with the same type and variety of plant and animal species. That is, the mitigation wetland would replace the functions and values existing at the impacted wetland.
 - d) The site is located in the same region (e.g., within the same water body or watershed) as the wetland impacted through development.

3. Provide documentation that the project will continue to function as a viable restored wetland site over the long-term.
4. Provide sufficient technical detail on the restoration design This should include, at a minimum, an engineered grading plan and water control structures, methods for conserving or stockpiling topsoil, a planting program including removal of exotic species, a list of all species to be planted, sources of seeds and/or plants, timing of planting, plant locations and elevations on the restoration base map, and maintenance techniques.
5. Require independent monitoring of the site at least five years after completion of the mitigation project. The intent is to continue monitoring until the project has successfully met the stated goals and objectives. For larger projects where new wetlands are created, extended monitoring will be required.
6. Require repetitive surveys for plants and animals (including species of special concern) throughout the various habitats of the mitigation area. The surveys should use techniques that permit a determination of species composition and abundance. Both terrestrial and aquatic organisms should be surveyed, as appropriate. Timing of the surveys should be considered, since the abundance of many plant and animal species often varies with season. Surveys sufficient to characterize the mitigation site should also be completed prior to any enhancement or restoration activities.
7. Monitor hydrology. For tidal wetlands include a determination of the areas inundated at high and low tide, tidal prism, and water velocity. For non-tidal wetlands, include determination of permanent and seasonal patterns of inundation and water sources.
8. Monitor water quality. Carry out repetitive sampling, as appropriate, of various chemical and physical constituents such as salinity, pH, nutrient concentration, dissolved oxygen, temperature, and turbidity throughout the year. The sampling pattern may vary throughout the year and may include more intensive sampling over several tidal cycles to determine short-term salinity patterns.
9. Monitor soil chemistry to document trends in soil salinity in tidal wetlands. Monitoring may include measurements of other constituents, as required.
10. Establish procedures for the ongoing identification and correction of problems as they arise. Such problems may be related to the physical, chemical, or biological attributes of the mitigation site, or difficulties in meeting enhancement or restoration objectives and timelines. These procedures should include specific remedies in case the mitigation project does not meet the designated goals.
11. Provide timely analysis and production of annual reports. These reports will be distributed to the City, the California Coastal Commission and other interested parties. The final monitoring report, submitted upon completion of the monitoring program, should analyze all monitoring data and present different management options.

Appendix B: Guidelines for Wetlands Mitigation and the Creation of Off-Site Wetlands Mitigation in the Coastal Zone

1. Off-Site Mitigation Ratios: In the event a wetland is degraded during the course of a development, a wetland mitigation ratio in excess of one to one (i.e., one wetland acre must be restored or created for each acre lost through development). A mitigation ratio of four-to-one to compensate for wetland acreage and functional capacity lost during the re-establishment and maturation of the mitigation area may be considered. In some cases, larger mitigation ratios are required to ensure that at least some compensation occurs in the event the mitigation project is only partially successful. Enhancement of degraded habitat may be included as a component of a mitigation plan if the total package results in an acceptable mitigation ratio.
2. Location: Locate wetland creation projects adjacent to existing wetland habitat whenever possible, to increase the probability for success. Wetland creation projects should replace the same habitat type, preferably in the same watershed or area. However, if a regional management plan has been prepared for the area that demonstrates the need for a specific habitat type, the City may consider replacement with the identified critical habitat, provided that this replacement is endorsed by the appropriate fish and wildlife management agencies.
3. Use Existing Vegetation and Soil: Mitigation projects should strive to salvage the wetland vegetation and topsoil removed during construction for use in the mitigation area. Additional plant material should be drawn from local sources so that local gene pools are maintained. Non-native wetland plants or plants and soils from different regions should not be used at the restoration site.
4. Revegetation: Enhance the success of revegetation by planting species at their elevation of greatest natural abundance and in soils with a salinity no higher than those found in the native habitat. In addition, transplanted vegetation may require additional maintenance, such as watering or enclosures to prevent grazing, until it becomes established.
5. Consider Elevation and Topography: The elevation and topography of wetland areas are critical to determining the hydrologic regime and the resulting habitats. Elevation changes on the order of centimeters can have dramatic effects on the wetland ecosystem. Not only must the elevations be determined accurately, there must be sufficient detail so that an overall understanding of the landscape topography is clear. For example, intertidal habitat should slope towards the channel at an even grade of one to two percent to reduce ponding and maximize the intertidal area.
6. Consider Hydrology: For wetlands connected to the ocean, the tidal prism must be sufficient to provide adequate exchange of saltwater over the tidal cycle. This is especially important in lagoons where closure of the lagoon mouth may or may not be a natural phenomenon.

Designs for new wetlands must incorporate protection from the direct force of waves and tidal currents. Fresh water sources must also be accounted for in the mitigation design.

Freshwater supply can vary dramatically throughout the year in many parts of California. The mitigation design should also consider the beneficial flood control function of a wetland.

7. Minimize Sedimentation: If excessive sedimentation is a potential problem, then the mitigation plan shall include sediment basins and/or maintenance dredging programs to control the build-up of sediments. The plan shall encourage controls, including prohibition of grading during the rainy season, stabilization of slopes prior to the rainy season, and protection of native vegetation on steep slopes and stream banks.
8. Construction Timing: Mitigation projects shall avoid active periods of reproduction, growth, or migration of wetland species, in order to minimize the disturbance to existing wetland habitat.

Appendix C: Staff and Applicant Checklist listing the specific information required for the evaluation of a coastal development permit application proposing development activities in a wetland and environmentally sensitive areas, as applicable

Distribute the following checklist to applicants for a coastal development for development activities in a wetland and environmentally sensitive areas as applicable. The Zoning Ordinance should be revised to make reference to a detailed checklist of information required for coastal permits in wetlands and sensitive environmental areas before these applications are considered complete and can be reviewed.

All coastal development permit applications must contain information required in Section 13053.5 of the California Coastal Commission Administrative Regulations. In addition, applications for development projects affecting wetland resources must include all maps necessary to describe the project, results of biological, soil, and hydrological surveys, an alternatives analysis, plans for mitigation and monitoring as appropriate, and an ecological study. At a minimum, the application should contain the following information:

1. A comprehensive project description.
2. A description of wetland habitat type(s) and the approximate area each habitat covers using the classification procedures described in Procedural Guidelines for the Evaluating Wetland Mitigation Projects in California's Coastal Zone.
3. Detailed topographic base map(s) of the site with information taken from recent (1 to 2 year old) aerial photographs. If only older aerial photographs are available, the site information must be updated from field visits.

The map should indicate 0.5 to 1.0 foot contours, the specific datum reference used (either mean sea level or mean lower low water), and show the applicant's property boundaries and adjacent property boundaries (including parcel lines of any tidelines, submerged lands, or public trust lands). All parcels should be identified by their assessor parcel numbers.

4. A detailed hydrologic map. For tidal wetlands the map should show areas inundated at high and low tides, along with estimates of the effective tidal range and tidal lag. For non-tidal wetlands the map should show the permanent or seasonal water patterns of inundation (including sources) in years of low, average, and high rainfall.
5. A detailed vegetation map. This map should identify the type, location, and percent of coverage of all plant species.
6. A detailed soils map. This map should identify the type and location of all soils and include a description of the soil types.

7. A detailed site map. This map should show the location and size of the proposed development, including dikes, culverts, or tide gates.
8. A grading plan. This plan should show the extent and quantity of filling and/or dredging, the type and source of fill and/or dredge material including determinations of grain size and tests for possible pollutants, and the location of any proposed dredge disposal site.
9. History of the site, if available, including:
 - a) Collection of older aerial photographs and maps. These historic photographs and maps should be used to establish, if possible, the previous natural state of the wetland prior to any artificial modification.
 - b) Collection and summary of all available studies of the wetland site. This should include land use studies, environmental documents, and scientific reports. Existing land use policies and any approved plans for the site should also be included.
10. A complete description and analysis of existing ecological conditions at the project site, including:
 - a) A discussion of the ecological value of the plants and animals using the wetland and adjacent areas. Refer to Implementation Program LC-3.1.1 of the Coastal Element of the General Plan regarding Special Review Areas.
 - b) A discussion of the wetlands present functions and values.
 - c) An evaluation of potential and existing impacts including the effects of sedimentation and pollutants from residential, industrial, agricultural, and flood control activities to the wetland and associated watershed.
11. An analysis and discussion of project impacts, including an analysis of whether the project maintains and enhances the functional capacity of the wetland. Functional capacity means the ability of the wetland or estuary to be self-sustaining and to maintain natural species diversity. In order to establish that the functional capacity is maintained, the applicant must demonstrate all of the following:
 - a) That the project does not alter presently occurring plant and animal populations in the ecosystem in a manner that would impair the long-term stability of the ecosystems, that is, that the natural species diversity, abundance, and composition are essentially unchanged as a result of the project.
 - b) That the project does not harm or destroy a species or habitat that is rare or endangered.
 - c) That the project does not harm a species or habitat which is essential to the natural biological function of the wetland or estuary.
 - d) That the project does not significantly reduce consumptive (e.g., fishing and hunting) or non-consumptive (e.g., water quality and bird watching) values of the wetland or estuary.

12. An alternatives analysis that, at a minimum, includes the following review of all feasible alternatives:
 - a) Consideration of alternative sites, including sites which are completely outside the wetland.
 - b) Reconfiguration of the project, including a reduction in project size, density, or coverage.
 - c) Identification of the wetland impacts of each alternative, including a determination of the amount of habitat lost and an analysis of the impacts to the functional capacity of the system.
 - d) Selection of the least damaging feasible alternative.
 - e) A mitigation plan as described in Appendix A: Standards for Mitigation Monitoring Programs for Wetlands and other Sensitive Environmental Habitats in the Coastal Zone.

General Plan Preparers

This General Plan was prepared by the environmental and planning consulting firm of Leonard Charles and Associates in collaboration with PAS & Associates and with technical assistance from two engineering firms. The following individuals worked on this plan.

Leonard Charles and Associates

Leonard Charles, Ph.D.
Lynn Milliman

Principal, Project Manager
Principal, Environmental Analyst

PAS & Associates

Paul-Andre Schabracq, AICP

Principal, General Plan Consultant

The Crane Transportation Group

Mark Crane, P.E.

Principal, Traffic Engineer

Illingworth & Rodkin, Inc.

Rich Rodkin, P.E.

Principal, Acoustic Engineer

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