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Hearing Date: July 7, 2010
Commission Action:

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: **1-09-030**

APPLICANT: **City of Arcata, Environmental Services Dept.**

PROJECT LOCATION: Lower Jacoby Creek area, Arcata, Humboldt County (APN 501-042-005).

PROJECT DESCRIPTION: Restoration of over 48 acres of tidal habitats in the project area through the following: (1) repair of an existing top-hinged tide gate and installation of a 4-foot side-hinged gate with fish doors to allow muted tidal flow to reestablish estuarine conditions in the remnant channel located upstream of the tide gates; (2) installation of two 24-inch to 36-inch diameter 20-foot-long culverts with screw gates under the existing railroad grade levee to connect additional remnant channels to Gannon Slough and its tributaries while allowing the City to control flow to prevent flooding of adjacent agricultural lands; (3) restoration of over 15 acres of historic tidal habitat associated with the Jacoby Creek estuary by constructing a new setback levee and removing approximately 500 linear feet of existing levee adjacent to Jacoby Creek to allow the creek to reoccupy this seasonally grazed agricultural area; (4) installation of a 36-inch culvert and tide gate with an adjustable auxiliary door in the new setback levee to allow freshwater flows to enter the estuary area during storm events and to reestablish estuarine connectivity with adjacent seasonal freshwater

	wetland and channel habitats; and (5) construction of approximately 1,400 lineal feet of new connecting channel between Jacoby Creek and South Gannon Slough to restore a historic tidal channel, provide hydrologic connectivity during flood events, and establish a properly functioning tidal drainage network.
GENERAL PLAN DESIGNATION:	Agricultural Exclusive (AE) & Natural Resources (NR).
ZONING DESIGNATION:	Agricultural Exclusive (AE) and Natural Resources (NR) with a Wetland and Stream Protection (WSP) Combining Zone Overlay.
OTHER APPROVALS REQUIRED:	California Department of Fish and Game Streambed Alteration Agreement No. R1-09-0227 (effective as of December 21, 2009); North Coast Water Quality Control Board Water Quality Certification (WDID No. 1B09079WNHU; pending); U.S. Army Corps of Engineers Permit No. 27434N (pending); NOAA-Fisheries Informal Consultation Letter (File No. 2010/ 00795 dated March 9, 2010); U.S. Fish & Wildlife Service Formal Consultation Biological Opinion (File No. 81331-2010-F-0016; Draft B.O. released June 23, 2010; Final B.O. pending); State Lands Commission lease (pending).
SUBSTANTIVE FILE DOCUMENTS:	Arcata Baylands Enhancement/Restoration Project Mitigated Negative Declaration (SCH #2006042056); *Lower Jacoby Creek Estuary Enhancement Conceptual Design Alternatives for the City of Arcata Baylands Project*, January 2008, Jeff Anderson & Associates, Arcata; City of Arcata certified Local Coastal Program.

SUMMARY OF STAFF RECOMMENDATION

Staff recommends approval with special conditions of the proposed wetland restoration project.

The project area is located primarily on seasonally grazed, seasonal wetlands between Highway 101 and Old Arcata Road (see Exhibit Nos. 1-2). Historically the area was part of the extensive

tidal marshes of Humboldt Bay, which were diked off and converted for agricultural purposes over a century ago. Due to the site's low elevation (approximately 5 to 8 feet above sea level) and poorly draining underlying soils, the area is saturated and/or inundated for five to seven months of the year. Thus, the area is capable of supporting agricultural uses (grazing) for only a limited time each year during the summer months.

In addition to seasonal (agricultural) wetlands, the project area also contains salt marsh habitat downstream of the existing tide gate and ruderal upland habitat (dominated mostly by Himalayan blackberry and California blackberry) on the existing levees in the area. Existing historic levees in the area include a 9- to 13-foot-high levee along the north (right) bank of Jacoby Creek, a 9- to 12-foot-high levee along the western boundary of the project area paralleling Highway 101, and the historic railroad grade, which functions as a 8- to 10-foot-high levee, along the north and northeastern sides of the project area (Exhibit No. 4). A breach exists in the railroad grade that allows floodwaters to flow in and out of the project area from adjacent pastures.

The project area is sloped gently in the generally northerly direction, towards South Gannon Slough. The entire project area currently drains into the slough through a single 4-foot-wide by 5-foot tall top-hinged tide gate. The existing tide gate leaks, which has allowed enough saltwater to flow into South Gannon Slough to sustain a small intertidal zone within the lower portions of the slough channel. Existing freshwater inflow in the project area originates primarily from precipitation and overbank flows from Jacoby Creek.

The project area is bound along its southern edge by an approximately 800-foot-long reach of Jacoby Creek, which is a major tributary to Humboldt Bay that encompasses an approximately 16-square-mile watershed area. Jacoby Creek is considered impaired and dysfunctional for a number of reasons, many of which date back to historic land use practices. Nonetheless, the creek is known to harbor numerous fish species, including sensitive salmonids and the endangered tidewater goby in its lower reaches.

The City's "Lower Jacoby Creek Estuary and South Gannon Slough Tide Gate Installation Project" would expand the Jacoby Creek estuary and replace an existing tide gate to improve hydraulic connectivity and estuarine function to a remnant channel that drains to South Gannon Slough and Humboldt Bay. In total, the proposed project would restore over 48 acres of tidal habitats in the project area by reestablishing hydraulic interconnectivity of seasonal freshwater wetlands and estuarine and freshwater channels between Jacoby, Gannon, Beith, Grotzman, and Fickle Hill Creeks. Historically, these creek channels all merged and flooded the lands adjacent to the northeastern corner of Humboldt Bay during winter rains. Interconnectedness and important habitats have been lost over time through various historic land use practices including draining the land, ditching and straightening channels, and constructing levees to support agriculture. According to Department of Fish and Game staff, improving the connectivity between major drainages and seasonal freshwater channels and wetlands is necessary to maintain and enhance the rearing success of juvenile salmonids in the area.

Specifically, the proposed project would restore estuarine function to up to 17 acres of estuarine channels associated with Gannon Slough and its tributaries by repairing an existing top-hinged

tide gate and installing a 4-foot side-hinged gate with fish doors to allow muted tidal flow to reestablish estuarine conditions in the remnant channel located upstream of the tide gates (see Sheets 1 and 2 of Exhibit No. 4). In addition, the proposed project would restore historical connectivity between fringe tidal channels at the transition between tidal and non-tidal lands by installing two 24-inch to 36-inch diameter 20-foot-long culverts with screw gates under the existing railroad grade to connect additional remnant channels to Gannon Slough and its tributaries (Beith, Grotzman, and Fickle Hill Creeks) while allowing the City to control flow to prevent flooding of adjacent agricultural lands (see Sheet 2 of Exhibit No. 4). Moreover, the proposed project would restore over 15 acres of historic tidal habitat (based on tidelands maps from the 1870s) associated with the Jacoby Creek estuary by constructing a new setback levee (to an elevation of 10 feet above mean higher high water) and removing approximately 500 linear feet of existing levee adjacent to Jacoby Creek to allow the creek to reoccupy this area (see Sheets 2 and 3 of Exhibit No. 4). The City proposes to fill a total of 0.8-acre of palustrine emergent wetlands for the footprint of the proposed new setback levee. To mitigate for the proposed fill impacts and to ensure that there is no net loss of wetlands, the City proposes to remove fill from a 500-foot-long, 0.3-acre portion of the existing Jacoby Creek levee, which would be restored to 0.3-acre of intertidal habitat, and from 0.5-acre of historically filled wetlands at three locations to restore 0.5-acre of palustrine wetland habitat. A 36-inch culvert and tide gate with an adjustable auxiliary door would be installed in the new setback levee to allow freshwater flows to enter the estuary area during storm events and to reestablish estuarine connectivity with adjacent seasonal freshwater wetland and channel habitats. Finally, the proposed project would construct approximately 1,400 lineal feet of new connecting channel between Jacoby Creek and South Gannon Slough to restore an historic tidal channel, provide hydrologic connectivity during flood events, and establish a properly functioning tidal drainage network (see Sheets 2 and 4 of Exhibit No. 4).

Without the proposed project, the existing creek system would continue to function as an impaired and dysfunctional system. Without the proposed project, there would be no restoration of estuarine function, no restored connectivity between fringe tidal channels at the transition between tidal and non-tidal lands, and no restored hydrologic connectivity between Jacoby Creek and South Gannon Slough – all of which are essential components of a healthy stream and estuarine environment capable of supporting marine resources such as rearing juvenile salmonids. Furthermore, the biological productivity of the coastal waters would not be maintained or improved, including habitat value for a diversity of sensitive plant and animal species and habitats, anadromous salmonids, a variety of waterfowl, shorebirds, and other birds, and other species associated with the intertidal environment. Thus, the "no project" option is not a feasible less environmentally damaging alternative than the proposed project as conditioned.

The proposed restoration of historic tidelands, historic juvenile salmonid rearing habitat, tidewater goby habitat, and historic connectivity between fringe tidal channels at the transition between tidal and non-tidal lands entail actions taken in converted or degraded natural wetlands (agricultural wetlands/diked former tidelands) that will result in the reestablishment of landscape-integrated ecological processes associated with the wetland habitat that historically existed in the area. Therefore, staff believes that the proposed restoration is consistent with the definition of restoration and constitutes filling and dredging for restoration purposes consistent

with Section 30233(a)(6). Moreover, staff believes that there is no less environmentally damaging feasible alternative to the development as conditioned, as required by Section 30233(a). Importantly, staff further believes that as the proposed salmonid and tidewater goby habitat improvements will maintain and enhance marine resources and the biological productivity of coastal waters, the proposed improvements are mandated by the requirements of Sections 30230 and 30231.

Although the project would maintain and enhance marine resources and the biological productivity of coastal waters, the project would convert 23 acres of agricultural (grazing) land inconsistent with the provisions of Sections 30241 and 30242 of the Coastal Act. The proposed conversion of 23 acres of agricultural lands in the project area constitutes a conversion of agricultural land in an area that is neither located around the periphery of urban areas nor surrounded by urban uses, and the viability of existing agricultural use at the site is not limited by conflicts with urban uses. The project site is located approximately one mile south and west of the developed portions of Arcata, and all of the lands surrounding the project site are undeveloped and used primarily either for agricultural uses or natural resources uses. In addition, there are many areas of undeveloped land within the coastal zone around the Humboldt Bay region that are not suitable for agriculture that have yet to be developed. Moreover, although the proposed conversion will reduce the total amount of available grazing land by only a small margin (6 percent), the Commission finds that the cumulative loss of agricultural lands in the project vicinity through the course of various restoration projects over the past six years is significant (e.g., see CDP Nos. 1-03-031, 1-05-017, and 1-09-020).

However, staff believes that to not approve the project would result in a failure to maintain and enhance marine resources and the biological productivity of coastal wetlands and waters that would be inconsistent with the mandates of Sections 30230 and 30231. Approving the development would restore habitats (including juvenile salmonid rearing habitat, tidewater goby habitat, and tidal marsh habitat for rare plants) around Humboldt Bay that have been tremendously reduced over the past century, consistent with Sections 30230 and 30231. The proposed restoration project will maintain and enhance marine resources including salmonids, waterfowl and other water-associated wildlife, and native salt and brackish marsh plant species. As discussed herein, scientific research has shown that salmon utilize the estuary ecotone while adapting from freshwater to saltwater conditions, as the estuary provides a rich foraging environment that can provide a last opportunity for growth prior to ocean migration. The proposed newly created estuary in the lower reaches of Jacoby Creek will provide necessary rearing habitat for the third largest coho run of the Humboldt Bay streams. The proposed enhancements are also needed to help restore habitat diversity within Humboldt Bay and assist in the recovery of listed marine fish species including coho salmon, Chinook salmon, steelhead, and tidewater goby. In addition, it is the very essence of the project, not an ancillary amenity offered as a trade-off, that is both inconsistent with certain Chapter 3 policies and yet also mandated by other Chapter 3 policies. Finally, staff examined alternatives to the proposed project including (1) alternative sites; (2) alternative configurations of project features; and (3) the no-project alternative. Staff believes that there is no less environmentally damaging feasible alternative to the development as conditioned, as required by Section 30233(a) of the Coastal Act.

Therefore, staff believes the proposed project presents a true conflict between Sections 30241 and 30242 and Sections 30230 and 30231 of the Coastal Act, and staff believes that it is appropriate for the Commission to invoke the conflict resolution policies of Section 30007.5 of the Coastal Act. Denying the project because of its inconsistency with Sections 30241 and 30242 would avoid the conversion of 23 acres of agricultural grazing land. However, as the proposed juvenile salmonid habitat enhancements will maintain and enhance marine resources and the biological productivity of coastal waters appropriate to maintain optimum populations of all species of marine organisms and protect human health, the proposed improvements are mandated by the requirements of Sections 30230 and 30231. Staff believes that the impacts on coastal resources from not constructing the project would be more significant than the project's agricultural impacts and would be inconsistent with the mandates of Sections 30230 and 30231 to maintain and enhance marine resources and the biological productivity of coastal waters.

To ensure that the maintenance and enhancement of marine resources and biological productivity envisioned by the project that enables the Commission to use the balancing provision of Section 30007.5 are achieved, staff recommends Special Condition No. 1. Special Condition No. 1 would require the applicants to submit a final monitoring plan to outline a method for measuring and documenting the improvements in habitat value and diversity at the site over the course of five years following project completion. Furthermore, Special Condition No. 1 would require the monitoring plan to include provisions for remediation to ensure that the goals and objectives of the restoration project are met.

Overall, the project would restore and enhance wetland habitat values and would produce generally beneficial environmental effects. However, depending on the manner in which the proposed project is conducted, significant adverse impacts could result, including (1) filling of existing wetlands to construct the new setback levee; (2) impacts to fish and wildlife habitat from water pollution in the form of sedimentation or debris entering coastal waters and wetlands; (3) introduction through re-planting of exotic invasive plants species that could compete with native vegetation and negate the habitat improvement they would provide; (4) use of certain rodenticides that could deleteriously bio-accumulate in predator bird species; (5) impacts to sensitive plant and animal species; and (6) impacts to adjacent seasonal wetlands from construction activities. Therefore, staff recommends Special Condition Nos. 2 through 6 to ensure that potentially significant adverse impacts are minimized. Special Condition No. 2 would require the applicants to undertake the development pursuant to certain construction responsibilities. Special Condition No. 3 would require the applicants to submit a final erosion and runoff control that is to include certain specified water quality best management practices for minimizing impacts to coastal waters. Special Condition No. 4 would prohibit the planting of any plant species listed as problematic and/or invasive and contains a prohibition on the use of anticoagulant-based rodenticides. Special Condition No. 5 would require that the development be undertaken in accordance with specific measures and protocols to ensure minimization of impacts to sensitive species and their designated critical habitats within and around the project area. Finally, Special Condition No. 6 would require submittal of the final U.S. Fish & Wildlife Service Biological Opinion in support of the restoration and tide gate installation work authorized by this permit and that is consistent with all terms and conditions of this permit (a draft Biological Opinion is included as Exhibit No. 6). Staff believes that without Special

Condition Nos. 1 through 6, the proposed project could not be approved pursuant to Section 30007.5 of the Coastal Act.

The Motion to adopt the Staff Recommendation is found below on Page 7.

STAFF NOTES

1. Jurisdiction & Standard of Review

The project site is located in the Commission's retained permit jurisdiction. The City of Arcata has a certified Local Coastal Program (LCP), but the site is within an area shown on State Lands Commission maps over which the State retains a public trust interest. Therefore, the standard of review that the Commission must apply to the project is the Chapter 3 policies of the Coastal Act.

I. MOTION, STAFF RECOMMENDATION, & RESOLUTION

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve Coastal Development Permit No. 1-09-030 pursuant to the staff recommendation.

Staff Recommendation of Approval:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution to Approve Permit with Conditions:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS: See Appendix A.

III. SPECIAL CONDITIONS:

1. Final Restoration Monitoring Program

(A). **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-09-030**, the applicant shall submit for review and approval of the Executive Director, a final detailed restoration monitoring program designed by a qualified biologist for monitoring of the restoration site. The monitoring program shall at a minimum include the following:

1. Performance standards that will assure achievement of the restoration goals and objectives set forth in CDP Application No. 1-09-030 as presented in the proposed project description dated April 7, 2010 (Exhibit No. 3) including, but not limited to, the restoration of 48.7 acres of tidal habitat through (1) restoring estuarine function and connectivity to up to 17 acres of channels associated with Gannon Slough and its tributaries, including fringe tidal channels at the transition between tidal and non-tidal lands; (2) restoring over 15 acres of historic tidal habitat associated with the Jacoby Creek estuary, including a 1,400-foot-long historic tidal channel providing hydrologic connectivity between Jacoby Creek and South Gannon Slough; and (3) restoring estuarine connectivity with adjacent seasonal freshwater wetland and channel habitats.; and (4) removal of 0.8-acre of existing fill materials from upland areas and restoration of the areas to palustrine emergent wetland habitat and intertidal wetland habitat as proposed to compensate for 0.8-acre of palustrine emergent wetland fill impacts.

2. Provisions for monitoring at least the following attributes: (a) increased rearing habitat for juvenile salmonids in the restored project area; (b) increased tidewater goby habitat in the restored project area; (c) increased functionality of the restored drainage network to facilitate the conveyance of flood flows and prevent stranding of fish and other aquatic life during overbank events; (d) increased habitat for native salt marsh plants in the restored estuary upstream of the new tide gate; (e) the successful restoration of a minimum of 0.8-acre of palustrine emergent wetland habitat and intertidal wetland habitat as proposed; and (f) the successful restoration of temporarily impacted wetlands used for construction access and staging.

3. Provisions for submittal within 30 days of completion of the initial restoration work of (a) “as built” plans demonstrating that the initial restoration work has been completed in accordance with the approved restoration program, and (b) an assessment of the initial biological and ecological status of the “as built” enhancements. The assessment shall include an analysis of the attributes that will be monitored pursuant to the program, with a description of the methods for making that evaluation.

4. Provisions to ensure that the restoration site will be remediated within one year of a determination by the permittee or the Executive Director that monitoring results indicate that the site does not meet the goals, objectives, and performance

standards identified in the approved restoration program and in the approved final monitoring program.

5. Provisions for monitoring and remediation of the restoration site in accordance with the approved final restoration program and the approved final monitoring program for a period of five (5) years.

6. Provisions for submission of annual reports of monitoring results to the Executive Director by December 31 each year for the duration of the required monitoring period, beginning the first year after submission of the "as-built" assessment. Each report shall include a "Performance Evaluation" section where information and results from the monitoring program are used to evaluate the status of the stream restoration project in relation to the performance standards.

7. Provisions for submission of a final monitoring report to the Executive Director at the end of the five-year reporting period. The final report must be prepared in conjunction with a qualified biologist. The report must evaluate whether the restoration site conforms to the goals, objectives, and performance standards set forth in the approved final restoration program. The report must address all of the monitoring data collected over the five-year period.

(B). If the final report indicates that the restoration project has been unsuccessful, in part, or in whole, based on the approved goals and objectives set forth in Coastal Development Permit Application No. 1-09-030 as presented in the proposed project description dated April 7, 2010 (Exhibit No. 3) and as modified by the special conditions of this permit, the applicant shall submit a revised or supplemental restoration program to compensate for those portions of the original program which did not meet the approved goals and objectives. The revised restoration program shall be processed as an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

(C). The permittee shall monitor and remediate the restoration site in accordance with the approved monitoring program. Any proposed changes from the approved monitoring program shall be reported to the Executive Director. No changes to the approved monitoring program shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines no amendment is legally required.

2. <u>Construction Responsibilities</u>

The permittee shall comply with the mitigation measures listed in the proposed project description (Exhibit No. 3), except as modified herein, and with the conservation measures listed in the draft Biological Opinion of the U.S. Fish & Wildlife Service (Exhibit No. 6). In addition, construction-related requirements shall include, but shall not be limited to, the following Best Management Practices:

(A). No construction materials, debris, or waste shall be placed or stored where it may be subject to entering coastal waters or wetlands, except within approved staging areas shown in Exhibit No. 4;

(B). Any and all debris resulting from construction activities shall be removed from the project site and disposed of at an authorized disposal location within 10 days of project completion and/or prior to the onset of the rainy season, whichever is earlier;

(C). All grading activities shall be conducted during the dry season period of June 15 through November 15; any grading activity conducted between October 16 and November 15 shall be subject to the following conditions:

1. All work shall cease upon the onset of precipitation at the project site and shall not recommence until the predicted chance of rain is less than 30 percent for the Arcata area portion of the Redwood Coast segment of the National Weather Service's forecast for Northwestern California;

2. The work site(s) shall be winterized between work cessation periods by installing stormwater runoff and erosion control barriers around the perimeter of each construction site to prevent the entrainment of sediment into coastal waters;

3. Adequate stocks of stormwater runoff and erosion control barrier materials shall be kept onsite and made available for immediate use.

(D). No construction shall occur directly within tidal waters or flowing stream channels;

(E). Tide gate installation work shall be conducted during periods of low tide when no water or fish are present, or, if water is present, the tide gate area shall be seined, and a fish barrier shall be installed to isolate the work area. After work in the tidal zone is completed, the temporary fish barrier shall be removed during low tide;

(F). If rainfall is forecast during the time construction activities are being performed, any exposed soil areas shall be promptly mulched or covered with plastic sheeting and secured with sand bagging or other appropriate materials before the onset of precipitation;

(G). Any debris discharged into coastal waters shall be recovered immediately and disposed of properly;

(H). Upon completion of construction activities and prior to the onset of the rainy season, all bare soil areas shall be seeded in compliance with Special Condition No. 4 and mulched with weed-free rice straw;

(I). Any fueling and maintenance of construction equipment shall occur within upland areas outside of environmentally sensitive habitat areas or within designated staging areas. Mechanized heavy equipment and other vehicles used during the construction process shall not be stored or re-fueled within 100 feet of coastal waters;

(J). Fuels, lubricants, and solvents shall not be allowed to enter the coastal waters or wetlands. Hazardous materials management equipment including oil containment booms and absorbent pads shall be available immediately on-hand at the project site, and a

registered first-response, professional hazardous materials clean-up/remediation service shall be locally available on call. Any accidental spill shall be rapidly contained and cleaned up; and

(K). Prior to the commencement of construction, the work area shall be delineated, limiting the potential area affected by construction, and workers shall be educated about the limitations on construction. All vehicles and equipment shall be restricted to pre-established work areas and established or designated access routes.

3. Final Erosion & Runoff Control Plan

(A). **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-09-030**, the applicant shall submit, for review and approval of the Executive Director, a plan for erosion and run-off control.

1. The plan shall demonstrate the following:

   (a). Run-off from the project site shall not increase sedimentation in coastal waters or wetlands;

   (b). Run-off from the project site shall not result in pollutants entering coastal waters or wetlands;

   (c). Best Management Practices (BMPs) shall be used to prevent the entry of polluted stormwater runoff into coastal waters or adjacent wetlands during construction, including use of relevant best management practices (BMPs) as detailed in the "California Storm Water Best Management (Construction and Industrial/Commercial) Handbooks, developed by Camp, Dresser & McKee, *et al.* for the Storm Water Quality Task Force; see http://www.cabmphandbooks.com);

   (d). An on-site spill prevention and control response program, consisting of best management practices (BMPs) for the storage of clean-up materials, training, designation of responsible individuals, and reporting protocols to the appropriate public and emergency services agencies in the event of a spill, shall be implemented at the project to capture and clean-up any accidental releases of oil, grease, fuels, lubricants, or other hazardous materials from entering coastal waters or wetlands; and

   (e). The erosion and runoff control plan shall be consistent with the provisions of Special Condition No. 2 (Construction Responsibilities) and all other terms and conditions of Coastal Development Permit No. 1-09-030.

2. The plan shall include, at a minimum, the following components:

   (a). A schedule for installation and maintenance of appropriate construction source-control BMPs to prevent entry of stormwater runoff into the construction site and the entrainment of excavated materials into run-off leaving the construction site; and

(b). A schedule for installation, use, and maintenance of appropriate construction materials handling and storage BMPs to prevent the entry of polluted stormwater runoff from the completed development into coastal waters.

(B). The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

4. Restoration Site Revegetation

Revegetation in the project area shall comply with the following standards and limitations:

(A). Only native plant species shall be planted. All proposed plantings shall be obtained from local genetic stocks within Humboldt County. If documentation is provided to the Executive Director that demonstrates that native vegetation from local genetic stock is not available, native vegetation obtained from genetic stock outside of the local area may be used. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California, shall be employed or allowed to naturalize or persist on the site. No plant species listed as a "noxious weed" by the governments of the State of California or the United States shall be utilized within the property.

(B). All planting shall be completed within 90 days after completion of construction.

(C). The use of rodenticides containing any anticoagulant compounds, including, but not limited to, Bromadiolone, Brodifacoum or Diphacinone is prohibited.

5. Implementation of Sensitive Plant & Fish Species Mitigation Measures

The permittee shall undertake all development authorized by CDP No. 1-09-030 in accordance with the measures and protocols proposed in the application (Exhibit No. 3) and with the conservation measures identified in the draft Biological Opinion of the U.S. Fish & Wildlife Service (Exhibit No. 6) to ensure minimization of impacts to sensitive species and their designated critical habitats within and around the project area. Known occurrences of sensitive plants and animals in the project area shall be flagged for avoidance prior to commencement of construction.

6. Final Biological Opinion

PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-09-030, the applicant shall submit evidence, for the review and approval of the Executive Director, that the U.S. Fish and Wildlife Service has issued a final Biological Opinion in support of the restoration and tide gate installation work authorized by this permit and that is consistent with all terms and conditions of this permit. The applicant shall inform the Executive Director of any changes to the project required by the Service. Such changes shall not be incorporated into the project until

the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

7. Protection of Archaeological Resources

(A). If an area of historic or prehistoric cultural resources or human remains are discovered during the course of the project, all construction shall cease and shall not recommence except as provided in subsection (B) hereof, and a qualified cultural resource specialist shall analyze the significance of the find.

(B). A permittee seeking to recommence construction following discovery of the cultural deposits shall submit an archaeological plan for the review and approval of the Executive Director.

1. If the Executive Director approves the Archaeological Plan and determines that the Archaeological Plan's recommended changes to the proposed development or mitigation measures are *de minimis* in nature and scope, construction may recommence after this determination is made by the Executive Director.

2. If the Executive Director approves the Archaeological Plan but determines that the changes therein are not *de minimis*, construction may not recommence until after an amendment to this permit is approved by the Commission.

8. Assumption of Risk, Waiver of Liability and Indemnity Agreement

By acceptance of this permit the applicant acknowledges and agrees (i) that the site may be subject to hazards from waves, storm surge, and flooding; or, erosion and earth movement; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

9. Regional Water Quality Control Board Approval

PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-09-030, the applicant shall provide to the Executive Director a copy of a permit or permit amendment issued by the North Coast Regional Water Quality Control Board, or evidence that no permit is required. The applicant shall inform the Executive Director of any changes to the project required by the Board. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

10. U.S. Army Corps of Engineers Approval

PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION AUTHORIZED BY COASTAL DEVELOPMENT PERMIT NO. 1-09-030, the permittee shall provide to the Executive Director a copy of a permit or permit amendment issued by the Army Corps of Engineers, or letter of permission, or evidence that no permit or permission is required. The applicant shall inform the Executive Director of any changes to the project required by the Army Corps of Engineers. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

11. State Lands Commission Review

PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-09-030, the applicant shall provide to the Executive Director a written determination from the State Lands Commission that:

(A). No State or public trust lands are involved in the development; or

(B). State or public trust lands are involved in the development and all permits required by the State Lands Commission have been obtained; or

(C). State or public trust lands may be involved in the development, but pending a final determination an agreement has been made with the State Lands Commission for the approved project as conditioned by the Commission to proceed without prejudice to that determination.

IV. FINDINGS & DECLARATIONS

The Commission hereby finds and declares as follows:

A. Background

The proposed project is part of a larger project effort known as the "Arcata Baylands Project," which was designed to protect, restore, and enhance wetland habitats and their associated native plant and wildlife resources adjacent to northern Humboldt Bay. The project area is part of the larger Humboldt Bay ecosystem that accommodates fish, waterfowl, wading birds, shorebirds, passerines, raptors, and various other water-associated wildlife (Exhibit Nos. 1 & 2). Humboldt Bay is second only to San Francisco Bay in the numbers and variety of migratory water-associated birds wintering in the coastal segment of the Pacific Flyway of California. The bay is one of California's most important stopovers for dozens of species of migrating birds, which use the area for nesting, feeding, and resting. Over 200 species of birds (many of them considered sensitive at the state and/or federal level) have been recorded in and around the project vicinity. The 113-acre project area is on lands owned and managed by the City in perpetuity for the conservation of coastal wetland habitats and the wildlife resources that depend on them. The area is part of a suite of over 1,300 acres of locally-, state-, and federally-protected lands in the Arcata Bay region including the Humboldt Bay National Wildlife Refuge (Jacoby Creek Unit), the 225-acre Arcata Marsh and Wildlife Sanctuary, the 508-acre Mad River Slough Wildlife

Area (managed by the Department of Fish and Game), and lands owned and managed for conservation by the Jacoby Creek Land Trust (see Exhibit No. 2).

In the past seven years, the Commission has permitted numerous restoration efforts by the City in the project vicinity, including the following (and see Exhibit No. 2):

- CDP No. 1-03-031: In November of 2003 the Commission approved this permit for the City to construct cattle exclusion fencing to enclose an 8.7-acre area along a 2,537-foot reach of lower Campbell Creek/Gannon Slough, a tributary to Humboldt Bay, and re-vegetate the enclosed area with native plants to result in substantial water quality improvement and restoration of terrestrial and aquatic habitat diversity along the lower reaches of the watercourse.

- CDP No. 1-05-017: In June of 2005 the Commission approved this permit for the City to restore several creeks and sloughs by: 1) improving riparian habitat, increasing canopy cover, providing future large woody debris recruitment for salmonids by realigning a 910-foot reach of Campbell Creek currently flowing through an artificial drainage ditch adjacent to Highway 101; 2) repairing an existing and non-functioning tidegate structure separating Gannon Slough from Humboldt Bay and replacing it with a side-hinged gate with a muted opening to provide access for anadromous salmonids; 3) providing enhanced floodplain and fish habitat structure by restoring a definable channel along an 850-foot reach of Beith Creek; and 4) installing livestock exclusion fencing and planting native trees and shrubs on both Campbell and Beith Creeks. The project was designed to restore terrestrial and aquatic habitat diversity along the lower reaches of the watercourses.

  In August of 2006 the Commission approved an amendment to the permit (CDP Amendment No. 1-05-017-A1) to extend the floodplain rehabilitation work on Beith Creek an additional 1,454 feet downstream from the previous bounds of the originally-approved project area to the confluence with Gannon Slough to further restore terrestrial and aquatic habitat diversity along the lower creek reaches.

- CDP No. 1-06-036: In June of 2007 the Commission approved this permit for the City to restore and enhance wetland function to 240 acres of reclaimed former tidal salt/brackish marsh adjoining Arcata Bay to a combination of 205 acres of intertidal salt marsh wetlands and 35 acres of impounded freshwater and brackish wetlands by: 1) excavating the pond areas; 2) deepening approximately 5,200 lineal feet of existing slough channels within the reclaimed area; 3) constructing approximately 21,000 lineal feet of flood, eco-levee, and pond perimeter levees around the periphery of the project component areas; 4) removing a total of approximately 1,200 lineal feet of portions of portions of the existing flood control levees along the lower reaches of McDaniel Slough to form roosting islands out of the remnant portions of the levees; 5) breaching the reclamation levee separating the project site from Arcata Bay at two locations to form muted tidal openings to provide access for anadromous salmonids, tidewater goby, and other marine fish species; 6) planting appropriate elevation-specific native salt marsh plants on the inner faces of the

eco levees; and 7) developing pedestrian and bicycle trail segments along the pond perimeters and out to the reclamation levee breach site.

In August of 2009 the Commission approved an amendment to the permit (CDP Amendment No. 1-06-036-A1) for the City to expand the previously approved project area by (1) adding 12 acres of salt marsh habitat to the approved salt marsh restoration area by changing the approved footprint of the western flood levee; (2) creating 10 acres of brackish marsh habitat on the western side of the reconfigured levee adjacent to Arcata Bay by lowering the existing surface approximately 18-24 inches to allow for muted tidal inundation; and (3) enhancing 23 acres of existing seasonal wetlands on the western side of the reconfigured levee by lowering the existing surface approximately 12 inches to prolong the area's seasonal inundation.

- CDP No. 1-08-011: In August of 2008 the Commission approved the permit for the City to enhance four seasonal freshwater wetland areas totaling 12.4 acres and to install water-control structures to allow for continued seasonal agricultural grazing in the affected areas. The project was designed to provide habitat benefits for waterfowl, shorebirds, and other water-associated wildlife while maintaining agricultural and Aleutian Cackling Goose habitat. The project included enhancing an existing seasonal wetland area surrounding a portion of Fickle Hill Creek;

- CDP No. 1-09-020: In June of 2009 the Commission approved the permit for the City to restore wetland habitat near the margin of Humboldt Bay by 1) reconfiguring approximately 1,634 feet of a channelized reach of Fickle Hill Creek (downstream of the project area approved under CDP No. 1-08-011) to create an approximately 1,934-foot-long meandering channel that more closely resembles the historic channel alignment; (2) installing 9 to 15 small log/boulder cover structures in the reconfigured channel to increase channel complexity and improve instream habitat; and (3) planting approximately 2.5 acres of native riparian vegetation along the length of the reconfigured channel.

B. Existing & Historic Environmental Conditions

The project area is located primarily on seasonally grazed, seasonal wetlands (diked former tidelands) adjacent to and east of Highway 101 in southern Arcata. Historically the area was part of the extensive tidal marshes of Humboldt Bay, which were diked off and converted for agricultural purposes over a century ago. The project site is planned and zoned both for agricultural (AE) and natural resources (NR) uses under Arcata's certified LCP, with a wetland and creek protection overlay zone. The site is entirely within the FEMA-mapped 100-year floodplain. With the exception of Highway 101's Class II bike lanes, there are no coastal access or recreational amenities for hiking, cycling, bird-watching, and boating in the immediate project vicinity.

Vegetation in the area consists mostly of actively grazed agricultural grasslands comprised of a mix of native and nonnative grasses and other herbaceous plants. Due to the site's low elevation

(approximately 5 to 8 feet above sea level) and poorly draining underlying soils, the area is saturated and/or inundated for five to seven months of the year. Thus, the area is capable of supporting agricultural uses (grazing) for only a limited time each year during the summer months.

In addition to seasonal (agricultural) wetlands, the project area also contains salt marsh habitat downstream of the existing tide gate and ruderal upland habitat (dominated mostly by Himalayan blackberry and California blackberry) on the existing levees in the area. Existing historic levees in the area include a 9- to 13-foot-high levee along the north (right) bank of Jacoby Creek, a 9- to 12-foot-high levee along the western boundary of the project area paralleling Highway 101, and the historic railroad grade, which functions as a 8- to 10-foot-high levee, along the north and northeastern sides of the project area (Exhibit No. 4). A breach exists in the railroad grade that allows floodwaters to flow in and out of the project area from adjacent pastures.

The project area is sloped gently in the generally northerly direction, towards South Gannon Slough (also sometimes referred to as North Jacoby Creek). The entire project area currently drains into the slough through a single 4-foot-wide by 5-foot tall top-hinged tide gate. The existing tide gate leaks, which has allowed enough saltwater to flow into South Gannon Slough to sustain a small intertidal zone within the lower portions of the slough channel. Existing freshwater inflow in the project area originates primarily from precipitation and overbank flows from Jacoby Creek.

The project area is bound along its southern edge by an approximately 800-foot-long reach of Jacoby Creek, which is a major tributary to Humboldt Bay that encompasses an approximately 16-square-mile watershed area. Jacoby Creek is considered impaired and dysfunctional for a number of reasons, many of which date back to historic land use practices. The combined effects of levees and aggradation have created a highly constricted channel throughout the creek's coastal plain reach and have contributed to an increased frequency of overbank events. During overbank events, in-channel flows are lost, and sheet-flow floods across adjacent lands both upstream and downstream of Old Arcata Road. Receding flows have limited opportunities to directly return to the creek, which increases the potential for stranding of fish and other aquatic species. Overbank flows are intercepted by the existing storm drain system, and the increased discharge to the system results in flooding of Old Arcata Road and other surrounding roads and private property during significant rain events. Thus, floodwaters do not reconnect to Jacoby Creek, and the creek is hydrologically disconnected from the adjacent floodplain and its historic associated wetlands. Additionally, under current conditions, there is a rapid transition between the freshwater and saltwater zones (stream-estuary ecotone), which is an important habitat area that under natural conditions provides highly productive rearing habitat for juvenile salmonids. Historically, lower Jacoby Creek and estuary were part of a larger tidal wetland complex with multiple and sometimes interconnected slough channels that drained to Humboldt Bay. Higher flow events that overtopped the banks along lower Jacoby Creek most likely flowed laterally northward (through the project area) towards Gannon Slough and southward towards Brainard Slough (see Exhibit No. 7). Between 1870 and 1916 a levee was constructed along the north (right) bank of Jacoby Creek, disconnecting the stream channel from the north bank floodplain and tidal wetland system. By 1931, a two-lane highway had been built (it was expanded to four-

lane Highway 101 by 1958, west of and adjacent to the project area), which further blocked tidal inundation to slough channels in the area. The creek's historic floodplain habitat diversity was also reduced as the extensive riparian habitat in the area was cleared for settlement and grazing purposes, and the floodplain fields were leveled, thereby eliminating back channels and pools, favored rearing habitat of juvenile salmonids, associated with large fallen trees. Pool habitats also were filled as a result of logging in the upper watershed, which greatly increased sediment delivery and creek aggradation. Thus, the diversity of habitats that historically were associated with the creek-floodplain complex and the stream-estuary ecotone has been lost over time, and the existing creek system is greatly simplified in terms of habitat structure and diversity.

Today, Jacoby Creek is known to harbor or provide potential habitat for a number of marine-associated fish species including tidewater goby (*Eucylogobius newberryi*, which is federally listed as "endangered" and a "species of special concern" at the state level), coho salmon (Southern Oregon/Northern California ESU of *Oncorhynchus kisutch*, which is listed as "threatened" under both the federal and state endangered species acts), Chinook salmon (California coastal ESU of *O. tshawytscha*, listed as "threatened" by the state), steelhead trout (Northern California ESU of *O. mykiss*, also listed as "threatened" by the state), and various others. According to the informal consultation letter on the project by NOAA-Fisheries staff (Exhibit No. 5), the proposed project would benefit sensitive salmonids in many ways, including increasing fish passage into Jacoby Creek, restoring up to 15 acres of historic estuarine channels, creating new winter rearing habitat for juvenile salmonids through the connection of remnant channels in Gannon Slough and the adjacent Jacoby Creek floodplain, and decreasing the likelihood of fish stranding events during high flows. According to the formal consultation (Biological Opinion) on the project by the U.S. Fish & Wildlife Service (Exhibit No. 6), the proposed project may adversely affect tidewater gobies and their designated critical habitat in the short-term, but the long-term effects of the proposed project are anticipated to be beneficial to the endangered fish species. Tidewater goby is a small fish of brackish marsh habitat created by inflowing streams that seasonally are not subject to tidal action. Gobies prefer well-oxygenated water within limited salinity and temperature thresholds. Gobies are known to occur both in the lower reaches of Jacoby Creek and in Gannon Slough adjacent to the proposed tide gate installation area. Improving tidal connectivity to the area through the installation of the new tide gate (as described below) will potentially increase habitat for tidewater goby.

Sensitive plant species with the potential to occur in or adjacent to the project area include Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*), Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*), and western sand spurrey (*Spergularia canadensis* var. *occidentalis*), all of which occur in higher-elevation salt marsh habitats around Humboldt Bay, and all of which are listed as sensitive by the California Native Plant Society (CNPS 1B) and DFG (S1). Potential habitat for these species occurs around the proposed tide gate installation area. In addition, the project area is known to support Lyngbye's sedge (*Carex lyngbyei*), which is associated with brackish marsh habitats around Humboldt Bay and is listed as sensitive by CNPS (List 2) and DFG (S2). There is a patch of Lyngbye's sedge approximately 10 square feet in size near the proposed tide gate installation area. The proposed project is expected to vastly increase available habitat for Humboldt Bay owl's-clover, Point Reyes bird's-beak, western sand

spurrey, and Lyngbye's sedge along approximately 15 acres of proposed new estuarine channels and tidal marsh habitat.

Numerous sensitive bird species are known to use or potentially could use the project area for foraging habitat, including peregrine falcon, bald eagle, migrating Aleutian cackling geese, olive-sided flycatcher, purple martin, Vaux's swift, yellow-breasted chat, yellow warbler, willow flycatcher, tricolored blackbird, short-eared owl, northern harrier, and various species of sparrow. Due to the limited amount of riparian vegetation present and the proposed timing of and limited duration of construction work, the project is not expected to cause significant adverse impacts to bird nesting or foraging habitats. Moreover, the project is expected to increase foraging habitat for certain bird species, including California brown pelican and wintering bald eagles.

There is limited riparian vegetation in the project area, except along the Jacoby Creek channel in the vicinity of the levee proposed for removal (see Exhibit Nos. 3 and 4). Hooker and Sitka willow (*Salix hookeriana* and *S. sitchensis*) dominate this area, along with California blackberry (*Rubus ursinus*) and Himalayan blackberry (*R. discolor*) in the understory. The proposed project would convert approximately 0.4-acre of riparian habitat to restored tidal habitats through the restoration of tidal action to the area.

C. Description of Proposed Development

The City's "Lower Jacoby Creek Estuary and South Gannon Slough Tide Gate Installation Project" would expand the Jacoby Creek estuary and replace an existing tide gate to improve hydraulic connectivity and estuarine function to a remnant channel that drains to South Gannon Slough and Humboldt Bay. In total, the proposed project would restore over 48 acres of tidal habitats in the project area by reestablishing hydraulic interconnectivity of seasonal freshwater wetlands and estuarine and freshwater channels between Jacoby, Gannon, Beith, Grotzman, and Fickle Hill Creeks. Historically, these creek channels all merged and flooded the lands adjacent to the northeastern corner of Humboldt Bay during winter rains. As discussed above, interconnectedness and important habitats have been lost over time through various historic land use practices including draining the land, ditching and straightening channels, and constructing levees to support agriculture. According to DFG, improving the connectivity between major drainages and seasonal freshwater channels and wetlands will improve the rearing success of juvenile salmonids in the area.

Following is a summary of the major project components (see Exhibit Nos. 3 and 4):

- The proposed project would restore estuarine function to up to 17 acres of estuarine channels associated with Gannon Slough and its tributaries by repairing an existing top-hinged tide gate and installing a 4-foot side-hinged gate with fish doors to allow muted tidal flow to reestablish estuarine conditions in the remnant channel located upstream of the tide gates (see Sheets 1 and 2 of Exhibit No. 4). The proposed work would improvement hydraulic drainage conditions such that the peak flood would drain in an estimated 18 hours – two tide cycles – compared to the two days required for existing

drainage conditions. In addition, improving tidal connectivity to this area would potentially increase habitat for tidewater goby.

- The proposed project would restore historical connectivity between fringe tidal channels at the transition between tidal and non-tidal lands by installing two 24-inch to 36-inch diameter 20-foot-long culverts with screw gates under the existing railroad grade to connect additional remnant channels to Gannon Slough and its tributaries (Beith, Grotzman, and Fickle Hill Creeks) while allowing the City to control flow to prevent flooding of adjacent agricultural lands (see Sheet 2 of Exhibit No. 4).
- The proposed project would restore over 15 acres of historic tidal habitat (based on tidelands maps from the 1870s) associated with the Jacoby Creek estuary by constructing a new setback levee (to an elevation of 10 feet above mean higher high water) and removing approximately 500 linear feet of existing levee adjacent to Jacoby Creek to allow the creek to reoccupy this area (see Sheets 2 and 3 of Exhibit No. 4). A 36-inch culvert and tide gate with an adjustable auxiliary door would be installed in the new setback levee to allow freshwater flows to enter the estuary area during storm events and to reestablish estuarine connectivity with adjacent seasonal freshwater wetland and channel habitats.
- The proposed project would construct approximately 1,400 lineal feet of new connecting channel between Jacoby Creek and South Gannon Slough to restore an historic tidal channel, provide hydrologic connectivity during flood events, and establish a properly functioning tidal drainage network (see Sheets 2 and 4 of Exhibit No. 4).

Table 1 summarizes the proposed project in terms of existing and proposed restored target habitat types in the project area:

Project component	Purpose	Amount of Cut (cubic yards)	Amount of Fill (cubic yards)	Restored Target Habitat Types
New levee construction (~1,700 feet in length with a footprint of 0.8-acre, built to an elevation 10 feet NAVD88, with 3:1 side slopes, an 8-foot-wide apex and 30-foot-wide base)	To convert 15.3 acres of palustrine wetland habitat while protecting surrounding utility easements and agricultural land	--	~5,000 (0.8-acre of palustrine wetland will be filled for the new levee footprint)	15.3 acres of estuarine intertidal wetland habitats and 0.8-acre of upland levee habitat
Filling of ditch (500 feet in length totaling a 4,841-square-foot area)	To ensure that flows are directed to the newly created channel and to prevent ponding adjacent to the levee that abuts the Highway 101 right-of-way	--	245 (0.1-acre of palustrine emergent wetland)	Estuarine intertidal wetland habitat (part of restored 15.3 acres of estuarine intertidal wetland)
New channel construction (1,400 feet in length	To convert 0.4-acre of palustrine wetland habitat to a restored,	~1,200 (0.4-acre of palustrine wetland	--	0.5-acre of estuarine intertidal wetland habitats

Project component	Purpose	Amount of Cut (cubic yards)	Amount of Fill (cubic yards)	Restored Target Habitat Types
totaling a 0.4-acre area, excavated to a depth of 1.5-3 feet, with 2:1 side slopes and a channel width of 12-18 feet	historic tidal channel to improve hydrologic connectivity between Jacoby Creek and South Gannon Slough	habitat)		
Existing levee removal (to be lowered from 9 feet to 6.9 feet NAVD88 in elevation)	To lower a 500-foot-long section of levee adjacent to Jacoby Creek to allow the creek to reoccupy the restored tidal habitat area during high flow events	~383 (0.3-acre of upland levee habitat)	--	0.3-acre of estuarine intertidal wetland habitat
Existing levee repair (eroded portions of existing railroad grade/levee to be raised to 7.5 feet NAVD88)	To repair and maintain the functionality of the historic levee in protecting surrounding agricultural land from significant flooding	--	~60	upland levee habitat
Tide gate installation (new 48-inch side hinged gate with fish-friendly "guillotine-style" auxiliary door with a maximum aperture opening of two square feet installed at an elevation of -1.4 NAVD88)	To allow muted tidal flow to reestablish estuarine conditions in the remnant channel located upstream of the tide gate in a way that maximizes both tidal function and potential habitat for salt marsh plants along point bars and other marginal areas of the channel bed and banks	~343	~163	up to 17.1 acres of estuarine intertidal habitat upstream of the tide gate, including rearing habitat for juvenile salmonids and tidewater gobies
Fill removal	To mitigate for wetland impacts associated with the proposed project by creating 0.5-acre of new palustrine emergent wetland habitat	100 (0.1-acre of ruderal upland habitat	--	0.5-acre of restored palustrine emergent wetland habitat to compensate for 0.5-acre of palustrine emergent wetland habitat filled by the proposed project
		250 (0.3-acre of ruderal upland habitat	--	
		100 (0.1-acre of ruderal upland habitat	--	

As Table 1 shows, the City proposes to fill a total of 0.8-acre of palustrine emergent wetlands for the footprint of the proposed new setback levee. To mitigate for the proposed fill impacts and to ensure that there is no net loss of wetlands, the City proposes to remove fill from a 500-foot-long, 0.3-acre portion of the existing Jacoby Creek levee and from 0.5-acre of historically filled wetlands at three locations to restore a total of 0.8-acre of wetland habitat. The three proposed

mitigation areas totaling 0.5-acre in size were filled prior to 1970, based on a review of historic air photos. The areas currently support agricultural grasses and nonnative herbaceous species and are actively grazed by cattle. The City proposes to continue to allow grazing in the mitigation areas after the areas are restored to palustrine emergent wetlands. The existing levee along Jacoby Creek, a portion of which would be lowered to an elevation of 6.9 feet NAVD88 to create 0.3-acre of mitigation intertidal wetland habitat, was constructed prior to 1941.

Excavation of the proposed new tidal channel would occur during the dry season when the existing seasonal wetland pasture is dry. Excavation would be shallow and would take place through a series of existing depressions. The new channel would be constructed in the location of a historic tidal channel (according to tide maps from the 1870s). The proposed new tidal channel would have a trapezoidal cross section with a bottom width of 6 feet and 2:1 (H:V) side slopes. The channel bottom elevation at South Gannon Sough would be 4.5 feet NAVD88, and the channel bottom elevation at Jacoby Creek would be 3 feet NAVD88. Thus, the new channel is designed to direct flood flows from Jacoby Creek northward to South Gannon Slough. Spoils excavated for the new channel would be used to construct the proposed new setback levee. Disturbances to adjacent areas are expected to be minimal.

Installation of the new 48-inch tide gate is expected to take one week. On days one and two, the culvert and tide gate would be assembled in an adjacent staging area, required backfill and riprap would be staged, and pre-digging to excavate and remove all material without breaching would be completed. On day three following a falling tide, a full excavation of the site would occur. The final two days would include finishing the grade and surface, loading and out-hauling any material rejected for reuse, and stabilizing exposed soils with seeding and mulching. The City hopes to complete the work in July or August during a minus tide when the area is dry. If construction cannot occur during a minus tide when the area is dry, the tide gate installation area would be isolated from Gannon Slough by seining to isolate fish from the work area and by installing a temporary dam to prevent impacts to fish and other aquatic life. If needed, the area would be pumped to keep it dewatered during the work period.

Proposed construction access and staging areas are shown in Exhibit No. 4. The City would access the work sites from Old Arcata Road, down an existing driveway and existing ranch roads to the existing railroad grade. Access would proceed along the top of the railroad grade to Gannon Slough, then southward through pasture lands to South Gannon Slough, where a temporary culvert and fill crossing would be installed to cross the slough to access the tide gate installation area. A second construction access way would be located off of Highway 101 along an existing accessway across the existing levee that runs parallel to the highway. A temporary culvert and fill crossing would also be needed to cross the slough to access the tide gate installation area from this location. Both proposed access ways would avoid a pocket depression adjacent to the tide gate installation work area, which is known tidewater goby habitat. The City proposes to flag the sensitive tidewater goby area to ensure its avoidance during construction.

The City proposes to the following mitigation measures (among others) to minimize adverse environmental effects associated with the proposed project:

- Construction activities would only occur between June 15th and October 31st (or November 15th if there is no significant rain event) to avoid or minimize significant adverse effects on fish, bird, and plant species of concern and to minimize soil compaction and sediment transport;
- No equipment would operate directly within tidal waters or flowing stream channels;
- Tide gate installation work would be conducted during periods of low tide when no water or fish are present. If water is present, the tide gate area would be seined, and a fish barrier would installed to isolate the work area. After work in the tidal zone is completed, the temporary fish barrier would be removed during low tide;
- Placement of all tide gates and culverts would occur when the project site is dry or exposed during low tides;
- Silt fences would be deployed at the connection point for the new channel to Jacoby Creek and at culvert installation areas to prevent any sediment from flowing into the creek or wetted channels. If the silt fences are not adequately containing sediment, the construction activity would cease until remedial measures are implemented to prevent sediment from entering the waters below;
- If ground water is encountered while excavating the new channel, excess water would be pumped into the surrounding fields to prevent sediment-laden water from entering any watercourses;
- When the new channel and culvert installation/replacement work has been completed, all exposed surfaces would be seeded with appropriate seed and mulched;
- No construction materials, debris, or waste would be placed or stored where it could enter or be washed by rainfall into coastal waters;
- Areas subject to disturbance during tide gate installation and estuary expansion activities would be surveyed by a qualified biologist, and any sensitive plant populations encountered would be flagged for avoidance prior to commencement of construction. Work crews would be trained to avoid flagged sensitive plant areas;
- Refueling areas for equipment would occur only in designated upland areas. If equipment must be washed, washing would occur where wash water cannot flow into coastal waters or wetlands;
- Appropriate BMPs would be deployed to prevent entry of storm water runoff into the excavation site, the entrainment of excavated contaminated materials leaving the site, and to prevent the entry of polluted stormwater runoff into coastal waters during the transportation and storage of excavated materials; and
- Following completion of work all disturbed grazed seasonal wetlands would be decompacted and seeded as necessary with a commercially available pasture seed mixture composed of the same grass species that dominate the area at the present time.

In addition, the Commission notes that the applicant has been or will be obtaining several other permits and associated authorizations for the project from other agencies that have or will

contain terms and conditions for avoiding or minimizing impacts to coastal resources and the environment (see "Other Approvals" listed on page 2).

D. Restoration of Marine Resources, Biological Productivity, and Permissible Filling, Dredging, & Diking of Wetlands

1. Applicable Coastal Act Policies & Standards

Coastal Act Section 30230 states as follows:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.* [Emphasis added.]

Coastal Act Section 30231 states as follows:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.* [Emphasis added.]

Coastal Act Section 30233 provides as follows, in applicable part:

> *(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
>
> …
>
> *(6) Restoration purposes*
>
> …
>
> *(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary*… [Emphasis added.]

2. Consistency Analysis

Coastal Act Sections 30230 and 30231 require, in part, that marine resources and coastal wetlands be maintained, enhanced, and where feasible restored. These policies specifically call for the maintenance of the biological productivity and quality of marine resources, coastal waters, streams, wetlands, and estuaries necessary to maintain optimum populations of all species of marine organisms and for the protection of human health. When read together as a suite of policy directives, Sections 30230, 30231, and 30233 set forth a number of different

limitations on what types of projects may be allowed in coastal wetlands. For analysis purposes, the limitations applicable to the subject project can be grouped into four general categories or tests. \These tests require that projects that entail the dredging, diking, or filling of wetlands demonstrate that:

a. That the purpose of the filling, diking, or dredging is for one of the seven uses allowed under Section 30233;

b. That the project has no feasible less environmentally damaging alternative;

c. That feasible mitigation measures have been provided to minimize adverse environmental effects; and

d. That the biological productivity and functional capacity of the habitat shall be maintained and enhanced where feasible.

Each category is discussed separately below.

a. Permissible Use for Diking, Dredging, & Filling

The first test set forth above is that any proposed filling, diking, or dredging in wetlands must be for an allowable purpose as specified under Section 30233 of the Coastal Act. The relevant category of use listed under Section 30233(a) that relates to the proposed project is subcategory (6), "restoration purposes." Neither the Coastal Act nor the Commission's administrative regulations contain a precise definition of "restoration." The dictionary defines "restoration" in terms of actions that result in returning an article "back to a former position or condition," especially to "an unimpaired or improved condition."[1] The particular restorative methods and outcomes vary depending upon the subject being restored. For example, the Society for Ecological Restoration defines "ecological restoration" as "the process of intentionally altering a site to establish a defined indigenous, historical ecosystem. The goal of the process is to emulate the structure, function, diversity, and dynamics of the specified ecosystem."[2] However, within the field of "wetland restoration," the term also applies to actions taken "in a converted or degraded natural wetland that result in the reestablishment of ecological processes, functions, and biotic/abiotic linkages and lead to a persistent, resilient system integrated within its landscape"[3] that may not necessarily result in a return to historic locations or conditions within the subject wetland area.

Implicit in all of these varying definitions and distinctions is the understanding that the restoration entails returning something to a prior state. Wetlands are extremely dynamic systems in which specific physical functions such as nutrient cycles, succession, water levels and flow patterns directly affect biological composition and productivity. Consequently "restoration," as contrasted with "enhancement," encompasses not only reestablishing certain prior conditions but also reestablishing the processes that create those conditions. In addition, most of the varying definitions of restoration imply that the reestablished conditions will persist to some degree,

[1] Merriam-Webster's Collegiate Dictionary, Tenth Edition

[2] "Definitions," *Society of Ecological Restoration News*, Society for Ecological Restoration; Fall, 1994

[3] *Position Paper on the Definition of Wetland Restoration*, Society of Wetland Scientists, August 6, 2000

reflecting the homeostatic natural forces that formed and sustained the original conditions before being artificially altered or degraded.

Moreover, finding that proposed diking, filling, and dredging constitute "restoration purposes" must be based, in part, on evidence that the proposed project will be successful in improving habitat values. Should the project be unsuccessful at increasing and/or enhancing habitat values, or worse, if the proposed diking, filling, and dredging impacts of the project actually result in long term degradation of the habitat, the proposed diking, filling, and dredging would not be for "restoration purposes." These two characteristics are particularly noteworthy to restoration grant program administrators in reviewing funding requests to ensure that the return on the funding investment is maximized and liabilities associated with unwanted side effects of the project are minimized.

Thus, to ensure that the project achieves its stated habitat enhancement objectives, and therefore be recognized as being for "restoration purposes," the project must demonstrate that: (1) it either entails (a) a return to, or re-establishment of, former habitat conditions, or (b) entails actions taken in a converted or degraded natural wetland that will result in the reestablishment of landscape-integrated ecological processes, and/or abiotic/biotic linkages associated with wetland habitats; and (2) there is a reasonable likelihood that the identified improvements in habitat value and diversity will result; and (3) once re-established, it has been designed to provide the desired habitat characteristics in a self-sustaining, persistent fashion independent of the need for repeated maintenance or manipulation to uphold the habitat function.

As noted above, the proposed project has various components of proposed diking, dredging, and filling in coastal wetlands, the combined total of which will reestablish approximately the same configuration of tidal habitat that historically existed in the area (based on 1870s tide maps) prior to various historic land use practices including draining the land, ditching and straightening channels, and constructing levees to support agriculture. First, the proposed project will fill 0.8-acre of palustrine emergent wetlands for construction of the new setback levee and fill of an existing ditch along the western project boundary. The proposed levee size and location is designed to restore 15.3 acres of tidal estuarine habitat while providing for the protection (from tidal inundation) of existing utility easements and adjacent actively grazed agricultural lands. The ditch is proposed to be filled to ensure that flows are directed to the newly created tidal channel and to prevent ponding adjacent to the levee that abuts the Highway 101 right-of-way. The filled ditch will be converted to restored tidal habitat (part of the 15.3 acres discussed above). Second, the proposed project will dredge a new 1,400-foot-long tidal channel in existing palustrine wetland habitat (grazed seasonal wetlands/diked former tidelands) at the location of a historic tidal channel (based on 1870s tide maps) to provide hydrologic connectivity between Jacoby Creek and South Gannon Slough during flood events and to establish a properly functioning tidal drainage network. As discussed above, lower Jacoby Creek and estuary historically were part of a larger tidal wetland complex with multiple and sometimes interconnected slough channels that drained to Humboldt Bay. Higher flow events that overtopped the banks along lower Jacoby Creek in part flowed laterally northward (through the project area) towards Gannon Slough. The proposed project will improve the connectivity between major drainages and seasonal freshwater channels and wetlands, which in turn will

vastly increase the amount of rearing habitat for juvenile salmonids in the area. Scientific research has shown that coho salmon utilize the estuary ecotone while adapting from freshwater to saltwater conditions, as the estuary provides a rich foraging environment that can provide a last opportunity for growth prior to ocean migration. The proposed newly created estuary in the lower reaches of Jacoby Creek will provide additional rearing habitat for the third largest coho run of the Humboldt Bay streams. Third, the proposed project will install a new tide gate with a fish-friendly door to allow muted tidal flow to reestablish estuarine conditions in the remnant channel located upstream of the tide gate in a way that maximizes both tidal function and potential habitat for salt marsh plants along point bars and other marginal areas of the channel bed and banks. In addition, improving tidal connectivity to this area will potentially increase habitat for tidewater goby. Finally, the proposed project will replace one existing culvert and install two new 2- to 3-foot culverts in remnant slough channels that pass under the existing railroad grade levee to restore historical connectivity between fringe tidal channels at the transition between tidal and non-tidal lands and connect remnant channels to Gannon Slough and its tributaries (Beith, Grotzman, and Fickle Hill Creeks) while allowing the City to control flow to prevent flooding of adjacent agricultural lands.

According to information from the U.S. Fish and Wildlife Service (FWS), in the Humboldt Bay region it is estimated that up to 10,000 acres of tidal marsh (including salt marsh and brackish marsh habitats) were present prior to human development. Since the mid-1800s, most of what was likely to have been historic tidal marsh has been diked or filled and has been reduced to a total area of around 900 acres, a reduction of at least 90 percent. The FWS has indicated that restoration of tidal marsh habitats around the Bay is a high priority, as tidal marsh restoration is important for the protection, enhancement, and restoration of native fish, wildlife, and plant communities, some of which are dependent on tidal marsh for their existence. In past permit actions on wetland restoration projects around Humboldt Bay, the Commission has acknowledged that, in general, restoring areas that have historically supported tidal marsh is preferable when the physical conditions of a site present such an opportunity.

Thus, the proposed restoration of historic tidelands, historic juvenile salmonid rearing habitat, tidewater goby habitat, and historic connectivity between fringe tidal channels at the transition between tidal and non-tidal lands entail actions taken in converted or degraded natural wetlands (agricultural wetlands/diked former tidelands) that will result in the reestablishment of landscape-integrated ecological processes associated with the wetland habitat that historically existed in the area. Therefore, the Commission finds that the proposed restoration is consistent with the definition of restoration and constitutes filling and dredging for restoration purposes consistent with Section 30233(a)(6). The Commission further finds that as the proposed salmonid and tidewater goby habitat improvements will maintain and enhance marine resources and the biological productivity of coastal waters, the proposed improvements are mandated by the requirements of Sections 30230 and 30231.

The Commission notes that historically the area where the new setback levee is proposed to be placed and the area beyond (north and east of) the new setback levee consisted of tideland habitats. Restoring tidal influence to the entire project area beyond the proposed levee footprint would require the flooding of existing infrastructure owned by the Pacific Gas & Electric

Company (transmission lines and gas lines) and properties actively used for agricultural grazing. Therefore, while it is possible to restore over 15 acres of diked former tidelands to their historic estuarine function and tidal channel configuration as proposed, it is infeasible to restore the area beyond (north and east of) the proposed setback levee to its historic tidal influence.

As discussed above, this finding that the proposed project constitutes "restoration purposes" is based, in part, on the assumption that the proposed project will be successful in restoring various historic habitats and processes as proposed and increasing habitat values. Specifically, the habitat restoration includes the restoration of 48.7 acres of tidal habitat through (1) restoring estuarine function and connectivity to up to 17 acres of channels associated with Gannon Slough and its tributaries, including fringe tidal channels at the transition between tidal and non-tidal lands; (2) restoring over 15 acres of historic tidal habitat associated with the Jacoby Creek estuary, including a 1,400-foot-long historic tidal channel providing hydrologic connectivity between Jacoby Creek and South Gannon Slough; and (3) restoring estuarine connectivity with adjacent seasonal freshwater wetland and channel habitats. Specifically, the increased habitat values expected to result from the proposed restoration include (a) increased rearing habitat for juvenile salmonids; (b) increased tidewater goby habitat; (c) increased functionality of the restored drainage network to facilitate the conveyance of flood flows and prevent stranding of fish and other aquatic life during overbank events; and (d) increased habitat for native salt marsh plants in the restored estuarine channel system upstream of the new tide gate. Should the project be unsuccessful, or worse, if the proposed diking, filling, and dredging impacts of the project actually result in long-term degradation of the habitats, the proposed diking, filling, and dredging would not be for "restoration purposes." To ensure that the proposed project achieves the objectives for which it is intended as summarized above, the Commission attaches **Special Condition No. 1**. Special Condition No. 1 requires the applicant to submit a final monitoring plan for the review and approval by the Executive Director prior to permit issuance. The monitoring plan is required to outline a method for measuring and documenting the improvements in habitat value at the site over the course of five years following project completion, including in part (a) increased rearing habitat for juvenile salmonids in the restored project area; (b) increased tidewater goby habitat in the restored project area; (c) increased functionality of the restored drainage network to facilitate the conveyance of flood flows and prevent stranding of fish and other aquatic life during overbank events; and (d) increased habitat for native salt marsh plants in the restored estuarine channel upstream of the new tide gate. Furthermore, Special Condition No. 1 requires the monitoring plan to include provisions for remediation to ensure that the goals and objectives of the wetland restoration project are met.

Therefore, the Commission concludes that the proposed diking, dredging, and filling of palustrine emergent wetlands for the restoration and enhancement of historic tidal estuarine habitat and sensitive fish habitat (juvenile salmonid rearing habitat and tidewater goby habitat) is permissible under Section 30233(a)(6) for "restoration purposes" and is mandated by the requirements of Section 30230 and 30231 that marine resources shall be maintained and enhanced.

b. <u>Alternatives Analysis</u>

The second test set forth by the Commission's diking, dredging, and filling policies is that the proposed diking, dredging, and/or filling project must have no feasible less environmentally damaging alternative. Coastal Act Section 30108 defines "feasible" as follows:

> *"Feasible" means capable of being accomplished in a successful manner within a reasonable time, taking into account economic, environmental, social, and technological factors.*

Alternatives to the proposed project that were examined include (1) the no-project alternative; and (2) alternative sites; and (3) alternative methods. As explained below, each of these alternatives are infeasible and/or do not result in a project that is less environmentally damaging than the proposed project, as conditioned.

(i) No-Project Alternative

The "no project" alternative would maintain the *status quo* of the site and would not restore 48.7 acres of tidal habitat through (1) restoring estuarine function and connectivity to up to 17 acres of channels associated with Gannon Slough and its tributaries, including fringe tidal channels at the transition between tidal and non-tidal lands; (2) restoring over 15 acres of historic tidal habitat associated with the Jacoby Creek estuary, including a 1,400-foot-long historic tidal channel providing hydrologic connectivity between Jacoby Creek and South Gannon Slough; and (3) restoring estuarine connectivity with adjacent seasonal freshwater wetland and channel habitats. Without the proposed project, the existing creek system would continue to function as an impaired and dysfunctional system. The combined effects of levees and aggradation have created a highly constricted channel throughout the creek's coastal plain reach and have contributed to an increased frequency of overbank events. During overbank events, in-channel flows are lost, and sheet-flow floods across adjacent lands both upstream and downstream of Old Arcata Road. Receding flows have limited opportunities to directly return to the creek, which increases the potential for stranding of fish and other aquatic species. Overbank flows are intercepted by the existing storm drain system, and the increased discharge to the system results in flooding of Old Arcata Road and other surrounding roads and private property during significant rain events. Thus, floodwaters do not reconnect to Jacoby Creek, and the creek is hydrologically disconnected from the adjacent floodplain and its historic associated wetlands. Additionally, under current conditions, there is a rapid transition between the freshwater and saltwater zones (stream-estuary ecotone), which is an important habitat area that under natural conditions provides highly productive rearing habitat for juvenile salmonids.

Without the proposed project, there would be no restoration of estuarine function, no restored connectivity between fringe tidal channels at the transition between tidal and non-tidal lands, and no restored hydrologic connectivity between Jacoby Creek and South Gannon Slough – all of which are essential components of a healthy stream and estuarine environment capable of supporting marine resources such as rearing juvenile salmonids. Furthermore, the biological productivity of the coastal waters would not be maintained or improved, including habitat value for a diversity of sensitive plant and animal species and habitats, anadromous salmonids, a variety of waterfowl, shorebirds, and other birds, and other species associated with the intertidal environment. Accordingly, the "no project" option is not a feasible less environmentally damaging alternative than the proposed project as conditioned.

(ii) Alternative Sites

The City explored this alternative in its preparation to acquire the subject property and implement the proposed restoration/enhancement activities in cooperation with the U.S. Fish and Wildlife Service (FWS) and the California Coastal Conservancy using grant funding from the FWS National Coastal Wetlands Grant Program. Certain types of restoration and enhancement activities could occur on other parcels located near the project site if there were willing landowners. However, according to the City, other private property owners are not interested in selling or leasing their properties. At this time, no other feasible sites are available for acquisition or implementing of enhancement and restoration work. During the site evaluation process, the proposed acquisition areas and existing City-owned lands were identified as the only feasible sites for FWS-funded restoration due to ownership and land use constraints. Furthermore, as the City is proposing to restore the historic tidal habitat and channels using the 1870 historic map as a reference, the proposed site is the only feasible location for this restoration activity given the available data. Therefore, implementing the project at an alternative location is not a feasible less environmentally damaging alternative than the proposed project as conditioned.

(iii) Alternative Methods

Under the proposed method for restoring historic tidal channels and estuarine habitats, constructing the new setback levee, and installing the new culverts and tide gates, heavy equipment is required to complete the restoration work. Equipment access and temporary staging and stockpiling areas will be sited in grazed seasonal wetland habitat. The applicant proposes to access the site from Old Arcata Road, down an existing driveway and existing ranch roads to the existing railroad grade. Access will proceed along the top of the railroad grade to Gannon Slough, then southward through pasture lands to South Gannon Slough, where a temporary culvert and fill crossing is needed to cross the slough to access the tide gate installation area. A second construction access way will be located off of Highway 101 along an existing accessway across the existing levee that runs parallel to the highway. A temporary culvert and fill crossing also is needed to cross the slough to access the tide gate installation area from this location. The two proposed staging areas are located on the north and south sides of South Gannon Slough, on the western side of the project area near both the tide gate installation work and the new channel and setback levee construction work areas.

Although siting the construction access and temporary staging and stockpiling areas outside of seasonal wetlands would help to reduce environmental effects, a feasible alternative to siting the access and stockpiling areas within seasonal wetlands does not exist, since there are no upland alternatives within the project vicinity. An alternative access to the tide gate installation site exists off of Highway 101 which would avoid access through seasonal wetland habitat for the tide gate installation work, but its use would result in significant adverse impacts to a pocket depression adjacent to the tide gate installation work area, which is known tidewater goby habitat. Additionally, no alternative to the use of seasonal wetlands for construction access and staging exists for the proposed levee construction and tidal channel excavation work, since those project components are located within seasonal wetland habitat. The City proposes to minimize impacts to grazed seasonal wetland habitat by restricting the construction window to the dry

season when seasonal wetland soils are hardened, avoiding work during unforeseen rainfall events, and decompacting and seeding as necessary all disturbed grazed seasonal wetlands following completion of work.

Another alternative method to the proposed project would be to construct the project in a way that restores tidal influence beyond (north and east of) the new setback levee. As stated above, restoring tidal influence to the entire project area beyond the proposed levee footprint would require the flooding of existing infrastructure owned by the Pacific Gas & Electric Company (transmission lines and gas lines) and properties actively used for agricultural grazing. Therefore, while it is possible to restore over 15 acres of diked former tidelands to their historic estuarine function, it is infeasible to restore the area beyond (north and east of) the proposed setback levee to its historic tidal influence.

Therefore, implementing the project using alternative methods is not a feasible less environmentally damaging alternative than the proposed project as conditioned.

Conclusion

For all of the reasons discussed above the Commission finds that there is no less environmentally damaging feasible alternative to the proposed development as conditioned, as required by Section 30233(a).

c. Feasible Mitigation Measures

The third test set forth by Section 30233 is whether feasible mitigation measures have been provided to minimize adverse environmental impacts. The development would be located within and around coastal waters and wetlands. Depending on the manner in which the proposed project is conducted, the significant adverse impacts of the project may include (1) filling of existing wetlands to construct the new setback levee; (2) impacts to fish and wildlife habitat from water pollution in the form of sedimentation or debris entering coastal waters and wetlands; (3) introduction through re-planting of exotic invasive plants species that could compete with native vegetation and negate the habitat improvement they would provide; (4) use of certain rodenticides that could deleteriously bio-accumulate in predator bird species; (5) impacts to sensitive plant and animal species; and (6) impacts to adjacent seasonal wetlands from construction activities. Overall, the project would restore and enhance wetland habitat values and would produce generally only beneficial environmental effects. However, the proposed project has been conditioned to ensure that habitat restoration results and that potentially significant adverse impacts are minimized. The potential impacts and their mitigation are discussed below.

(i) Filling of Existing Wetlands

As discussed above, the proposed project will fill palustrine emergent wetlands for construction of the new setback levee. The proposed levee size and location is designed to restore 15.3 acres of tidal estuarine habitat while providing for the protection (from tidal inundation) of existing utility easements and adjacent actively grazed agricultural lands. The palustrine emergent

wetlands (seasonal agricultural grasslands) filled by the new setback levee footprint will result in the conversion of 0.8-acre of wetlands to upland levee habitat (see site photos, Exhibit No. 8).

As shown in Table 1 above, to mitigate for the proposed fill impacts and to ensure that there is no net loss of wetlands, the City proposes to remove fill from a 500-foot-long, 0.3-acre portion of the existing Jacoby Creek levee and from uplands (historically filled wetlands) at three locations totaling 0.5-acre to restore 0.8-acre of wetland habitat (see Sheet 2 of Exhibit No. 4). The three proposed mitigation areas totaling 0.5-acre in size are proposed to be restored to palustrine emergent wetland habitat (seasonal agricultural wetland habitat). The 0.3-acre section of existing levee along Jacoby Creek is proposed to be lowered to an elevation of 6.9 feet NAVD88 to create intertidal wetland habitat.

To ensure that the proposed removal of 0.8-acre of fill is accomplished to offset the approved filling of wetlands, **Special Condition No. 1** requires the submittal for the review and approval of the Executive Director of a final restoration monitoring program that provides for the removal of the fill and for as-built plans to be subsequently submitted that demonstrate that the planned fill removal has occurred and that the areas have been restored to palustrine emergent wetland habitat and intertidal wetland habitat, as proposed.

(ii) Sedimentation Impacts to Aquatic Habitat & Water Quality

The proposed restoration work is being undertaken to maintain and enhance marine resources and the biological productivity of coastal waters and wetlands. In particular, the proposed expansion of tidal estuarine habitat will benefit juvenile salmonids, tidewater goby, and native salt and brackish marsh plants such as Humboldt Bay owl's-clover, Point Reyes bird's-beak, western sand spurrey, and Lyngbye's sedge.

Potential adverse impacts to both existing and to-be-restored fish and wildlife habitat related water quality could occur in the form of sedimentation or debris from project diking and dredging (e.g., soils disturbed during the placement and/or removal of the new and existing flood-levees and constructing the restored tidal channel habitat) and filling (e.g., installation of culverts and tidegates). Although the project description states that such impacts would be prevented and minimized by conducting the ground-disturbing work during the dry weather season and through incorporating various other best management practices, the application provides few details as to precisely how this fill would be placed or excavation performed relative to: (1) the potential for causing stream bank soil materials to enter into the sloughs or bay during the erection/removal of the levees; and (2) the potential for materials to become entrained into areas subject to intertidal inundation during the construction. Given the necessity of using mechanized heavy equipment for performing the fill and grading work, the project poses significant risks to the water quality of the receiving coastal waters.

To ensure that adverse impacts to water quality do not occur from construction activities, the Commission attaches Special Condition Nos. 2 and 3. **Special Condition No. 2** requires the applicant to undertake the development pursuant to certain construction-related responsibilities, including, but not limited to, the following: (a) no construction materials, debris, or waste shall

be placed or stored where it may be subject to entering coastal waters or wetlands; (b) any and all debris resulting from construction activities shall be removed from the project site and disposed of at an authorized disposal location within 10 days of project completion and/or prior to the onset of the rainy season, whichever is earlier; (c) all grading activities shall be conducted during the dry season period of June 15 through November 15; (d) no construction shall occur directly within tidal waters or flowing stream channels; (e) tide gate installation work shall be conducted during periods of low tide when no water or fish are present or, if water is present, the tide gate area shall be seined, and a fish barrier shall be installed to isolate the work area; (f) if rainfall is forecast during the time construction activities are being performed, any exposed soil areas shall be promptly mulched or covered with plastic sheeting and secured with sand bagging or other appropriate materials before the onset of precipitation; (g) any debris discharged into coastal waters shall be recovered immediately and disposed of properly; (h) upon completion of construction activities and prior to the onset of the rainy season, all bare soil areas shall be seeded in compliance with Special Condition No. 4 and mulched with weed-free rice straw; (i) any fueling and maintenance of construction equipment shall occur within upland areas outside of environmentally sensitive habitat areas or within designated staging areas; (j) fuels, lubricants, and solvents shall not be allowed to enter the coastal waters or wetlands; and (k) prior to the commencement of construction, the work area shall be delineated, limiting the potential area affected by construction and workers shall be educated about the limitations on construction. **Special Condition No. 3** similarly requires the applicant to submit, prior to permit issuance for the Executive Director's review and approval, an erosion and runoff control plan that is to include certain specified water quality best management practices for minimizing impacts to coastal waters associated with the dredging, filling, and diking activities.

(iii) Introduction of Exotic Invasive Plants

The use of non-invasive plant species adjacent to environmentally sensitive habitat areas (ESHAs) is critical to protecting such areas from disturbance. If invasive species are planted adjacent to an ESHA they can displace native species and alter the composition, function, and biological productivity of the ESHA.

The City is not proposing to revegetate the restoration area, except for seeding disturbed, exposed soils impacted by construction activities. However, the proposed project does not further specify the source or composition of the seeds nor precludes the planting of other plant species beyond those identified in the permit application.

To ensure that no invasive plant species are planted or seeded in the project area, **Special Condition No. 4** prohibits the planting of any plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California,. Furthermore, no plant species listed as a "noxious weed" by the governments of the State of California or the United States are to be utilized in the revegetation portion of the project.

(iv) Use of Anticoagulant-based Rodenticides

To help in the establishment of vegetation, rodenticides are sometimes used to prevent rats, moles, voles, and other similar small animals from eating the newly planted saplings. Certain rodenticides, particularly those utilizing blood anticoagulant compounds such as brodifacoum, bromadiolone and diphacinone, have been found to pose significant primary and secondary risks to non-target wildlife present in urban and urban/wildland areas. As the target species are preyed upon by raptors or other environmentally sensitive predators and scavengers, these compounds can bio-accumulate in the animals that have consumed the rodents to concentrations toxic to the ingesting non-target species. To avoid this potential cumulative impact to environmentally sensitive wildlife species, **Special Condition No. 4** contains a prohibition on the use of such anticoagulant-based rodenticides.

(v) Impacts to Sensitive Plant & Animal Species

Sensitive plant species with the potential to occur in or adjacent to the project area include Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*), Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*), and western sand spurrey (*Spergularia canadensis* var. *occidentalis*), all of which occur in higher-elevation salt marsh habitats around Humboldt Bay, and all of which are listed as sensitive by the California Native Plant Society (CNPS 1B) and DFG (S1). Potential habitat for these species occurs around the proposed tide gate installation area. In addition, the project area is known to support Lyngbye's sedge (*Carex lyngbyei*), which is associated with brackish marsh habitats around Humboldt Bay and is listed as sensitive by CNPS (List 2) and DFG (S2). There is a patch of Lyngbye's sedge approximately 10 square feet in size near the proposed tide gate installation area. The proposed project is expected to vastly increase available habitat for Humboldt Bay owl's-clover, Point Reyes bird's-beak, western sand spurrey, and Lyngbye's sedge along over 17 acres of proposed new estuarine channels and tidal marsh habitat.

Jacoby Creek is known to harbor or provide potential habitat for a number of marine-associated fish species including tidewater goby (*Eucylogobius newberryi*, which is federally listed as "endangered" and a "species of special concern" at the state level), coho salmon (Southern Oregon/Northern California ESU of *Oncorhynchus kisutch*, which is listed as "threatened" under both the federal and state endangered species acts), Chinook salmon (California coastal ESU of *O. tshawytscha*, listed as "threatened" by the state), steelhead trout (Northern California ESU of *O. mykiss*, also listed as "threatened" by the state), and various others. According to the informal consultation letter on the project by NOAA-Fisheries staff (Exhibit No. 5), the proposed project would benefit sensitive salmonids in many ways, including increasing fish passage into Jacoby Creek, restoring up to 15 acres of historic estuarine channels, creating new winter rearing habitat for juvenile salmonids through the connection of remnant channels in Gannon Slough and the adjacent Jacoby Creek floodplain, and decreasing the likelihood of fish stranding events during high flows. According to the formal consultation (Biological Opinion) on the project by the U.S. Fish & Wildlife Service (Exhibit No. 6), the proposed project may adversely affect tidewater gobies and their designated critical habitat in the short-term, but the long-term effects of the proposed project are anticipated to be beneficial to the endangered fish species. Tidewater goby is a small fish of brackish marsh habitat created by inflowing streams that seasonally are not subject to tidal action. Gobies prefer well-oxygenated water within limited salinity and

temperature thresholds. Gobies are known to occur both in the lower reaches of Jacoby Creek and in Gannon Slough adjacent to the proposed tide gate installation area. Improving tidal connectivity to the area through the installation of the new tide gate (as described below) will increase needed habitat for tidewater goby.

As discussed above, the applicant proposes various measures to minimize impacts to sensitive plant and fish species in the project area. These include timing construction to avoid or minimize significant adverse effects on sensitive species, installing the tide gate at low tide when no water or fish are present, deploying silt fences to contain sediment, and surveying rare plant potential habitat areas prior to construction and flagging any sensitive plant populations encountered for avoidance.

To ensure that the project incorporates all feasible mitigation measures as proposed to minimize all significant adverse effects to sensitive plant and fish species and habitat, the Commission attaches Special Condition Nos. 5 and 6. **Special Condition No. 5** requires that the permittee undertake all development authorized by CDP No. 1-09-030 in accordance with the measures and protocols proposed in the application (Exhibit No. 3) and with the conservation measures identified in the draft Biological Opinion of the U.S. Fish & Wildlife Service (Exhibit No. 6) to ensure minimization of impacts to sensitive species and their designated critical habitats within and around the project area. **Special Condition No. 6**, also discussed further in Finding IV-L below, requires the applicant to submit, prior to permit issuance, the final FWS Biological Opinion in support of the restoration and tide gate installation work authorized by this permit and that is consistent with all terms and conditions of this permit. Any changes required by the FWS shall be reported to the Executive Director and not be incorporated into the project until the applicant obtains any necessary amendment to the coastal development permit.

(vi) Impacts to Adjacent Seasonal Wetlands

The proposed project will be conducted in and around seasonal agricultural wetlands. The wetland vegetation on the site is not particularly abundant or diverse in comparison with other wetland habitats around Humboldt Bay because of its current and historic use as pasture for cattle grazing. Nonetheless, the area does provide some wetland habitat including foraging habitat for a diversity of water-associated wildlife including waterfowl, wading birds, and shorebirds. The wetlands also function to provide a certain degree of water quality protection, as they temporarily detain rainwater runoff and allow for the removal of impurities entrained in stormwater flowing over the pasture lands.

Impacts to seasonal wetlands could occur during construction activities if specific protocols are not followed. For example, heavy equipment used for proposed restoration activities could compact the soils of surrounding wetland areas if specific access routes and staging areas are not designated and delineated. The proposed construction access and staging areas are shown in Exhibit No. 4. **Special Condition No. 2(A)** prohibits construction materials, debris, or waste from being placed or stored where it may be subject to entering coastal waters or wetlands, except within staging areas approved pursuant to Exhibit No. 4. Additionally, **Special Condition No. 2(K)** requires the work area to be delineated prior to the commencement of construction,

limiting the potential area affected by construction. The condition further requires that workers be educated about the limitations on construction and restricts vehicles and equipment to pre-established work areas and established or designated access routes. Finally, **Special Condition No. 3**, discussed above, requires the applicant to submit, for the Executive Director's review and approval, an erosion and runoff control plan that is to include certain specified water quality best management practices for minimizing impacts to coastal wetlands.

Conclusion

The Commission finds that, as conditioned, feasible mitigation measures have been provided to minimize adverse environmental effects consistent with Section 30233 of the Coastal Act.

d. Maintenance & Enhancement of Biological Productivity & Functional Capacity

The fourth general limitation set by Section 30233 and 30231 is that any proposed dredging or filling in coastal wetlands must maintain, enhance and where feasible restore the biological productivity and functional capacity of the habitat. Section 30233(c) states that the diking, filling, or dredging of wetlands shall maintain or enhance the functional capacity of the wetland. Sections 30230 and 30231 state that marine resources shall be maintained, enhanced, and where feasible, restored. Sections 30230 and 30231 also state that the biological productivity of coastal waters appropriate to maintain optimum populations of all species of marine organisms and protect human health shall be maintained and, where feasible, restored.

As discussed above, the conditions of the permit will ensure that the project will not have significant adverse impacts on the water quality of any of the coastal waters in the project area and will ensure that the project construction will not adversely affect the biological productivity and functional capacity coastal waters or wetlands. Furthermore, the restoration project's stated purpose is to maintain and enhance the biological productivity of coastal wetlands and waters, and conditions of the permit will ensure that the site is monitored for achievement of these goals. The proposed project will restore 15.3 acres of tidal estuarine habitat, including a 1,400-foot-long historic tidal channel, to provide hydrologic connectivity between Jacoby Creek and South Gannon Slough during flood events and to establish a properly functioning tidal drainage network. The project will further restore estuarine function to up to 17 acres of estuarine channels associated with Gannon Slough and its tributaries. Moreover, the project will improve the connectivity between major drainages and seasonal freshwater channels and wetlands, which in turn will vastly increase the amount of rearing habitat for juvenile salmonids in the area. Scientific research has shown that coho salmon utilize the estuary ecotone while adapting from freshwater to saltwater conditions, as the estuary provides a rich foraging environment that can provide a last opportunity for growth prior to ocean migration. The proposed newly created estuary in the lower reaches of Jacoby Creek will provide additional rearing habitat for the third largest coho run of the Humboldt Bay streams.

Without the proposed project, the existing creek system would continue to function as an impaired and dysfunctional system. Without the proposed project, there would be no restoration of estuarine function, no restored connectivity between fringe tidal channels at the transition between tidal and non-tidal lands, and no restored hydrologic connectivity between Jacoby Creek

and South Gannon Slough – all of which are essential components of a healthy stream and estuarine environment capable of supporting marine resources such as rearing juvenile salmonids. Furthermore, the biological productivity of the coastal waters would not be maintained or improved, including habitat value for a diversity of sensitive plant and animal species and habitats, anadromous salmonids, a variety of waterfowl, shorebirds, and other birds, and other species associated with the intertidal environment. Accordingly, the "no project" option is not a feasible less environmentally damaging alternative than the proposed project as conditioned.

Therefore, the Commission finds that the project, as conditioned, will maintain and enhance the functional capacity of the habitat, maintain and restore optimum populations of marine organisms and protect human health consistent with the requirements of Sections 30233, 30230, and 30231 of the Coastal Act.

E. Conversion of Agricultural Lands

1. Applicable Coastal Act Policies and Standards:

Coastal Act Section 30241 states as follows:

> *The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the areas agricultural economy, and conflicts shall be minimized between agricultural and urban land uses through all of the following:*
>
> *(a) By establishing stable boundaries separating urban and rural areas, including, where necessary, clearly defined buffer areas to minimize conflicts between agricultural and urban land uses.*
>
> *(b) By limiting conversions of agricultural lands around the periphery of urban areas to the lands where the viability of existing agricultural use is already severely limited by conflicts with urban uses or where the conversion of the lands would complete a logical and viable neighborhood and contribute to the establishment of a stable limit to urban development.*
>
> *(c) By permitting the conversion of agricultural land surrounded by urban uses where the conversion of the land would be consistent with Section 30250.*[4]
>
> *(d) By developing available lands not suited for agriculture prior to the conversion of agricultural lands.*
>
> *(e) By assuring that public service and facility expansions and nonagricultural development do not impair agricultural viability, either through increased assessment costs or degraded air and water quality.*
>
> *(f) By assuring that all divisions of prime agricultural lands, except those conversions approved pursuant to subdivision (b), and all development adjacent to prime agricultural lands shall not diminish the productivity of such prime agricultural lands.*

[4] The portion of referenced Section 30250 applicable to this project type and location [sub-section (a)] requires that, "*New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.*"

Coastal Act Section 30242 states as follows:

> *All other lands suitable for agricultural use shall not be converted to nonagricultural uses unless (l) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or concentrate development consistent with Section 30250. Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands.*

In addition, Coastal Act Section 30250 requires consideration of the cumulative impacts of development (defined in Coastal Act Section 30105.5) as follows:

> *"Cumulatively" or "cumulative effect" means the incremental effects of an individual project shall be reviewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.*

Coastal Act Section 30250 states in pertinent part as follows:

> *(a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.*

2. Consistency Analysis:

Coastal Act Sections 30241 and 30242 require the protection of prime agricultural lands[5] and sets limits on the conversion of all agricultural lands to non-agricultural uses.

The total acreage of the project area is approximately 113 acres, approximately 103 acres of which currently are used for agricultural purposes (livestock grazing). The agricultural grazing land in the project area is part of a larger 371-acre complex of pasturelands in the project vicinity that the City owns and currently leases to a local rancher for seasonal cattle grazing. The City plans to continue to lease the property to the same ranchers post project implementation. The proposed project will reduce the total amount of available grazing land in the area by 23 acres (which will be converted to restored tideland habitats). According to the County Farm Advisor for the U.C. Cooperative Extension in Eureka, this translates to a loss of less than six (6) animal units per year. Given the fine sediment size generally associated with fluvially deposited soil materials within bays and estuaries, the low relief of the area, the relatively shallow water table, and the limited amount of tillage and organic material or other soils component amendments made to the site over the last century since their reclamation, the site's seasonally waterlogged

[5] Coastal Act Section 30113 defines "prime agricultural land" through incorporation-by-reference of paragraphs (1) through (4) of Section 51201(c) of the California Government Code. Prime agricultural land entails land with any of the follow characteristics: (1) a rating as class I or class II in the Natural Resource Conservation Service land use capability classifications; or (2) a rating 80 through 100 in the Storie Index Rating; or (3) the ability to support livestock used for the production of food and fiber with an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture; or (4) the ability to normally yield in a commercial bearing period on an annual basis not less than two hundred dollars ($200) per acre of unprocessed agricultural plant production of fruit- or nut-bearing trees, vines, bushes or crops which have a nonbearing period of less than five years.

soils and their high bulk density severely limit the types of agricultural activities that may be feasibly undertaken at the site.

a. Maintaining Maximized Production of Prime Agricultural Land

Based on information derived from the Natural Resources Conservation Service (NRCS), the majority of the soils in the project area (approximately 83% of the project area) are mapped as Occidental (140), 0-2 percent slopes. This soil series consists of very deep, very poorly drained, saline, silty clay loam soils on reclaimed salt marshes and tidal marshes on alluvial plains. They are identified as hydric soils and recognized as having several impediments to extensive agricultural uses. According to the NRCS, natural vegetation for this soil type is estimated to have been "perennial grasses, rushes, and sedges and salt tolerant varieties of same." As a result, the NRCS has assigned Class VII classification to the project site soils as a locale which has "severe limitations that reduce the choice of plants or require special conservation practices, or both." Approximately 13% of the soils in the project area are mapped as the Jollygiant (127) series, 0-2% slopes. This soil type is rated as Class III under the NRCS land use capability classification, which is defined as soils with "severe limitations that reduce the choice of plants or that require special conservation practices, or both." Mapping by the NRCS has not been completed for the remaining 5.8 acres of the soils within the project area. Thus, under the NRCS land capability classification system, the soils at the project site do not meet the first criterion for the definition of prime agricultural soils.

According to *Soils of Western Humboldt County, California* (McLaughlin & Harradine 1965), the project site contains mostly Bayside silty clay loam soils with 0-3% slopes. The Bayside soils have a Storie Index rating between 36 and 49. Thus, the project area does not qualify as prime agricultural land under the second prong of the Coastal Act's definition.

The third potential qualifying definition of prime agricultural land – the ability to support livestock used for the production of food and fiber with an annual carrying capacity equivalent to at least 1 animal-unit per acre as defined by the United States Department of Agriculture – similarly does not apply to the project site. As mentioned above, based on correspondence from the County Farm Advisor for the U.C. Cooperative Extension office in Eureka, the low-lying, poorly drained, saltwater intruded, and flood-prone soils along the northern reclaimed fringes of Humboldt Bay typically require three acres per animal-unit. Thus, the project site supports only 0.33 animal unit months (AUMs) per acre. An AUM is the amount of forage necessary to feed a mature cow (or its equivalent) for one month.

Finally, with regard to the site's potential qualification as prime agricultural land based upon its potential for commercial fruit or nut crop production at specified minimal yields, the project area similarly fails to meet the criterion. Due to the maritime-influenced climate of the western Humboldt County, commercial nut production is precluded along the immediate coastal areas by the significant precipitation and limited number of warm, overcast-free days to allow for full seed maturation. In addition, due to the high bulk density of the soils underlying the project site and the relatively shallow water table, fruit and berry crops suitable for the North Coast's temperate setting are similarly restricted to areas further inland, primarily on uplifted marine

terraces and within well developed river floodplain areas with improved drainage and more friable soil characteristics. As a result, fruit and nut production on an economically successful commercial basis is not currently, nor has ever been historically pursued in open coastal environs, such as the project area.

3. Conclusion

Therefore, based upon the above discussed set of conditions at the project site, the Commission finds that the subject site does not contain prime agricultural soils or livestock and/or crop productivity potential that would otherwise qualify the subject property as "prime agricultural land."

b. Minimizing Conflicts Between Agricultural and Urban Land Uses

As stated above, the proposed project will reduce the total amount of available grazing land (currently 371 acres as leased by the City) by 23 acres (i.e., a reduction of about 6 percent). According to the County Farm Advisor for the U.C. Cooperative Extension in Eureka, this translates to a loss of less than six (6) animal units per year. According to the applicant, the City currently leases the property to a local rancher for seasonal grazing purposes and will continue to lease the property to the same rancher post project implementation.

Section 30241 requires that conflicts between urban and agricultural land uses be minimized through, among other things, limiting conversions of agricultural lands. Section 30241(b) limits conversions of agricultural lands around the periphery of urban areas to the lands where the viability of existing agricultural use is already severely limited by conflicts with urban uses or where the conversion of the lands would complete a logical and viable neighborhood and contribute to the establishment of a stable limit to urban development. Section 30241(c) permits the conversion of agricultural lands surrounded by urban uses where the conversion of the land would be consistent with Section 30250. Finally, Section 30241(d) requires the development of available lands not suited for agriculture prior to the conversion of agricultural lands.

The proposed conversion of 23 acres of agricultural lands in the project area constitutes a conversion of agricultural land in an area that is neither located around the periphery of urban areas nor surrounded by urban uses, and the viability of existing agricultural use at the site is not limited by conflicts with urban uses. The project site is located approximately one mile south and west of the developed portions of Arcata, and all of the lands surrounding the project site are undeveloped and used primarily either for agricultural uses or natural resources uses. In addition, there are many areas of undeveloped land within the coastal zone around the Humboldt Bay region that are not suitable for agriculture that have yet to be developed. Moreover, although the proposed conversion will reduce the total amount of available grazing land by only a small margin (6 percent), the Commission finds that the cumulative loss of agricultural lands in the project vicinity through the course of various restoration projects over the past six years is significant (e.g., see CDP Nos. 1-03-031, 1-05-017, and 1-09-020).

Thus, given this location relative to adjoining land uses and the cumulative loss of agricultural lands in the project vicinity, development of the restoration project on the currently grazed

portions of the site would not be consistent with the limitation on conversion of agricultural lands of Section 30241(b), (c), and (d) and would not serve to minimize conflicts between agricultural and urban land uses.

Conclusion

For all of the reasons stated above, the Commission finds the permanent loss of the subject 23 acres of agricultural land is not consistent with the provisions of Section 30241 cited above.

c. Conversion of "All Other Lands" Suitable for Agricultural Use

Coastal Act Section 30242 protects lands suitable for agricultural use that are not prime agricultural lands or agricultural lands on the periphery of urban areas from conversion to non-agricultural use unless continued agricultural use is not feasible, or such conversion would preserve prime agricultural land or concentrate development consistent with Section 30250. In the case of the subject parcel, although the land is not considered "prime," cattle grazing (though limited by seasonal inundation and general pasture quality) is the primary use on the subject site, and this use is proposed to continue on portions of the project site in the future. Thus, continued agricultural use is feasible, and conversion of the land to non-agricultural uses under the proposed project would not preserve prime agricultural land or concentrate development, which the Coastal Act prescribes as the basis for allowing conversion. For these reasons, the proposed conversion of agricultural lands in the project area would be inconsistent with the requirements of Coastal Act Section 30242.

F. Conflict Resolution

As noted above, the proposed tidal estuary restoration project would convert 23 acres of agricultural land inconsistent with the provisions of Sections 30241 and 30242. However, as also noted above, to not approve the project would result in a failure to restore marine resources and the biological productivity of coastal wetlands and waters that would be inconsistent with the mandates of Sections 30230 and 30231 of the Coastal Act. Section 30230 mandates that marine resources shall be maintained and enhanced. Section 30231 mandates that the biological productivity of coastal waters appropriate to maintain optimum populations of marine organisms shall be maintained.

1. The Identification of a True Conflict is Normally a Condition Precedent to Invoking a Balancing Approach

As is indicated above, the standard of review for the Commission's decision whether to approve a coastal development permit in the Commission's retained jurisdiction is whether the project as proposed is consistent the Chapter 3 policies of the Coastal Act. In general, a proposal must be consistent with all relevant policies in order to be approved. Put differently, consistency with each individual policy is a necessary condition for approval of a proposal. Thus, if a proposal is inconsistent with one or more policies, it must normally be denied (or conditioned to make it consistent with all relevant policies).

However, the Legislature also recognized that conflicts can occur among those policies (Coastal Act Section 30007.5). It therefore declared that when the Commission identifies a conflict among the policies in Chapter 3, such conflicts are to be resolved "*in a manner which on balance is the most protective of significant coastal resources* [Coastal Act Sections 30007.5 and 30200(b)]." That approach is generally referred to as the "balancing approach to conflict resolution." Balancing allows the Commission to approve proposals that conflict with one or more Chapter 3 policies, based on a conflict among the Chapter 3 policies as applied to the proposal before the Commission. Thus, the first step in invoking the balancing approach is to identify a conflict among the Chapter 3 policies.

2. Identification of a Conflict

For the Commission to use the balancing approach to conflict resolution, it must establish that a project presents a substantial conflict between two statutory directives contained in Chapter 3 of the Coastal Act. The fact that a proposed project is consistent with one policy of Chapter 3 and inconsistent with another policy does not necessarily result in a conflict. Virtually every project will be consistent with some Chapter 3 policy. This is clear from the fact that many of the Chapter 3 policies prohibit specific types of development. For example, section 30211 states that development "*shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization . . .*," and subdivision (2) of section 30253 states that new development "*shall . . . neither create nor contribute significantly to erosion . . . or in any way require the construction of protective devices . . . .*" Almost no project would violate every such prohibition. A project does not present a conflict between two statutory directives simply because it violates some prohibitions and not others.

In order to identify a conflict, the Commission must find that, although approval of a project would be inconsistent with a Chapter 3 policy, the denial of the project based on that inconsistency would result in coastal zone effects that are inconsistent with some other Chapter 3 policy. In most cases, denial of a proposal will not lead to any coastal zone effects at all. Instead, it will simply maintain the *status quo*. The reason that denial of a project can result in coastal zone effects that are inconsistent with a Chapter 3 policy is that some of the Chapter 3 policies, rather than prohibiting a certain type of development, affirmatively mandate the protection and enhancement of coastal resources, such as sections 30210 ("*maximum access . . . and recreational opportunities shall be provided . . .*"), 30220 ("*Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses*"), and 30230 ("*Marine resources shall be maintained,* [and] *enhanced…*"). If there is ongoing degradation of one of these resources, and a proposed project would cause the cessation of that degradation, then denial would result in coastal zone effects (in the form of the continuation of the degradation) inconsistent with the applicable policy. Thus, the only way that denial of a project can have impacts inconsistent with a Chapter 3 policy, and therefore the only way that a true conflict can exist, is if: (1) the project will stop some ongoing resource degradation and (2) there is a Chapter 3 policy requiring the Commission to protect and/or enhance the resource being degraded. Only then is the denial option rendered problematic because of its failure to fulfill the Commission's protective mandate.

With respect to the second of those two requirements though, there are relatively few policies within Chapter 3 that include such an affirmative mandate to enhance a coastal resource. Moreover, because the Commission's role is generally a reactive one, responding to proposed development, rather than affirmatively seeking out ways to protect resources, even policies that are phrased as affirmative mandates to protect resources more often function as prohibitions. For example, Section 30240's requirement that environmentally sensitive habitat areas "*shall be protected against any significant disruption of habitat values*" generally functions as a prohibition against allowing such disruptive development, and its statement that "*only uses dependent on those resources shall be allowed within those areas*" is a prohibition against allowing non-resource-dependent uses within these areas. Similarly, section 30251's requirement to protect "*scenic and visual qualities of coastal areas*" generally functions as a prohibition against allowing development that would degrade those qualities. Section 30253 begins by stating that new development shall minimize risks to life and property in certain areas, but that usually requires the Commission to condition projects to ensure that they are not unsafe. Even Section 30220, listed above as an affirmative mandate, can be seen more as a prohibition against allowing non-water-oriented recreational uses (or water-oriented recreational uses that could be provided at inland water areas) in coastal areas suited for such activities. Denial of a project cannot result in a coastal zone effect that is inconsistent with a prohibition on a certain type of development. As a result, there are few policies that can serve as a basis for a conflict.

Similarly, denial of a project is not inconsistent with Chapter 3, and thus does not present a conflict, simply because the project would be less inconsistent with a Chapter 3 policy than some alternative project would be, even if approval of the proposed project would be the only way in which the Commission could prevent the more inconsistent alternative from occurring. For denial of a project to be inconsistent with a Chapter 3 policy, the project must produce tangible, necessary enhancements in resource values over existing conditions, not over the conditions that would be created by a hypothetical alternative. In addition, the project must be fully consistent with the Chapter 3 policy requiring resource enhancement, not simply less inconsistent with that policy than the hypothetical alternative project would be. If the Commission were to interpret the conflict resolution provisions otherwise, then any proposal, no matter how inconsistent with Chapter 3, which offered even the smallest, incremental improvement over a hypothetical alternative project, would necessarily result in a conflict that would justify a balancing approach. The Commission concludes that the conflict resolution provisions were not intended to apply based on an analysis of different potential levels of compliance with individual policies or to balance a proposed project against a hypothetical alternative.

In addition, if a project is inconsistent with at least one Chapter 3 policy, and the essence of that project does not result in the cessation of ongoing degradation of a resource the Commission is charged with enhancing, the project proponent cannot "create a conflict" by adding on an essentially independent component that does remedy ongoing resource degradation or enhance some resource. The benefits of a project must be inherent in the essential nature of the project. If the rule were to be otherwise, project proponents could regularly "create conflicts" and then demand balancing of harms and benefits simply by offering unrelated "carrots" in association with otherwise-unapprovable projects. The balancing provisions of the Coastal Act could not have been intended to foster such an artificial and manipulatable process. The balancing

provisions were not designed as an invitation to enter into a bartering game in which project proponents offer amenities in exchange for approval of their projects.

Finally, a project does not present a conflict among Chapter 3 policies if there is at least one feasible alternative that would accomplish the essential purpose of the project without violating any Chapter 3 policy. Thus, an alternatives analysis is a condition precedent to invocation of the balancing approach. If there are alternatives available that are consistent with all of the relevant Chapter 3 policies, then the proposed project does not create a true conflict among Chapter 3 policies.

In sum, in order to invoke the balancing approach to conflict resolution, the Commission must conclude all of the following with respect to the proposed project before it: (1) approval of the project would be inconsistent with at least one of the policies listed in Chapter 3; (2) denial of the project would result in coastal zone effects that are inconsistent with at least one other policy listed in Chapter 3, by allowing continuing degradation of a resource the Commission is charged with protecting and/or enhancing; (3) the project results in tangible, necessary resource enhancement over the current state, rather than an improvement over some hypothetical alternative project; (4) the project is fully consistent with the resource enhancement mandate that requires the sort of benefits that the project provides; (5) the benefits of the project are a function of the very essence of the project, rather than an ancillary component appended to the project description in order to "create a conflict; " and (6) there are no feasible alternatives that would achieve the objectives of the project without violating any Chapter 3 policies.

An example of a project that presented such a conflict is a project approved by the Commission in 1999 involving the placement of fill in a wetland in order to construct a barn atop the fill, and the installation of water pollution control facilities, on a dairy farm in Humboldt County (CDP #1-98-103, O'Neil). In that case, one of the main objectives of the project was to create a more protective refuge for cows during the rainy season. However, another primary objective was to improve water quality by enabling the better management of cow waste. The existing, ongoing use of the site was degrading water quality, and the barn enabled consolidation and containment of manure, thus providing the first of the four necessary components of an effective waste management system. Although the project was inconsistent with Section 30233, which limits allowable fill of wetlands to eight enumerated purposes, the project also enabled the cessation of ongoing resource degradation. The project was fully consistent with Section 30231's mandate to maintain and restore coastal water quality and offered to tangibly enhance water quality over existing conditions, not just some hypothetical alternative. Thus, denial would have resulted in impacts that would have been inconsistent with Section 30231's mandate for improved water quality. Moreover, it was the very essence of the project, not an ancillary amenity offered as a trade-off, that was both inconsistent with certain Chapter 3 policies and yet also provided benefits. Finally, there were no alternatives identified that were both feasible and less environmentally damaging.

3. <u>The Proposed Project Presents a Conflict</u>

The Commission finds that the proposed project presents a true conflict between Chapter 3 policies of the Coastal Act. The proposed restoration of tidal habitats for the benefit of, among other things, juvenile salmonid rearing habitat would convert agricultural land in a manner inconsistent with the provisions of Sections 30241 and 30242 of the Coastal Act. However, to not approve the project would result in a failure to maintain and enhance marine resources and the biological productivity of coastal waters that would be inconsistent with the mandates of Sections 30230 and 30231 of the Coastal Act. Sections 30230 and 30231 mandate that marine resources shall be maintained and enhanced. Sections 30230 and 30231 also mandate that the biological productivity of coastal waters appropriate to maintain optimum populations of marine organisms and protect human health shall be maintained.

The proposed restoration estuary habitat associated with lower Jacoby Creek will directly restore and enhance marine resources and biological productivity of coastal waters appropriate to maintain optimum populations of marine organisms including salmonids, tidewater gobies, native salt marsh plants, shorebirds, waterfowl, and other water-associated wildlife. As discussed above, the proposed newly created estuary in the lower reaches of Jacoby Creek will provide additional rearing habitat for the third largest coho run of the Humboldt Bay streams. The Southern Oregon/Northern California Coast Evolutionary Significant Unit (ESU) of coho salmon, which is listed as "threatened" under both the federal and state endangered species acts, spawn in upstream stream reaches (e.g., Jacoby Creek), but juvenile fish spend several months during their first year "rearing" in the estuary before migrating out to the ocean. Scientific research has shown that coho salmon utilize the estuary ecotone while adapting from freshwater to saltwater conditions, as the estuary provides a rich foraging environment that can provide a last opportunity for growth prior to ocean migration. Similar to coho salmon, Chinook salmon, which also is listed as "threatened" under the federal ESA, also spawn in upstream reaches of stream tributaries to Humboldt Bay and are believed to spend several months during their first year rearing in estuary habitat. In addition, adults of both salmon species spend time in the estuary when returning to the basin to spawn, "holding" there while waiting for fall rains to bring river levels up enough to allow upstream migration. Another salmonid species of concern in the project vicinity is steelhead, a seagoing trout. Steelhead have a life history similar to that of Chinook and coho, although the steelhead find appropriate habitat conditions in smaller streams and in more upstream reaches than do the larger salmonids. The Northern California Steelhead ESU is presently listed under the federal ESA as "threatened." Finally, the long-term effects of the proposed project are anticipated to be beneficial to tidewater goby, a small fish of estuarine habitats. Tidewater goby is listed as "endangered" under the federal ESA. Gobies are known to occur both in the lower reaches of Jacoby Creek and in Gannon Slough adjacent to the proposed tide gate installation area.

As discussed above, the proposed habitat restoration project includes the restoration of 48.7 acres of tidal habitat through (1) restoring estuarine function and connectivity to up to 17 acres of channels associated with Gannon Slough and its tributaries, including fringe tidal channels at the transition between tidal and non-tidal lands; (2) restoring over 15 acres of historic tidal habitat associated with the Jacoby Creek estuary, including a 1,400-foot-long historic tidal channel providing hydrologic connectivity between Jacoby Creek and South Gannon Slough; and (3) restoring estuarine connectivity with adjacent seasonal freshwater wetland and channel habitats.

Specifically, the increased habitat values expected to result from the proposed restoration include (a) increased rearing habitat for juvenile salmonids; (b) increased tidewater goby habitat; (c) increased functionality of the restored drainage network to facilitate the conveyance of flood flows and prevent stranding of fish and other aquatic life during overbank events; and (d) increased habitat for native salt marsh plants in the restored estuarine channel system upstream of the new tide gate. Thus, the proposed restoration of historic tidelands, historic juvenile salmonid rearing habitat, tidewater goby habitat, and historic connectivity between fringe tidal channels at the transition between tidal and non-tidal lands entail actions taken in converted or degraded natural wetlands (agricultural wetlands/diked former tidelands) that will result in the reestablishment of landscape-integrated ecological processes associated with the wetland habitat that historically existed in the area. Furthermore, the proposed actions are mandated by the requirements of Sections 30230 and 30231 that marine resources shall be maintained and enhanced.

Although the proposed project is inconsistent with the requirements of Sections 30241 and 30242 that protect productive agricultural land and limit the conversion of agricultural land, denial would preclude achieving Sections 30230's and 30231's mandates for protection and maintenance of marine resources and the biological productivity of coastal waters appropriate to maintain optimum populations of all species of marine organisms and protect human health. In addition, it is the very essence of the project, not an ancillary amenity offered as a trade-off, that is both inconsistent with certain Chapter 3 policies and yet also provides benefits. Finally, as discussed below, there are no alternatives identified that were both feasible and less environmentally damaging.

a. Alternatives Analysis

As noted above, a true conflict among Chapter 3 policies would not exist if there are feasible alternatives available that are consistent with all of the relevant Chapter 3 policies. Alternatives that have been identified include (a) alternative sites, (b) alternative methods or configurations of project features, and (c) the "no project" alternative. These various alternatives are discussed below.

(i) Alternative Sites

Restoration of the former habitat conditions that existed on a site prior to manipulation by humans within the meaning of Sections 30230, 30231 and 30233(a) of the Coastal Act is inherently site specific. As discussed previously, implicit in the common definition of restoration is the understanding that the restoration entails returning something to a prior state. A site cannot be returned to a prior state by performing wetland enhancement or creation work at some other site. However, as also discussed previously, restoration is also defined as reestablishing ecological processes, functions, and biotic/abiotic linkages that lead to a persistent, resilient system integrated within its landscape that may not necessarily result in a return to historic locations or conditions with the subject wetland area. Thus, restoration of ecological processes, functions, and biotic/abiotic linkages at an alternative location within the landscape of the particular wetland system involved could under certain circumstances be found to be consistent with Sections 30230, 30231 and 30233(a) of the Coastal Act. However, no such feasible

alternative location other than the project site exists in this case. Nearly the entire 113-acre project parcel is agricultural land, so there is no other location on the parcel where the restoration could be carried out that would not result in a conversion of agricultural land inconsistent with Sections 30241 and 30242 of the Coastal Act. Similarly, if restoration of another site to restore a combination of tidal channel and estuarine habitats was considered, no feasible off-site locations that would not result in conversions of agricultural land inconsistent with Sections 30241 and 30242 have been identified. Much of the land surrounding Humboldt Bay that could support the habitat types to be restored has been diked, drained, and cleared for agricultural purposes, and thus the proposed site is one of the few locations where the proposed restoration project could occur consistent with Section 30233(a)(6) as discussed above (Finding IV-D). Therefore, implementing the project at an alternative location is not a feasible alternative that is consistent with all relevant Chapter 3 policies.

(ii) Alternative Configuration of Project Features

Feasible restoration of the site is not dependent on the exact site plan or configuration of stream channel restoration and riparian habitat restoration proposed by the applicant. Other configurations of these features could be successful at reestablishing ecological processes, functions, and biotic/abiotic linkages that lead to a persistent, resilient system integrated within its landscape consistent with the definition of restoration for which diking, dredging, and filling is allowed pursuant to Section 30233 of the Coastal Act and which Sections 30230 and 30231 mandate to occur if feasible. For example, the proposed tidal channels and estuarine habitat could be expanded to achieve a greater amount of historic habitat restoration (e.g., see Exhibit No. 7). This alternative configuration or layout of the project would achieve similar results, but it would not avoid conversion of agricultural lands to tidal habitat in a manner inconsistent with Sections 30241 and 30242 of the Coastal Act. As discussed above in Finding IV-D, historic tidal marsh habitat has been reduced in the Humboldt Bay region by over 90 percent over the past 100+ years. The FWS has indicated that restoration of tidal marsh habitats around the bay is a high priority, as tidal marsh restoration is necessary for the protection, enhancement, and restoration of numerous native fish (including juvenile salmonids and tidewater goby), wildlife (including numerous bird species such as California brown pelican), and plant communities (including various rare salt marsh and brackish marsh plants), which are dependent on tidal marsh for their existence.

As (1) virtually all of the larger project area except for the creeks channels is used agriculturally, (2) the use of any portion of these areas for restoration of tidal habitat would preclude agricultural use and convert agricultural land, and (3) simply reducing the size of the restoration project by eliminating the tidal estuarine restoration component of the project would not restore the biological productivity of the lower Jacoby Creek stream system in a manner that would maintain optimum populations of the salmon, no alternative configuration of the project site would avoid conversion of agricultural land inconsistent with Sections 30241 and 30242 of the Coastal Act. Therefore, none of the alternative configurations of the restoration project are a feasible alternative that is consistent with all Chapter 3 policies.

(iii) "No Project" Alternative

The "no project" alternative would maintain the status quo of the site and would not restore the historic configuration of tidelands and hydrologic connectivity between lower Jacoby Creek and South Gannon Slough, along with its associated benefits to juvenile salmonids, among other species, as proposed. Existing conditions on the project site consist of actively used agricultural land (farmed seasonal wetlands) used for seasonal cattle grazing. Under the "no project" alternative, the land would continue to be used for seasonal agricultural grazing (as it would under the proposed project), but there would be no restored and improved habitat for marine resources, and the biological productivity of the coastal wetlands and waters appropriate to maintain optimum populations of marine organisms would thus not be restored. Existing habitats for rearing salmonids, waterfowl, and other water-associated wildlife would continue to be limited on the site. Existing hydrology would continue to be dysfunctional, with no ability for flood flows to return to the creek, and the stranding of fish (and resulting fish mortality) would continue. Therefore, the Commission finds that the "no project" alternative would have significant impacts to coastal resources that would be inconsistent with Section 30230's mandate to, where feasible, restore marine resources and maintain and improve biological productivity. Therefore, the "no project" alternative is not a feasible alternative that is consistent with all relevant Chapter 3 policies.

b. Conclusion

As discussed above, none of the identified alternatives to the proposed project would be both feasible and consistent with all relevant Chapter 3 policies.

4. Conflict Resolution

After establishing a conflict among Coastal Act policies, Section 30007.5 requires the Commission to resolve the conflict in a manner that is on balance most protective of coastal resources. In this case, the Commission finds that the impacts on coastal resources from not constructing the project would be more significant than the project's agricultural conversion impacts. Denying the project because of its inconsistency with Sections 30241 and 30242 would avoid the conversion of 23 acres of agricultural grazing land. However, as the proposed juvenile salmonid habitat enhancements will maintain and enhance marine resources and the biological productivity of coastal waters appropriate to maintain optimum populations of all species of marine organisms and protect human health, the proposed improvements are mandated by the requirements of Sections 30230 and 30231.

Approving the development would restore habitats (including juvenile salmonid rearing habitat, tidewater goby habitat, and tidal marsh habitat for rare plants) around Humboldt Bay that have been tremendously reduced over the past century, consistent with Sections 30230 and 30231. The proposed restoration project will maintain and enhance marine resources including salmonids, waterfowl and other water-associated wildlife, and native salt and brackish marsh plant species. As discussed herein, scientific research has shown that salmon utilize the estuary ecotone while adapting from freshwater to saltwater conditions, as the estuary provides a rich foraging environment that can provide a last opportunity for growth prior to ocean migration. The proposed newly created estuary in the lower reaches of Jacoby Creek will provide necessary rearing habitat for the third largest coho run of the Humboldt Bay streams. The proposed

enhancements are also needed to help restore habitat diversity within Humboldt Bay and assist in the recovery of listed marine fish species including coho salmon, Chinook salmon, steelhead, and tidewater goby. Importantly, the proposed restoration project will help to alleviate flooding for the benefit of human health and safety. As discussed above in Finding IV-B, the combined effects of levees and aggradation have created a highly constricted channel throughout Jacoby Creek's coastal plain reach and have contributed to an increased frequency of overbank events. During overbank events, in-channel flows are lost, and sheet-flow floods across adjacent lands both upstream and downstream of Old Arcata Road. Receding flows have limited opportunities to directly return to the creek, which increases the potential for stranding of fish and other aquatic species. Overbank flows are intercepted by the existing storm drain system, and the increased discharge to the system results in flooding of Old Arcata Road and other surrounding roads and private property during significant rain events. Thus, floodwaters do not reconnect to Jacoby Creek, and the creek is hydrologically disconnected from the adjacent floodplain and its historic associated wetlands. Additionally, under current conditions, there is a rapid transition between the freshwater and saltwater zones (stream-estuary ecotone), which is an important habitat area that under natural conditions provides highly productive rearing habitat for juvenile salmonids. Historically, lower Jacoby Creek and estuary were part of a larger tidal wetland complex with multiple and sometimes interconnected slough channels that drained to Humboldt Bay. The proposed restoration project will (1) restore estuarine function and connectivity to up to 17 acres of channels associated with Gannon Slough and its tributaries, including fringe tidal channels at the transition between tidal and non-tidal lands; (2) restore over 15 acres of historic tidal habitat associated with the Jacoby Creek estuary, including a 1,400-foot-long historic tidal channel providing hydrologic connectivity between Jacoby Creek and South Gannon Slough; and (3) restore estuarine connectivity with adjacent seasonal freshwater wetland and channel habitats.

Therefore, the Commission finds that the restoration of tidal estuarine habitat just described, which would maintain and enhance marine resources necessary to maintain the biological productivity of existing degraded wetlands, maintain optimum populations of all species of marine organisms, and protect human health, would be more protective of coastal resources than the impacts of the conversion of 23 acres of agricultural land and its associated loss of less than six animal units per year.

As discussed above in Finding IV-D, to ensure that the maintenance and enhancement of marine resources and of the biological productivity of coastal waters that would enable the Commission to use the balancing provision of Section 30007.5 is achieved, the Commission attaches Special Condition Nos. 1 through 6. These conditions require that the applicant submit various final plans, including a final restoration and enhancement monitoring plan and a final erosion and runoff control plan. Additionally, Special Condition No. 2 requires that the applicant carry out the project in accordance with various construction protocols to ensure the protection of coastal waters and wetlands, and Special Condition No. 4 requires revegetation of the site to be carried out according to specified standards and limitations. Special Condition Nos. 5 and 6 require the implementation of measures to protect sensitive plant and fish species. The Commission finds that without Special Condition Nos. 1 through 6, the proposed project could not be approved pursuant to Section 30007.5 of the Coastal Act.

5. Mitigation for Agricultural Impacts

As stated above, the conflict resolution provisions of the Coastal Act require that the conflict be resolved in a manner that on balance is the most protective of significant coastal resources. To meet this test, in past actions where the Commission has invoked the balancing provisions of the Coastal Act, the Commission has found it necessary to mitigate adverse impacts on coastal agricultural resources to the maximum extent feasible. The applicant has not proposed any mitigation to compensate for the loss of agricultural land caused by the project.

The Commission finds that in this particular case because (1) the project proposes to re-establish prior habitat conditions and the processes that create those conditions in a converted and degraded natural wetland (agricultural land), and all of the agricultural land to be converted will be used solely for this purpose; (2) the project, as conditioned, will result in significant improvements in habitat value and diversity in a self-sustaining, persistent fashion independent of the need for repeated maintenance or manipulation to uphold the habitat function; (3) the agricultural land being converted is low quality, available only on a seasonal basis, and does not possess any of the characteristics of "prime agricultural land" as defined by Section 51201(c) of the California Government Code; (4) approximately 348 of the 371 acres of land in the area currently in agricultural production will be retained for agricultural production, and (5) the project is expected to result in benefits to surrounding agricultural land through drainage improvements that will make the land available for grazing for longer periods of the year, no agricultural mitigation is necessary to compensate for the conversion of 23 acres of agricultural land (and its associated loss of less than six animal units per year) for the restoration of tidal estuarine habitats.

G. Protection of Archaeological Resources

1. Applicable Coastal Act Policies and Standards:

Section 30244 of the Coastal Act states as follows:

> *Where development would adversely impact archeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

2. Consistency Analysis:

The diked former tidelands and surrounding areas are located within the ethnographic territory of the Wiyot Tribe. Wiyot settlements existed along Humboldt Bay and along the banks of many of the streams and sloughs in this area.

The City requested a cultural resource assessment from the North Coast Information Center for the project area during the land acquisition phase for the subject property. In October 2004 the City received the report, and the City also hired Roscoe and Associates to perform an archaeological evaluation in 2003. In addition, the California Coastal Conservancy issued a letter to the State Historic Preservation Office on June 22, 2006 requesting review and clearance for the project based on past survey work completed in the area. Based on these reports, the

proposed project could adversely impact archaeological resources. The City has therefore proposed maintaining a qualified cultural monitor on site during excavation activities. If any paleontological, archaeological, historical, or unique ethnic or sacred resources are found during project excavation, the City has proposed to halt activities and not recommence work until a qualified archeologist has evaluated the materials and offered recommendations for further action.

To ensure protection of any archaeological or cultural resources that may be discovered at the site during construction of the amended development, the Commission reimposes **Special Condition No. 7**. This condition requires that if an area of cultural deposits is discovered during the course of the project, all construction must cease and a qualified cultural resource specialist must analyze the significance of the find. To recommence construction following discovery of cultural deposits, the applicant is required to submit a supplementary archaeological plan for the review and approval of the Executive Director to determine whether the changes are *de minimis* in nature and scope, or whether an amendment to this permit is required.

Therefore, the Commission finds that the proposed development, as conditioned, is consistent with Coastal Act Section 30244, as the development will include mitigation measures to ensure that the development will not adversely impact archaeological resources.

H. Hazards

1. Applicable Coastal Act Policies and Standards:

Coastal Act Section 30253 states, in relevant part, the following:

> *New development shall do all of the following: (a) Minimize risks to life and property in areas of high geologic, flood; and fire hazard. (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs…*

2. Consistency Analysis:

The proposed project area is located entirely within the FEMA-mapped 100-year floodplain. The proposed new seback flood-levee, which has a projected economic life of 50 years, will be constructed with 1:3 side slopes to an elevation of 10 feet NAVD88. This elevation is equal to the existing levee elevations along Gannon Slough. Mean higher high water is currently at 6.95 feet, and mean monthly maximum tide is 8.1 feet. The levee as designed provides 1.9 feet of additional elevation to account for sea level rise, almost one foot higher than the best case sea level rise 2050 estimate (30 cm, 0.98 ft), and 0.42 feet above the worst case estimate of 45 cm (1.48 feet). The levee as designed will accommodate the mean monthly maximum tide (8.1 + 1.47 = 9.57) worst case scenario estimated sea level rise for more than 40 years, and the MHHW elevation for 50 years (estimated 55-60 cm rise by 2060). Therefore, the proposed project minimizes this hazard.

Given that the applicant has chosen to implement the project despite the identified flooding risks, the applicant must assume the risks. Therefore, the Commission attaches **Special Condition 8**. Special Condition No. 8 notifies the applicant that the Commission is not liable for damage as a result of approving the permit for development. The condition also requires the applicant to indemnify the Commission in the event that third parties bring an action against the Commission as a result of the failure of the development to withstand the hazards. In addition, the condition ensures that future owners of the property will be informed of the risks and the Commission's immunity from liability. As conditioned, the Commission finds the development is consistent with Section 30253 of the Coastal Act.

I. Public Access

1. Applicable Coastal Act Policies and Standards:

Coastal Act Sections 30210, 30211, and 30212 require the provision of maximum public access opportunities, with limited exceptions. Coastal Act Section 30210 requires in applicable part that maximum public access and recreational opportunities be provided when consistent with public safety, private property rights, and natural resource protection. Section 30211 requires in applicable part that development not interfere with the public's right of access to the sea where acquired through use (i.e., potential prescriptive rights or rights of implied dedication). Section 30212 requires in applicable part that public access from the nearest public roadway to the shoreline and along the coast be provided in new development projects, except in certain instances, such as when adequate access exists nearby or when the provision of public access would be inconsistent with public safety. In applying Sections 30211 and 30212, the Commission is limited by the need to show that any denial of a permit application based on these sections or any decision to grant a permit subject to special conditions requiring public access is necessary to avoid or offset a project's adverse impact on existing or potential public access.

2. Consistency Analysis:

The project site is located between Highway 101 and Old Arcata Road, inland from the margin of Humboldt Bay. With the exception of Highway 101's Class II bike lanes, there are no coastal access and recreational amenities for hiking, cycling, bird-watching, and boating in the immediate project vicinity. No existing public access to a beach or shoreline is available in the project area, which currently supports and will continue to support seasonal agricultural grazing. The proposed project does not involve any changes or additional restrictions to existing public access that would interfere with or reduce the amount of area public access and recreational opportunities. In fact, public use of the project site for birdwatching from the surrounding public roadways (Highway 101 and Old Arcata Road) may increase, as the proposed enhancements are expected to benefit waterfowl and other water-associated wildlife.

Therefore, the Commission finds that the proposed project would not have an adverse effect on public access and that the project as proposed is consistent with the requirements of Coastal Act Sections 30210, 30211, and 30212.

J. Other Agency Approvals

The project requires review and authorization by the U.S. Army Corps of Engineers. Pursuant to the Federal Coastal Zone Management Act, any permit issued by a federal agency for activities that affect the coastal zone must be consistent with the coastal zone management program for that state. Under agreements between the Coastal Commission and the U.S. Army Corps of Engineers, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit. The project also requires a CWA Section 401 Water Quality Certification from the North Coast Water Quality Control Board (pending), and a Streambed Alteration Agreement from the Department of Fish and Game (issued effective as of December 21, 2009, Agreement No. R1-09-0227). To ensure that the project ultimately approved by the other agencies is the same as the project authorized herein, the Commission attaches **Special Condition Nos. 9 and 10**, which require the City to submit to the Executive Director evidence of these agencies' approvals of the project prior to permit issuance and, in the case of the Corps, prior to commencement of construction. The conditions require that any project changes resulting from these other agency approvals not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.

K. Public Trust Lands

The project site is located in an area subject to the public trust. Therefore, to ensure that the applicant has the necessary authority to undertake all aspects of the project on these public lands, the Commission attaches **Special Condition No. 11**, which requires that the project be reviewed and where necessary approved by the State Lands Commission prior to permit issuance.

L. Final Biological Opinion

The project requires a final Biological Opinion being issued by the U.S. Fish and Wildlife Service. As discussed above, the Biological Opinion is being prepared as a result of a formal consultation between the U.S. Army Corps of Engineers and FWS pursuant to Section 7 of the Federal Endangered Species Act. The BO is expected to be finalized prior to July 7, 2010. To ensure that the project ultimately approved by the Service is the same as the project authorized herein, the Commission attaches **Special Condition No. 6**, which requires the applicant to submit, prior to permit issuance, the final Biological Opinion in support of the restoration and tide gate installation work authorized by this permit and that is consistent with all terms and conditions of this permit. The applicant shall inform the Executive Director of any changes to the project required by the Service. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

M. California Environmental Quality Act

The City of Arcata, as the lead agency, adopted a Mitigated Negative Declaration for the Arcata Baylands Enhancement/Restoration Project on June 14, 2006 (SCH No. 2006042056).

Section 13906 of the Commission's administrative regulation requires Coastal Commission approval of coastal development permit applications to be supported by a finding showing the application, as modified by any conditions of approval, is consistent with any applicable

requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are any feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effect the proposed development may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. As discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. The findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As specifically discussed in these above findings, which are hereby incorporated by reference, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impacts which the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act to conform to CEQA.

V. EXHIBITS:

1. Regional Location Map
2. Vicinity Map
3. Proposed Project Description
4. Project Plans
5. Informal Consultation Letter – NOAA-Fisheries
6. Draft Biological Opinion – U.S. Fish & Wildlife Service
7. Conceptual Design Alternatives Report
8. Project Area Photos

APPENDIX A

STANDARD CONDITIONS

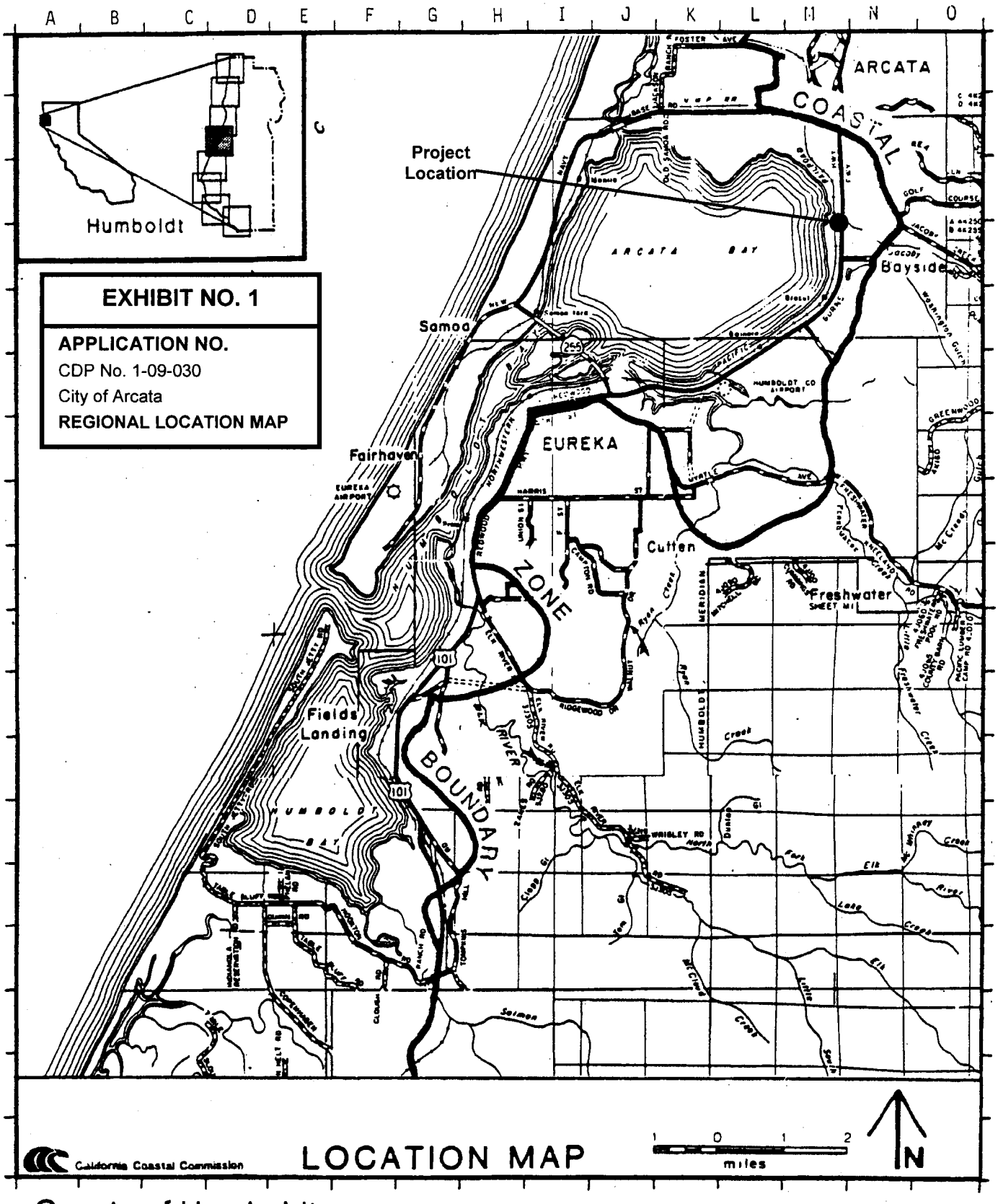
1. Notice of Receipt and Acknowledgement. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable amount of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the Executive Director of the Commission.

4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.



County of Humboldt

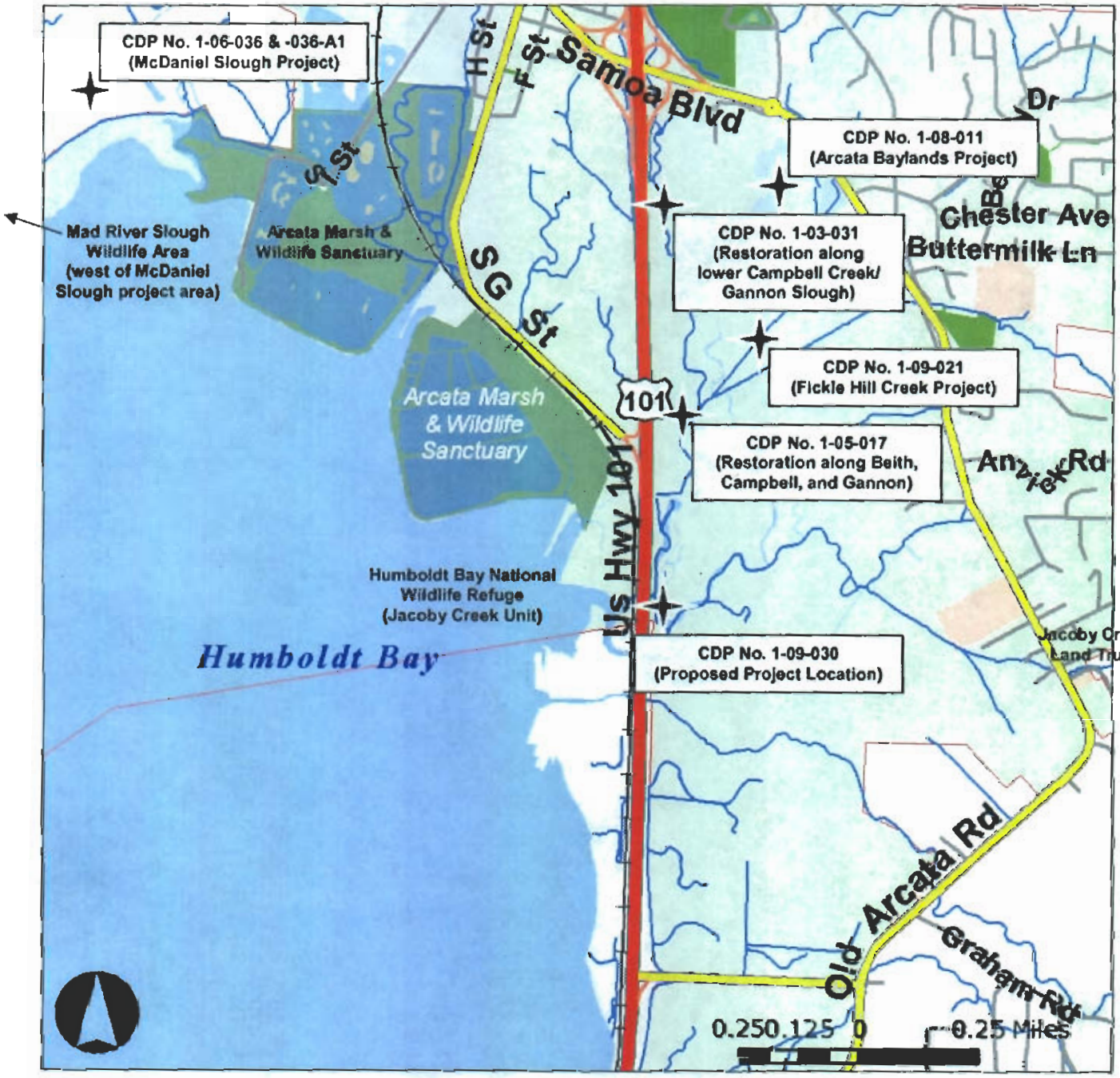


EXHIBIT NO. 2

APPLICATION NO.

1-09-030

CITY OF ARCATA

VICINITY MAP

City of ARCATA

736 F Street Arcata, California 95521

City Council 822-5953 | City Manager 822-5953 | Public Works 822-5957 | Police 822-2428
Community Development 822-5955 | Environmental Services 822-8184 | A&MRTS 822-3775
Finance 822-5951 | Recreation Division 822-7091 | FAX 822-8018

April 7, 2010

California Coastal Commission, North Coast District Office
710 'E' Street, Suite 200
Eureka, California 95501

Attention: Melissa Kraemer, Coastal Planner

Subject: Response to Coastal Commission Letter Dated July 6, 2009 - Coastal Development Permit Application 1-09-30 for the lower Jacoby Creek estuary restoration and Gannon Slough tide gate installation project.

Dear Ms Kramer;

Please accept the following responses to the Coastal Commission letter dated July 6, 2009 for Coastal Development Permit Application 1-09-30 for the lower Jacoby Creek estuary restoration and Gannon Slough tide gate installation project.

1)Proof of legal interest in property

The proof of legal interest in APN 501-042-005 is attached.

2)Alternatives to wetland diking, filling and /or, dredging--

The Arcata Baylands Project objectives:

- Restore an historical tidal channel and establish a properly functioning tidal drainage network.
- Restore historical connectivity between fringe tidal channels at the transition between tidal and non-tidal lands.
- Improve winter rearing habitat availability for juvenile salmonids.

Will be accomplished by:

- Restoring estuarine function to up to **17.1 acres of estuarine channels associated with Gannon Slough and tributaries** by repairing an existing top hinged tidegate and installing one 4' side hinged gate with fish door to allow muted tidal flow to reestablish estuarine conditions in the remnant channel located upstream of the tide gates.

- **Restoring historical connectivity between fringe tidal channels at the transition between tidal and non-tidal lands (15.9 acres)** by installing two 24" diameter 20' length culverts with screw gates under the existing railroad grade to connect additional remnant channels to Gannon Slough and its tributaries (Beith, Grotzman and Fickle Hill creeks), while allowing the City to control flow to prevent flooding of adjacent agricultural lands.

- Restoring **15.3 acres of tidal habitat and channels associated with the Jacoby Creek estuary** by constructing a new setback levee to elevation 10'MHHW and removing

approximately 500' of existing levee adjacent to Jacoby Creek to allow the creek to reoccupy this area. 1870's maps were referenced to design a tidal channel to be constructed in the new estuary area. A 36' culvert and tide gate with adjustable auxiliary door will be installed in the new levee to allow freshwater flows to enter the estuary area during storm events and to reestablish estuarine connectivity with adjacent seasonal freshwater wetland and channel habitats.

- Construct **1394 lineal feet of new connecting channel between Jacoby Creek and South Gannon Slough (0.4 acres)** to restore an historical tidal channel, provide hydrologic connectivity during flood events and establish a properly functioning tidal drainage network.

The project will **restore 48.7 acres** of tidal habitat in the project area by re-establishing hydraulic interconnectivity of seasonal freshwater wetlands, estuarine and freshwater channels between Jacoby, Gannon, Beith, Grotzman, and Fickle Hill Creeks. Historically, these channels merged and flooded the lands adjacent to the north east corner of Humboldt Bay during winter rains. Interconnections and important habitat were lost when the land was drained, channels were ditched and straightened, and levees were constructed to support agriculture. Improving the connectivity between major drainages and seasonal freshwater channels and wetlands improves the rearing success of juvenile salmonids (Michael Wallace CDFG, personal communication). The restored habitat will provide important winter rearing habitat for juvenile salmonids including listed Coho salmon.

Currently fish have no means of reentering Jacoby Creek if they are washed out of Jacoby Creek during flood events due to old levees that line much of Jacoby Creek. Additionally, hydrologic connection is lacking between Jacoby Creek and Gannon Slough and its tributaries (Beith, Grotzman and Fickle Hill Creeks). One of the limiting factors on salmonid recovery in the Humboldt Bay drainages is the availability of salmonid winter rearing habitat in the estuarine lands fringing the bay. The modified tide gate and culvert installation improvements and new channel will allow fish movement between Gannon Slough and Jacoby Creek during wet periods in the winter enhancing connectivity between these drainages, seasonal freshwater channels and adjacent wetlands thus increasing available habitat and enhancing rearing success of juvenile salmonids (Michael Wallace, personal communication).

Under a No Action Alternative, the unmaintained levees that currently constrain Jacoby Creek would remain and tide gate modifications and cross connections needed to enhance habitat for salmonids would not occur. Fish habitat would remain limited due to lack of hydrologic connectivity and a limited Jacoby Creek estuary.

Prior to selecting the proposed project, the City, in consultation with their design engineer P.E. Jeff Anderson, U.S. Fish and Wildlife Service biologists and hydrologists, and biologists from the California Department of Fish and Game, considered a variety of design options for restoring tidal hydraulic inteconnectivity to former tidal channels and associated freshwater channels/wetlands and determined that additional tidal habitat, beyond the proposed design, is not feasible since it could impact existing infrastructure owned by PG&E and the City of Eureka. It would also significantly increase the number of acres of adjacent agricultural lands that would be inundated by the tide. In considering design alternatives the City had Jeff Anderson and Associated analyze levee removal and breach of the levee at South Gannon Slough without new levee construction and found that alternative designs would impact PG&E and City of Eureka infrastructure and 71to 100 acres of agricultural lands severely limiting the property's viability for agricultural use and grazing habitat for migrating Aleutian cackling geese. To balance these impacts, the City chose the proposed alternative. The tide gate installation will improve drainage for the surrounding area and therefore should allow for better agricultural use in adjacent areas in the spring and possibly winter.

The proposed restoration/enhancements provide habitat benefits to salmonids, waterfowl, shore birds and other water associated wildlife while maintaining agricultural use and Aleutian Cackling Goose habitat. Careful consideration of the benefits and constraints for this property, and its relationship to other public lands in the North Humboldt Bay area, are why the City, in consultation with USFWS and California Department of Fish and Game, selected the above described restoration/enhancements as the preferred alternative.

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The CC letter requested additional discussion for six (CC letter point #2- a-f) specific project components associated with the proposed alternative explaining why they are the least environmentally damaging feasible alternative for diking, filling, or dregding. The specific project components are part of the overall design alternative that was selected. To respond to the CC query, the following provides more detail on each of the components:

a) The placement of 245 CY of fill in the 500 ft existing drainage ditch is needed to insure that flows are directed to the newly created channel and to prevent ponding adjacent to the levee that abuts the 101 ROW. The ditch is located in the area that will be converted to tidal estuary.

b) The 950 foot drainage ditch (900CY) will no longer be filled as it is outside of the immediate project work area and will still function to direct wet weather flows to the south branch Gannon Slough channel. To improve channel function in this area the 2 existing ranch road culverts (one 36'and one 24"), which are failing, will be replaced with 1- 36" ABS culvert with tide gate and 1- 24" ABS culvert. Both will be placed with bottom elevations equivalent to existing conditions. The tide gate will be installed to prevent flooding adjacent agricultural lands. Work will also include repairing a low spot in the existing railroad levee. The revised overview map identifies the culvert location. A typical cross section is attached.

c) Levee construction - (4098 CY) - The levee size and location was developed to prevent tidal inundation into existing utility easements and balance the restoration of coastal resources with protection of agricultural lands and associated habitat for Aleutian Canada goose and other water associated birds that utilize the grasslands adjacent to Humboldt Bay. The levee construction restores 15.3 acres of tidal estuarine habitat. The fill associated with the levee construction will be mitigated by removal/lowering of existing levee to create additional tidal habitat as well as fill removal in upland areas to create/reestablish palustrine wetland habitat equivalent to habitat impacted by levee construction. See Post Construction Target Habitat Table for more details.

d) The 48" tide gate installation requires removal of 343CY of material from the existing levee to install the new 48" tide gate. The volume of material to be replaced will be the tide gate/culvert and approximately 163 CY of fill material as outlined in *Methods – Tide Gate Installation,* on page 3 of the project description in the original application. The tide gate allows for restoration of 17.1 acres of tidal habitat and improved drainage of the surrounding area. According to the JAA Design report, the proposed project maximum water elevation will be approximately 9.3 feet which is approximately 0.7 feet lower than existing conditions peak stage of 10 feet. After project implementation the peak flood will drain in approximately 18 hours – two tide cycles, compared to the 2 days required for existing conditions. A January 28, 2009 email from Conor Shea of the USFWS states that no Tidewater Goby have been located upstream of the South Gannon Slough tide-gate. Improving tidal connectivity to this area will potentially increase habitat for Goby.

e) The temporary culverts and fill required to install the 48" fish passage tide gate is the least damaging option for accessing the tide gate installation area. This access option avoids a pocket depression, located on the west side of the levee south of the current South Gannon Slough tide gate, which is known Tidewater goby habitat (1/28/09 email correspondence with USFWS Ph.D., P.E. Hydrologist Conor Shea). The temporary culverts provide access that avoids impacting this area which includes flagging a buffer area surrounding the pocket depression to be avoided during construction. The other potential access would be along the existing levee, however the levee is too narrow to safely traverse with heavy equipment.

f) Conor Shea, Ph.D., P.E. Hydrologist - Conservation Partnerships Program with the U.S. Fish and Wildlife Service designed the new channel. According to Shea, the channel excavation is needed to provide hydrologic connectivity during flood events and establish a properly functioning tidal drainage network. Palustrine wetlands will be excavated to construct the new channel. This area, which is currently managed for cattle grazing, is dominated by non native grasses and clovers. The new channel will be a shallow tidal channel to be constructed in the location of an historical tidal channel. The original channel was drained and disconnected from the estuary when levees were constructed. Over time the original channel filled with sediment, overbank areas were compacted and subsided, and bank definition was lost due to agricultural and grazing activities. Remnants of the historical channel are seen in topographic mapping and during site visits.

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The historical channel is currently a series of discontinuous depressions. It is unlikely that without excavation a new channel, which is a critical connection between the Jacoby estuary, Gannon Slough and adjacent wetlands, will self-form in the short term. Agricultural use of drained tidal marshes often results in compacting soils. The compacted soils are resistant to scour, which, in turn, retards the formation of tidal drainage networks through natural tidal processes (PWA and Faber, 2004). Excavating a channel reduces the time necessary for the tidal drainage network to form, and thus, reduces the recovery time of the tidal marsh. The new channel will be excavated using low-surface pressure equipment. Material removed from the channel will be used to construct the new levee section. Thus, haul distances will be minimal. Excavation will be performed during the dry season when the existing pasture is dry. Excavation will be shallow and take place through a series of existing depressions. Disturbances to adjacent areas will be minimal.

Conor Shea, Ph.D., P.E. Hydrologist - has designed the new channel as follows:

The 1394' channel will be cut using a trapezoidal cross section with bottom width of 6.0 feet and 2H:1V side slopes, sloped at 0.68% from the South Gannon Slough to Jacoby Creek. The bottom elevation at South Gannon Slough will be 4.5 feet NAVD 1988. The Bottom elevation at Jacoby Creek will be 3.0 feet NAVD 1988. - The entrance invert of the tide gate through the new levee will be set at 3.7 feet NAVD 1988. The exit invert will be set at 3.6 feet NAVD 1988. A scour hole will be excavated at the outlet of the tide gate to an elevation of 1.0 feet NAVD 1988, a width of 12 feet. The scour hole should taper back into channel cross section a distance of 20 feet downstream of the tide gate. The channel excavation will have a footprint of 0.40 acres. The amount of excavation will be 1199 cubic yards. The excavated spoil will be used to construct the new levee.

Mitigation Measure to minimize adverse environmental effects for each of above (items a-f) are as follows:

a) Construction activities will only occur between June 15th and October 31st (and November 15 th if there is no significant rain event) to avoid or minimize adversely affecting fish, bird and plant species of concern and to minimize soil compaction and sediment transport.

b) No equipment will be operated directly within tidal waters or channels of flowing streams.

c) To temporarily prevent fish species of concern gaining access to the vicinity of the tide gate installation area, the work will be done during the low tide when no water or fish are present. If water is present the tide gate area will be seined and a fish barrier installed to isolate the work area.

d) Placement of all tide gates and culverts will occur when the project site is dry or exposed during low tide.

e) After work in the tidal zone is completed, the temporary fish barrier will be removed during low tide.

f) Silt fences will be deployed at the connection point for the new channel to Jacoby Creek and at culvert installation areas to prevent any sediment from flowing into the creek or wetted channels. If the silt fences are not adequately containing sediment, the construction activity shall cease until remedial measures are implemented that prevents sediment from entering the waters below.

g) If ground water is encountered while excavating the new channel – excess water will be pumped into the surrounding fields to prevent sediment-laden water from entering the any water courses.

h) When the new channel and culvert installation/replacement work has been completed all exposed surfaces will be mulched and seeded with appropriate seed.

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i) No construction materials, debris, or waste, shall be placed or stored where it may be allowed to enter into or be placed where it may be washed by rainfall into waters of the U.S./State.

j) If operations are not adequately containing sediment as determined by visual observation, the activity shall cease. Turbid water shall be contained and prevented from being transported in amounts that are deleterious to fish or could violate state pollution laws by use of silt fences or water diversion structures

k) Areas subject to disturbance during tide gate installation and estuary expansion activities will be surveyed by a qualified biologist and any endangered plant populations (Western Lily) or populations of species of special concern encountered will be flagged before the commencement of any restoration work. Work crews will be trained to avoid endangered plants.

l) City staff shall be on site during final grading to assure that the area is recontoured as per approved design specifications.

m) Once fill removal is completed all exposed soil will be mulched and seeded with appropriate grass seed.

n) Refueling areas for equipment will occur only in designated upland areas. If equipment must be washed, washing will occur where wash water cannot flow into wetlands or waters of the U.S./State.

o) Appropriate BMP's shall be deployed to prevent entry of storm water runoff into the excavation site, the entrainment of excavated contaminated materials leaving the site, and to prevent the entry of polluted storm water runoff into coastal waters during the transportation and storage of excavated materials.

p) Following completion of work all disturbed grazed seasonal wetlands will be de-compacted and seeded as needed, with a commercially available pasture seed mixture composed of the same grass species that dominate the area at the present time.

Post construction target habitat for each of proposed wetland dredge/fill areas

Project Component - Existing Habitat Type	**Cut Yd^3**	**Fill Yd^3**	**Restored Target Habitat**
Levee Construction - to elev. 6.95 –Converts 15.3 acres Palustrine wetland Fills 0.8 acres Palustrine wetland		4098	Restores 15.3 acres Estuarine Intertidal Wetland Creates 0.8 acres upland levee
Ditch Fill 0.1 acre – 500' length existing Palustrine emergent wetland - part of 15.3 acres to be converted		245	Estuarine Intertidal Wetland - part of restored 15.3 acres Estuarine Intertidal Wetland
Channel - 1,394' length -0.4 acres Palustrine wetland	1199		0.5 acres Estuarine Intertidal Wetland
Levee removal - 0.3 acres existing upland 500'	383		Converted to 0.3 acres Estuarine Intertidal Wetland lowering levee elevation to 6.9'
Levee Repair		59	
Remove Fill 0.1 acres Upland	100		0.1 acres Palustrine Emergent Wetland
Remove Fill 0.3 acres Upland	250		0.3 acres Palustrine Emergent Wetland
Remove Fill 0.1 acres Upland	100		0.1 acres Palustrine Emergent Wetland
Tide gate installation - disconnected seasonal freshwater	343	163	Restores 17.1 acres estuarine Intertidal upstream
Totals	**2375**	**4565**	

3) New levee design - Is levee designed to withstand flooding impacts associate with future sea level rise over life of project?

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The 2009 California Climate Adaptation Strategy's key recommendations include identifying key California land and aquatic habitats that could change significantly during this century due to climate change and based on this identification, developing a plan for expanding existing protected areas or altering land and water management practices to minimize adverse effects from climate change induced phenomena. (BH-1; W-5; F-5).

The California Climate Change Center, May 2009, *The Impacts of Sea-Level Rise on the California Coast,* states :

> "Cayan et al. (2009) modified the sea-level rise estimates to account for water trapped in dams and reservoirs that artificially reduced runoff into the oceans (Chao et al. 2008). Absolute sea-level rise along the California coast was assumed to be the same as the global estimate. Based on these methods, Cayan et al. (2009) estimate an overall projected rise in mean sea level along the California coast for the B1 and A2 scenarios of 1.0 m and 1.4 m, respectively, by 2100.

The May 2009 report's Section 2.4.3. Natural Resources, discusses potential impacts on wetlands noting that "While legislation has helped to protect wetlands from further destruction, rising seas threaten to substantially modify or destroy remaining wetland habitat. Most coastal wetlands in the United States are within one tidal range of mean sea level (Titus 1988), i.e., between mean high tide and mean low tide. Thus, as noted by Titus (1988), if sea levels rose by one tidal range overnight, "then all of the existing wetlands in an area would drown." Rising seas, however, may also inundate land that is now dry, thereby creating new wetlands. Wetlands may also be able to adapt to rising water levels over time by trapping sediment or building on the peat the sediment creates, a process referred to as vertical accretion. These compensatory mechanisms may be hindered by coastal development that limits wetland migration or rates of sea-level rise that exceed natural accretion rates."

The report does not evaluate the ability of wetlands to adapt to these changes through vertical accretion or landward migration, but notes that these processes could reduce damage to wetlands and urges more detailed wetland valuation studies be conducted to improve estimates. On page 67, the May 2009 report identifies significant coastal wetland impacts in Humboldt County, estimates that wetlands require accommodation space or land into which they must migrate to survive sea level rise of 1.4 meters, and recommends that these areas be protected to ensure their viability as wetland habitat is maintained.

The Baylands project provides potential opportunities for tidal habitats to slowly migrate to higher elevations through the proposed levee setback and tide gate modifications while allowing some control to prevent tidal flooding of existing infrastructure owned by PG &E and the City of Eureka. The City is aware that as sea level rises, additional modifications on the project lands may be required to allow for additional wetland habitat accommodation while also protecting the above mentioned existing infrastructure. The City is committed to work with involved parties in an adaptive approach as needed over time to address these issues and make appropriate modifications.

The *Climate Change Scenarios And Sea Level Rise Estimates For The California 2008 Climate Change Scenarios Assessment*, March 2009 draft, estimates that by "2050, sea level rise, relative to the 2000 level, ranges from 30 cm to 45 cm. This shorter time frame provides greater certainty than the 100 year time frame detailed in the May2009 document. Given the uncertainty of actual sea level rise (between 1 and 1.4 meters over the next 100 years), associated impacts, and responses to those impacts, the City has determined that a 40 to 50 year time frame provides greater certainty in analyzing the benefits and adequacy of upgrades (levee and tide gate) associated with the life of this project.

The Jacoby Creek offset levee will be built to elevation 10 which is equal to existing levee elevations along Gannon Slough. MHHW is currently 6.95 feet. Mean monthly maximum tide is 8.1 feet. The levee as designed provides 1.9 feet of additional elevation to account for sea level rise, almost one foot higher than the best case sea level rise 2050 estimate (30cm, 0.98ft) and .42 feet above the worst case estimate of 45cm (1.48 ft). The levee as designed will accommodate the mean monthly maximum tide (8.1 + 1.47= 9.57) worst case scenario estimated sea level rise for more than 40 years and the MHHW elevation for 50 years (estimated 55-

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60 cm rise by 2060). This elevation equal to or higher than the levee that parallels Gannon Slough which will contribute to tidal flooding to the same area in question.

4) Revised site plan - Attached is a revised site plan. The 500' ditch that will be filled is palustrine emergent wetland which is less than 2 feet lower than adjacent ground surface elevation. The water in the ditch is less than one foot deep in the winter months and dries up in the summer. The photos below, taken in late February 2010 show current conditions.

Figure 11 - Cattails and Scirpus in ditch to be filled

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Figure 2 - 500' Ditch to be filled view from Jacoby Creek area looking north

A typical pre/post project cross section for the ditch area is attached. Some areas of the ditch contain cattails and Scirpus sp. This ditch will become part of the restored estuarine intertidal wetland habitat associated with Jacoby Creek.

5) Design Cross Sections - Existing and proposed cross sections for the new estuarine channel, proposed levee removal area along the right bank of Jacoby creek, and the 500' ditch channel proposed for filing are attached.

6) Copy of JAA report - The report is being sent electronically attached.

7 & 8) Copy of USFWS and NOAA Consultations – The City submitted a nationwide request to the Army Corps of Engineers June 20, 2009. We will forward the Corps and USFWS and NOAA consultation information as soon as we receive it.

9) Clarification of impacts to Lyngbye;'s sedge - City staff visited the tide gate installation area on 3.3.10 to determine whether there is an existing population of Lyngbye's sedge that could be impacted by the tide gate installation. There is a small 2x5' patch located bayside near the installation area that could be impacted

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during tide gate installation. To prevent impacts the City will flag Lyngbye's sedge and alert equipment operators so that every effort can be made to avoid impacting the patch.

It should be noted that the tide gate installation will restore bay connectivity and estuarine function to 17 acres of channels thereby expanding habitat for Lyngbye's sedge. No Lyngbye's sedge was identified in the area on the landward side of the levee where the tide gate will be installed. The City of Arcata Gannon Slough tide gate installation project included installation of a similar tide gate. Since then remnant tidal channels have converted to brackish habitat and Lyngbye's sedge has colonized in many of those channels. Based on these results it is reasonable to assume that this project will also expand habitat for Lyngbye's sedge. A large population of Lyngbye's sedge in Gannon Slough, outside of the work area (that will not be impacted by the project), provides a seed source for colonization of the new tidal areas. Natural colonization into the 17 acre channel area will more that mitigate for any potential impacts on the 2'x5' population located near the tide gate work area.

10) Clarification of impact to riparian vegetation -The levee construction and tidal restoration to the lower Jacoby Creek estuary are the project components that will result in a loss of 0.4 acres of riparian vegetation, dominated by *Salix hookeriana* and *Salix sitchensis* with a combination native blackberry and Himalaya berry under story. The attached revised site map shows the riparian areas to be impacted which include; the levee removal area along Jacoby Creek, and riparian areas below 6.95 feet that will be tidally inundated. These areas will convert to tidal action as the 15.3 acre Jacoby Creek estuary area is restored.

According to the JAA report, the proposed project restores MHHW tide elevation of 7 feet in the Jacoby Creek Estuary area contained by the setback levee and 5.0 feet in the northerly portion of the project area. The average monthly maximum tidal inundation will be 5.6 feet in the northern portion of the project area and 8.1 feet in the Jacoby Estuary area. Due to the muting effect from the South Gannon tide gate and the setback levee, the northerly portion of the project area is muted well below Jacoby Creek and the newly created Jacoby Creek Estuary. John Bair of McBain and Trush Inc., undertook an analysis of the vegetation data at Wood Creek in the Freshwater Estuary. Bair stated that "before construction and tide gate opening, 87% of hooker willow at the Freshwater/wood creek site was at, or above the MHHW. Based on results from Wood Creek, Bair felt that one can reasonably assume that Hooker willow at Jacoby Creek will survive, at or above the estimated MHHW after tide gate replacement (6.95ft). City staff followed up with Jeff Anderson and he agreed with Bair's assessment. Therefore it is assumed that willow dominated riparian areas above 6.95' in elevation will not be impacted by tidal restoration.

The size and type of vegetation to be impacted is shown in the following photos taken in late February 2010.

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Levee removal area at west end of the project – dominated by native black berry and himalaya berry

Willow dominated levee removal /tidal inundation area just upstream of the native blackberry and Himalaya berry removal area.

The proposed project will convert 0.4 acres of riparian to tidal estuarine habitat as a result of restoring tidal action in coastal wetlands. This restoration project compensates for past tidal habitat loss and degradation. This is one component of the Baylands project which includes increases in tidal inundation and brackish/freshwater transition zones to promote more diverse assemblages, and increased areas of, salt water, brackish, riparian and freshwater habitat and associated vegetation. The loss of Hooker willow associated

with the Jacoby Creek estuary enhancement will be more than adequately compensated by the restoration of tidal hydrology and the various plant species associated with it.

11) Clarification of Wetland Impacts and Proposed Mitigation

The levee construction will impact 0.8 acres of a combination of Palustrine emergent (former estuarine intertidal converted to agricultural grassland) or Palustrine broad leaved deciduous wetlands that are currently dominated by willow. The City proposes to mitigate the wetland impacts by removing fill from 0.8 acres of upland areas in and adjacent to the project site. The mitigation will result in creation of 0.5 acres of palustrine emergent wetlands and 0.3 acres estuarine intertidal wetlands.

Removal of fill from 0.5 acres of high areas involves two 0.1 acres areas and one 0.3 acre area. The origin of the fill for both of the 0.1 acre removal areas is unknown – It appears the fill was there as early as 1941 based on a review of historic air photos. These areas are currently grazed grasses. These areas will become palustrine emergent wetland that will continue to be grazed after project completion. The 0.3 acre fill area consists of fill that was placed sometime after 1970 and before 1974 prior to City ownership. This area will continue to be grazed after project completion and is currently surrounded by grasses. The City does not have information where the fill originated or who placed it.

The 0.3 acres of estuarine intertidal wetlands will be created when the existing levee adjacent to Jacoby Creek is lowered to elevation 6.9'. According to historic maps referenced in the *Lower Jacoby Creek Estuary Enhancement Conceptual Design Alternatives* - prepared for the City of Arcata and California Department of Fish and Game, by Jeff Anderson and Associates, between 1870 and 1916 a levee was constructed along a parcel line that borders the northern bank of Jacoby Creek. The levee is apparent in the 1941 air photo. The City does not have information on the origin of fill.

This project will restore former coastal resources to 48.7 acres. This includes approximately 15.3 acres of former tidelands to tidal habitat, tidal action to 17.1 acres of slough channels and historical connectivity to 15.9 acres of fringe tidal channels at the transition between tidal and non-tidal lands.

12) Clarification of Agricultural Impacts - 23.3 acres of former tidelands that are currently used for agriculture will be lost to tidal restoration. The balance of the lands in the immediate project area and the adjacent lands will remain available for agricultural use and production.

a)Total acres of proposed project area – As stated in the original application materials this project is part of a development that includes activities permitted under CDP 1-09-020. The proposed project area is 113 acres.

b) Total acres of proposed project currently used for agriculture is 113 acres minus the existing slough channels (10.1 acres).

c) Post project the agricultural area will be reduced by 23.3 acres. Of that 8 acres will convert to tidal slough channel and 15.3 acres will convert to the lower Jacoby estuary contained within the new setback levee.

d) The existing agricultural operations are part of a larger agricultural operation that encompasses most of the Baylands area located adjacent to the project on the same and adjacent parcels. The rancher operates on 371.6 acres.

e) Post project implementation agricultural practices (cattle grazing) on seasonal wetlands are expected to continue as they have in the past on 89.7 acres of the 113 acre project area.

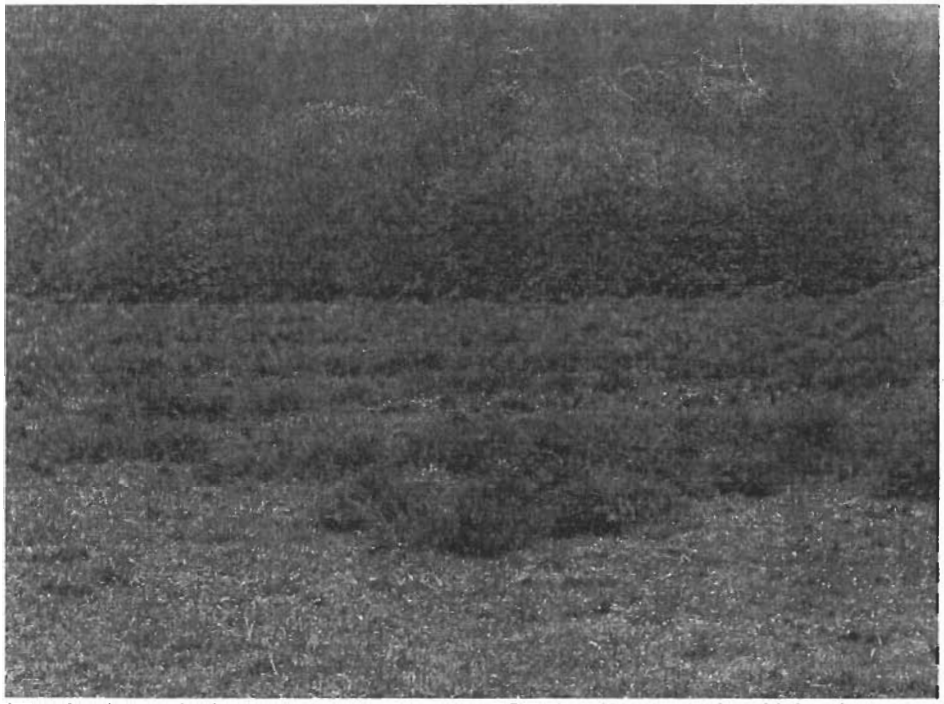
A letter to the City dated October 2, 2003 from Gary Markegard, Farm Advisor, U.C. Cooperative Extension, which has been previously been submitted to your agency, states that these types of soils have a carrying capacity of 3 acres per animal. City staff contacted Alan Bower at NRCS on March 4, 2010, to discuss the impact of the project on animal unit months. Alan confirmed that Gary Markegard's 2003 communication with the City would still be valid for this assessment. Alan Bower provided the following for determining Animal Unit Months: "This is the equivalent of "3 acres/AUY divide by 12 = .25acres/AUM. Which is the

equivalent of 4 AUs per acre per month, thus multiple by total acres (x) = Y AUMs again that is for one month ONLY! " Using this formula 4 AUs per acre per month) x (Total acres (23.3) = 93.2 AUMs. Alan also provided information on how to determine the number of animals per year that this acreage would support. The acreage will support 5.825 AU on the 23.3 acres all year round; 23.3acres X .25acres per AUM = 5.82AUs."

Impacts to these agricultural resources are considered less than significant due to the limited time during the year that the area is currently grazed and the impact to less than 6 animals per year if it were grazed all year round.

g) As stated in the original application materials, none of the soils involved in the proposed project are classified as prime. Jolly Giant Soils are only classified as prime agricultural soils if irrigated. The project area lands comprised of Jolly Giant soils are not irrigated. There is no infrastructure in place for irrigation. The rating for JG soils is a Class 3 non-irrigated capability class which is defined as soils "with severe limitations that reduce the choice of plants or that require special conservation practices or both". The report also shows that JG soils Drainage Class rating is C/D - soils having slow to very slow infiltration rate when thoroughly wet. The area of Jolly Giant soils that will convert to tidal habitat is 0.6 acres.

The project will improve drainage on the ranch through replacing failing culverts and improving peak flood drainage. No additional mitigation is proposed for the tidal restoration area which is dominated by juncus and has such saturated soils that much of the area is not available for grazing between 5 and 7 months each year depending on rainfall. The JAA hydraulic analysis for the project shows a maxim water level within the project area to be approximately 9.3 feet which is 0.7 feet lower than existing conditions peak stage of 10 feet. The analysis also found that the flood peak will drain from the project area in approximately 18 hours (two tide cycles) compared to the 2 days (48 hours) required for existing conditions – This will provide better drainage for this area and therefore additional agriculture use days post project implementation.



Area dominated by juncus adjacent to Jacoby Creek to be restored to tidal action

13) - Status of other permits -

1) CDFG 1600 Notification # R1-09-0227 - Approved12/14/09, attached

2) RWQCB – WDID No. 1B09079WNHU - Public Notice Posted 12/14/09, Will be completed upon submission of a monitoring and reporting program. 12/14

3) ACOE – Submitted June 2009 – Consultation with NMFS and USFWS is in process.

Please feel free to contact me should you require any additional information.

Sincerely,

Julie Neander
Environmental Programs Manager
City of Arcata
736 F Street
Arcata, CA 95521
707-825-2151
jneander@cityofarcata.org

Attachments:

Revised Site Plan

Legal Grant Deed for property

References:

Anderson, Jeff and Associates, January 2008, *Lower Jacoby Creek Estuary Enhancement Conceptual Design Alternatives* - Prepared for: City of Arcata and California Department of Fish and Game

Anderson, Jeff - Phone conversation 3/5/10

Bair, John H. - McBain and Trush, email correspondence 3/4/10

Bower, Alan - USDA-NRCS, District Conservationist, Eureka Field Office, March 10, 2010 email

Climate Change Scenarios And Sea Level Rise Estimates For The California 2008 Climate Change Scenarios Assessment March 2009 draft, California Climate Change Center, *Prepared By:* Dan Cayan1,2, Mary Tyree1, Mike Dettinger2,1, Hugo Hidalgo1, Tapash Das1, Ed Maurer3, Peter Bromirski1, Nicholas Graham5,1, and Reinhard Flick4,1

CNDDB Northern California Riparian Natural Communities - DFG Vegetation Classification and Mapping Program - California Vegetation Alliances (October 22, 2007) with a State Rank of 1- 3

*The Impacts Of Sea-Level Rise On The California Coast - Prepared By:*Matthew Heberger, Heather Cooley, Pablo Herrera, Peter H. Gleick, and Eli Moore of the Pacific Institute *A Paper From:*California Climate Change Center, May 2009

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Philip Williams & Associates, Ltd., and P. M. Faber (2004). Design Guidelines for Tidal Wetland Restoration in San Francisco Bay. The Bay Institute and California State Coastal Conservancy, Oakland, CA. 83 pp.

Shea, Conor, Ph.D., P.E. Hydrologist - Conservation Partnerships Program with the U.S. Fish and Wildlife Service email correspondence 1/28/09 & 2/3/10.

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