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Staff:	Melissa B. Kraemer
Staff Report:	January 23, 2009
Hearing Date:	February 4, 2009
Commission Action:	

STAFF REPORT:
PERMIT AMENDMENT

APPLICATION NUMBER:	**1-04-005-A2**
APPLICANT:	**Humboldt County Public Works Department (Attn: Hank Seemann)**
PROJECT LOCATION:	At the North Slough of Redwood Creek, Orick, Humboldt County.
DESCRIPTION OF PROJECT PREVIOUSLY APPROVED:	Vegetation and gravel removal during 2005-2009 as part of long-term, ongoing maintenance program within the Redwood Creek Flood Control Channel.
DESCRIPTION OF CURRENT AMENDMENT REQUEST:	Allow seasonal channel excavation of the Redwood Creek North Slough to improve drainage and water quality by removing wood debris and sediment.
LAND USE DESIGNATION:	Public Recreation
ZONING DESIGNATION:	Public Recreation with Archaeological Resource Area, Coastal Elk Habitat, Design Review and Beach & Dune Area Combining Zones
OTHER APPROVALS:	1) U.S. Army Corps of Engineers General Permit Amendment (pending) 2) North Coast Regional Water Quality Control

Board CWA Sec.401 Water Quality Certification

SUBSTANTIVE FILE DOCUMENTS:

1) U.S. Fish and Wildlife Service Endangered Species Act Informal Consultation;
2) National Marine Fisheries Service Endangered Species Act Consultation Biological Opinion;
3) Commission CDP File No. 1-04-005;
4) Humboldt County Local Coastal Program.

SUMMARY OF STAFF RECOMMENDATION

Staff recommends approval of the permit amendment request with conditions.

On April 15, 2005 the Commission approved the Humboldt County Public Works Department's Coastal Development Permit Application No. 1-04-005 to conduct vegetation and gravel removal during 2005-2009 as part of long-term, ongoing maintenance program within the Redwood Creek Flood Control Channel. On September 7, 2007 the Commission approved an immaterial amendment to the permit to allow additional vegetation management techniques, including mechanical removal and controlled burning, to reduce labor intensity, increase worker safety, and increase maintenance efficiency for the Redwood Creek Flood Control Project.

The proposed permit amendment would allow seasonal channel excavation of the North Slough of Redwood Creek as part of the Redwood Creek Flood Control Project. The North Slough is an approximately 900-foot-long trapezoidal channel that connects to the embayment of the Redwood Creek estuary and receives flow from both Sand Cache Creek during the winter months and Redwood Creek itself during summer months when its mouth is closed off by a sand spit and its backflows are pushed up North Slough. The mouth of North Slough is approximately 250 yards from the ocean (see Exhibit Nos. 1, 2, and 3). The subject property on which the proposed amended development would occur is within Redwood National Park (RNP), and RNP personnel would carry out the proposed work.

The primary purpose of the project is to improve drainage conditions in the slough to help prevent annual flooding of a County road (Hufford Road) and surrounding ranch lands. The proposed slough channel excavation would remove wood debris and sediment (mostly sand) that collects seasonally within the slough outlet. Currently, flow from Sand Cache Creek (which is the upstream creek that flows into the North Slough) and the drainage ditch paralleling the levee both contribute excess water during the winter months, which backs up due to the poor drainage caused by the wood/sand plug. In addition, flooding in the summer also occurs when the mouth of Redwood Creek closes, and there is a backwater effect that drives flow from Redwood Creek into the North Slough, which can get held up due to the poor drainage.

The applicant proposes to excavate the channel using a bulldozer and excavator to result in a channel depth of 4 feet and width of 7 feet (at base) to 15 feet (at top) (see Exhibit No. 6). The channel excavation is expected to generate approximately 1,850 cubic yards of sand spoils. The applicant has proposed "feathering" (smoothing and sloping) the sand spoils out within wetland areas along the sides of the channel, avoiding willows and other riparian vegetation (see Exhibit No. 4). An alternative spoils disposal site has been identified in an upland area on the east side of the slough, atop an informal "social road" which has been created off of the existing dirt parking area at the end of the north levee (see Exhibit No. 5). Work is expected to take 3 to 5 days to complete. According to the NOAA-Fisheries Biological Opinion completed for the project in 2004, the optimal period for channel excavation in North Slough to minimize adverse impacts to listed salmonids is when the mouth of Redwood Creek is open, typically mid-February to mid-March. As the existing five-year permit only authorizes channel maintenance development through October 15, 2009, only one season of channel excavation would be possible under this permit amendment.

Staff recommends modifying and reimposing Special Condition No. 3 of the original permit and adding new Special Condition Nos. 10 through 14 to this permit amendment to ensure the consistency of the amended development with all Coastal Act Chapter 3 policies.

- Modified and reimposed Special Condition No. 3 would allow for the North Slough channel excavation to occur between February 14 and March 15 annually in order to minimize the likelihood of the presence of listed salmonids during the work period.
- Added Special Condition No. 10 would require submittal of a final channel excavation and disposal plan, in part reviewed and approved by NOAA-Fisheries as recommended in the agency's Biological Opinion prepared for the project, for the Executive Director's review and approval prior to implementation of slough channel excavation activities. The disposal plan would require that dredged materials be deposited on the upland "social road" alternative disposal site rather than in wetland habitat along the slough channel.
- Added Special Condition No. 11 would require submittal of "as built" plans within 30 days of completion of channel excavation work to ensure that permit-holding commercial fisherman maintain vehicular access to the beach across the North Slough and to ensure that channel excavation dredged material is disposed of at the upland "social road" disposal site rather than within wetlands along the sides of the slough channel.
- Added Special Condition No. 12 would require reasonable mitigation measures for the protection of archaeological resources potentially occurring on the site.

As (1) the primary objective of the development is to manage the hydraulic competence and capacity of the North Slough for providing flood protection for the lower Redwood Creek watershed area, (2) no other feasible measures exist for protecting structures within the lower Redwood Creek floodplain, and (3) the project is necessary for the public

safety and to protect existing development, staff believes that the proposed substantial streambed alteration is for an allowable purpose under Coastal Act Section 30236. Furthermore, staff believes that the amended development, as conditioned, is consistent with all other Coastal Act Chapter 3 policies.

The Motion to adopt the Staff Recommendation of Approval with Conditions is on Page 6.

STAFF NOTES:

1. Procedural Note

Section 13166 of the California Code of Regulations states that the Executive Director shall reject an amendment request if: (a) it lessens or avoids the intent of the approved permit; unless (b) the applicant presents newly discovered material information, which he or she could not, with reasonable diligence, have discovered and produced before the permit was granted.

On April 15, 2005 the Commission approved the Humboldt County Public Works Department's Coastal Development Permit Application No. 1-04-005 to conduct vegetation and gravel removal during 2005-2009 as part of long-term, ongoing maintenance program within the Redwood Creek Flood Control Channel. On September 7, 2007 the Commission approved an immaterial amendment to the permit to allow additional vegetation management techniques, including mechanical removal and controlled burning, to reduce labor intensity, increase worker safety, and increase maintenance efficiency for the Redwood Creek Flood Control Project.

Under the current amendment request, the applicant proposes to include seasonal channel excavation of the North Slough of Redwood Creek as part of the larger Redwood Creek Flood Control Project. This additional development was proposed as part of the original project that was authorized under CDP No. 1-04-005, but was inadvertently excluded from the project application authorized by the Commission. However, the seasonal channel excavation of the North Slough currently proposed under this permit amendment request was the subject of project consultations conducted between the U.S. Army Corps of Engineers and NOAA-Fisheries and the U.S. Fish & Wildlife Service.

Staff believes that with the attachment of the modified and new conditions described below, the development authorized by the amended permit would be consistent with the Commission's intent in granting the original permit with conditions to allow the County to conduct necessary flood control activities to protect public safety while maintaining the natural integrity of the coastal riverine and estuarine habitat that lower Redwood Creek provides.

- Modify and reimpose Special Condition No. 3 to allow for the North Slough channel excavation to occur between February 14 and March 15 annually as

recommended by NOAA-Fisheries to minimize the likelihood of the presence of listed salmonids during the work period.

- Add Special Condition No. 10 to require submittal of a final seasonal channel excavation plan reviewed and approved by NOAA-Fisheries, as recommended in the agency's Biological Opinion prepared for the project, for the Executive Director's review and approval prior to implementation of slough channel excavation activities.
- Add Special Condition No. 11 to require submittal of "as built" plans within 30 days of completion of channel excavation work to ensure that permit-holding commercial fisherman maintain vehicular access to the beach across the North Slough and to ensure that channel excavation dredged material is disposed of at the upland "social road" disposal site rather than within wetlands along the sides of the North Slough channel.
- Add Special Condition No. 12 to require reasonable mitigation measures for the protection of archaeological resources on the site.

The Executive Director has determined that the proposed amendment as conditioned would not lessen or avoid the intent of the approved permit. Therefore, the Executive Director has accepted the amendment request for processing.

2. Commission Jurisdiction and Standard of Review

The amended development will be conducted within the Redwood Creek estuary in Humboldt County, in areas shown on State Lands Commission maps an area over which the state retains a public trust interest. Pursuant to Section 30519 of the Coastal Act, the Coastal Commission retains jurisdiction over the review and issuance of coastal development permits in these areas even though the County of Humboldt has a certified Local Coastal Program. The standard of review for projects located in the Commission's original jurisdiction is Chapter 3 of the Coastal Act.

3. Scope

This staff report addresses only the coastal resource issues affected by the proposed permit amendment, provides recommended special conditions to reduce and mitigate significant impacts to coastal resources caused by the development as amended in order to achieve consistency with the Coastal Act, and provides findings for conditional approval of the amended development. All other analyses, findings, and conditions related to the originally permitted development, except as specifically affected by the current permit amendment request and addressed herein, remain as stated within the original permit approval adopted by the Commission on April 15, 2005 attached as Exhibit No. 7.

I. MOTION, STAFF RECOMMENDATION, AND RESOLUTION:

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve the proposed amendment to Coastal Development Permit No. 1-04-005-A1 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 amendment 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 with Conditions:

The Commission hereby approves the proposed permit amendment and adopts the findings set forth below, subject to the conditions below, on the grounds that the development with the proposed amendment, as conditioned, will be in conformity with the Chapter 3 policies of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because all feasible mitigation measures and alternatives have been incorporated to substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS: See Attachment A.

III. SPECIAL CONDITIONS:

Note: The original permit (CDP No. 1-04-005) contains nine special conditions. Special Condition Nos. 1, 2, 4, 5, 6, 7, 8, and 9 of the original permit are reimposed as a condition of CDP Amendment No. 1-04-005-A2 without any changes and remain in full force and effect. Special Condition No. 3 of the original permit is modified and reimposed as a condition of CDP Amendment No. 1-04-005-A2. Special Condition Nos. 10 through 14 are additional new special conditions attached to CDP Amendment No. 1-04-005-A2. For comparison, the text of the original permit conditions is included in Exhibit No. 7.

Deleted wording within the modified special conditions is shown in ~~strikethrough~~ text, and new condition language appears as **bold double-underlined** text.

3. Seasonal Site Closure

The seasonal development area**, except for the North Slough channel excavation**

area, must be reclaimed before October 15. The site must be reclaimed when extraction has been completed. The Executive Director may approve an extension of gravel extraction, major vegetation removal, and reclamation activities beyond October 15 to as late as November 1 if the permittee has submitted a request for an extension in writing, the Executive Director determines that dry weather conditions are forecast for the extension period, and any necessary extensions of time have been granted by the Department of Fish and Game, the U.S. Army Corps of Engineers, and NOAA Fisheries. No extraction or reclamation activities shall occur after October 15 unless the permittee has first received approval of an extension of time in writing from the Executive Director. The permittee must have reclaimed all portions of the seasonal development area except for removal of any authorized seasonal crossings before an extension can be authorized. Reclamation includes: (a) filling in depressions created by the mining that are not part of the approved extraction method; (b) grading the excavation site according to prescribed grade; and (c) removing all seasonal crossings and grading out the abutments to conform with surrounding topography and removing all temporary fills from the bar. **Channel excavation within the North Slough shall occur between February 14 and March 15 only in order to minimize the likelihood of the presence of listed salmonids during the work period. The Executive Director may approve an extension of North Slough channel excavation activities beyond March 15 to as late as April 1 if the permittee has submitted a request for an extension in writing, the Executive Director determines that listed salmon are unlikely to be present within North Slough during the extension period, and NOAA Fisheries has approved the extension.**

10. Final North Slough Channel Excavation & Disposal Plan

A. PRIOR TO COMMENCEMENT OF THE NORTH SLOUGH CHANNEL EXCAVATION ACTIVITIES AUTHORIZED BY COASTAL DEVELOPMENT PERMIT AMENDMENT NO. 1-04-005-A2, the permittee shall submit for the Executive Director's review and approval a final plan for seasonal slough channel excavation that has been reviewed and approved by NOAA-Fisheries.

1. The plan shall demonstrate that:

(i) The channel excavation work shall be implemented only between February 14 and March 15 in accordance with modified and reimposed Special Condition No. 3;

(ii) The channel excavation near the mouth of North Slough shall not be so deep as to prevent 4-wheel drive vehicular access to permitted beach fishermen;

(iii) Dredged material from the slough shall be deposited on the upland "social road" alternative disposal site as shown in Exhibit No. 5.

(iv) Dredged material shall be contained on the "social road" and shall not encroach into surrounding shrubby vegetation; and

(v) Dredged material shall be smoothed out to minimize the potential for erosion into the surrounding vegetation.

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

(i) Pre- and post-extraction profiles and cross sections for the channel excavation reach;

(ii) A site plan depicting the full extent of the channel excavation area and dredge material disposal areas; and

(iii) A proposed schedule for implementing the work.

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

11. "As Built" Plans

A. WITHIN 30 DAYS OF COMPLETION OF THE NORTH SLOUGH CHANNEL EXCAVATION ACTIVITIES AUTHORIZED BY COASTAL DEVELOPMENT PERMIT AMENDMENT NO. 1-04-005-A2, the permittee shall submit for the Executive Director's review and approval "as built" plans for the slough channel excavation and dredged material disposal.

1. The plans shall demonstrate that:

(i) Channel excavation near the mouth of the slough is not so deep as to prevent vehicular beach access to permitted fishermen;

(ii) Dredged material has been disposed of entirely on the alternative "social road" disposal site, as identified in Exhibit No. 5, rather than within the North Slough channel;

(iii) Dredged material is contained on the "social road" and does not encroach into surrounding shrubby vegetation; and

(iv) Dredged material has been smoothed out to minimize the potential for erosion into the surrounding shrubby vegetation.

2. The plan shall at a minimum contain the following:

(i) Photographs showing the disposal area on the "social road" after deposition of the excavated dredged material similar to the "before" photographs shown in Exhibit No. 5;

(ii) Details on the amount of dredged material excavated from the slough and disposed of on the "social road."

(iii) A post dredged material disposal site plan depicting the full extent of the dredged material disposal area; and

(iv) Post-extraction profiles and cross sections for the channel excavation reach.

B. If the final "as built" plans indicate that the channel excavation and/or dredged material disposal do not meet the standards set forth above, the permittee shall submit a revised or supplemental plan to rectify those portions which did not meet the approved standards. The revised plan shall be processed as a further amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

12. Archaeological Resources

A. PRIOR TO COMMENCEMENT OF THE NORTH SLOUGH CHANNEL EXCAVATION ACTIVITIES AUTHORIZED BY CDP AMENDMENT NO. 1-04-005-A2, the permittee shall submit evidence for the review and approval of the Executive Director that the Yurok Tribe has been informed of the proposed amended development, given the opportunity to comment, and invited to observe the North Slough channel excavation operations.

B. If an area of cultural deposits is discovered during the course of the project, all construction shall cease and shall not recommence except as provided in subsection (C) hereof; and a qualified cultural resource specialist shall analyze the significance of the find.

C. A permittee seeking to recommence construction following discovery of the cultural deposits shall submit a supplementary archaeological plan for the review and approval of the Executive Director. In order to protect archaeological resources, any further development may only be undertaken consistent with the provisions of the Supplementary Archaeological Plan.

(i) If the Executive Director approves the Supplementary Archaeological Plan and determines that the Supplementary 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.

(ii) If the Executive Director approves the Supplementary 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.

13. Army Corps of Engineers Approval

PRIOR TO THE COMMENCEMENT OF THE NORTH SLOUGH CHANNEL EXCAVATION ACTIVITIES AUTHORIZED BY CDP AMENDMENT NO. 1-04-005-A2, the permittee shall submit a copy of the permit or permit amendment issued by the U.S. Army Corps of Engineers granting approval for the modified project or evidence that no permit or permission is required. The permittee 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 permittee obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

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

By acceptance of this permit amendment, the applicant, on behalf of (1) itself; (2) its successors and assigns and (3) any other holder of the possessory interest in the development authorized by this permit, acknowledges and agrees (i) that the channel excavation activities proposed by the applicant may subject the project area to flood hazards; (ii) to assume the risks to the applicant and the property that is the subject of this permit amendment 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; (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; and (v) to agree to include a provision in any assignment of the development authorized by this permit amendment requiring the sublessee or assignee to submit a written agreement to the Commission, for the review and approval of the Executive Director, incorporating all of the foregoing restrictions identified in (i) through (iv).

IV. FINDINGS & DECLARATIONS

The Commission hereby finds and declares the following:

A. Background & Project Description

1. Environmental Setting

The subject property on which the proposed amended development would occur is within Redwood National Park (RNP), and RNP personnel would carry out the proposed work. The proposed amended development would involve excavating the channel of North Slough, which flows into the Redwood Creek embayment. The North Slough is an

approximately 900-foot-long trapezoidal channel that connects to the embayment of the Redwood Creek estuary and receives flow from both Sand Cache Creek during the winter months and Redwood Creek itself during summer months when its mouth is closed off by a sand spit and its backflows are pushed up North Slough. The mouth of North Slough is approximately 250 yards from the ocean (see Exhibit Nos. 1, 2, and 3).

Redwood Creek is a sixth-order river in north coastal California that is approximately 60 miles in length and drains a 280-square-mile basin. The main stem together with an additional 60 miles of fifth-order tributary channels support anadromous fish stocks. The downstream one-third of the watershed as well as the intertidal sloughs and estuary at the creek's mouth lie within the borders of Redwood National Park. The upstream two-thirds of the watershed is privately owned, as are the lands in the vicinity of the community of Orick adjacent to the flood control facility between Prairie Creek and the estuary.

Access to the amended development project area is via an unnamed dirt and gravel access road off of Hufford Road, which is a County-maintained road (see Exhibit Nos. 2 and 3). The access road dead-ends at the end of the north levee of the Redwood Creek Flood Control Project, at the estuary. There is an unimproved parking area at the end of the road, which is on Redwood National Park property, but otherwise no visitor-serving facilities (e.g., boat launch, picnic area, campground, restrooms, etc.) currently exist in the area. A locked gate blocks vehicular beach access to the general public, but commercial fishermen with an authorized permit from Redwood National Park can access the beach by driving a 4-wheel-drive vehicle across the North Slough, which is dry for much of the year.

2. Description of Originally Approved Project

On April 15, 2005, the Coastal Commission approved, with conditions, the Humboldt County Public Works Department's Redwood Creek Flood Control Project under Coastal Development Permit No. 1-04-005 (see Exhibit No. 2). The permit authorized extraction of up to 90,000 cubic yards of gravel and clearing of an unspecified quantity of riparian vegetation annually over a five-year period from within and along the channelized lower reaches of Redwood Creek, downstream of the town of Orick, for flood control maintenance purposes. The project entailed the resumption of the flood control facility management practices that had lapsed since 1988 when the County had last excavated gravel and removed vegetation from the levee sides and bottom of the flood channel originally built by the U.S. Army Corps of Engineers in the late 1960s in response to major flood events along Redwood Creek that occurred in previous years. Although the County is contractually liable to the U.S. Army Corps of Engineers for maintaining the channel at a 250-year flood discharge capacity, acknowledging the environmental consequences such an endeavor would entail, the County proposed, and CDP No. 1-04-005 authorized, the restoration and maintenance of the facility only to a 100-year flood capacity.

The existing permit authorizes the use of a collaborative adaptive management approach to identify specific sites and quantities of sediment and vegetation to be removed to

minimize the project's potentially significant adverse impacts on coastal resources. An Interagency Review Team (IRT) composed of staff members of Redwood National & State Park (RNSP), National Marine Fisheries Service (NOAA Fisheries), U.S. Fish & Wildlife Service (USFWS), California Department of Fish & Game (CDFG), the U.S. Army Corps of Engineers (USACOE), and the County of Humboldt review and make recommendations on specific maintenance activities to be undertaken each year during the late spring to early autumn low-flow seasons. The County provides members of the IRT with a gravel and/or vegetation management proposal during each year of the five-year permit period that identifies discreet "hydraulic hot spots" within the channel portions lying downstream of the Highway 101 bridge from which specific amounts of gravel and/or vegetation are to be removed. These areas are rated in order of which would provide the greatest hydraulic benefit in terms of improvement to floodwater capacity and conveyance. The County provides a 10-day notice to the IRT members so that they can review proposed maintenance actions and attend a field review.

The IRT reviews and approves the annual maintenance plan by consensus based upon a "decision matrix" developed by the reviewing agencies in 2002-2003. Each year a field review is conducted by NOAA Fisheries, in collaboration with RNSP and CDFG, to rank the fish habitat adjacent to each of the identified hydraulic hot spots as "high," "medium," and "low" with regards to importance for listed salmonids. Both hydraulic and habitat variables are used to develop a decision matrix, whereby areas ranked as high hydraulic hot spots with low to moderate ranked adjacent habitat are prioritized for gravel and/or vegetation management. Areas within the flood control reach that could potentially benefit from sediment removal for improvement of salmonid habitat are also given priority consideration. The decision matrix does not rule out treating other areas of the channel, especially through the use of sediment removal, but is used as a tool for prioritizing sediment and vegetation removal in a manner that reduces potential impacts on listed salmonids and their habitat. Special Condition No. 1 of the original permit requires submittal of an annual gravel extraction and riparian removal plan for the review of the Executive Director that meets certain extraction and vegetation removal limitations established by Special Condition No. 2.

Gravel Extraction

The County is authorized to excavate up to 90,000 cubic yards of sand and gravel materials from the point bars and shoals that have formed within the floodway channel (though the volume removed is typically significantly lower, in the 30,000 to 50,000 cubic yard range).

Sediment is removed through a variety of methods, including the use of traditional bar skimming, utilizing a minimum two foot vertical offset from the water surface elevation of the summer low flow. An upstream portion of the gravel bar is left undisturbed to assure retention of the meander pattern and single narrow creek channel. Upon completion of skimming activities each year, the bar is graded in the downstream direction, towards the thalweg to provide a free-draining surface and remove depressions where fish could become trapped when the creek's water levels drop. In addition,

another potential alternative sediment removal design is to excavate fish passage channels through the portions of the flood control reach that tend to flow intermittently (subsurface) during dry summers to aid salmonid migration by enhancing stream connectivity. Other alternative sediment removal designs include the construction of connected refugia alcoves at the downstream end of gravel bars where appropriate.

Access to the gravel extraction sites is through the existing levee road system. The use of temporary bridges across open water stretches to access the gravel bars is minimized, and temporary abutments are constructed outside of the live channel to the maximum extent practical. Where the flatcar used as the bridge is not long enough to span the live channel, brow logs or concrete blocks are used to reduce the amount of abutment material in contact with the live stream. To the maximum extent practical heavy equipment channel crossings are limited to two passes per temporary bridge construction/removal. Use of abutment material is minimized, and abutment material and approach ramps are removed following removal of temporary bridges.

Sediment removal does not occur prior to June 15 or after October 15 of any year without prior written approval from CDFG in consultation with NOAA Fisheries and by the Executive Director pursuant to Special Condition No. 3. Provisions for extending the gravel extraction season to the end of October are to be based on the consideration of weather forecasts, rising flows, and salmonid migration timing.

Vegetation Removal

Maintenance of the flood control facility also involves the removal of vegetation from within the channel and along the levee side slopes. All ruderal vegetation along the rip-rapped slope of the levees down to within 5 feet of the "toe of the slope," defined as the intersection between the riprap and the current bed of Redwood Creek, is removed. Vegetation removal from within the channel is prioritized using the decision matrix for gravel extraction maintenance described above, focusing primarily on the high ranked hydraulic hot spots with low to moderate ranked adjacent salmonid habitat.

Within the 5-foot zone above the toes of the levees, trees with a basal diameter greater than four inches as measured at four inches above ground level are removed, but all other vegetation is retained. The selection of various treatments to be implemented in any given year of the proposed 5-year maintenance program is accomplished through use of the decision matrix coupled with on-site visits and discussion with the IRT. Other vegetation removal designs include, but are not limited to, the following:

- Remove trees from the dry side of the islands to within 10 feet of the live waters of the creek.
- Trees within 10 feet of the creek on an island that are greater than four inches in diameter at a height of four inches above ground level can be removed and cut into 4-foot lengths and left in place.

- To increase scour potential, remove all vegetation from the tip of a bar 30 feet downstream of the head of the bar.
- To provide potential velocity refugia for salmonids and to prevent excessive numbers of large trees on extensive dry stretches of bars, trees with a diameter of 4 inches and greater can be removed.
- To create a mosaic of vegetated and non-vegetated areas on the extensive dry stretches of bars, remove all vegetation from small areas on the bar while leaving other areas completely vegetated.

Special Condition No. 5 requires the permittee to document the cumulative amount of riparian vegetation removed under the permit, and Special Condition No. 6 requires the permittee to submit a final mitigation plan in the form of a permit amendment for the review and approval of the Commission by December 31, 2009.

3. Description of Amended Development Approved Under CDP Amendment No. 1-04-005-A1

On September 7, 2007 the Commission approved an immaterial amendment to the permit to allow additional vegetation management techniques, including mechanical removal and controlled burning, to reduce labor intensity, increase worker safety, and increase maintenance efficiency for the Redwood Creek Flood Control Project. Mechanical removal of vegetation is accomplished using a bulldozer equipped with a brush rake to remove both above- and below-ground (root mass) portions of woody vegetation. Protective measures for this additional vegetation management technique include, but are not limited to, (1) flagging the extent of trees to be removed; (2) briefing operators prior to work on the required protective measures and work area boundaries; (3) establishing setback areas to avoid disturbing the bank of the low-flow channel and to avoid encouraging stream braiding; (4) leaving a mosaic of vegetation, and not using heavy equipment within 30 feet of the edge of bank; (5) using erosion control measures such as silt fencing or wattles as needed; (6) cleaning equipment prior to use and regularly monitoring equipment for leaks; in the event of an identified leak, the equipment will be immediately taken off site for repair; (7) having spill response kits readily accessible on site; and (8) no fueling or equipment maintenance within the project area (except in emergencies). The controlled burning is aimed at controlling the Himalayan blackberry which dominates the upper portion of the levee slope. The band of willows and alders at the toe of the levee slope will not be burned, and a minimum 5-foot buffer is to be maintained between the levee toe (or upward extent of woody vegetation) and the lower boundary of the burn area. Other protective measures for controlled burning include, but are not limited to, using experienced Cal-Fire crews for fire control, cutting firebreak corridors manually above the buffer zone, conducting burning only on permissive burn days with suitable weather conditions and with a burn permit from the North Coast Unified Air Quality Management District, no fuel handling on the levee slope, conducting fueling activities on an impermeable surface to contain drips, and having spill kits and a 3,000-gallon water truck on site as a contingency.

4. Description of Amended Development Proposed Under CDP Amendment No. 1-04-010-A1

Under the current amendment request, the applicant proposes to include seasonal channel excavation of the North Slough of Redwood Creek as part of the larger Redwood Creek Flood Control Project. The North Slough is an approximately 900-foot-long trapezoidal channel that connects to the embayment of the Redwood Creek estuary (see Exhibit No. 4). The primary purpose of the project is to improve drainage conditions in the slough to help prevent annual flooding of a County road (Hufford Road) and surrounding ranch lands. The proposed slough channel excavation would remove wood debris and sediment (mostly sand) that collects seasonally within the slough outlet. Currently, flow from Sand Cache Creek (which is the upstream creek that flows into the North Slough) and the drainage ditch paralleling the levee both contribute excess water during the winter months, which backs up due to the poor drainage caused by the wood/sand plug. In addition, flooding in the summer also occurs when the mouth of Redwood Creek closes, and there is a backwater effect that drives flow from Redwood Creek into the North Slough, which can get held up due to the poor drainage.

The applicant proposes to excavate the channel using a bulldozer and excavator to result in a channel depth of 4 feet and width of 7 feet (at base) to 15 feet (at top) (see Exhibit No. 6). The channel excavation is expected to generate approximately 1,850 cubic yards of sand spoils. The applicant has proposed "feathering" (smoothing and sloping) the sand spoils out within wetland areas along the sides of the channel, avoiding willows and other riparian vegetation (see Exhibit No. 4). An alternative spoils disposal site has been identified in an upland area on the east side of the slough, atop an informal "social road" which has been created off of the existing dirt parking area at the end of the north levee (see Exhibit No. 5). Work is expected to take 3 to 5 days to complete. According to the NOAA-Fisheries Biological Opinion completed for the project in 2004, the optimal period for channel excavation in North Slough to minimize adverse impacts to listed salmonids is when the mouth of Redwood Creek is open, typically mid-February to mid-March. As the existing five-year permit only authorizes channel maintenance development through October 15, 2009, only one season of channel excavation would be possible under this permit amendment.

The Commission notes that the original coastal development permit and permits granted by other agencies contain additional terms and conditions for avoiding or minimizing impacts to coastal resources and the environment (see "Other Approvals" listed on Pages 1-2).

B. Development within Coastal Rivers & Streams

Section 30236 of the Coastal Act provides that:

> *Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (l) necessary water supply projects, (2) flood control projects where no other*

> *method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.* [Emphases added.]

Section 30236 sets forth a number of different limitations on what development may be allowed that causes substantial alteration of rivers and streams. For analysis purposes, a particular development proposal must be shown to be for one of three purposes: (1) for a necessary water supply project; (2) flood control projects where there is no other feasible methods for protection of existing structures within the floodplain and the project is necessary for public safety and the protection of existing development; or (3) primarily for fish and wildlife habitat improvement. In addition, the development must incorporate the best mitigation measures feasible.

1. Permissible Uses for Channelization and Substantial Alteration of Streams

The first test set forth above is that any proposed channelization or other substantial alteration of a river or stream may only be allowed only for three purposes enumerated in Section 30236, including "*flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development.*" The proposed excavation of material from North Slough entails maintenance of an existing slough channel to avoid flooding in an area that floods on an annual basis, impacting a County road and surrounding ranch lands. The primary objective of the development is to increase the hydraulic competence and capacity of the North Slough segment of the Redwood Creek Flood Control Project for providing flood protection to the lower Redwood Creek watershed area, including County infrastructure (roads) and surrounding agricultural land. Thus, the substantial streambed alteration associated with the proposed flood channel maintenance program is allowable pursuant to Section 30235(2) of the Coastal Act provided: (a) there is no other feasible method for protecting existing structures in the floodplain; and (b) such protection is necessary for public safety or to protect existing development.

a. Availability of Other Feasible Methods for Protecting Floodplain Structures

Flooding hazards in the lower Redwood Creek drainage could hypothetically be managed through other methods than the existing engineered channel and containment levees. For example, a flood control dam could be constructed upstream of Orick where the creek enters the mountain canyon to the east of town, impounding flood waters into a reservoir and allowing their release over time at flow rates that would not result in inundation of lands within the lower watershed. Another option would be to route Redwood Creek around flood-prone areas in the lower drainage through a bypass canal that would convey and discharge floodwaters safely into the Pacific Ocean. However, the County of Humboldt does not possess either the land base or the capital necessary to develop such large public works facilities. Notwithstanding these financial limitations, damming or diversions would result in far greater and wide-reaching significant adverse

environmental impacts than would the proposed maintenance program. Thus, the Commission finds no other feasible measures exist for protecting structures within the lower Redwood Creek floodplain.

b. Necessity of Project for Public Safety and to Protect Existing Structures

Both Hufford Road, a County Road, and surrounding ranch lands experience annual flooding due to the seasonal buildup of wood debris and sand within the North Slough channel. As discussed above, flow from Sand Cache Creek (which is the upstream creek that flows into the North Slough) and the drainage ditch paralleling the levee both contribute excess water during the winter months, which backs up due to the poor drainage caused by the wood/sand plug. In addition, flooding in the summer also occurs when the mouth of Redwood Creek closes, and there is a backwater effect that drives flow from Redwood Creek into the North Slough, which can get held up due to the poor drainage. As a result, Hufford Road and adjoining ranch lands flood, endangering public safety and adversely affecting agricultural productivity.

The proposed work has been planned to be carried out as part of the Redwood Creek Flood Control Project, which originated in response to property damages that resulted during the various floods that occurred on Redwood Creek during the 1950s and in 1964. The Commission, in approving CDP No. 1-04-005, recognized that maintenance of the Redwood Creek Flood Control Project facility is necessary to prevent future flooding of the coastal plain areas in the lower watershed.

Similarly, the Commission finds that the additional excavation work proposed for North Slough channel under this permit amendment request is necessary for public safety and the protection of existing development.

2. Feasible Mitigation Measures

The second test set forth by the stream alteration policy of the Coastal Act is whether best feasible mitigation measures have been provided to minimize the adverse environmental impacts of the subject channelization, damming, and/or substantial alteration of rivers or streams. The proposed North Slough channel excavation activities would be conducted in a sandy estuarine environment and could have potentially significant adverse effects on a number of threatened, endangered and special status species and/or their habitats. These include species formally listed or those with candidacy as either "endangered," or "threatened" under the Federal (FESA) and California (CESA) Environmental Species Acts, or species that have been identified as "species of special concern" by CDFG's Habitat Conservation Planning Branch. These species are presented in Table 1 below.

Table 1. Environmentally Sensitive Animal and Plant Species That May Use the Aquatic, Wetland, and Beach Habitats in the Lower Redwood Creek Area.

Taxonomic Group/Name	Common Name	Federal / State ESA Status
Fishes		

Taxonomic Group/Name	Common Name	Federal / State ESA Status
Oncorhynchus kisutch	Coho Salmon	FT/CCT
Eucyclogobius newberryi	Tidewater Goby	FE/CSC
Oncorhynchus clarki clarki	Coastal Cutthroat Trout	CSC
Oncorhynchus tshawytscha	Chinook Salmon	CSC
Oncorhynchus mykiss	Steelhead	CSC
Birds		
Ardea alba	Great Egret	Protected
Ardea herodias	Great Blue Heron	Protected
Egretta thula	Snowy Egret	CSC
Falco peregrinus anatum	American Peregrine Falcon	CE
Haliaeetus leucocephalus	American Eagle	CE
Pandion haliaetus	Osprey	CSC
Pelecanus occidentalis califomicus	California Brown Pelican	FE/CE
Charadrius alexandrinus nivosus	Western Snowy Plover	Protected
Vascular Plants		
Abronia umbellata ssp. brevifolia	Pink sand-verbena	CNPS 1B
Castilleja affinis ssp. litoralis	Oregon Coast Indian paintbrush	CNPS 1B
Lathyrus japonicus	Sand pea	CNPS 1B
Layia carnosa	Beach Layia	FE
Montia howellii	Howell's montia	CNPS 1B

Legend: FE – FESA "Endangered"
FT – FESA "Threatened"
CE – CESA "Endangered"
CCT – CESA "Candidate Threatened"
CSC – California "Species of Special Concern"

NOAA-Fisheries completed a Biological Opinion (BO) for the Redwood Creek Flood Control Project, including the proposed amended development, in March of 2004. The agency considered the effects of the "proposed action" on listed salmonids. The BO concludes that the project, including the proposed amended development, is not likely to jeopardize the continued existence of the salmonid species nor destroy or adversely modify any designated critical habitat. The BO recommends various "reasonable and prudent measures" for the proposed project, which were included as conditions of approval of CDP No. 1-04-005. The following recommended measure is specific to the North Slough channel excavation component of the larger Redwood Creek Flood Control Project:

- In order to minimize the likelihood of the presence of listed salmonids during the work period, slough channel excavation work shall occur between February 14 and March 15, annually during the five-year permit period. Annual plans for slough channel excavation shall be reviewed by NOAA-Fisheries to determine consistency with the accompanying Opinion, prior to implementation of the slough channel excavation work.

Thus, the above provision is incorporated in part into modified and reimposed Special Condition No. 3. As staff received a personal communication from a NOAA-Fisheries

biologist that the suitable work window for channel excavation in the slough could, under certain circumstances (e.g., the mouth of Redwood Creek being open and salmon runs not yet begun), be extended to as late as April, the condition provides for channel excavation work to occur between March 15 to April 1 upon written request submitted to the Executive Director along with approved time extensions from NOAA-Fisheries. Special Condition No. 10 requires that prior to implementation of any channel excavation work in the slough, a channel excavation and disposal plan approved by NOAA-Fisheries, as recommended by the above BO provision, shall be submitted for the Executive Director's review and approval.

The U.S. Fish & Wildlife Service completed an informal consultation for the proposed project in May of 2003, which indicated that the project, including the proposed amended development, is not likely to adversely affect the endangered Brown Pelican, Tidewater Goby, or Beach Layia or any designated critical habitat for the species. The consultation did not include any measures or recommendations to minimize impacts to these species since the project, including the amended development, was not likely to adversely affect any of them.

Because (1) the channel will be excavated when it is dry, (2) the area to be excavated is completely unvegetated, and (3) the project will take only a few days to complete, the proposed channel excavation will not adversely affect any of the other sensitive species with the potential for occurrence in the project vicinity.

The applicant has proposed placing dredged material from the channel excavation along side the excavation area, technically within the wetlands of an estuarine channel, in a "feathered" (i.e., smoothed and sloped) manner. The placement of such dredged material as proposed would adversely impact wetland habitat by displacing native substrates and vegetation. Furthermore, the unnatural fill placement would facilitate the spread of disturbance-oriented invasive species that are present in the area (such as reed canarygrass, *Phalaris arundinacea*).

In addition to the proposed alternative, the applicant has identified an alternative spoils location site in an upland area on what's referred to as a "social road" located off the access road to the site (see Exhibit No. 5). The alternative spoils disposal site consists of upland habitat dominated by weedy grasses and herbs and surrounded by mostly shrubby upland habitat. As the applicant has identified a feasible disposal site that would not involve placing fill within a wetland area (i.e., along the North Slough channel), and the existing coastal development permit does not authorize any fill in coastal waters or wetlands for spoils disposal. Therefore, to ensure that the dredge spoils from the slough channel excavation are disposed of outside of wetland areas and at the alternative "social road" disposal site, the Commission attaches Special Condition Nos. 10 and 11. As discussed above, Special Condition No,. 10 requires the submittal of a channel excavation and disposal plan that, among other things, requires that dredged material be contained to the "social road" and smoothed out to minimize the potential for erosion into the surrounding area. Special Condition No. 11 requires that within 30 days of completion of channel excavation authorized by this permit amendment, the permittee

shall submit "as built" plans for the Executive Director's review and approval demonstrating that a) channel excavation near the mouth of the slough is not so deep as to prevent vehicular beach access to permitted fishermen; (b) spoils have been disposed of entirely on the alternative "social road" disposal site, as identified in Exhibit No. 5, rather than within the North Slough channel; (c) spoils are contained on the "social road" and do not encroach into surrounding shrubby vegetation; and (d) spoils have been smoothed out to minimize the potential for erosion into the surrounding shrubby vegetation. If the final "as built" plans indicate that the channel excavation and/or spoils disposal have been unsuccessful, in part or in whole, based on the standards set forth, the condition requires that the permittee submit a revised or supplemental plan to rectify those portions which did not meet the approved standards. The revised plan is to be processed as a permit amendment.

Therefore, the Commission finds that as conditioned, the amended development incorporates the best mitigation measures feasible to reduce potentially significant adverse environmental effects on special-status species and sensitive habitats in the area to less than significant levels consistent with the requirements of Section 30236 of the Coastal Act.

Conclusion

As (1) the primary objective of the development is to manage the hydraulic competence and capacity of the North Slough for providing flood protection for the lower Redwood Creek watershed area, (2) no other feasible measures exist for protecting structures within the lower Redwood Creek floodplain, and (3) the project is necessary for the public safety and to protect existing development, the proposed substantial streambed alteration is for an allowable purpose under Coastal Act Section 30236.

C. Hazards

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…*

The primary purpose of the proposed project is to minimize the risk of flooding developed areas surrounding the channelized portions of the North Slough of Redwood Creek, including a County road and adjacent ranch lands, through the excavation of wood debris and approximately 1,850 cubic yards of sediment from the channel. As discussed above, flow from Sand Cache Creek (which is the upstream creek that flows into the North Slough) and the drainage ditch paralleling the levee both contribute excess water during the winter months, which backs up due to the poor drainage caused by the

wood/sand plug. In addition, flooding in the summer also occurs when the mouth of Redwood Creek closes, and there is a backwater effect that drives flow from Redwood Creek into the North Slough, which can get held up due to the poor drainage.

A major objective of the proposed development is to restore and maintain the hydraulic capacity of the North Slough component of the Redwood Creek Flood Control Project such that accumulated wood debris and sediment in the slough does not limit the drainage ability of the system and contribute to the backwater effect during high winter flows and when the mouth of Redwood Creek is closed in the summer. Such a backwater effect exacerbates flooding in the lower watershed, leading to overtopping and erosion of slough banks. Thus, the inherent objective of the development is to promote geologic stability by preventing such erosional impacts from occurring.

The proposed project effectively protects the important habitat values of the slough system while minimizing the risk to life and property from flood and geologic hazards. The Commission therefore finds that the proposed project is consistent with Coastal Act Section 30253.

D. Public Access & Coastal Recreation

Coastal Act section 30210 states the following:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Coastal Act section 30211 states the following:

> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Section 30212 (a) in part states, in applicable part, the following:

> *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects ...*

Coastal Act section 30214(a) states, in applicable part, the following:

(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:

(1) Topographic and geologic site characteristics.

(2) The capacity of the site to sustain use and at what level of intensity.

> *(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.*
>
> *(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter…*

Section 30210 of the Coastal Act requires that maximum public access shall be provided consistent with public safety needs and the need to protect natural resource areas from overuse. Section 30212 of the Coastal Act requires that access from the nearest public roadway to the shoreline be provided in new development projects except where it is inconsistent with public safety, military security, or protection of fragile coastal resources, or adequate access exists nearby. Section 30211 requires that development not interfere with the public's right to access gained by use or legislative authorization. Section 30214 of the Coastal Act provides that the public access policies of the Coastal Act shall be implemented in a manner that takes into account the capacity of the site and the fragility of natural resources in the area. In applying Sections 30210, 30211, 30212, and 30214, the Commission is also 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 access.

The site of the proposed amended development is located between the first public road and the sea. Therefore, the Commission must consider whether requiring public access is appropriate in this case.

The proposed North Slough channel excavation activities do not require the provision of any new public access under Section 30212(a)(2), as adequate public access exists nearby, to and along adjacent beaches, and to the waters of Redwood Creek. Moreover, Sections 30210-30214 require that the public access policies be implemented in a manner that takes into account public safety and the protection of fragile coastal resources. The project will not conflict with public access along the levees or at the end of the access road or with boating access in the area.

Therefore, the Commission therefore finds that the amended development, as proposed, is consistent with the public access and recreational policies of the Coastal Act.

E. Commercial Fishing

Section 30234 of the Coastal Act states the following:

> *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational*

> *boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.*

Commercial fishermen with authorized permits from Redwood National Park can access the ocean beach across the mouth of North Slough through a locked gate. The applicant proposes to not excavate the slough channel so deep as to prevent 4-wheel-drive vehicular access across the slough to permitted beach fishermen. As discussed above, the Commission attaches Special Condition No. 10, which requires that the permittee submit, for the Executive Director's review and approval, a final slough channel excavation plan that demonstrates, in relevant part, that the channel excavation near the slough mouth shall not be so deep as to prevent 4-wheel drive vehicular access to permitted beach fishermen. Additionally, Special Condition No. 11 requires the permittee to submit "as built" plans for the Executive Director's review and approval showing the same within 30 days of completion of channel excavation work.

Therefore, the Commission finds that the project, as conditioned, is consistent with Section 30234, as it will ensure that the channel excavation near the mouth of the slough will not be so deep as prevent vehicular access to the fishermen who have necessary permits from the Park Service to drive out to the waveslope for fishing purposes.

F. Archaeological Resources

Section 30244 of the Coastal Act states the following:

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

According to Yurok Geography by T.T. Waterman (U.C. Press, 1920), the Yurok Tribe historically occupied the lower Klamath River area, from its confluence with the Trinity River to the ocean, extending north to Wilson Creek in Del Norte County and south to Trinidad Bay. The native people tended to occupy towns and house sites along rivers and ocean beaches, persisting primarily on salmon and acorns. An old town site known as *otmeqwa'r* is documented at the mouth of Redwood Creek, on the north side of the creek in the vicinity of the amended development area (Waterman 1920).

To ensure that the proposed amended development will not adversely impact archaeological or paleontological resources consistent with Coastal Act Section 30244, the Commission attaches Special Condition No. 12. This condition requires that prior to construction activities, the applicant must provide evidence that the Yurok Tribe has been informed of the proposed amended development, given the opportunity to comment, and invited to observe the excavation operations. The condition further requires that if an area of cultural deposits is discovered during the course of the project, all construction shall cease, and a qualified cultural resource specialist shall analyze the significance of the find. Finally, the condition requires that project activities shall not recommence until a Supplementary Archaeological Plan has been reviewed and approved by the Executive

Director. If the Executive Director approves the Supplementary Archaeological Plan but determines that the recommended changes to the proposed development or mitigation measures are not *de minimis* in nature and scope, then construction may not recommence until after the Commission approves a further amendment to Coastal Development Permit No. 1-04-005.

The Commission thus finds that as conditioned, the proposed development is consistent with Section 30244 of the Coastal Act, as reasonable mitigation measures are imposed to avoid significant adverse impacts to significant archaeological and paleontological resources.

G. U.S. Army Corps of Engineers Review

The project is within and adjacent to a navigable waterway and involves "waters of the United States," and is therefore subject to review by the U.S. Army Corps of Engineers (USACE) pursuant to the Federal Clean Water Act (33 USC §1341). Pursuant to the Federal Coastal Management Zone Act (16 USC 1451 et seq.), 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 USACE, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit. To ensure that the project ultimately approved by the Corps is the same as the project authorized herein, the Commission attaches Special Condition No. 13 that requires the permittee, prior to commencing operations, to: (1) demonstrate that all necessary approvals from the USACE for the proposed dredging and filling have been obtained; and (2) incorporate any changes required by the Army Corps only after the permittee obtains any necessary Commission-approved amendment to this permit.

H. Public Trust Lands

The project area for the amended development is located in an area subject to the public trust. On December 22, 1983, the California State Lands Commission (SLC) authorized a General Lease – Public Agency Use, PRC 6541.9, with Redwood National Park for streambed control and stabilization for estuary management at the mouth of Redwood Creek. The lease will expire on December 31, 2012. The applicant has submitted correspondence from the SLC indicating that the proposed amended development falls within the lease and complies with all the terms and conditions set forth under Lease No. PRC 6541.9. Therefore, no additional approval from SLC is necessary for the proposed amended development.

I. California Environmental Quality Act (CEQA)

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, including all associated environmental review documentation and related technical evaluations incorporated-by-reference into this staff report. Those 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 discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. 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 and to conform to CEQA.

V. EXHIBITS:

1. Regional Location Map
2. Project Vicinity Map
3. Aerial Photo with Topographic Map Overlay
4. Site Plan
5. Alternative Spoils Disposal Site Plan
6. Pre- and Post-Excavation Profile & Typical Cross Section
7. CDP No. 1-04-005 Original Permit Staff Report and Addendum

ATTACHMENT A

Standard Conditions:

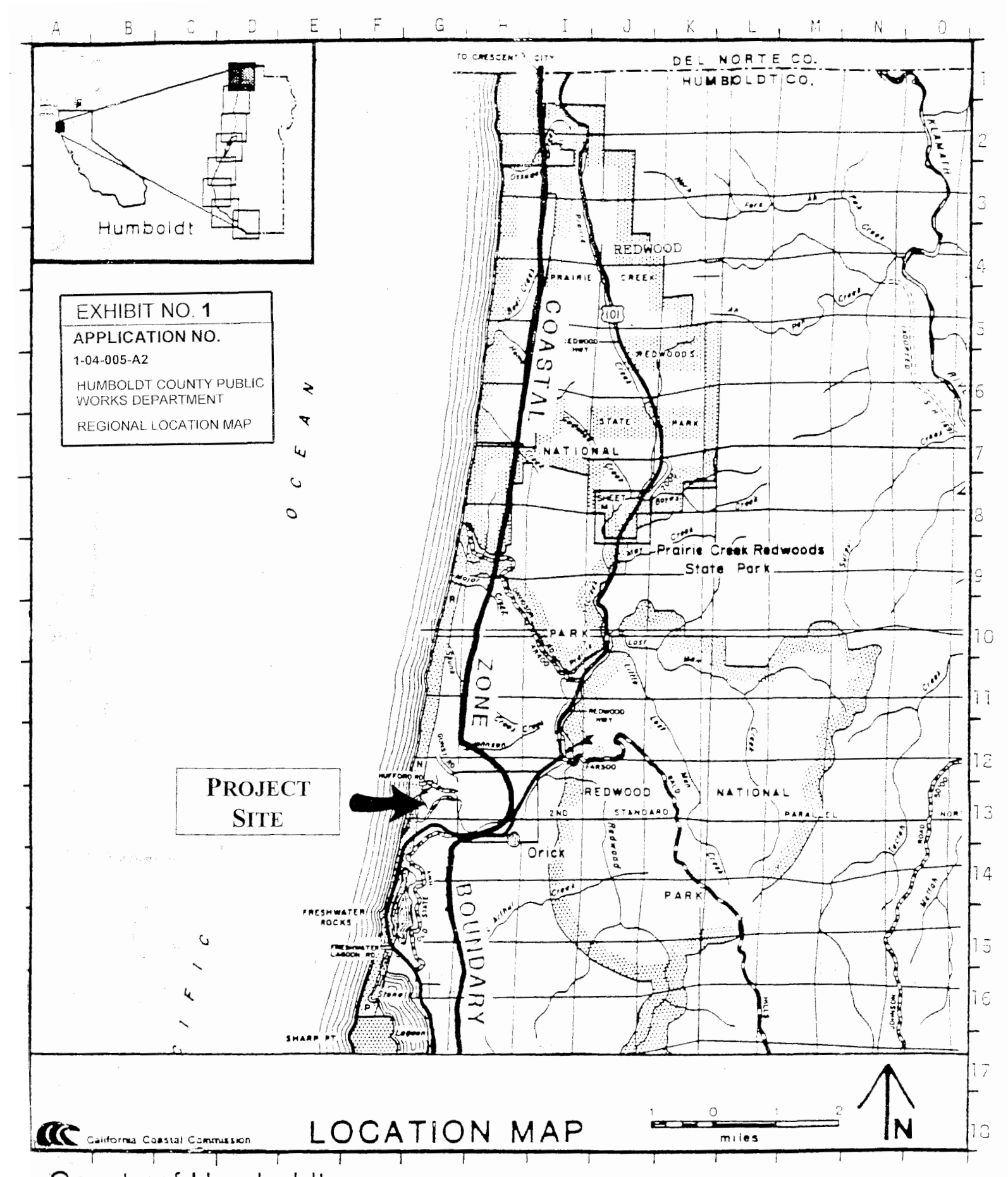
1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

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 period of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation. Any questions of intent or 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.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Humboldt
EXHIBIT NO. 1
APPLICATION NO.
1-04-005-A2
HUMBOLDT COUNTY PUBLIC WORKS DEPARTMENT
REGIONAL LOCATION MAP
TO CRESCENT CITY
DEL NORTE CO.
HUMBOLDT CO.
REDWOOD
PRAIRIE CREEK
COASTAL
ZONE
BOUNDARY
OCEAN
PACIFIC
101
REDWOODS
STATE PARK
NATIONAL
Prairie Creek Redwoods
State Park
PARK
REDWOOD NATIONAL PARK
2ND STANDARD PARALLEL
Orick
PROJECT SITE
HUFFORD RD
FRESHWATER ROCKS
SHARP PT
Lagoon
1 0 1 2
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LOCATION MAP
California Coastal Commission
County of Humboldt

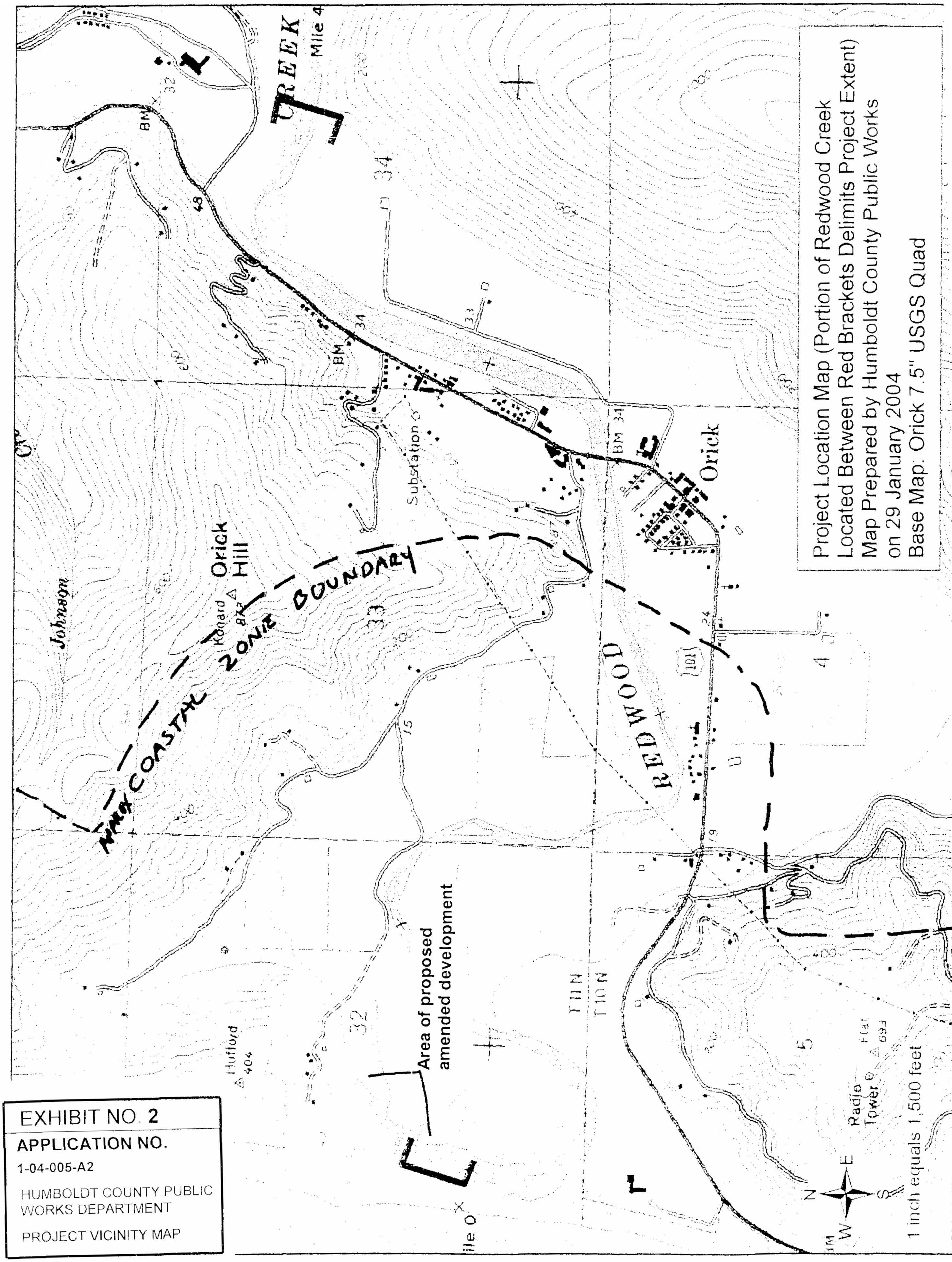


EXHIBIT NO. 2

APPLICATION NO.

1-04-005-A2

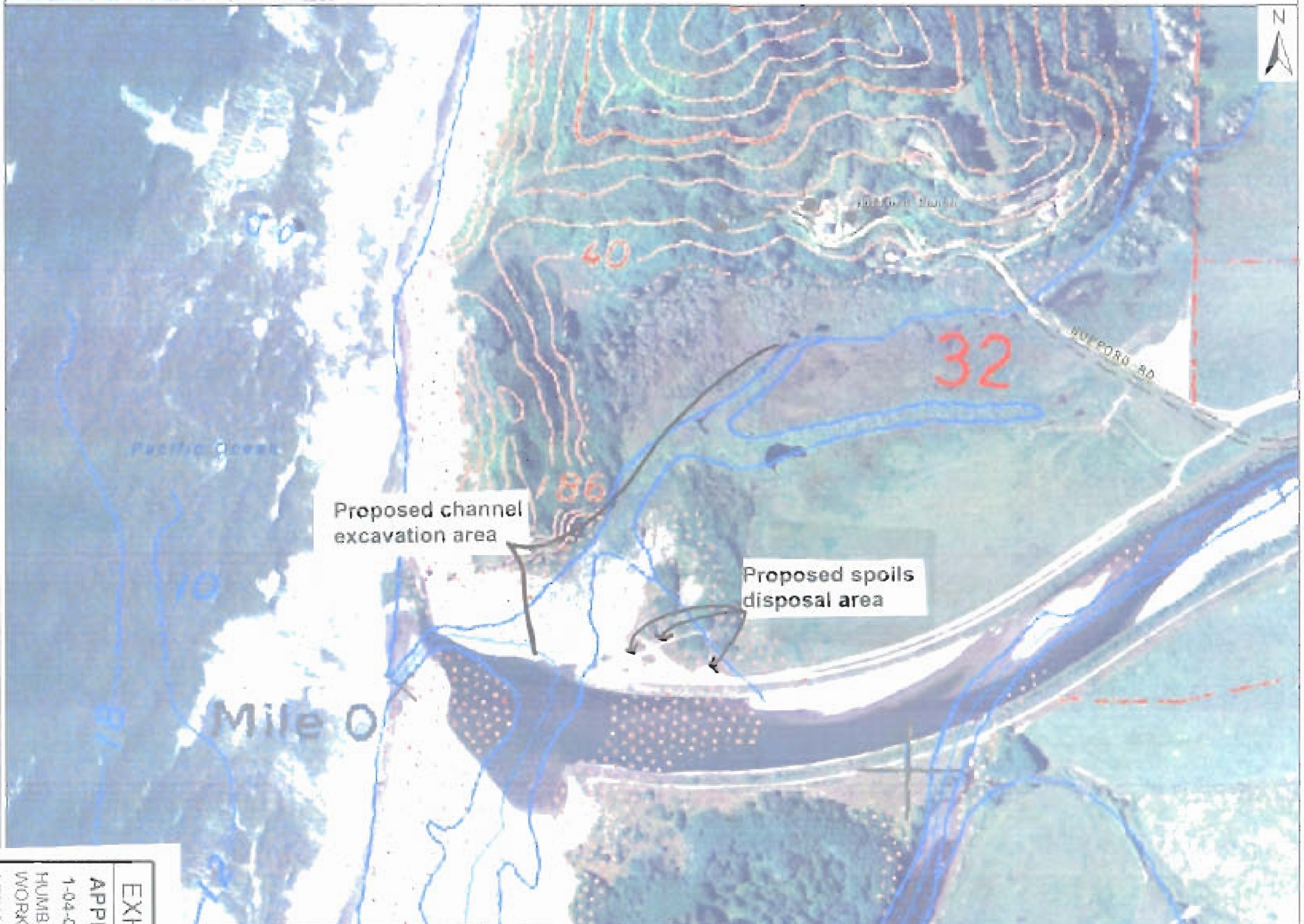
HUMBOLDT COUNTY PUBLIC WORKS DEPARTMENT

PROJECT VICINITY MAP

HUMBOLDT COUNTY
GEOGRAPHIC INFORMATION SYSTEMS
ONLINE MAPPING

Humboldt County Web GIS Map

Prosperity!



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Map Disclaimer: While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force and effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence. Humboldt County assumes no liability or responsibility in the use, or misuse, of this data.

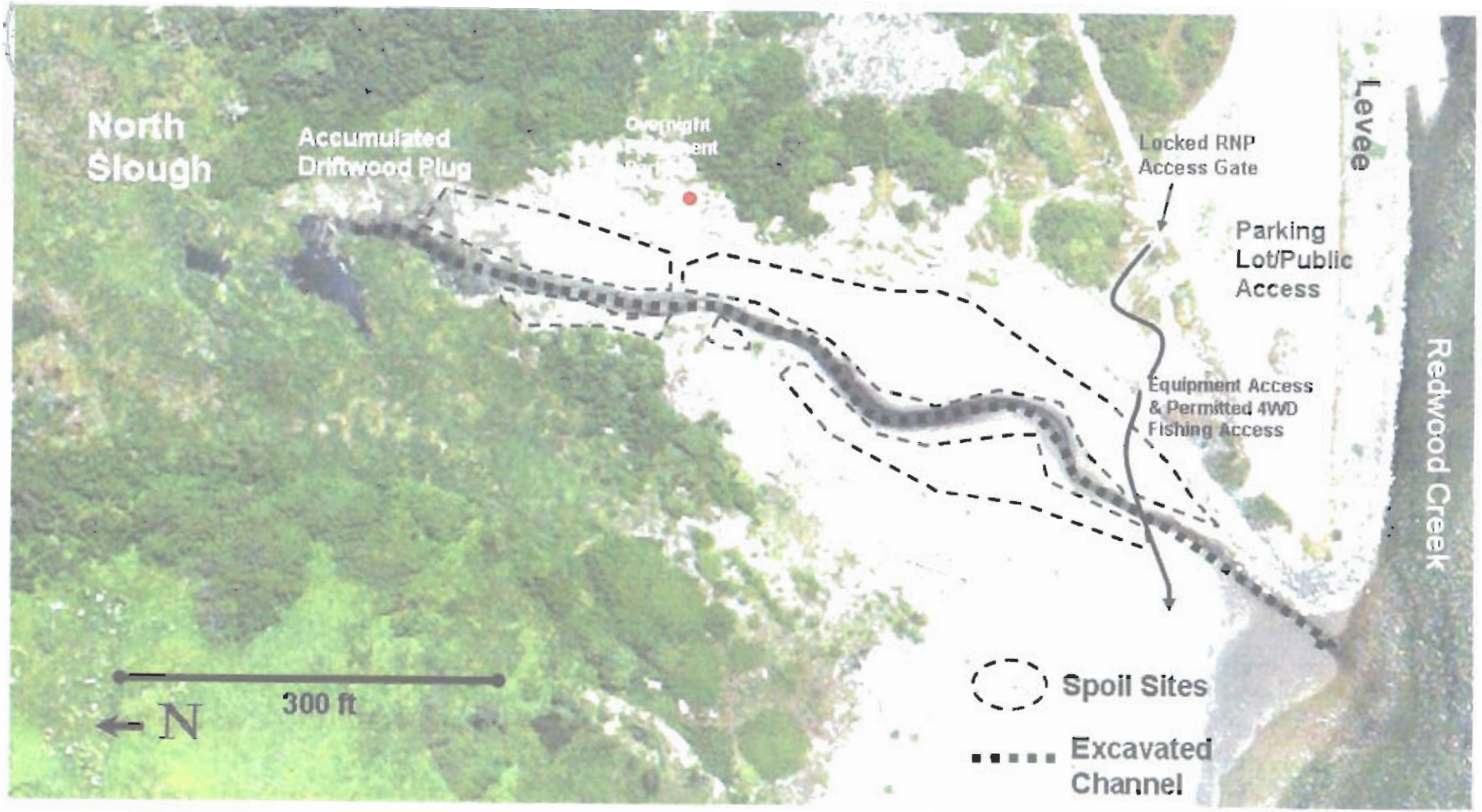
EXHIBIT NO. 3

APPLICATION NO.

1-04-005-A2

HUMBOLDT COUNTY PUBLIC WORKS DEPARTMENT

AERIAL PHOTO WITH TOPOGRAPHIC MAP OVERLAY



North Slough Channel Excavation site plan map.

EXHIBIT NO. 4

APPLICATION NO.
1-04-005-A2

HUMBOLDT COUNTY PUBLIC WORKS DEPARTMENT
SITE PLAN

EXHIBIT NO. 5

APPLICATION NO.

1-04-005-A2

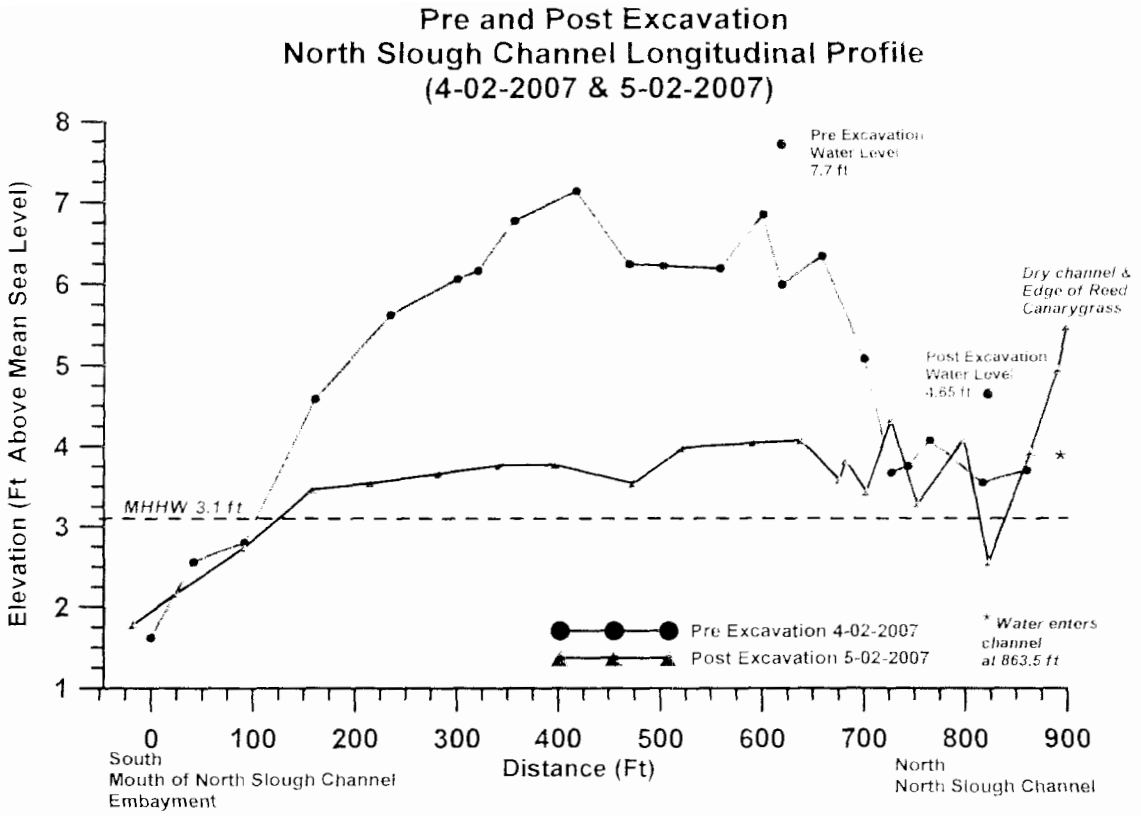
HUMBOLDT COUNTY PUBLIC WORKS DEPARTMENT

ALTERNATIVE SPOILS DISPOSAL SITE PLAN (1 of 4)


SOUTH END OF SOCIAL ROAD
1-15-09

MID CORNER OF SOCIAL ROAD
1-15-09


NORTH END OF SOCIAL ROAD
1-15-09



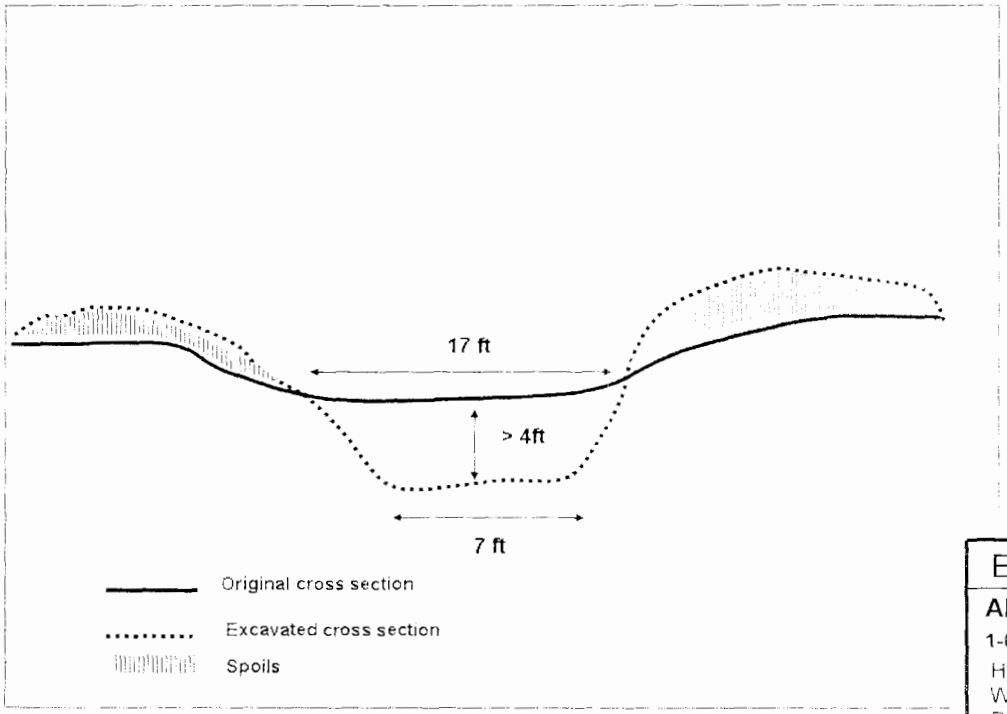


EXHIBIT NO. 6
APPLICATION NO.
1-04-005-A2
HUMBOLDT COUNTY PUBLIC WORKS DEPARTMENT
PRE- AND POST-EXCAVATION PROFILE & TYPICAL CROSS SECTION

Top: Longitudinal profile of anticipated change in channel thalweg.
Bottom: Typical cross section of existing and proposed channel topography for North Slough excavation.

STATE OF CALIFORNIA -- THE RESOURCES AGENCY ARNOLD R SCHWARZENEGGER, GOVERNOR

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F11c

MEMORANDUM

EXHIBIT NO. 7
APPLICATION NO.
1-04-005-A2 - HUMBOLDT CO. PUBLIC WORKS DEPARTMENT
CDP NO. 1-04-005 ORIGINAL PERMIT STAFF REPORT & ADDENDUM (1 of 53)

Date: April 14, 2005

To: Commissioners and Interested Parties

From: Robert S. Merrill, District Manager – North Coast District
Jim Baskin, Coastal Program Analyst – North Coast District

Subject: **Addendum to Commission Meeting for Friday, April 15, 2005**
North Coast District Item F11c, CDP No. 1-04-005
(County of Humboldt Department of Public Works)

STAFF NOTE

Since publication of the staff report, staff has received comments from the applicant regarding the staff recommended special condition requiring mitigation of the riparian vegetation removal component of the proposed flood control facility maintenance program. Staff has reviewed and considered the comments and continues to recommend that the Commission approve the project with the special conditions. However, the staff is proposing changes to the recommended special conditions included in the staff recommendation of April 1, 2005 to: (a) base the requirement for riparian vegetation replacement mitigation on an assessment of the actual amount of vegetation removed during the five-year maintenance program rather than requiring replacement of the entire quantity of riparian vegetation within the project reach that theoretically could be removed during on-going maintenance activities in the flood control channel; (b) add specificity as to the contents for what an acceptable mitigation plan should contain; (c) correct errors and/or make internally consistent the language within other permit special conditions regarding operational standards and monitoring protocols established by the various resource agencies; and (d) revise the related findings to support the proposed changes to the recommended permit special conditions. In addition, staff is proposing certain changes to the findings that reflect the changes to the conditions and which further characterize the habitat value of the young riparian vegetation within the project reach, provide a discussion of the Commission's past practices in determining the threshold for when such removal of riparian vegetation requires mitigation, and

substantiate why the application of Special Condition Nos. 5 and 6 are warranted for assuring the approved development's consistency with Coastal Act Section 30236.

I. REVISIONS TO STAFF RECOMMENDATION

Text to be deleted text is shown in ~~strikethrough~~, text to be added appears in **bold double-underline**.

A. Changes to the Summary of Staff Recommendation

- Amend the last sentence of the third paragraph of "Summary of Staff Recommendation" at the middle of page 2 to read as follows:

  Although the County is contractually liable to the U.S. Army Corps of Engineers for maintaining the channel at a 250-year flood discharge capacity, acknowledging the environmental consequences such an endeavor would entail, the proposed development would result in restoring and maintaining the facility only to a ~~100-year flood capacity~~ **level of flood water conveyance acceptable to the Corps**.

  REASON FOR CHANGES: Although the proposed maintenance program generally seeks the removal of accumulated sediment and vegetation from the Redwood Creek Flood Control Project facility to levels that would initially restore and accommodate the flows associated with a 100-year flood event, the achievement of this baseline hydraulic capacity is not specifically stated as the County's end objective for the development.

B. Changes to the Special Conditions

- Amend Section A.2 of Special Condition No. 1 to read as follows:

  1. **Annual Gravel Excavation and Riparian Vegetation Removal Maintenance Plan**

  A. **PRIOR TO THE START OF EACH YEAR'S FLOOD CONTROL CHANNEL MAINTENANCE OPERATIONS**, the applicant shall submit, for the review and written approval of the Executive Director, a final gravel extraction and riparian vegetation removal plan for that season consistent with the terms and conditions of this permit and that contains the following: ...

  2. ~~A~~ **If a flood event equivalent to the 10-year recurrence interval has occurred since the last season of maintenance operations, the permittee shall submit a** pre-extraction vertical rather than oblique aerial photo of the site taken during the spring of the year of mining at a scale of

1:6000 and upon which the proposed extraction activities have been diagrammed; …

REASON FOR CHANGES: The requirement for submission of annual aerial photography is a standard monitoring requirement for intensive, large-scale, in-stream gravel mining projects on generally unconstrained watercourses that have been extensively mined in the past where channel migration is common and the possible destabilization of channel confinement properties such mining might instigate is of paramount importance to fish and wildlife trustee agencies. As this development is a flood control facility management project bounded between constructed levees on a watercourse that has not been as extensively mined in the past, significant changes to the channel occur relatively infrequently. Accordingly, the need for aerial photographic documentation can be limited to only those instances where a significant flooding event has occurred over the preceding storm season which may cause changes to the channel cross section. The revised condition is similar to the requirements of Reasonable and Prudent Measure 1.2 of the NOAA Fisheries Biological Opinion for the project (see Exhibit No. 7, page 78 of 82).

- Amend sub-sections (d) and (j) of Special Condition No. 2 to read as follows:

2. <u>Extraction Limitations</u>

Extraction of material shall be subject to the following limitations: …

(d) Extraction quantities shall not exceed: (1) the proposed cubic yards per year of gravel extraction; **<u>or</u>** (2) any specific allocation limit required by the Army Corps of Engineers~~; and (3) the long term average sustained yield based on estimates of mean annual recruitment, as utilized by County of Humboldt Extraction Review Team (CHERT)~~; …

(j) Any bar-skimming extractions that are consistent with subsection b above that are proposed adjacent to the low flow channel shall have a minimum ~~skim floor elevation at the elevation of the 35% exceedence flow.~~ **<u>two-foot (2') vertical offset between the water surface of the summer low flow level of Redwood Creek and the skim floor elevation;</u>** …

REASONS FOR CHANGES: Sub-section (d) of the special condition as currently drafted erroneously references the County of Humboldt Extraction Review Team (CHERT) as being a entity having the ability to make recommendations for the project. Although the subject development involves the extraction of sand and gravel sediment materials, it is not a gravel mining project for which the CHERT has a reviewing role.

Sub-section (j) of the special condition as currently drafted references the 35th percentile exceedence flow as being the datum from which depth of bar-skimming operations may not surpass. Although a two-foot vertical separation from the low-flow water elevation approximates the 35th exceedance flow elevation, they are not necessarily equivalent elevations. To be consistent with the requirements of the NOAA Fisheries Biological Opinion, staff is recommending that the condition be changed to require adherence to the two-foot vertical offset. (See pages 69-70 of Exhibit No. 7 for a more detailed discussion of NOAA Fisheries bar skimming depth limitation.

- Amend Special Condition No. 3 to read as follows:

3. **Seasonal Site Closure**

The seasonal development area must be reclaimed before October 15. The site must be reclaimed when extraction has been completed. **The Executive Director may approve an extension of gravel extraction, major vegetation removal, and reclamation activities beyond October 15 to as late as November 1 if the permittee has submitted a request for an extension in writing, the Executive Director determines that dry weather conditions are forecast for the extension period, and any necessary extensions of time have been granted by the Department of Fish and Game, the U.S. Army Corps of Engineers, and NOAA Fisheries. No extraction or reclamation activities shall occur after October 15 unless the permittee has first received approval of an extension of time in writing from the Executive Director. The permittee must have reclaimed all portions of the seasonal development area except for removal of any authorized seasonal crossings before an extension can be authorized.** Reclamation includes: (a) filling in depressions created by the mining that are not part of the approved extraction method; (b) grading the excavation site according to prescribed grade; and (c) removing all seasonal crossings and grading out the abutments to conform with surrounding topography and removing all temporary fills from the bar.

REASON FOR CHANGE: Consistent with NOAA Fisheries' biological opinion, flexibility has been provided for discretionary extension by the Executive Director of the October 15 deadline for completeing maintenance operations in instances where the onset of autumn rains has not been forecasted to occur before November 1.

- Amend sub-sections (a), (b), and (f) of Special Condition No. 4 to read as follows:

4. **Seasonal Crossings**

Any proposed crossing of the low flow channel or secondary channels that could be expected to maintain flow year-round shall be subject to the following criteria:

(a) The crossing shall be of the railroad flatcar or bridge variety~~, placed in a manner so as to span the channel with a minimum clearance of three (3) feet above the water surface~~;

(b) Stream channel crossing locations shall be determined on a site-specific basis. Special consideration shall be given to the proposed placement of the channel crossings at riffles and based on findings from ~~CHERT~~ **IRT** that the location will minimize adverse effects to salmonids; …

(f) Channel crossing removal shall be completed by October 15 of each year **or by the extended date approved by the Executive Director pursuant to Special Condition No. 3 above.**.

REASONS FOR CHANGES: 1. As boating use through active maintenance sites is excluded for public safety reasons, accommodation of passage of boats beneath the seasonally crossings is not needed. In addition, as the placement of significantly more fill would be needed to construct crossing abutments to provide such clearance, environmental impacts to water quality and fish habitat would be greater. 2. The special condition as currently drafted erroneously references the County of Humboldt Extraction Review Team (CHERT) rather than the Interagency Review Team (IRT) as being a entity having the ability to make recommendations for the project. 3. Consistent with Special Condition No. 3, flexibility has been provided for discretionary extension by the Executive Director of the October 15 seasonal deadline for the removal of the seasonal crossings in instances where the onset of autumn rains has not been forecasted to occur before November 1.

- Append a new Special Condition No. 5 to read as follows:

5. Annual Assessment of Riparian Vegetation Removed by Maintenance Program

a. Following completion of each annual maintenance season, the permittee shall measure the amount of riparian vegetation coverage removed from the flood control channel during the preceding season's sediment extraction and vegetation maintenance activities. For purposes of this assessment:

(1) Measurements shall be taken in square-footage of the area extent of "dripline" cover afforded by the removed plants;

(2) Only areas of vegetation on the flood control facility's channel floor and within five (5) feet of the outboard (flood channel side) base of the levees shall be measured. Ruderal vegetation removed from the levee faces greater than five (5) feet from

their outboard base shall not be included in the assessment; and

(3) **Only those areas of removed vegetation that have achieved either one-inch diameter at breast height (1" DBH) or are part of a 1/16-acre complex of brushy vegetation shall be reported.**

b. WITHIN THIRTY DAYS OF THE COMPLETION OF EACH MAINTENACE PROGRAM SEASON, the permittee shall submit a report for the Executive Director's review and approval detailing the amount of riparian vegetation removed as part of the preceding year's maintenance activities. The report shall present the following data:

(1) Depiction on the most recently available plan-view aerial photograph of the areas of riparian vegetation removed either directly or indirectly in association with related sediment removal operations; and

(2) A table of the square footage of each area of removed riparian vegetation.

REASON FOR CHANGES: As presently structured, the permittee would be required to mitigate for the full extent of the approximately 10.88-acre area of riparian vegetation that currently exists within the program reach on the basis that the entire area could possibly be removed at one time or another during the on-going maintenance of the flood channel. The proposed new special condition, in conjunction with amended Special Condition No. 5 discussed below, would allow for a more precise calculation of the actual area of riparian vegetation disturbed by the development and subject to replacement mitigation more in keeping with the project's overall adaptive resource management structure.

- Amend Special Condition No. 5 to read as follows:

~~5~~6. Final Riparian Vegetation Mitigation and Monitoring Plan

~~**WITHIN ONE YEAR OF THE COMMISSION'S ACTION ON COASTAL DEVELOPMENT PERMIT NO. 1-04-005**~~ **BY DECEMBER 31, 2009**, the applicant shall submit a **complete** coastal permit amendment application to the Commission for the adoption of a final detailed mitigation and monitoring program designed by a qualified wetland biologist for mitigating the loss of the riparian vegetation removed under the subject permit **as determined by the annual vegetation removal assessments conducted pursuant to Special Condition No. 5**. The mitigation and monitoring program shall at a minimum provide either for: (1) the in-kind replacement of riparian vegetation within the Redwood Creek watershed at a ~~1:1~~ **2:1** ratio of riparian vegetation created to the maximum expected riparian habitat lost over the life of the project; ~~or~~ (2)

enhance stream channels within the watershed by removing barriers to fish passage and/or removing abandoned logging roads and similar facilities in and around streams within the watershed that enhances a total length of stream equivalent to **twice** the length of Redwood Creek affected by the **riparian vegetation removal resulting from the** project approved pursuant to this permit**; or (3) mitigation of equivalent value to options (1) or (2). Acceptable mitigation may include riparian vegetation replacement or stream restoration and enhancement projects conducted wholly by the permittee or jointly with other resource agencies and/or non-governmental organizations or individuals, provided the mitigation would not otherwise occur in the foreseeable future without the County's involvement, would not be conducted solely by entities other than the County, and would not rely on grant funding unless the expressed purpose of the grant funding is the mitigation of impacts associated with a development project. The mitigation and monitoring program shall, at a minimum, include the following:**

a. The stated goals and objectives of the plans;

b. Provisions for the mitigation being completed within one year of approval of the plan;

c. Provisions for a timely assessment of initial "baseline" conditions of the mitigation site(s);

d. Success and performance standards (e.g., coverage percentages, stem counts, anadromous fish habitat characteristics), bird transect counts, etc.);

e. Plan-view maps and typical cross-sectional depictions detailing the restoration and enhancement work to be conducted; and

f. Provisions for monitoring and remediation of the mitigation site(s) for a period of at least five (5) years following its/their establishment, including provisions for (a) assessing the initial biological status of the "as built" mitigation site, (b) submittal of annual reports to the Executive Director for the duration of the required monitoring period, (c) submittal of a final monitoring report to the Executive Director at the end of the five-year monitoring period evaluating whether the mitigation site conforms with the goals, objectives, and performance standards, and (d) procedures for remediation of the mitigation site if the goals, objectives, and performance standards have not been satisfied.

REASON FOR CHANGES: Staff concurs with the applicant's deduction that the total amount of riparian vegetation removal that would be authorized by the Interagency Review Team will likely be only a small percentage of the 10.88 acres of riparian vegetation habitat currently existing within the project reach. To avoid having to mitigate for losses of riparian habitat that do not actually occur, staff is recommending that the condition be changed to require replacement mitigation only for the actual amount of in-channel riparian vegetation of sufficient size and character to afford habitat that is removed over the five years of maintenance operations, as measured pursuant to new Special Condition No. 5. The recommended change includes a slightly higher ratio to compensate for the temporal loss of delaying mitigation essentially for four years until the actual total loss can be fully measured. In addition, further detail has been added to the condition as to the requisite contents of the plan.

- Renumber subsequent Special Condition Nos. 6 through 8 as Special Condition Nos. 7 through 9, respectively.

3. Changes to the Findings

- Revise the sub-section titled "*Coho Salmon – Federally Listed as Threatened*" of Findings Section IV.C.2, on page 21 to read as follows:

Coho Salmon – Federally Listed as Threatened

Coho salmon (*Oncorhynchus kisutch*) are found in many of the short coastal drainage basins between the Oregon border and Monterey Bay. In larger coastal drainages this species is usually found primarily in the lower-gradient reaches closer to the coast. Coho salmon distribution in the Redwood Creek basin is limited to the main stem and the larger low gradient tributaries, primarily in Prairie Creek and its tributaries, possibly owing to the lower gradient and more pristine nature of that watershed. Based on data collected by RNSP, it is estimated that coho can be found occupying 26 miles of stream within the Lower Redwood Creek Basin. Although coho salmon migrate, hold and rear in the 2.1 miles of lower Redwood Creek that is within the project area, there are no reports of spawning within this reach.

In commenting on the project EIR, the National Marine Fisheries Service (NOAA Fisheries) concluded that the extraction of gravel and the placement and removal of temporary channel crossings associated the proposed action may have adverse direct effects on salmonids and their habitat through: (1) injury or death from equipment contact; (2) increases in turbidity and sedimentation from pushing up bridge approaches and abutments and bridge use, including the reduction of invertebrate production at temporary channel crossing locations; (3) attraction of spawning adults and redd building by changes to local channel form; (4) noise and vibration disturbance from heavy equipment use; and, (5) introduction of petroleum products.

In addition to potential significantly adverse direct impacts to fish habitat, NOAA Fisheries' biological opinion also observes the following with respect to indirect

impacts associated with the vegetation removal portion of the proposed development:

> Riparian vegetation provides channel stability which may locally resist scour and form deeper pools. Mature vegetation provides additional benefits to juvenile salmonids in the form of physical structure. Structure in the form of LWD (large woody debris), when recruited into the active channel promotes localized scour, pool formation and is, itself, utilized as cover. Cover is also provided to juvenile salmonids by overhanging vegetation, submerged vegetation and exposed roots. The cover provided by complexities in structure can increase survival rates for salmonids rearing in summer, overwintering, and as outmigrating smolts...
>
> Riparian vegetation provides important nutrient inputs to streams such as leaf litter and terrestrial invertebrates that drop into the stream. Such 'allochthonous inputs' can serve as the principal source of energy for higher trophic levels in stream ecosystems. Leaf litter provides the trophic base for aquatic macro-invertebrate communities that in turn are the fundamental food source for salmonids...
>
> Annual bar skimming can remove riparian vegetation that would otherwise colonize a portion of gravel bar surfaces. As discussed above, the stream channel in the action area can be expected to become somewhat less stable as a result of gravel removal. If sediment removal exceeds sediment input, resulting in channel degradation, the water table may decline, further reducing the ability of riparian vegetation to become established or survive on bar surfaces...
>
> Decreases in pool quality and quantity would impact adult holding by (both) reducing the ability of pools to provide for cool water and cover, and by an overall reduction in the number of pools available for holding. Decreases in pool quality and quantity could also reduce juvenile rearing success through decreases in the overall amount of habitat available, and reductions in available food base and cover...
>
> Historically, larger streamside vegetation was found adjacent to lower Redwood Creek. These large vegetation sources have been removed by land management activities, and construction of the levees further reduced the large vegetation available for recruitment. These reductions in large woody debris sources have likely contributed to the decreased quality and quantity of pool habitat found within lower Redwood Creek. Currently, willow and alder within the channel bed and on the banks provide localized habitat complexity. Part of the

> **levee maintenance program is to remove mature and emergent riparian vegetation from the channel bed and banks, and from the levee faces...**
>
> **We expect that the annual interagency review and approval process, and the vegetation buffers described in the *Description of the Proposed Action* section of this document (see Project Description Findings Section IV.B.2), will focus the majority of vegetation removal on the levee faces, above bankfull channel water surface elevation. We also expect that the levee-confined channel will not experience large lateral shifts away from existing riparian vegetation. Additionally, providing for a head of bar buffer, and utilizing alternative extraction techniques, such as construction of a fish migration channel and alcoves will reduce effects on emergent riparian vegetation from bar skimming. However, we do expect a reduction in emergent riparian vegetation on skimmed surfaces, and a reduction in overall riparian vegetation from vegetation removal. This will reduce the extent of habitat complexity provided by vegetation and reduce allochthonous inputs occurring in the vicinity of gravel and vegetation removal sites. Effects to fish from this reduction in habitat complexity and reduced allochthonous inputs will be manifested in a reduced yield of eggs to adults, by reducing growth and survival rates of juvenile salmonids... [Parenthetics added.]**

However, as further detailed in the biological opinion, NOAA Fisheries finds that only incidental take of coho would result from the project provided:

- Annual monitoring cross-sections of all identified bars within the project area developed subject to the protocols set forth in the most current U.S. Army Corps of Engineers Letter of Permission for Gravel Mining in Humboldt County (LOP 96-1C) are provided to NOAA Fisheries prior to the annual inter-agency review. Aerial photos of the project reach are similarly provided to NOAA Fisheries if a flood event equivalent to the 10-year recurrence interval occurs. In addition NOAA Fisheries must be provided the opportunity to review and the County's annual maintenance plan.

- The upstream end of the bar (head of the bar) is not mined or otherwise altered by gravel removal activities. The minimum head of the bar buffer is defined as the upstream one-third portion of the bar.

- The amount of time that heavy equipment is in the wetted low-flow channel is minimized by limiting the number of heavy equipment crossings per each temporary

channel crossing installation and removal. A maximum of two equipment passes across the channel per installation or removal shall be allowed.

- All temporary channel crossings and associated fills are identified and approximately located in the annual pre-extraction information. If the flatcar used to construct the temporary bridge is not long enough to span the live channel, then brow logs, or concrete blocks are to be used to prevent native gravel material used for abutment construction from entering the live channel.

- All temporary channel crossings are constructed after June 30 each year.

- Woody debris must be provided to function as cover within the excavated alcove or fish passage channel (e.g., cut branches, trunks or root wads), and the annual pre-extraction mining plan describes the cover that will be associated with the alcove or fish passage channel be subject to NOAA Fisheries review and approval.

- The highest priority for annual vegetation removal shall be the removal of vegetation from the levee faces above the five-foot buffer found at the toe of the levees. The overall maintenance plan shall focus on gravel removal and vegetation removal from the levee faces above the five-foot buffer, such that annual vegetation removal from the channel bed (not including vegetation removal from the levee faces above the five-foot buffer found at the toe of the levees) shall be limited to a maximum of 25% of the entire annual maintenance plan.

- To reduce the cutting of deposited large woody debris within the action area and to reduce the effects to salmonids from reductions in large woody debris, all access roads owned or controlled by the County, and roads owned or controlled by the contractors used to implement the proposed action are to be gated and locked.

- Stream and riparian areas shall not be used as equipment staging or refueling areas. Equipment, both hand tools and heavy equipment, must be stored, serviced, and fueled away from riparian areas (i.e., equipment must not be stored, serviced or fueled within the channel bed or channel banks, nor on the levee faces themselves; equipment maintenance, re-fueling of equipment and storage of fuel shall be done within a fueling containment area with an impervious layer to provide containment of any spills). Machinery (e.g., chainsaws, bulldozers) will be inspected for leaks prior to use in riparian areas. Heavy equipment will be cleaned (e.g., power washed, steam) prior to use below the ordinary high water mark. The County has the materials necessary to implement spill cleanup plans, and that these materials are available to all work crews using heavy machinery, providing multiple sets of cleanup materials to each crew if sharing would prevent timely implementation of cleanup plans.

- All ground disturbing actions associated with the Redwood Creek Levee Maintenance Program must occur between June 15 and October 15 annually during the five-year permit period. If periods of dry weather are predicted after October 15, additional

work may be done with NOAA Fisheries' approval, if the work can be completed within the window of predicted dry weather.

These provisions are incorporated into the attached special conditions. Special Condition No. 1 requires the submittal for the review and approval of the Executive Director an annual gravel extraction and riparian vegetation removal plan that must conform to the extraction limits specified in Special Condition No. 2, which among other requirements, requires that the County use the extraction methods described in the NOAA Fisheries biological opinion and that the upstream ends of bars not be mined. Special Condition No. 1 also requires the annual submittal of stream cross-sections and other data prepared in conformance with the requirements of the Corps permit which will incorporate the recommendations of the biological opinion. Special Condition No. 4 restricts the use of seasonal crossings in a manner consistent with the NOAA Fisheries recommendations. The conditions also require that all extraction activities and reclamation activities occur within the June 15 to October 15 time period recommended by NOAA Fisheries.

Therefore, the Commission finds that as conditioned as described above to incorporate the above-listed reasonable and prudent measures as identified in the NOAA Fisheries biological opinion, the maintenance program incorporates the best mitigation measures feasible to reduce potentially significant adverse environmental effects on coho salmon to less than significant levels consistent with the requirements of Section 30236 of the Coastal Act.

REASON FOR CHANGE: To more fully discuss the full range of potentially significant impacts to listed salmonid species from the removal of riparian vegetation.

- Revise the sub-section of Findings Section IV.C.2 titled "Emergent Riparian Vegetation-related Common Species" on pages 27 through 29 to read as follows:

Habitat Provided by Emergent Riparian Vegetation ~~related Common Species~~

Late seral condition stands of riparian vegetation in good to excellent condition generally consist of four layers: grass/forb, low shrub, tall shrub, and a moderate to full tree canopy closure. Early seral stands generally lack tall shrub and have little or no tree cover and hence low canopy closure. Vertical structural diversity is generally lowest in early seral condition and highest in late seral condition. Horizontal patchiness is greater in early and intermediate seral condition and lower in late seral condition. Some types of disturbance may increase vertical and horizontal patchiness, including fire, grazing, and firewood cutting.

There is no clear-cut answer to the question of just when in its growth and development riparian scrub-shrub vegetation reaches the point where it can be considered as affording appreciable fish and wildlife habitat. Part of the reason for

this uncertainty is that there can be tremendous variability in the values of riparian vegetation of the same size from one location to the next depending on such factors as surrounding habitat and vegetation, surrounding land uses, river configuration, etc.

Notwithstanding the superiority of more established riparian corridors, emergent cover and riparian vegetation along perennial watercourses such as found along Redwood Creek can provide food and cover for a variety of common bird species. Suitable nesting and perching habitat for a variety of avian species has been found in and among the trees of early seral riparian vegetation surrounding wetlands or along rivers and streams on the northern California coast in settings similar to the riparian corridor along lower Redwood Creek. In addition, suitable conditions exist in and near the project site for the potential establishment of several rare plant species. Table 3 below, summarizes the environmentally sensitive plant and animal species for which riparian vegetation along the lower Redwood Creek drainage might provide habitat:

Table 3: Environmentally Sensitive Plant and Animal Species That May Utilize the Early Seral Riparian Vegetation Along Lower Redwood Creek for Habitat

Taxonomic Name	Common Name	Federal / State ESA Status
Birds		
Empidonax traillii	Willow Flycatcher	CE
Phalacrocorax auritus	Double-crested Cormorant	CSC
Pandion haliaetus	Osprey	CSC
Aix sponsa	Wood Duck	CCSC
Ardea herodias	Great Blue Heron	Protected
Egretta thula	Snowy Egret	CSC
Ardea alba	Great Egret	Protected
Nycticorax nycticorax	Black-crowned Night Heron	FSC
Vermivora celata	Orange-crowned Warbler	N/A
Vascular Plants		
Lathyrus japonicus	Sand pea	CNPS "1B"
Abronia umbellata ssp. brevifolia	Pink sand-verbena	CNPS "1B"
Castilleja affinis ssp. litoralis	Oregon Coast Indian paintbrush	CNPS "1B"
Montia howellii	Howell's montia	CNPS "1B"

Legend:
FE – FESA "Endangered"
FT – FESA "Threatened"
FSC – FESA "Species of Concern"
CE – CESA "Endangered"
CT – CESA "Threatened"
CCT – CESA "Candidate Threatened"
CCSC – Candidate California "Species of Special Concern"
CSC – California "Species of Special Concern"
CNPS "1B" – California Native Plants Society "1B" Listing

In discussions with California Department of Fish and Game staff, Commission staff has discerned that under average growing conditions, a willow tree that is one inch (1") in DBH or part of a contiguous 1/16-acre complex would likely have survived for one growing season. Given that riparian vegetation is only becoming established during the first growing season, the vegetation may not provide significant habitat value at this point. On the other hand, vegetation that has survived more than one growing season would be established and likely to be used by wildlife.

Based on the foregoing, in past permit actions, particularly those involving in-stream gravel mining projects, the Commission has utilized the ≥1" DBH / ≥1/16-acre plant coverage standard as a threshold for determining if a development would potentially result in significant adverse environmental impacts to coastal resources for which mitigation would be required (see CDP Nos. 1-00-005 & 1-01-027, (Westbrook-Wetherell), 1-00-019 (Mercer-Fraser), 1-00-055 & 1-03-015 (County of Humboldt), 1-01-046 & 102-162 (Mallard Pond), 1-02-006 & 1-03-48 (Rock and Dwelley), 1-02-023 & 1-03-030 (Hansen), 1-02-031 (Alexandre), and 1-02-022, 1-02-164 & 1-04-011 (Eureka Sand & Gravel)).

As determined by field-verified interpretation of recent (2002) aerial photographs of the project reach conducted by the applicant in March 2005, approximately 11.50 acres of the roughly 66-arce area encompassing the bottom of the flood control channel and areas within five feet of the base of the levees are currently covered in early-seral emergent riparian vegetation composed primarily of red alder (*Alnus rubra*) and arroyo willow (*Salix lasiolepis*). Approximately .64 acre of this area comprises young growth that occurs in isolated patches. The remaining 10.85 acres of riparian vegetation is composed of individual plants that are either one-inch or larger in diameter as measured at a 4.5-foot "breast height" (≥1" DBH) or are part of a 1/16-acre or larger complex of brushy vegetation.

To mitigate for the impacts to the fish and wildlife habitat resulting from the removal of the riparian vegetation along and within the flood control channel, the Commission attaches Special Condition Nos. 5 and 6. Special Condition No. 5 requires the applicant to measure the amount of riparian vegetation removed as part of the annual maintenance activities conducted on the flood control channel. Measurements are required to be taken in square-footage of the areal extent of "dripline" cover afforded by the removed plants. Only areas of vegetation on the flood control facility's channel floor and within five (5) feet of the outboard (flood channel side) base of the levees are to be measured. Ruderal vegetation removed from the levee faces greater than five (5) feet from their outboard base are exempted from the assessment because they provide no appreciable fish and wildlife habitat. Moreover, only those areas of removed vegetation that have achieved either one-inch diameter at breast height (1" DBH) or are part of a 1/16-acre complex of

brushy vegetation shall be reported. Special Condition No. 5 also requires that within thirty days of the completion of each maintenance season the permittee shall submit a report for the Executive Director's review and approval detailing the amount of riparian vegetation removed as part of the preceding year's maintenance activities. The annual report is required to depict on the most recently available plan-view aerial photograph areas of riparian vegetation removed in the previous maintenance round and to summarize the square footage of each polygonal area of removed riparian vegetation in table form.

Because the project involves an adaptive management approach to maintenance of the flood control channel, wherein the specific amounts of riparian vegetation removal and gravel excavation to be performed in any one year is to be determined by a yearly assessment conducted by the Interagency Review Team, it is not possible to ascertain at this time how much of the 10.85 acres of existing riparian vegetation in the channel will actually be removed over the five-year course of the maintenance program. Consequently, the amount of riparian vegetation habitat actually lost for which replacement mitigation would be required will only be fully known after the project is completed. Special Condition No. 6 requires that the permittee by December 31, 2009, 45 days after the cessation of gravel extraction and vegetation removal activities authorized by this permit, submit as a permit amendment for the Commission's review and approval a final mitigation and monitoring plan for the replacement of riparian vegetation disturbed over the course of the five-year maintenance program.

The Commission notes that the need to assess the total amount of mitigation at the conclusion of the project arises from the nature of the project as a repair and maintenance project of an existing flood control facility. Unlike new development projects, where the precise boundaries of the development can be established ahead of time, in this unique case, the specific amount of maintenance required is not known at the time of approval of the project, and as a result, the precise amount of habitat that will be affected by the maintenance project is unknown as well. Therefore, the Commission finds that consideration of the specific mitigation plan after conclusion of the authorized maintenance activities is appropriate in this case.

Special Condition No. 6 further stipulates that the riparian vegetation be replaced through one of three options: (1) in-kind replacement within the Redwood Creek watershed at a 2:1 ratio; (2) enhancement of stream channels within the Redwood Creek watershed by removing barriers to fish passage and/or by removing abandoned logging roads and similar facilities in and around streams elsewhere within the watershed equivalent to twice the total length of lower Redwood Creek affected by the approved maintenance project; or (3) mitigation of equivalent value to options (1) or (2).

In addition, Special Condition No. 6, sets forth several limitations as to what an acceptable mitigation proposal must entail. Specifically, approval of mitigation projects that would otherwise be undertaken within the foreseeable future without the County's involvement, those conducted solely by entities other than the applicant, or those subject to stream restoration and enhancement grant funding prohibitions against work conducted as mitigation for offsetting the impacts associated with a development project would be precluded. Special Condition No. 6 further enumerates standards for the mitigation and monitoring plan, including provisions detailing project goals and objectives, success standards, plan details, monitoring, and remediation.

Prompt in-kind replacement of the in-channel vegetation removed under the proposed maintenance program in a location in close proximity and with similar characteristics to the project site would be the most direct form of compensation for the development's impacts to riparian habitat. However, the applicant has indicated that such lands may not be available to the County within the lower watershed to use for this purpose. Therefore, the Commission has considered other options, including stream enhancement projects within the Redwood Creek watershed intended to restore fish passage and watershed restoration through the removal of the extensive system of old logging roads and landings that are eroding and causing sedimentation impacts to Redwood Creek. In addition, the Redwood National and State Park's General Management Plan specifically identifies such projects as desirable resource management undertakings for the upper Redwood Creek watershed.

With regard to appropriate replacement mitigation ratios, the Commission notes that: (a) the riparian vegetation that will likely be lost over the course of the management project is relatively young and sparse, has grown up since previous maintenance operations removed vegetation from Redwood Creek in the late 1980s, will be removed again in the future by additional maintenance operations and therefore is not pristine, and as such does not possess the same habitat values as undisturbed riparian areas; and (b) riparian replanting efforts have been highly successful on the North Coast where the climate is temperate and rainfall is generally plentiful.

Thus, the Commission finds that, if not for the temporal loss of habitat availability associated with waiting to remediate the removal of vegetation until after completion of the five-year project, a 1:1 replacement mitigation ratio would be appropriate. Thus, to compensate for the temporal loss, the Commission requires that riparian vegetation replacement be provided at a 2:1 ratio. Similarly, if stream enhancement projects are utilized, the applicant is then required to enhance twice the length of stream channel of that along Redwood Creek affected by the riparian vegetation removal by the project. Moreover, by requiring the plan to come back to the Commission in the form of a permit amendment, the Commission will be able to

fully assess the adequacy of the mitigation proposal that is developed by the applicant for mitigating the impacts to the resource resulting from the project and for consistency with Section 30236 of the Coastal Act.

Therefore, the Commission finds that with the requirements of Special Condition Nos. **5 and 6,** that the applicant **measure the amount of riparian vegetation removed over the five-year period of the proposed maintenance program and to** submit a coastal development permit amendment application to the Commission for the adoption of a final mitigation and monitoring program for mitigating the loss of the riparian vegetation ~~to be~~ removed by the proposed project, the project as conditioned incorporates the best mitigation measures feasible to reduce significant adverse environmental effects on riparian vegetation habitat to less than significant levels consistent with the requirements of Section 30236 of the Coastal Act.

REASONS FOR CHANGES: As further discussed under the sixth and seventh bulleted proposed staff report revisions on pages 4 through 8 of this addendum, the above changes to Findings Section IV.C.2 would: (a) further characterize the habitat value of the young riparian vegetation within the project reach; (b) provide a discussion of the Commission's past practices in determining the threshold for when such removal of riparian vegetation requires mitigation; (c) further stipulate the contents of an acceptable final mitigation and monitoring plan; and (d) substantiate why the application of Special Condition Nos. 5 and 6 are warranted for assuring the approved development's consistency with Coastal Act Section 30236.

II. ATTACHMENTS

1. Letter from Adam Forbes, Environmental Services Manager, County of Humboldt Department of Public Works, dated March 24, 2005.

2. Letter from Terrence Hofstra, Chief, Resource Management and Science, Redwood National and State Parks, dated April 12, 2005.

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Filed: March 1, 2004
49th Day: April 19, 2004
180th Day: September 28, 2004
Staff: Jim Baskin
Staff Report: April 1, 2005
Hearing Date: April 15, 2005
Commission Action:

STAFF REPORT:
REGULAR CALENDAR

APPLICATION NO.: **1-04-005**

APPLICANTS: **County of Humboldt Department of Public Works**

PROJECT LOCATION: Within and along the levee banks of the lower 2½ River Miles of Redwood Creek, down stream of the Community of Orick, Humboldt County.

PROJECT DESCRIPTION: Vegetation and gravel removal during 2005-2009 as part of long-term, ongoing maintenance program within the Redwood Creek Flood Control Channel.

LAND USE PLAN DESIGNATION: Natural Resources (NR)

ZONING: Natural Resources (NR)

LOCAL APPROVALS RECEIVED: No local approvals necessary.

OTHER APPROVALS REQUIRED:
1) California Department of Fish and Game Fish and Game Code §1603 Streambed Alteration Agreement No. 04-0031;
2) (Pending) U.S. Army Corps of Engineers Clean Water Act §404 General Permit; and

	3)	(Pending) North Coast Regional Water Quality Control Board Clean Water Act §401 Water Quality Certification.
SUBSTANTIVE FILE DOCUMENTS:	1)	U.S. Fish and Wildlife Service Endangered Species Act Consultation Biological Opinion; and
	2)	National Marine Fisheries Service Endangered Species Act Consultation Biological Opinion.

SUMMARY OF STAFF RECOMMENDATION:

Staff recommends that the Commission approve Coastal Development Permit No. 1-04-005 with conditions.

The County of Humboldt – Department of Public Works ("County" or "applicant") proposes to extract up to 90,000 cubic yards of gravel and clear an unspecified quantity of riparian vegetation annually over a five-year period from within and along the channelized lower reaches of Redwood Creek, downstream of the town of Orick, for flood control maintenance purposes.

The proposed project entails the resumption of the flood control facility management practices that have lapsed since 1988 when the County last excavated gravel and removed vegetation from the levee sides and bottom of the flood channel originally built by the U.S. Army Corps of Engineers in the late 1960s in response to major flood events along Redwood Creek that occurred in previous years. Although the County is contractually liable to the U.S. Army Corps of Engineers for maintaining the channel at a 250-year flood discharge capacity, acknowledging the environmental consequences such an endeavor would entail, the proposed development would result in restoring and maintaining the facility only to a 100-year flood capacity.

The proposed development, as conditioned, would allow the County to maintain its flood control facility infrastructure while supporting the natural integrity of the coastal riverine and estuarine habitat that lower Redwood Creek provides. The channel and levee maintenance would maintain water quality and habitat productivity, and protect natural resources and species of special concern.

Recommended Special Condition No. 1 requires the submittal for the review and approval of the Executive Director an annual gravel extraction and riparian vegetation removal plan that must conform to the extraction limits specified in Special Condition No. 2, which among other requirements, requires that the County use the extraction methods described in the NOAA Fisheries biological opinion and that the upstream ends

of bars not be mined. Special Condition No. 1 also requires the annual submittal of stream cross-sections and other data prepared in conformance with the requirements of the Corps permit which will incorporate the recommendations of the biological opinion. Special Condition No. 4 restricts the use of seasonal crossings in a manner consistent with the NOAA Fisheries recommendations. The conditions also require that all extraction activities and reclamation activities occur within the June 15 to October 15 time period recommended by NOAA Fisheries. Special Condition No. 5 requires the submittal of a coastal development permit amendment for Commission adoption of a final detailed mitigation and monitoring program for mitigating the loss of the riparian vegetation that will be removed under the subject permit within one year of Commission action on this permit.

The staff believes that the proposed project, as conditioned, is consistent with Coastal Act policies and therefore recommends approval of the project.

STAFF NOTES:

1. Repair and Maintenance Activities with Substantial Risks of Adverse Impacts

The California Coastal Act (PRC §30000 *et seq.*) provides for certain exemptions to the requirements of the Act for obtaining coastal development permits for certain repair and maintenance activities. Generally, repair or maintenance activities that do not result in an addition to, or enlargement or expansion of, the object of those repair or maintenance activities are permit-exempted. However, if the Commission determines that certain extraordinary methods of repair and maintenance involve a risk of substantial adverse environmental impact, pursuant to the standards set forth within the Commission's administrative regulations (14 CCR §13000), the subject repair and/or maintenance activities shall, by regulation, require that a permit be obtained. As the proposed development entails maintenance to facilities or structures located in an environmentally sensitive habitat area comprising the removal, whether temporary or permanent, of rip-rap, rocks, sand or other beach materials or any other forms of solid materials for which the presence of mechanized equipment is involved, the project has the potential for significant adverse impacts to environmentally sensitive habitat areas and wetlands. Therefore, pursuant to Section 13252(a)(3) of the Commission's administrative regulations, a coastal development permit is required for the proposed development.

2. Jurisdiction and Standard of Review.

All portions of the proposed project along and within the Redwood Creek Flood Control Channel within the coastal zone are located in submerged and tidal waters subject to the Commission's area of original or retained coastal development permit jurisdiction.

The standard of review that the Commission must apply to the portions of the project within its permit jurisdiction is the Chapter 3 policies of the Coastal Act.

3. Commission Action Necessary

The Commission must act on the application at the April 15, 2005 meeting to meet the requirements of the Permit Streamlining Act.

I. STAFF RECOMMENDATION, MOTION AND RESOLUTION OF APPROVAL.

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve Coastal Development Permit No. 1-04-005 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 the Permit:

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 attached.

III. SPECIAL CONDITIONS:

1. Annual Gravel Excavation and Riparian Vegetation Removal Maintenance Plan

A. **PRIOR TO THE START OF EACH YEAR'S FLOOD CONTROL CHANNEL MAINTENANCE OPERATIONS**, the applicant shall submit, for the review and written approval of the Executive Director, a final gravel extraction and riparian vegetation removal plan for that season consistent with the terms and conditions of this permit and that contains the following:

1. A gravel extraction plan of the annual gravel extraction operation containing cross-sections, maps, and associated calculations that accurately depict the proposed extraction area, demonstrates that the proposed extraction will be consistent with the extraction limits specified in Special Condition Nos. 3 and 4 below, and is prepared in conformance with the requirements of the individual permit granted for the project by the U.S. Army Corps of Engineers, San Francisco District;

2. A pre-extraction vertical rather than oblique aerial photo of the site taken during the spring of the year of mining at a scale of 1:6000 and upon which the proposed extraction activities have been diagrammed;

3. A copy of the flood channel and levee maintenance plan approved by the Interagency Review Team (IRT);

4. A post-extraction survey of the prior year's gravel extraction maintenance activities conducted following cessation of extraction and before alteration of the extraction area by flow following fall rains, that includes the amount and dimension of material extracted from each area excavated and is prepared in conformance with the requirements of the individual permit granted for the project by the U.S. Army Corps of Engineers, San Francisco District;

5. The results of biological monitoring report data required by the individual permit granted for the project by the U.S. Army Corps of Engineers, San Francisco District;

6. A plan for run-off control to avoid significant adverse impacts on coastal resources. The runoff control plan shall include, at a minimum, the following components;

   (a) The erosion control, run-off, spill prevention and response plan shall demonstrate that:

(1) Run-off from the gravel mining extraction and stockpiling sites shall not increase sedimentation in coastal waters;

(2) Run-off from the gravel mining extraction and stockpiling sites shall not result in pollutants entering coastal waters;

(3) Best Management Practices (BMPs) shall be used to prevent entry of polluted stormwater runoff into coastal waters during the transportation and storage of excavated materials, including but not limited to:

(4) A suite of the following temporary erosion and runoff control measures, as described in detail within in the "California Storm Water Best Management Commercial-Industrial and Construction Activity Handbooks, developed by Camp, Dresser & McKee, *et al.* for the Storm Water Quality Task Force, shall be used during mining: *Spill Prevention and Control* (CA12), *Vehicle and Equipment Fueling* (CA31), *Vehicle and Equipment Maintenance* (CA32), *Employee / Subcontractor Training* (CA40), and *Dust Control* (ESC21);

(b) A narrative report describing all temporary runoff control measures to be used during mining;

(c) A site plan showing the location of all temporary runoff control measures; and

(d) A schedule for installation and removal of the temporary runoff control measures.

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

2. <u>Extraction Limitations</u>

Extraction of material shall be subject to the following limitations:

(a) Consistent with the proposed project description, the permittee shall extract no more than 90,000 cubic yards of gravel from the site per year;

(b) The permittee shall only extract material by secondary and mid-channel skims, narrow skims, dry trenching, horseshoe-shaped deep skims, or alcove extractions in the manner described in the NOAA Fisheries Biological Opinion. If dry trenching methods are used, a barrier such as silt fencing, or a gravel berm shall be constructed and maintained during trenching along the entire length of the excavated area to prevent turbid water from entering the flowing river. After completion of gravel extraction operations, the permittee shall remove the berm in several locations to prevent the creation of fish traps;

(c) Excavation shall not occur in the active channel (area where water is flowing unimpeded through the river channel);

(d) Extraction quantities shall not exceed: (1) the proposed cubic yards per year of gravel extraction; (2) any specific allocation limit required by the Army Corps of Engineers; and (3) the long term average sustained yield based on estimates of mean annual recruitment, as utilized by County of Humboldt Extraction Review Team (CHERT);

(e) Gravel extraction and vegetation removal operations shall not disturb or remove any of the riparian vegetation that is either: (1) located on gravel bars beyond the Interagency Review Team-approved gravel extraction or vegetation removal areas, access crossing, or stockpiling areas; or (2) within five feet of the base of the levee slopes, and less than four-inches-in-diameter at a four-inch height above ground;

(g) Horseshoe extractions shall occur on the part of the gravel bar that is downstream from the widest point of the bar and must be set back from the low flow channel with vertical offsets;

(h) Dry trench extractions shall be (1) limited to excavation on an exposed dry gravel bar; (2) either shallow and above the water table, or deep and extend below the water table, and (3) breached on the downstream end and connected to the river to prevent fish stranding after excavation when the sediment in the trench has settled;

(i) Alcove extractions shall be (1) located on the downstream end of gravel bars where naturally occurring alcoves form and provide refuge for salmonids; (2) regularly shaped or irregularly shaped to avoid riparian vegetation; (3) open to the low flow channel on the downstream end to

prevent fish stranding; and (4) extracted to a depth either above or below the water table; and

(j) Any bar-skimming extractions that are consistent with subsection b above that are proposed adjacent to the low flow channel shall have a minimum skim floor elevation at the elevation of the 35% exceedence flow.

(k) The upstream end of the bar (head) shall not be mined or otherwise altered by gravel extraction operations. The minimum head of the bar shall be defined as that portion of the bar that extends from at least the upper third of the bar to the upstream end of the bar that is exposed at summer low flow.

3. Seasonal Site Closure

The seasonal development area must be reclaimed before October 15. The site must be reclaimed when extraction has been completed. Reclamation includes: (a) filling in depressions created by the mining that are not part of the approved extraction method; (b) grading the excavation site according to prescribed grade; and (c) removing all seasonal crossings and grading out the abutments to conform with surrounding topography and removing all temporary fills from the bar.

4. Seasonal Crossings

Any proposed crossing of the low flow channel or secondary channels that could be expected to maintain flow year-round shall be subject to the following criteria:

(a) The crossing shall be of the railroad flatcar or bridge variety, placed in a manner so as to span the channel with a minimum clearance of three (3) feet above the water surface;

(b) Stream channel crossing locations shall be determined on a site-specific basis. Special consideration shall be given to the proposed placement of the channel crossings at riffles and based on findings from CHERT that the location will minimize adverse effects to salmonids;

(c) No portion of the abutments or bridge supports shall extend into the wetted channel except in shallow flat water areas;

(d) The presence of heavy equipment in the wetted low-flow channel shall be minimized by limiting the number of heavy equipment crossings during each crossing installation or removal. A maximum of two crossing per installation or removal is allowed, although one crossing is preferred.

Heavy equipment shall not be used in the wetted low-flow channel except for channel crossing installation and removal;

(e) Channel crossings shall only be placed after June 30 of each year; and

(f) Channel crossing removal shall be completed by October 15 of each year.

5. **Final Riparian Vegetation Mitigation and Monitoring Plan**

WITHIN ONE YEAR OF THE COMMISSION'S ACTION ON COASTAL DEVELOPMENT PERMIT NO. 1-04-005, the applicant shall submit a coastal permit amendment application to the Commission for the adoption of a final detailed mitigation and monitoring program designed by a qualified wetland biologist for mitigating the loss of the riparian vegetation removed under the subject permit. The mitigation and monitoring program shall at a minimum provide either for (1) the in-kind replacement of riparian vegetation within the Redwood Creek watershed at a 1:1 ratio of riparian vegetation created to the maximum expected riparian habitat lost over the life of the project or (2) enhance stream channels within the watershed by removing barriers to fish passage and/or removing abandoned logging roads and similar facilities in and around streams within the watershed that enhances a total length of stream equivalent to the length of Redwood Creek affected by the project approved pursuant to this permit.

6. **Restricting Access to Maintenance Sites**

The permittees may restrict public access to all areas within 500 feet of the gravel extraction and vegetation removal sites during the period when maintenance activities are being performed. Public access on Redwood Creek to all boats and other watercraft may be similarly restricted within 300 yards of the maintenance sites. These restrictions needed to protect public safety shall only be enforced during maintenance operations. Any temporary signs and/or barriers used to close off the maintenance sites must be removed within 24 hours of cessation of gravel extraction or vegetation removal operations in the affected area.

7. **Permit Termination Date**

This permit only authorizes maintenance-related gravel extraction and major vegetation removal through October 15, 2009. All flood control channel maintenance operations after that date shall require a new coastal development permit.

8. **Army Corps of Engineers Approval**

PRIOR TO THE COMMENCEMENT OF BREACHING OPERATIONS, the permittee shall submit a copy of the permit issued by the U.S. Army Corps of Engineers granting approval for the project or evidence that no permit or permission is required. The permittees 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 permittees obtain a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

IV. FINDINGS AND DECLARATIONS:

The Commission hereby finds and declares:

A. Project Background.

1. History of Flood Control on Redwood Creek

Following a series of floods through the mid-1950s and culminating with the 1964 "Christmas Flood" that devastated many coastal communities along California's Northcoast, including the town of Orick, the U.S. Army Corps of Engineers ("USACOE" or "Corps") constructed the Redwood Creek Flood Control Project. The facility comprises the channelization and levee berming of the lower 3.4 miles of the Redwood Creek drainage from more than a mile above Orick, just below its confluence with its major tributary, Prairie Creek, to a point approximately 1,000 feet upstream from the creek's mouth at the Pacific Ocean.

Although the flood events that had occurred through the 1950s and early 1960s were determined to represent 25-year recurrence flood events, with an average discharge of approximately 50,000 cubic-feet per second (cfs), the Corps designed the Redwood Creek facility to accommodate flow volumes of up to 77,000 cfs, approximately equivalent to a 250-year recurrence interval flood event. The channel was constructed with a width of approximately 250 feet and a 0.14% flow gradient throughout the project reach. The inner channel side slopes were excavated at a 1V:3H slope with riprap placed along the interior of the channelization varying in thickness from 12 to 24 inches. The 6.3 lineal miles of channel levees that line both banks of the creek extend to an approximately 25-foot height above the channel bottom and have a crest width of 12 feet with a one-lane unpaved maintenance road developed with several points of access from adjoining County roads. The inboard (landward) levee side slopes are graded to a 1V:2.5H slope. Construction commenced on the project in the spring of 1966 and the levees were completed and dedicated on September 22, 1968.

2. Requisite Maintenance Responsibilities

Upon completion of construction of the facility, ownership of the levees and channel bed was transferred to the County of Humboldt. Pursuant to applicable sections within the Navigation and Navigable Waters Title of the U.S. Code (33 USC §§ 208 *et seq.*), and as detailed in the "Redwood Creek Local Flood Protection Project – Humboldt County Operation and Maintenance Manual" (see Exhibit No. 9), upon receiving ownership of the flood control project improvements, the County also assumed the responsibility for maintaining the facility at its designed 77,000 cfs, 250-year flood through-flow capacity. Table 1 below, summarizes these maintenance responsibilities:

Table 1: Requisite Maintenance Responsibilities for the Redwood Creek Flood Control Project

Project Component	Maintenance Requirements
Channel and Floodway	• Keep channel or floodway clear of debris, weeds, and wild growth; • Assure the channel or floodway is not being restricted by the depositing of waste materials, the building of unauthorized structures, or other encroachments; • Prevent the capacity of the channel from being reduced by the formation of shoals; • Assure that the banks are not damaged by rain or wave wash, and associated sloughing; • Keep rip-rapped sections in good condition; and • Keep adjacent approach and egress channels clear of obstructions and debris that could interfere with their proper functioning.
Levees	• Promote soil development and the growth of sod on the flood control structure surfaces; • Exterminate burrowing animals; • Provide for the repair of erosion damage, unusual settlement, material sloughing, loss of grade or cross-sectional area; landsliding, seepage or sand boils; • Replace any dislodged or washed-out revetment work or riprap; • Maintain the levee crown to readily drain; and • Prohibit any encroachments onto the levee rights-of-way that might endanger the structure or hinder its operation.
Relief Wells	• Sound all relief wells prior to October 15 each year to determine the amount of sand deposition in pipes; • Flush any well with water and compressed air to clear any wells with greater than 12 inches of accumulated sand;

Project Component	Maintenance Requirements
	• Clear trash and other debris from collector pipe outlets; • Promptly make any necessary repairs and corrections to damaged relief wells and discharge systems; and • Cap with concrete any wells with chronic sand deposition problems and install replacement relief wells as needed.
Drainage Structures	• Maintain all through-levee drains, pipes, gates, operating mechanisms, headwalls, and riprap in good working condition; • Ensure that inlet and outlet channels are open; • Prevent the accumulation of trash and debris near drainage structures; • Assure that no fires are set near bituminous-coated pipes; and • Prevent erosion from occurring adjacent to structures that could endanger their water tightness or stability.
Miscellaneous Facilities	• Repair or replace all damaged, malfunctioning, or unserviceable parts without delay.

3. Previous Commission Flood Channel Maintenance Permit Actions

From 1968 through 1984, the County maintained vegetation growth along the Redwood Creek Flood Control Channel levees through the application of phenoxy- and glyphosate-based herbicides. Accumulated sediment was excavated by local gravel mining operators in exchange for the extracted aggregate materials. During this timeframe, these actions were viewed as forms of "repair or maintenance activities that do not result in an addition to, or enlargement or expansion of, the object of those repair or maintenance activities," no coastal development permit was required pursuant to Coastal Act Section 30610(d). The Coastal Commission became involved in the flood control channel maintenance in the mid-1980s when it received an application from the County requesting authorization to remove 250,000 cubic yards of gravel from the lower Redwood Creek streambed.

In 1985, and as extended for an additional year in 1997, the Commission approved Coastal Development Permit No. 1-85-078 for the initial extraction of 250,000 cubic yards of gravel to return the channel to its 250-year flood, 77,000 cfs conveyance design capacity, with provisions for subsequent removal of up to 110,000 cubic yards of accumulated sediments annually to maintain the facility's capacity. These extracted materials were vended to the contractor for the construction of the Highway 101 bypass of the Redwood State and National Parks between the towns of Orick and Klamath.

Beginning in the late 1980s and continuing throughout much of the 1990s, the County deferred further maintenance on the Redwood Creek flood control due, in large part, to budgetary constraints. During this period, the wave of sediment from the heavily

harvested forested area upstream mobilized by the floods of the 1950's and 60s continued to move down and through the Redwood Creek watershed to deposit in the creek's lower reaches. In addition, riparian vegetation composed primarily of slough willow and red alder that had been removed under the previous permitted maintenance activities began to be reestablished, growing at rates of up to 12 feet in height each year.

Concurrent with this period of lapsed maintenance, several regulatory actions took place which have complicated the County ability to pursue a regular maintenance program of the Redwood Creek flood control facility. Beginning in the late 1960s, several fish and wildlife species, and rare plants that either inhabit the lower Redwood Creek vicinity, or for whom the lower watercourse provides suitable habitats, were afforded enhanced protection as listed or candidate species under the federal and state endangered species acts. These species listings include the California Brown Pelican (Pelecanus occidentalis californicus) on October 13, 1970, beach layia (Layia carnosa) on June 22, 1992, the tidewater goby (Eucyclogobius newberryi) on February 4, 1994, the willow flycatcher (Empidonax traillii) on February 27, 1995, the Southern Oregon / Northern California Evolutionarily Significant Unit (ESU) coho salmon on May 6, 1997, the California Coastal ESU Chinook salmon (Oncorhynchus tshawyscha) on September 16, 1999, and the Northern California ESU steelhead (Oncorynchus mykiss irideus) on June 7, 2000. Several other rare plant species endemic to the project vicinity appear in the California Native Plants Society's *Inventory of Rare and Endangered Plants of California* list as "1B" species, which qualify the plants as candidate species under the California Endangered Species Act. These include sand pea (Lathyrus japonicus), pink sand-verbena (Abronia umbellata ssp. brevifolia), Oregon coast Indian paintbrush (Castilleja affinis ssp. litoralis), and Howell's montia (Montia howellii). Moreover, to prevent impacts to aquatic habitats, especially those of anadromous fish and other endangered species, commencing in the late 1990s the Department of Pesticide Regulation in conjunction with the State Water Quality Control Board initiated programs to further restrict the application of herbicides near watercourses. The listing or candidacy of these species places the responsibility on the County to prepare biological assessments of the presence or potential presence of these organisms and to analyze the potential adverse impacts the proposed development would have on their viability and continuance as part of the environmental review processes for obtaining authorizations from the U.S. Army Corps of Engineers and the California Department of Fish and Game.

3. Other Project-related Programs

Redwood State and National Parks Management Plan – Redwood Creek Estuary Restoration Program

On April 18, 2000, a Record of Decision was published within the Federal Register announcing the National Park Service (NPS) adoption of "Alternative 1" of the *Final General Management Plan/General Plan/Environmental Impact Report* for the Redwood National and State Parks. Among the actions identified within the adopted plan were

specified watershed management and restoration work to be undertaken at the Redwood Creek estuary. The plan states that NPS would play a leadership role in organizing a multi-disciplinary approach to addressing the restoration of the estuary chiefly through developing a plan for restoring the estuary and related fish and wildlife habitats in conjunction with private landowners, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the California Department of Fish and Game, the U.S. Army Corps of Engineers, the County of Humboldt, the residents of the community of Orick, the Yurok Tribe, and other interested parties. Among the methods identified for inclusion in such a plan were the following:

- Land acquisition from willing sellers;
- Conservation easements;
- Controlled breaching and channel manipulation;
- Partial levee removal; and
- Restructuring affected roads and drainage structures.

Partial Restoration of the Lower Redwood Creek Floodplain

In 2001, the Coastal Conservancy provided a $75,000 grant to fund a hydraulic and a feasibility study by the U.S. Army Corps of Engineers to assess various designs for setback levees and alternatives primarily for the end goal of restoration of the estuary, and secondarily to assess floodwater conveyance techniques that would require less habitat disrupting maintenance. A hydraulic analysis was completed for six different levee configurations downstream of the Highway 101 bridge. At a series of public meetings held in the fall of 2003 in Orick, the results of the hydraulic analysis were discussed. No clear consensus was reached as to an acceptable levee re-configuration. Since the 2003 community meetings, no further actions have been initiated toward pursuing restoration on the lower Redwood Creek floodplain through construction of setback levees.

B. Project Location and Description.

1. Project Location and Setting

The project site includes the channelized portions of the Redwood Creek Hydrologic Unit, along the lower 2.1 river-miles of Redwood Creek within the coastal zone. The project reach begins approximately 1,000 feet westerly from the Highway 101 bridge over Redwood Creek within the unincorporated town of Orick, in northwestern Humboldt County (see Exhibit Nos. 1-3).

Redwood Creek, a sixth-order river in north coastal California is approximately 60 miles in length and drains a 280-square-mile basin. The main stem together with an additional 60 miles of fifth-order tributary channels, support anadromous fish stocks. The downstream one-third of the watershed as well as the intertidal sloughs and estuary at the

creek's mouth lie within the borders of Redwood National Park. The upstream two-thirds of the watershed and the lands in the vicinity of the Town of Orick adjacent to the flood control facility between Prairie Creek and the estuary are privately owned.

As tidal and/or submerged lands at the time of entry into the Union, the State of California has a fee interest at the flood control project site. The site is located on sovereign state lands held by the California State Lands Commission. Access to the levees and channel is via a series of gated access roads at the termini of several County roads within the Town of Orick. The area surrounding the flood control facility consists of a generally flat coastal plain devoted primarily to agriculture but also developed with a variety of residential, commercial, and public facility uses.

Redwood National Park – Redwood Creek Estuary Unit

On October 2, 1968, the National Park Service acquired the northern and southern intertidal sloughs at the mouth of Redwood Creek, adjoining coastline, and former grazing and lumber mill site as part of the establishment of Redwood National Park. These acquired parklands lie immediately downstream of the project reach and contain an estuary complex that provides habitat to a diverse set of ecological communities.

2. Project Description

The applicants are requesting a five-year permit to conduct annual maintenance on the Redwood Creek Flood Control Project floodway channel and levees. Maintenance activities would include vegetation removal and gravel extraction designed to improve the hydraulic capacity of the floodway channel between the levees. The objective of the proposed five-year maintenance program is to maintain the flood control channel to standards acceptable to the U.S. Army Corps of Engineers, such that the County of Humboldt does not incur liability due to an increased risk of overtopping the Redwood Creek flood control levees.

Due to the numerous-variables involved in maintaining the floodway capacity while simultaneously protecting various natural resources and minimizing potential impacts to critical salmonid habitat, the County proposes to use a collaborative adaptive management approach to identify specific sites and quantities of sediment and vegetation to be removed to minimize the project's potentially significant adverse impacts on coastal resources. An Interagency Review Team (IRT) composed of staff members of Redwood National & State Park (RNSP), National Marine Fisheries Service (NOAA Fisheries), U.S. Fish & Wildlife Service (USFWS), California Department of Fish & Game (CDFG), the U.S. Army Corps of Engineers (USACOE), and the County of Humboldt would review and make recommendations on specific maintenance activities to be undertaken each year during the late spring to early autumn low-flow seasons. The County would provide members of the interagency review team with a gravel and/or vegetation management proposal during each year of the five-year permit period. Each proposal

would identify discreet "hydraulic hot spots" within the channel portions lying downstream of the Highway 101 bridge from which specific amounts of gravel and/or vegetation would be removed. These areas would be rated in order of which would provide the greatest hydraulic benefit in terms of improvement to floodwater capacity and conveyance. The County would provide a ten-day notice to the team members so that they can review proposed maintenance actions and attend a field review.

The Interagency Review Team would review and approve the annual maintenance plan by consensus based upon a "decision matrix" developed by the reviewing agencies in 2002-2003. A field review would be conducted by NOAA Fisheries, in collaboration with RNSP and CDFG, would rank the fish habitat adjacent to each of the identified hydraulic hot spots as "high," "medium," and "low" with regards to importance for listed salmonids. Both hydraulic and habitat variables would then be used to develop a decision matrix, whereby areas ranked as high hydraulic hot spots with low to moderate ranked adjacent habitat would be prioritized for gravel and/or vegetation management. Areas within the flood control reach that could potentially benefit from sediment removal for improvement of salmonid habitat would also be given priority consideration. The decision matrix would not rule out treating other areas of the channel, especially through the use of sediment removal, but would be used as a tool for prioritizing sediment and vegetation removal in a manner that would reduce potential impacts on listed salmonids and their habitat (see Exhibit No. 7).

Gravel Extraction

The County has requested authorization for the excavation of up to 90,000 cubic yards of sand and gravel materials from the point bars and shoals that have formed within the floodway channel. This maximum volume was selected using data from the hydraulic analysis for six different levee configurations downstream of the Highway 101 Bridge. Removal of the full 90,000 cubic yards in any one year would represent an atypical situation, (e.g. following an extreme high flow event which had resulted in substantial deposition of sediment within the project reach). It is expected that during average years the volume removed would be significantly lower, estimated to be in the 30,000 to 50,000 cubic yard range.

Sediment would be removed through a variety of methods, including the use of traditional bar skimming, utilizing a minimum two foot vertical offset from the water surface elevation of the summer low flow. An upstream portion of the gravel bar would be left undisturbed to assure retention of the meander pattern and single narrow creek channel. Upon completion of skimming activities each year, the bar would be graded in the downstream direction, towards the thalweg to provide a free-draining surface and remove depressions where fish could become trapped when the creek's water levels drop. In addition, another potential alternative sediment removal design would be to excavate fish passage channels through the portions of the flood control reach that tend to flow intermittently (subsurface) during dry summers to aid salmonid migration by enhancing

stream connectivity. Other alternative sediment removal designs include the construction of connected refugia alcoves at the downstream end of gravel bars where appropriate.

Access to the gravel extraction sites would be through the existing levee road system. The use of temporary bridges across open water stretches to access the gravel bars would be minimized, and temporary abutments would be constructed outside of the live channel to the maximum extent practical. Where the flatcar used as the bridge is not long enough to span the live channel, brow logs or concrete blocks could be used to reduce the amount of abutment material in contact with the live stream. To the maximum extent practical heavy equipment channel crossings would be limited to two passes per temporary bridge construction/removal. Use of abutment material would be minimized, and abutment material and approach ramps would be removed following removal of temporary bridges.

Sediment removal would not occur prior to June 15, or after October 15 of any year without prior written approval from CDFG in consultation with NOAA Fisheries. Provisions for extending the gravel extraction season to the end of October are to be based on the consideration of weather forecasts, rising flows and salmonid migration timing.

Vegetation Removal

Maintenance of the flood control facility would also involve the removal of vegetation from within the channel and along the levee side slopes. All ruderal vegetation along the rip-rapped slope of the levees down to within five feet of the "toe of the slope," defined as the intersection between the riprap and the current bed of Redwood Creek, would be removed. Vegetation removal from within the channel would be prioritized using the decision matrix for gravel extraction maintenance described above, focusing primarily on the high ranked hydraulic hot spots with low to moderate ranked adjacent salmonid habitat.

Within the five-foot zone above the toes of the levees, trees with a basal diameter greater than four inches as measured at four inches above ground level would be removed, but all other vegetation would be retained. The selection of various treatments to be implemented in any given year of the proposed five-year maintenance program will be accomplished through use of the decision matrix coupled with on-site visits and discussion with the interagency team. Other vegetation removal designs could include, but are not limited to, the following:

- Remove trees from the dry side of the islands to within ten feet of the live waters of the creek.
- Trees within ten feet of the creek on an island that are greater than four inches in diameter at a height of four inches above ground level would be removed and cut into four-foot lengths and left in place.

- To increase scour potential, remove all vegetation from the tip of a bar 30 feet downstream of the head of the bar.
- To provide potential velocity refugia for salmonids and to prevent excessive numbers of large trees on extensive dry stretches of bars, trees with a diameter of 4 inches and greater would be removed.
- To create a mosaic of vegetated and non-vegetated areas on the extensive dry stretches of bars, remove all vegetation from small areas on the bar while leaving other areas completely vegetated.

C. Development within Coastal Rivers and Streams.

Section 30236 of the Coastal Act provides that:

> *Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (l) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.* [Emphases added.]

Section 30236 sets forth a number of different limitations on what development may be allowed that causes substantial alteration of rivers and streams. For analysis purposes, a particular development proposal must be shown to be for one of three purposes: (1) for a necessary water supply project; (2) flood control projects where there is no other feasible methods for protection of existing structures within the floodplain and the project is necessary for public safety and the protection of existing development; or (3) primarily for fish and wildlife habitat improvement. In addition, the development must incorporate the best mitigation measures feasible.

1. Permissible Uses for Channelization and Substantial Alteration of Streams

The first test set forth above is that any proposed channelization or other substantial alteration of a river or stream may only be allowed only for three purposes enumerated in Section 30236, including "flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development." The proposed development entails maintenance of an existing flood control project. The primary objective of the development is to increase the hydraulic competence and capacity of the Redwood Creek Flood Control Project for providing flood protection to the lower Redwood Creek watershed area. Thus, the substantial streambed alteration associated with the proposed flood channel maintenance program is allowable pursuant to Section 30235(2) of the

Coastal Act provided: (a) there is no other feasible method for protecting existing structures in the floodplain; and (b) such protection is necessary for public safety or to protect existing development.

a. Availability of Other Feasible Methods for Protecting Floodplain Structures

Flooding hazards in the lower Redwood Creek drainage could hypothetically be managed through other methods than the existing engineered channel and containment levees. For example, a flood control dam could be constructed upstream of Orick where the creek enters the mountain canyon to the east of town, impounding flood waters into a reservoir and allowing their release over time at flow rates that would not result in inundation of lands within the lower watershed. Another option would be to route Redwood Creek around flood-prone areas in the lower drainage through a bypass canal that would convey and discharge floodwaters safely into the Pacific Ocean. However, the County of Humboldt does not possess either the land base or the capital necessary to develop such large public works facilities. Notwithstanding these financial limitations, damming or diversions would result in far greater and wide-reaching significant adverse environmental impacts than would the proposed maintenance program. Thus, the Commission finds no other feasible measures exist for protecting structures within the lower Redwood Creek floodplain.

b. Necessity of Project for Public Safety and to Protect Existing Structures

As evidenced by the property damages that resulted during the various floods that occurred on Redwood Creek during the 1950s and in 1964 prior to construction of the Redwood Creek Flood Control Project, maintenance of the facility is necessary to prevent future flooding of the coastal plain areas in the lower watershed. At the present time, approximately 20% of the design capacity of the flood control facility has been lost due to accumulated sediment and vegetation within the channelized reach. Based upon hydraulic analysis performed in 2003, the encroachment of these materials in the channel and along the levees sides has effectively reduced the conveyance capacity of the facility from the original 77,000 cfs, 250-year recurrence interval flood event to approximately 50,770 to 65,200 cfs, roughly that corresponding to 50- to 100-year flood events. Without the proposed maintenance to selective remove accumulated sediment and vegetation from the channel and levee sides, the facility will continue to aggrade with sand and gravel deposits transported from the creek's upper reaches and become progressively more densely vegetated, further reducing the hydraulic competence and capacity of the channel. Overtime, this situation could eventually cause the flood control levees to be over-topped by creek flows generated from moderate high flow events, resulting in localized flooding of property in proximity to the area being over-topped. Should the structural integrity of the levees be compromised by saturation and erosion from such over-topping flows or by the seepage of stream flows through the levee along the rooting of vegetation growing in and on the channel slopes, a catastrophic breach of the facility could occur resulting in wide-spread flooding throughout the lower Redwood

Creek watershed. Such a failure would seriously jeopardize the public safety of the Orick area and would involve extensive damage to existing structures at low elevations within the lower creek drainage. Accordingly, the Commission finds that the protection to the Redwood Creek Flood Control Project as would be provided by the proposed project is necessary for public safety and the protection of existing development.

2. Feasible Mitigation Measures

The second test set forth by the stream alteration policy of the Coastal Act is whether best feasible mitigation measures have been provided to minimize the adverse environmental impacts of the subject channelization, damming, and/or substantial alteration of rivers or streams.

The proposed flood control facility maintenance activities would be conducted in riverine and riparian wetlands could have potentially significant adverse effects on a number of threatened, endangered and special status species and/or their habitat that depend on the aquatic environment of lower Redwood Creek.

Vulnerable Fish and Wildlife Species and Their Habitats

A total of seven plant and animal species that depend on the wetland environment of lower Redwood Creek and its environs are formally listed or have candidacy as either "endangered," or "threatened" under the Federal (FESA) and California (CESA) Environmental Species Acts, or have been identified as "species of special concern" by CDFG's Habitat Conservation Planning Branch. Table 2 below, summarizes the status of these species:

Table 2: Environmentally Sensitive Animal and Plant Species That Depend on the Aquatic and Riparian Vegetation Environments in the Lower Redwood Creek Area for Their Habitat

Taxonomic Group/Name	Common Name	Federal / State ESA Status
Fishes		
Oncorhynchus kisutch	Coho (Silver) salmon	FT/CCT
Eucyclogobius newberryi	Tidewater Goby	FE/CSC
Oncorhynchus clarki clarki	Coastal Cutthroat Trout	CSC
Oncorhynchus tshawytscha	Chinook (King) Salmon	CSC
Oncorhynchus mykiss	Steelhead	CSC
Birds		
Pelecanus occidentalis californicus	California Brown Pelican	FE/CE
Vascular Plants		
Layia carnosa	Beach Layia	FE

Legend: FE – FESA "Endangered"
FT – FESA "Threatened"
CE – CESA "Endangered"
CCT – CESA "Candidate Threatened"
CSC – California "Species of Special Concern"

The potential impacts to these species and habitat and their mitigation are discussed in the following sub-sections:

Coho Salmon – Federally Listed as Threatened

Coho salmon (*Oncorhynchus kisutch*) are found in many of the short coastal drainage basins between the Oregon border and Monterey Bay. In larger coastal drainages this species is usually found primarily in the lower-gradient reaches closer to the coast. Coho salmon distribution in the Redwood Creek basin is limited to the main stem and the larger low gradient tributaries, primarily in Prairie Creek and its tributaries, possibly owing to the lower gradient and more pristine nature of that watershed. Based on data collected by RNSP, it is estimated that coho can be found occupying 26 miles of stream within the Lower Redwood Creek Basin. Although coho salmon migrate, hold and rear in the 2.1 miles of lower Redwood Creek that is within the project area, there are no reports of spawning within this reach.

In commenting on the project EIR, the National Marine Fisheries Service (NOAA Fisheries) concluded that the extraction of gravel and the placement and removal of temporary channel crossings associated the proposed action may have adverse direct effects on salmonids and their habitat through: (1) injury or death from equipment contact; (2) increases in turbidity and sedimentation from pushing up bridge approaches and abutments and bridge use, including the reduction of invertebrate production at temporary channel crossing locations; (3) attraction of spawning adults and redd building by changes to local channel form; (4) noise and vibration disturbance from heavy equipment use; and, (5) introduction of petroleum products.

However, as further detailed in the biological opinion, NOAA Fisheries finds that only incidental take of coho would result from the project provided:

- Annual monitoring cross-sections of all identified bars within the project area developed subject to the protocols set forth in the most current U.S. Army Corps of Engineers Letter of Permission for Gravel Mining in Humboldt County (LOP 96-1C) are provided to NOAA Fisheries prior to the annual inter-agency review. Aerial photos of the project reach are similarly provided to NOAA Fisheries if a flood event equivalent to the 10-year recurrence interval occurs. In addition NOAA Fisheries must be provided the opportunity to review and the County's annual maintenance plan.

- The upstream end of the bar (head of the bar) is not mined or otherwise altered by gravel removal activities. The minimum head of the bar buffer is defined as the upstream one-third portion of the bar.

- The amount of time that heavy equipment is in the wetted low-flow channel is minimized by limiting the number of heavy equipment crossings per each temporary channel crossing installation and removal. A maximum of two equipment passes across the channel per installation or removal shall be allowed.
- All temporary channel crossings and associated fills are identified and approximately located in the annual pre-extraction information. If the flatcar used to construct the temporary bridge is not long enough to span the live channel, then brow logs, or concrete blocks are to be used to prevent native gravel material used for abutment construction from entering the live channel.

- All temporary channel crossings are constructed after June 30 each year.

- Woody debris must be provided to function as cover within the excavated alcove or fish passage channel (e.g., cut branches, trunks or root wads), and the annual pre-extraction mining plan describes the cover that will be associated with the alcove or fish passage channel be subject to NOAA Fisheries review and approval.

- The highest priority for annual vegetation removal shall be the removal of vegetation from the levee faces above the five-foot buffer found at the toe of the levees. The overall maintenance plan shall focus on gravel removal and vegetation removal from the levee faces above the five-foot buffer, such that annual vegetation removal from the channel bed (not including vegetation removal from the levee faces above the five-foot buffer found at the toe of the levees) shall be limited to a maximum of 25% of the entire annual maintenance plan.

- To reduce the cutting of deposited large woody debris within the action area and to reduce the effects to salmonids from reductions in large woody debris, all access roads owned or controlled by the County, and roads owned or controlled by the contractors used to implement the proposed action are to be gated and locked.

- Stream and riparian areas shall not be used as equipment staging or refueling areas. Equipment, both hand tools and heavy equipment, must be stored, serviced, and fueled away from riparian areas (i.e., equipment must not be stored, serviced or fueled within the channel bed or channel banks, nor on the levee faces themselves; equipment maintenance, re-fueling of equipment and storage of fuel shall be done within a fueling containment area with an impervious layer to provide containment of any spills). Machinery (e.g., chainsaws, bulldozers) will

be inspected for leaks prior to use in riparian areas. Heavy equipment will be cleaned (e.g., power washed, steam) prior to use below the ordinary high water mark. The County has the materials necessary to implement spill cleanup plans, and that these materials are available to all work crews using heavy machinery, providing multiple sets of cleanup materials to each crew if sharing would prevent timely implementation of cleanup plans.

- All ground disturbing actions associated with the Redwood Creek Levee Maintenance Program must occur between June 15 and October 15 annually during the five-year permit period. If periods of dry weather are predicted after October 15, additional work may be done with NOAA Fisheries' approval, if the work can be completed within the window of predicted dry weather.

These provisions are incorporated into the attached special conditions. Special Condition No. 1 requires the submittal for the review and approval of the Executive Director an annual gravel extraction and riparian vegetation removal plan that must conform to the extraction limits specified in Special Condition No. 2, which among other requirements, requires that the County use the extraction methods described in the NOAA Fisheries biological opinion and that the upstream ends of bars not be mined. Special Condition No. 1 also requires the annual submittal of stream cross-sections and other data prepared in conformance with the requirements of the Corps permit which will incorporate the recommendations of the biological opinion. Special Condition No. 4 restricts the use of seasonal crossings in a manner consistent with the NOAA Fisheries recommendations. The conditions also require that all extraction activities and reclamation activities occur within the June 15 to October 15 time period recommended by NOAA Fisheries.

Therefore, the Commission finds that as conditioned as described above to incorporate the above-listed reasonable and prudent measures as identified in the NOAA Fisheries biological opinion, the maintenance program incorporates the best mitigation measures feasible to reduce potentially significant adverse environmental effects on coho salmon to less than significant levels consistent with the requirements of Section 30236 of the Coastal Act.

Tidewater Goby – Federally Listed as Endangered: The endangered tidewater goby has been found in Redwood Creek in varying numbers throughout the years. Tidewater gobies occur in near-estuarine tidal stream-bottoms with salinities close to that of fresh water, although this species is very tolerant of elevated salinities that may even approach those of full seawater (35 parts per thousand). Tidewater gobies are bottom-dwelling fish that prefer gravelly bottom areas with submerged plants.

Locally, Tidewater Gobies are known to occur in Stone Lagoon State Park just south of the Redwood National and State Parks (RNSP) boundary. The status and distribution of the species throughout all of RNSP are currently unknown. However, surveys are conducted annually in the Redwood Creek estuary, and presence/absence sampling was

conducted in 1998 in Espa Lagoon near Gold Beach in Prairie Creek State Park. There are historic records of gobies at Freshwater Lagoon from the early 1950s prior to highway construction over the sand bar, and five gobies were collected from the Redwood Creek estuary in 1980. The Redwood Creek specimens are the last known captures of this species in the parks. It is unlikely that the species will return to the Redwood Creek estuary without reintroduction and restoration of the estuary to its historical configuration.

Based upon information initially gathered from surveys conducted in the estuary portions of Redwood Creek, and as reflected in their informal consultation (see Exhibit No. 8), the USFWS have determined that the proposed project will have no effect on the tidewater goby for the following reasons:

- In 1980, gobies were captured in the north slough of Redwood Creek. Since 1996, annual goby surveys have been conducted in the Redwood Creek estuary. No gobies have been detected during these annual surveys; and
- Based on the degraded conditions of the estuary and past survey results, it is reasonable to assume that gobies are no longer present in the Redwood Creek estuary.

Therefore, the Commission finds that no mitigation is required pursuant to Section 30236 of the Coastal Act to offset potential significant adverse environmental effects on the Tidewater goby as the proposed project has been determined to have no effect on the tidewater goby.

Coastal Cutthroat Trout, Chinook Salmon, and Steelhead, – State Listed as Species of Special Concern: Coastal cutthroat trout is a resident salmonid in coastal streams in northern California and southern Oregon, and is the most abundant salmonid in Redwood Creek. All of the life requisites for this species are provided by the conditions in the streams in Redwood Creek.

Chinook salmon generally spawn in upstream reaches of large streams and rivers along the Pacific Coast, but young fish spend several months during their first year "rearing" in suitable habitat in coastal estuaries and lagoons.

Steelhead are seagoing trout. Steelhead have a life history similar to that of *coho* salmon, although the steelhead (which is closely related to non-seagoing rainbow trout) find appropriate habitat conditions in smaller streams, and in more upstream reaches, than do the larger salmonids. CDFG data indicate that steelhead are common in Redwood Creek. Although these species are "species of special concern" under the California Endangered Species Act, the California Department of Fish and Game has concluded that the proposed maintenance program would not significantly adversely impact populations of Coastal cutthroat trout, Chinook salmon, or steelhead, or the viability of their habitat within the Redwood Creek basin, its estuary, or feeder streams provided the protections for coho salmon are implemented. The proposed project would not significantly modify stream characteristics unique to Coastal cutthroat trout, Chinook salmon, or steelhead

from current conditions to a point where the extent or viability of these species would be adversely affected.

Therefore, the Commission finds that as conditioned as described above to incorporate the above-listed reasonable and prudent measures as identified in the NOAA Fisheries biological opinion for the protection of Coho salmon, the maintenance program incorporates the best mitigation measures feasible to reduce potentially significant adverse environmental effects on Coastal cutthroat trout, Chinook salmon, and steelhead to less than significant levels consistent with the requirements of Section 30236 of the Coastal Act.

Brown Pelican – State and Federally Listed as Endangered: California Brown Pelicans are found in estuarine, marine subtidal, and marine pelagic waters along the west coast from Mexico to Washington. They breed on offshore islands from southern California to the Pacific coast of southern Mexico and in the Gulf of California. The largest breeding colony in the United States is found on West Anacapa Island in southern California. This is currently the northern-most breeding colony along the west coast. Since the mid-1970s Brown Pelicans have expanded their range dramatically. By 1985 thousands of Brown Pelicans were migrating as far as the Washington coast. The range expansion from southern areas into the north has occurred along with the combination of greater reproductive success since 1985, *El Niño* events, and generally warmer water in the North Pacific Ocean. The increase in numbers in areas north of California rose from approximately 4,200 pelicans in 1987 to more than 10,000 in 1991. During that same time, fall counts of Brown Pelicans in northern California decreased. The coastline between Trinidad and the Klamath River has been identified as having the largest numbers of brown pelicans north of Point Arena during the summer. In fall, this area of use expanded to the Oregon border. Now in summer and fall brown pelicans are commonly observed along the entire RNSP coastline. Brown Pelicans can be seen in the area from April until January, however, the peak season of use is late June through October.

Offshore rocks, estuaries, and open beaches are used by Brown Pelicans for resting during the day ("loafing"); off shore rocks and estuaries are the most often preferred loafing sites. Groups of 100 or more individuals have been observed with some regularity at the Klamath and Smith River estuaries and the mouth of Redwood Creek. The largest number of pelicans recorded in one group by RNSP surveyors, estimated at 1,000 individuals occurred on the Klamath River spit.

Coastal water bird aerial surveys conducted by the California Department of Fish and Game indicate a relatively low amount of beach use by pelicans along the northern California coast. Aerial surveys in 2001 showed that pelicans observed on mainland beaches or sand spits constituted less than 10% of all pelicans observed loafing during those surveys. However, despite the observed preference for off shore rocks and estuaries pelicans are known to loaf on open beaches in RNSP with some regularity. Data

collected by RNSP staff and others indicate that pelicans repeatedly use the same approximate locations on beaches. In RNSP these loafing sites include the beach near the mouth of Redwood Creek, the beach in the vicinity of Home and Boat Creeks near Fern Canyon, and open stretches of beach in the vicinity of Ossagon and Squashan Creeks to the north of the project site.

In reviewing the proposed development, the USFWS has determined that the proposed flood maintenance project may affect, but is not likely to adversely affect, the California brown pelican based upon the following factors:

- Although the levee maintenance activities may temporarily disturb loafing or foraging pelicans in the Redwood Creek estuary, because of the temporary nature of the disturbance and the availability of other loafing and foraging areas, this disturbance is not expected to significantly alter essential behaviors such as feeding and loafing. In addition, no known pelican breeding colonies exist along the Humboldt County coastline;

- No suitable pelican habitat that exists within, along or in proximity to the flood control channel would be removed or degraded by the project.

Therefore, the Commission finds that based upon the determination of the USFWS, no mitigation is needed pursuant to Coastal Act Section 30236 to offset potentially significant adverse impacts to brown pelicans from the proposed maintenance program on Redwood Creek as the proposed project is not likely to adversely affect the California brown pelican.

Beach Layia – Federally Listed as Endangered: The Beach Layia is a succulent annual herb, less than 15 cm (6 inches) tall, belonging to the sunflower family (Asteraceae). It is a winter annual that germinates during the rainy season from fall to mid-winter, blooms in the spring, and sets seed before the dry season. It tends to grow in patches, and population numbers vary annually, both spatially and temporally. The species occupies sparsely vegetated open areas in semi-stabilized fore dune and coastal scrub communities. The habitat where it is located experiences some drifting sand and has low-growing herbaceous, perennial native species. Associated plant species, such as beach silver top (Glehnia leiocarpa), beach pea (Lathyrus japonicus and L. littoralis), dunegrass (Leymus mollis), pink sand-verbena (Abronia latifolia), beach strawberry (Fragaria chiloensis) and beach-bur (Ambrosia chamissonis) provide protection from sand movement and erosion. Beach Layia was State listed as endangered in 1991, and Federally listed as endangered in 1992.

Historically, Beach Layia was restricted to widely scattered, isolated populations within eight dune systems in California, from the mouth of the Little River in Humboldt County to the San Francisco peninsula. More recently it is known to occur in seven dune systems from Humboldt County to Santa Barbara County. The species occurs in 19 extant populations with 300,000 individuals; the largest populations are known from Humboldt

County. Extirpated populations at the mouth of the Little River were thought to represent the northernmost occurrence of the species until a population was discovered on southern end of Freshwater Spit in RNSP in July of 1999.

After the Freshwater population was discovered additional surveys for Beach Layia were conducted in all potentially suitable habitat in RNSP. No additional populations to date have been detected. Projects proposed in suitable Beach Layia habitat are surveyed entirely prior to project implementation.

Potential adverse effects to Beach Layia could occur if it were present within the area disturbed by gravel excavation activities. As previously stated, after the original discovery of the populations on Freshwater Spit surveys of all suitable habitat within the RNSP were surveyed with negative results. Given this fact it is unlikely that Beach Layia would be adversely affected by the excavation activities within the flood control channel.

Therefore, the Commission finds that based upon the determination of the USFWS, no mitigation is needed pursuant to Coastal Act Section 30236 to offset potentially significant adverse impacts to Beach Layia from the proposed maintenance program on Redwood Creek as the proposed project is not likely to adversely affect Beach Layia.

Emergent Riparian Vegetation- related Common Species

Late seral condition stands of riparian vegetation in good to excellent condition generally consist of four layers: grass/forb, low shrub, tall shrub, and a moderate to full tree canopy closure. Early seral stands generally lack tall shrub and have little or no tree cover and hence low canopy closure. Vertical structural diversity is generally lowest in early seral condition and highest in late seral condition. Horizontal patchiness is greater in early and intermediate seral condition and lower in late seral condition. Some types of disturbance may increase vertical and horizontal patchiness, including fire, grazing, and firewood cutting.

Notwithstanding the superiority of more established riparian corridors, emergent cover and riparian vegetation along perennial watercourses such as found along Redwood Creek can provide food and cover for a variety of common bird species. Suitable nesting and perching habitat for a variety of avian species has been found in and among the trees of early seral riparian vegetation surrounding wetlands or along rivers and streams on the northern California coast in settings similar to the riparian corridor along lower Redwood Creek. In addition, suitable conditions exist in and near the project site for the potential establishment of several rare plant species. Table 3 below, summarizes the environmentally sensitive plant and animal species for which riparian vegetation along the lower Redwood Creek drainage might provide habitat:

Table 3: Environmentally Sensitive Plant and Animal Species That May Utilize the Early Seral Riparian Vegetation Along Lower Redwood Creek for Habitat

Taxonomic Name	Common Name	Federal / State ESA Status
Birds		
Empidonax traillii	Willow Flycatcher	CE
Phalacrocorax auritus	Double-crested Cormorant	CSC
Pandion haliaetus	Osprey	CSC
Aix sponsa	Wood Duck	CCSC
Ardea herodias	Great Blue Heron	Protected
Egretta thula	Snowy Egret	CSC
Ardea alba	Great Egret	Protected
Nycticorax nycticorax	Black-crowned Night Heron	FSC
Vermivora celata	Orange-crowned Warbler	N/A
Vascular Plants		
Lathyrus japonicus	Sand pea	CNPS "1B"
Abronia umbellata ssp. brevifolia	Pink sand-verbena	CNPS "1B"
Castilleja affinis ssp. litoralis	Oregon Coast Indian paintbrush	CNPS "1B"
Montia howellii	Howell's montia	CNPS "1B"

Legend:
FE – FESA "Endangered"
FT – FESA "Threatened"
FSC – FESA "Species of Concern"
CE – CESA "Endangered"
CT – CESA "Threatened"
CCT – CESA "Candidate Threatened"
CCSC – Candidate California "Species of Special Concern"
CSC – California "Species of Special Concern"
CNPS "1B" – California Native Plants Society "1B" Listing[1]

Thus given the potential habitat value afforded by the riparian vegetation with the project reach of Redwood Creek to the above-listed species, mitigation to replace and offset the temporal losses of such habitat is indicated.

[1] Pursuant to the Native Plant Protection Act and the California Endangered Species Act, plants appearing on the California Native Plant Society's "List 1B" meet the definition as species eligible for state listing as a rare, threatened, or endangered plant. List 1B plants are defined as "rare plant species vulnerable under present circumstances or to have a high potential for becoming so because of its limited or vulnerable habitat, its low numbers of individuals per population (even though they may be wide ranging), or its limited number of populations."

Therefore, the Commission finds that with the requirements of Special Condition No. __ that the applicant submit a coastal development permit amendment application to the Commission for the adoption of a final mitigation and monitoring program for mitigating the loss of the riparian vegetation to be removed by the proposed project, the project as conditioned incorporates the best mitigation measures feasible to reduce significant adverse environmental effects on riparian vegetation habitat to less than significant levels consistent with the requirements of Section 30236 of the Coastal Act.

Conclusion

As (1) the primary objective of the development is to manage the hydraulic competence and capacity of the Redwood Creek Channel for providing flood protection for the lower Redwood Creek watershed area, (2) no other feasible measures exist for protecting structures within the lower Redwood Creek floodplain, and (3) the project is necessary for the public safety and to protect existing development, the proposed substantial streambed alteration of the river is for an allowable purpose under Coastal Act Section 30236.

The proposed project is for five years of channel maintenance. The five-year authorization period will allow regulated sediment and vegetation removal to be undertaken while additional environmental monitoring studies are completed to further define and validate the maintenance strategy and ensure the long-term protection of sensitive species and habitats. The applicants have consulted with the USFWS, NOAA Fisheries, and other federal, state and local agencies about the implementation of management actions, including monitoring programs to study each listed species to confirm that there are no adverse environmental effects to any of the listed species from loss of habitat (see Exhibit Nos. 7, 8, and 9). Any results derived from the studies that document environmental impacts that are not addressed under the current protocols will be taken into consideration when the applicants apply for additional authorizations for maintenance in future years.

The proposed project as conditioned incorporates reasonable and prudent mitigation measures recommended by federal, state, and local agency consultations. The Commission imposes Special Condition Nos. 1 through 5 which reiterate in summary the provisions imposed by the various fish and wildlife trustee agencies who have reviewed the proposed development and additional mitigation to reduce impacts on coastal resources to levels that are less than significant. Therefore, the Commission finds, as conditioned herein, the proposed breaching program is consistent with the requirements of Section 30236 of the Coastal Act, in that the best feasible mitigation measures have been provided to minimize or avoid adverse environmental effects.

D. Hazards.

Coastal Act Section 30253 states in relevant part:

> *New development shall: (1) Minimize risks to life and property in areas of high geologic, flood; and fire hazard. (2) 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.*

The primary purpose of the proposed project is to minimize the risk of flooding developed areas surrounding the channelized portions of lower Redwood Creek through: (a) restoring and maintaining the flood control facility to a capacity to convey flows associated with a 100-year recurrence interval flooding event; and (b) preventing the growth of riparian vegetation to a size that could compromise the structural integrity of the facilities levees.

As shown on the Federal Emergency Management Agency's Flood Insurance Rate Map for the Orick area (see Exhibit No. 4), the extent of "Flood Zone A," the 100-year floodplain, in the project area is limited to the area between the flood control facility's levees. Under present conditions, adjoining lands within the lower Redwood Creek drainage would be subject to flooding only if a flood event of greater magnitude than that of what the flood control channel could currently convey (55,000 cfs, roughly equivalent to the 100-year flood flow) were to occur, or if a physical breach of the levees developed allowing for the release of the creek's flows onto adjoining properties. Depending upon the magnitude of the greater than 100-year recurrence interval flood event, the severity of the breach and the water elevation within the creek at the time of the breach, surrounding areas within the lower watershed would become inundated, potentially resulting in damages to a variety of agricultural, residential, commercial, and public facility developed lands.

The applicants propose to selectively remove gravel and riparian vegetation from within the channel and along the levee sides of the Redwood Creek Flood Control Project. Although the proposed development would not result in the flood control channel being fully restored to its original 250-year flood capacity, the channel would be returned and maintained a condition that would accommodate flows that would result from a 100-year flood event. This action would afford flood protection at a level commensurate to the flood protection required by the Federal Emergency Management Agency's National Flood Insurance Program for development within flood prone areas such that flood insurance coverage could be secured for such development from underwriters of this federal program. Moreover, by maintaining the flood control facility to a 100-year flood capacity standard rather than returning the channel to its full designed capacity, aquatic and riparian fish and wildlife habitat that are provided by the facility would be protected.

A major objective of the proposed development is to restore maintain the hydraulic capacity of the Redwood Creek Flood Control Project such that accumulated gravel

would not the cross-section volume of the facility to a point where over-topping of the levees would occur, or riparian vegetation which has become established within the channel and on the levee banks does not grow to a point where root growth would penetrate deep into the sides of the levees. If such overtopping and/or rooting were allowed to occur, the geologic stability of the flood control structure could be compromised from rill erosion over the top and inboard sides of the levee and from the "piping" of the creek's waters along the root channels. Either of these erosional forces could adversely impact the structural integrity of the levees, potentially leading to a catastrophic breach and release of floodwater. Thus, the inherent object of the development is to promote geologic stability by preventing such erosional impacts from occurring.

The proposed project effectively protects the important habitat values of the lower Redwood Creek riparian system while minimizing the risk to life and property from flood and geologic hazards. The Commission therefore finds that the proposed project is consistent with Coastal Act Section 30253.

E. Public Access and Coastal Recreation.

Coastal Act section 30210 states:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Coastal Act section 30211 states:

> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Section 30212 (a) in part states:

> *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects ...*

Coastal Act section 30214(a) states:

(a) *The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of*

public access depending on the facts and circumstances in each case including, but not limited to, the following:

(1) Topographic and geologic site characteristics.

(2) The capacity of the site to sustain use and at what level of intensity.

(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.

(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

Section 30210 of the Coastal Act requires that maximum public access shall be provided consistent with public safety needs and the need to protect natural resource areas from overuse. Section 30212 of the Coastal Act requires that access from the nearest public roadway to the shoreline be provided in new development projects except where it is inconsistent with public safety, military security, or protection of fragile coastal resources, or adequate access exists nearby. Section 30211 requires that development not interfere with the public's right to access gained by use or legislative authorization. Section 30214 of the Coastal Act provides that the public access policies of the Coastal Act shall be implemented in a manner that takes into account the capacity of the site and the fragility of natural resources in the area. In applying Sections 30210, 30211, 30212, and 30214, the Commission is also 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 access.

The maintenance site is located between the first public road and the sea. Therefore, the Commission must consider whether requiring public access is appropriate in this case. The proposed maintenance breaching activities do not require the provision of any new public access under Section 30212(a)(2) as adequate public access exists nearby, to and along adjacent beaches, and to the waters of Redwood Creek. Moreover, Sections 30210-30214 require that the public access policies be implemented in a manner that takes into account public safety and the protection of fragile coastal resources. The project will cause some interference with public access along the levees and boating access near the various extraction sites when the accumulations of sediment are periodically removed from the flood control channel. The gravel extraction and riparian vegetation activities create a hazard for those who venture too near the excavation and clearing sites as these maintenance entail the use of motorized heavy excavation and transport equipment and/or the felling of relatively large major vegetation. Therefore, the Commission attaches

Special Condition No. 6, which allows the applicant to restrict public access to all areas within 500 feet of the gravel excavation and vegetation removal sites during the maintenance operations. The condition also allows restrictions on boating access within 300 yards of the maintenance sites within the channel during the same period. However, the condition requires that the restrictions on access only be enforced during maintenance operations, and that any temporary signs or banners used to close off the maintenance sites must be removed within 24 hours of cessation of gravel extraction or vegetation removal operations in the affected areas.

As conditioned, the temporary restrictions on public access in the immediate proximity of active maintenance operations will pose no significant or lasting adverse impacts on public access or water-related recreational uses. The Commission therefore finds that the project, as conditioned, is consistent with the public access and recreational policies of the Coastal Act.

F. Visual Resources.

Section 30251 of the Coastal Act states:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.* [Emphasis added.]

In addition, Section 30240(b) of the Coastal Act states that:

> *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.* [Emphases added.]

The proposed project will affect public views within the coastal zone, including views from within some portions of Redwood National Park in two ways. First, the excavation of gravel and the removal of riparian from within the flood control channel bottom and/or from the outboard sides of the channel levees would alter the visual characteristics of the river channel. Second extraction and vegetation removal activities, the stockpiling of

excavated gravel and/or vegetation cuttings, and the placement of temporary stream crossings could partially obstruct views for a temporary period of time during construction. However, none of these impacts would result in a significant impairment of scenic resources. The alteration of the channel would only occur in discrete, discontinuous localities along the overall project reach of Redwood Creek and would approximate the scouring the bars and riparian vegetation would be subjected to during naturally-occurring high-flows down Redwood Creek. Stockpiled materials would only be present for short periods of time until removed from the bar. The temporary stream crossings would only be in place seasonally between June 15 to October 15 and would be placed below the tops of the levees where they would be less noticeable.

The excavated and cleared areas within the flood control channel and along its levee sides would appear as open areas of exposed gravel and cobble substrate. Although the differences in bar elevation and the exposure of bare levee sides may be noticeable to hikers along the levees and to other users of the parklands and recreational facilities in and around the lower creek, the change in appearance will not be out of character with the surroundings, as the exposed gravel and levee would blend in with adjacent in-stream and levee areas.

Therefore, given that the visual impacts of the development are temporary and transient in nature, and the fact that the proposed maintenance activities would not significantly alter scenic public views within the lower Redwood Creek area, the Commission finds that this project is consistent with Sections 30251 and 30240(b) of the Coastal Act.

G. U.S. Army Corps of Engineers Review.

The project is within and adjacent to a navigable waterway and involves "waters of the United States," and is therefore subject to review by the U.S. Army Corps of Engineers (USACE) pursuant to the Federal Clean Water Act (33 USC §1341). Pursuant to the Federal Coastal Management Zone Act (16 USC 1451 *et seq.*), 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 USACE, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit. To ensure that the project ultimately approved by the Corps is the same as the project authorized herein, the Commission attaches Special Condition No. 8 that requires the permittees, prior to commencing breaching operations, to: (1) demonstrate that all necessary approvals from the USACE for the proposed dredging and filling have been obtained; and (2) incorporate any changes required by the Army Corps only after the permittees obtain any necessary Commission-approved amendment to this permit.

H. California Environmental Quality Act (CEQA)

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, including all associated environmental review documentation and related technical evaluations incorporated-by-reference into this staff report. Those 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 discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. 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 and to conform to CEQA.

V. EXHIBITS:

1. Regional Location Map
2. Project Location Map
3. Project Site Map
4. FEMA-FIRM Community Panel No. 060060 0150B
5. Project Site Aerial Photographs (1948, 1988, 2002)
6. Project Description Narrative
7. NOAA Fisheries FESA Section 7 Consultation Biological Opinion
8. USFWS FESA Section 7 Informal Consultation Letter
9. Excerpt, *Redwood Creek Local Flood Protection Project Operation and Maintenance Manual*

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.