

**CALIFORNIA COASTAL COMMISSION**

NORTH COAST DISTRICT OFFICE  
710 E STREET • SUITE 200  
EUREKA, CA 95501-1865  
VOICE (707) 445-7833  
FACSIMILE (707) 445-7877

MAILING ADDRESS:  
P. O. BOX 4908  
EUREKA, CA 95502-4908



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# Th15a

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Staff:	Robert S. Merrill
Staff Report:	April 24, 2003
Hearing Date:	May 8, 2003
Commission Action:	

## STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.:

**1-00-014**

APPLICANT:

**CALIFORNIA DEPARTMENT  
OF TRANSPORTATION**

PROJECT LOCATION:

At Clam Beach, adjacent to Highway 101  
near the Highway 101 Vista Point, in the  
McKinleyville area of Humboldt County;  
APNs 511-351-01, 05, 07

PROJECT DESCRIPTION:

After the fact permanent authorization for  
the construction of a rock slope protection  
revetment along approximately 2,300 feet of  
former Mad River bank to protect Highway  
101 and a highway vista point from erosion,  
including construction of a temporary sand  
storage and staging area and access road, all  
within an approximately 8.70-acre area. The  
project includes subsequent restoration and  
enhancement of the sand storage and staging  
area to wetland and dune habitat and  
enhancement of additional environmentally

sensitive habitat area in the project vicinity. The initial installation of the revetment and sand storage and staging area was completed in phases in 1992 and 1995 pursuant to temporary authorization provided by emergency permits. The habitat restoration work has not yet commenced.

LOCAL APPROVALS:

For Initial Installation of Revetment

Humboldt County emergency coastal development permits granted for portion of revetment in certified area

For Permanent Authorization of Revetment and Proposed Habitat Restoration and Enhancement

None required as Caltrans is seeking approval of Public Works Plan from the Commission for a portion of the development in the area governed by the certified Local Coastal program.

OTHER APPROVALS:

For Initial Installation of Revetment

(1) U.S. Army Corps of Engineers permit and permit amendment granted; (2) Regional Water Quality Control Board Waiver of Waste Discharge Requirements; (3) Department of Fish and Game Streambed Alteration Agreements granted.

For Permanent Authorization of Revetment and Proposed Habitat Restoration and Enhancement

(1) U.S. Fish and Wildlife Service Informal Endangered Species Act Consultation on effects to snowy plover; (2) Amendment of U.S. Army Corps of Engineers Permit.

**CALTRANS – Mad River Revetment**

**1-00-014**

**Page 3**

SUBSTANTIVE FILE DOCUMENTS: (1) Emergency Coastal Development Permit Nos. E-1-92-03G, E-11-92-08G, and E-1-95-05G; (2) Coastal Development Permit Application No. 1-92-69; (3) Appeal No. A-1-HUM-98-88; (4) Public Works Plan Application No. 1-02-1-PWP; (5) Humboldt County LCP.

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**SUMMARY OF STAFF RECOMMENDATION:**

Staff recommends approval with special conditions of the coastal development permit application submitted by the California Department of Transportation (Caltrans) to: (1) permanently retain the rock slope protection revetment along approximately 2,300 feet of former Mad River bank to protect Highway 101 and a highway vista point from erosion; and (2) to restore and enhance to wetland and dune habitat a temporary sand storage and staging area adjacent to the north end of the revetment to wetland and dune habitat and (3) enhance additional environmentally sensitive habitat area in the project vicinity.

Special Condition No. 1 would require additional mitigation for the impacts of the development on dune hollow wetlands, riparian wetlands, and dune habitat. As proposed, the applicant would provide essentially 1:1 mitigation for wetland fill impacts. To account for the substantial temporal loss between 1992 when the impacts occurred and the time in the future when the habitat would be fully restored, staff recommends that the mitigation ratio for riparian wetland fill be increased to 2:1 and the ratio for the more complex dune hollow wetland fill be increased to 3:1. Special Condition No. 1 would require Caltrans to locate an offsite mitigation site to provide the additional riparian wetland mitigation. The condition would allow Caltrans to use an existing mitigation bank on Elk River near Humboldt Bay to provide for the additional dune hollow wetland mitigation, in recognition of the much greater difficulties involved in trying to find suitable off-site mitigation sites for complex dune hollow wetlands than in finding simpler riparian wetland mitigation sites. The condition would also require Caltrans to extend from 5 years to 10 a proposal to offset impacts to upland dune habitat by removing exotic vegetation from the newly reestablishing dune area south of the revetment. Other conditions would require monitoring and maintenance of the revetment to ensure that the revetment does not become destabilized over time and lead to greater erosion problems. In addition, Caltrans would be required to maintain public access around the restoration site during periods when restoration work would preclude public use of the restoration site itself.

As conditioned, staff believes that the project is fully consistent with the Chapter 3 policies of the Coastal Act.

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**STAFF NOTES:**

1. **Jurisdiction and Standard of Review**

The project site is bisected by the boundary between the coastal development permit jurisdiction of the Commission and Humboldt County. This application seeks Coastal Commission authorization for the portions of the project that are within the Commission's retained jurisdiction where there are tidelands or areas subject to the public trust. The portions of the subject development within the Commission's retained jurisdiction include the lower and western-most portions of the rock slope protection, approximately half of the sand storage and staging area constructed adjacent to the north end of the revetment and which is now proposed to be restored to dune and wetland habitat, and areas of habitat enhancement in the beach and dune area south of the curvilinear portion of the revetment. The standard of review that the Commission must apply to Coastal Development Permit Application No. 1-00-014 is the Chapter 3 policies of the Coastal Act.

2. **Related Agenda Item.**

At a future meeting, the Commission will also conduct a public hearing and possibly act on related Public Works Plan No. Application No. 1-02-1-PWP as well as a development project pursuant to the Public Works Plan. The Public Works Plan application seeks approval and permanent authorization of the portion of the development that is within the coastal development permit jurisdiction of Humboldt County. The portion of the development covered by the Public Works Plan application is generally the eastern portion of the staging area to be restored and a portion of the revetment itself. The standard of review that the Commission will apply to the Public Works Plan Application is the certified LCP for Humboldt County. The standard of review for the development project submitted pursuant to the Public Works Plan is the Public Works Plan. The Commission may decide to hold a joint hearing on the two applications.

3. **Previous Commission Review of Development**

The rock slope protection revetment and the adjoining sand storage and construction staging area were initially constructed pursuant to Emergency Permit Nos. E-1-92-03G, E-1-92-08G, and E-1-95-05G. The first two emergency permits, issued on February 4, 1992 and March 18, 1992, respectively, authorized the construction of a rock slope

**CALTRANS – Mad River Revetment**

**1-00-014**

**Page 5**

protection revetment along approximately 1,300 lineal feet of shoreline (Phase 1 of the overall development). Emergency Permit No. 1-95-05G, issued on March 22, 1995, authorized the construction of an additional 1,000 lineal feet of rock slope protection revetment to the south of the previously placed revetment (Phase 2 of the overall development). Condition 4 of each emergency permit specifies that a regular coastal development permit must be obtained to permanently authorize this development.

Coastal Development Permit Application No. 1-92-69 was submitted as the follow-up application to seek permanent authorization of the rock slope protection revetment and to perform certain habitat restoration and enhancement work within the constructed sand storage and staging area. The Commission held a public hearing and acted on the follow-up application on September 16, 1999. At the same meeting, the Commission held a public hearing and acted de novo on related Appeal no. A-1-HUM-98-88, an appeal filed by Caltrans of a decision by Humboldt County to deny Humboldt County Coastal Development Permit Application No. 02-95 for the portions of the development within the area covered by the certified Humboldt County Local Coastal Program where Humboldt County has coastal development permit jurisdiction. The Commission denied both CDP Application 1-92-69 and Appeal No. A-1-HUM-98-88 on September 16, 1999 on the grounds that neither application provided sufficient information for the Commission to find the projects consistent with the Chapter 3 policies of the Coastal Act in the case of CDP Application No. 1-92-69 and with the certified LCP and coastal access and recreation policies of the Coastal Act in the case of Appeal No. A-1-HUM-98-88. In particular, the Commission found that the applications did not sufficiently analyze the impacts of the revetment on local shoreline sand supply, precluding the Commission from making required findings under Section 30235 of the Coastal Act and the LCP that the project would not eliminate or mitigate adverse impacts on local shoreline sand supply. In addition, the Commission found that the applications did not provide sufficient information for the Commission to make the required findings under Section 30253 of the Coastal Act and the LCP that the project would not contribute significantly to the erosion and destruction of bluffs along the river upstream of the revetment and would not necessitate the future construction of additional shoreline protective devices that would substantially alter the natural landforms along the bluff. Finally, the Commission determined that the alternatives analysis submitted by the applicant in the application did not address the full range of alternatives for protecting Highway 101 and the highway Vista Point and thus was unable to find that the project was the least environmentally damaging feasible alternative as required by Section 30233 of the Coastal Act and the certified LCP.

Since the Commission denied both of the permit applications and the temporary authorization for the revetment under the emergency permits expired, the revetment is not permanently authorized. Therefore, the Commission directed Caltrans to reapply for permanent authorization to retain the revetment as a permanent development within six months and submit the necessary geotechnical information that is required to enable the Commission to make the requisite findings under the Coastal Act and the certified

LCP. The Commission indicated that it would consider enforcement action if the application was not submitted within the six month time frame.

Caltrans submitted the current application (1-00-014) on March 15, 2000. At the same time, Caltrans submitted an application to the Commission for a Public Works Plan approval (Public Works Plan Application No. 1-02-1-PWP) pursuant to Section 30605 of the Coastal Act for the portion of the development within the coastal development permit jurisdiction of Humboldt County. Approval of the Public Works Plan application by the Commission would eliminate the need for obtaining a local CDP from Humboldt County for that portion of the development within the area of Humboldt County governed by its certified Local Coastal Program. The Commission staff initially determined that although the submitted applications did provide additional information concerning effects of the project on local shoreline sand supply, erosion of coastal bluffs upstream of the revetment, and project alternatives, the submitted applications were nonetheless incomplete, missing various items of information. After submittal on November 18, 2002 of a final habitat mitigation plan and biological assessment for the effects of the proposed habitat mitigation on the endangered western snowy plover, the CDP and Public Works Plan applications were filed as complete.

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**I. MOTION, STAFF RECOMMENDATION AND RESOLUTION:**

The staff recommends that the Commission adopt the following resolution:

**Motion:**

I move that the Commission approve Coastal Development Permit No. 1-00-014 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 feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment.

**II. STANDARD CONDITIONS: See Attachment A.**

**III. SPECIAL CONDITIONS:**

**1. Revised Mitigation and Monitoring Plan for Impacts to Dune Hollow Wetlands, Riparian Wetlands, and Dune Habitat**

A. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit, for review and written approval of the Executive Director, a final revised mitigation and monitoring plan for impacts to dune hollow wetlands, riparian wetlands, and dune habitat that substantially conforms with the plan submitted to the Commission dated November 7, 2003 entitled "*Mitigation and Monitoring Plan for Wetland Impacts from the RipRap Placement at the Mad River Mouth, Humboldt County, Route 101 Post Mile R94.5 – 1992 RSP Revetment Project and the 1995 RSP Revetment Extension Project*" except that it shall be revised to include the following provisions:

1. A schedule for mitigation monitoring and maintenance that includes provisions for (a) monitoring vegetation cover and density, and (b) removing invasive exotics in the upland dune habitat areas at the mitigation site described as Area A, C, D, and G and as depicted on Exhibit No. 6 for ten years;
2. Provisions for submittal of mitigation monitoring reports to the Executive Director by November 1 of each of monitoring year following completion of the mitigation;
3. Provisions for the creation of at least 2.26 acres of riparian wetland habitat at an off-site location by planting riparian species such as; willow, red alder, salal, wax myrtle, cascara, twinberry, or other native riparian species at a density and percent coverage equal to or greater than the average density and plant coverage of the riparian habitat disturbed by project construction. The revised plan shall include a:
  - (i) planting plan detailing the specific species to be planted;
  - (ii) site plan showing the locations where individual trees and plants would be planted;

- (iii) description of establishment techniques (e.g., irrigation, fertilization, etc.);
- (iv) schedule for planting; and
- (v) evidence that all legal right, interest, or entitlement to carry out the riparian habitat creation included in section (3) above has been obtained.

4. Provisions for the debit of 3.75 acres of credit to provide partial compensation for the impacts of the project on dune hollow wetlands from the Elk River mitigation bank as described in the Memorandum of Understanding signed by Caltrans, the Department of Fish and Game, and the Coastal Commission on April 9, 1980, provided that (a) the owner of the mitigation bank property agrees to use of the property for this purpose, (b) the owner of the mitigation bank property certifies that there is credit remaining pursuant to the April 9, 1980 Memorandum of Understanding, and (c) a current survey is provided to the Executive Director showing that the mitigation bank property continues to exhibit the biological functions anticipated by the MOU. The debit of 3.75 acres is in addition to the 2.20 acres of dune hollow habitat that will be provided on-site within the restoration area.

B. The permittee shall undertake development in accordance with the approved mitigation and monitoring 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 Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

**2. Public Access**

During performance of the habitat restoration and enhancement work and during the time when temporary fencing is installed around restoration areas to protect them from disturbance, Caltrans shall maintain clearly signed detours providing alternative public access for all access areas that will be temporarily closed.

**3. U.S. Army Corps of Engineers Amendment**

**PRIOR TO COMMENCEMENT OF CONSTRUCTION OF THE ON-SITE MITIGATION** required by Special Condition 1, the permittee shall provide to the Executive Director a copy of a permit amendment issued by the U.S. Army Corps of Engineers, or letter of permission, or evidence that no permit or permission is required for

the mitigation work. The applicant shall inform the Executive Director of any changes to the project required by the U.S. Army Corps of Engineers. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

**4. Shoreline Protection Monitoring Plan**

**A. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT,** the applicant shall submit a monitoring plan, prepared by a licensed geologist, or civil or geotechnical engineer for the review and [written] approval of the Executive Director. The plan shall be sufficient to assess the stability of the revetment for the life of the structure and shall include at a minimum:

1. A description of the approved shoreline protection device;
2. A discussion of the goals and objectives of the plan, which shall include maintaining the stability and integrity of the revetment;
3. Provisions for taking measurements of the distance between the toe of the revetment and the highway, including identification of exactly where such measurements will be taken, e.g. by reference to benchmarks, survey positions, points shown on an exhibit, etc. and the frequency with which such measurements will be taken;
4. Provisions for submission of “as-built” plans, showing the permitted structure in relation to the existing topography and showing the measurements described in subsection (b)(3) above, within 180 days after completion of construction;
5. Provisions for inspection of the condition of the shoreline protection device by a licensed geologist, or civil or geotechnical engineer, including the scope and frequency of such inspections.

**B.** By May 1 of every third year for the life of the structure, the permittee shall submit a monitoring report that has been prepared by a licensed geologist, or civil or geotechnical engineer. Each monitoring report shall contain the following:

1. An evaluation of the condition and performance of the approved shoreline protection device, including an assessment of whether any weathering or damage has occurred that could adversely impact future performance of the device,

2. All measurements taken in conformance with the approved monitoring plan,
3. An analysis of erosion trends, annual retreat, or rate of retreat of the bluff based upon the measurements and in conformance with the approved monitoring plan,
4. A description of any migration or movement of rock that has occurred on the site, and
5. Recommendations for repair, maintenance, modifications or other work to the device.

If a monitoring report contains recommendations for repair, maintenance or other work, the permittee shall contact the Coastal Commission District Office to determine whether such work requires a coastal development permit.

- C. The permittee shall undertake development in accordance with the approved final plan. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

**5. Maintenance Activities and Future Alterations**

The permittee shall maintain the approved shoreline protection for the life of the structure. The permittee shall be responsible for removing or redepositing any debris, rock or material that becomes dislodged after completion of the approved shoreline protection as soon as possible after such displacement occurs. The permittee shall contact the Coastal Commission District Office immediately to determine whether such activities require a coastal development permit.

**6. Assumption of Risk, Waiver of Liability and Indemnity Agreement**

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

claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

B. **PRIOR TO ANY CONVEYANCE OF THE PROPERTY THAT IS THE SUBJECT OF THIS COASTAL DEVELOPMENT PERMIT**, the applicant shall execute and record a deed restriction, in a form and content acceptable to the Executive Director: (1) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject property, subject to terms and conditions that restrict the use and enjoyment of that property (hereinafter referred to as the “Standard and Special Conditions”); and (2) imposing all Standard and Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the Property. The restriction shall include a legal description of the applicant’s entire parcel or parcels. It shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the Standard and Special Conditions of this permit shall continue to restrict the use and enjoyment of the subject property so long as either this permit or the development it authorizes – or any part, modification, or amendment thereof – remains in existence on or with respect to the subject property.

C. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicant shall submit a written agreement, in a form and content acceptable to the Executive Director, incorporating all of the above terms of this condition.

7. **Condition Compliance**

A. **WITHIN 180 DAYS OF COMMISSION ACTION ON THIS CDP APPLICATION**, or within such additional time as the Executive Director may grant for good cause, the applicant shall satisfy all requirements specified in the conditions hereto that the applicant is required to satisfy prior to issuance of this permit. Failure to comply with this requirement may result in the institution of enforcement action under the provisions of Chapter 9 of the Coastal Act.

IV. **FINDINGS AND DECLARATIONS**

1. **Background**

A. **Introduction**

The permit application seeks authorization to permanently retain the approximately 2,300-foot-long rock slope protection revetment that was constructed in 1992 and 1995 along the former bank of the Mad River at its mouth at Clam Beach, adjacent to Highway 101 and the Highway Vista Point, in

Humboldt County. (See Exhibits 1-3) The revetment was initially built pursuant to emergency permits that temporarily authorized the revetment to protect Highway 101 and an adjacent vista point from erosion. This application that temporarily authorized the revetment also seeks authorization for proposed restoration and enhancement of wetland and dune habitat at the site of a temporary sand storage and staging area that had been constructed adjacent to the north end of the revetment at the time the revetment was constructed. Finally, the application seeks authorization for enhancement of additional environmentally sensitive habitat area elsewhere in the project vicinity.

Ordinarily, a coastal development permit application is reviewed by the Commission prior to construction, based on the facts about the project setting that exist at the time the Commission acts on the application. An after-the-fact coastal development permit application is reviewed after construction, but based on the facts about the project setting that would exist at the time of Commission action had the development not been constructed; in such a case, although the Commission acknowledges that the project already exists, the Commission reviews the project's consistency with the Coastal Act as if the development does not exist. In other words, the Commission's action on the application is based on the development's consistency or lack of consistency with the policies given the facts about the setting that exist at the time of Commission action, not colored by the fact that the project has already been built.

In this instance, the project setting is very different now in 2002 than it was at the time the revetment was temporarily authorized in 1992 and 1995. Because the project location is physically so dynamic, and because the dynamic nature of the location is so fundamental to the Commission's analysis of the consistency of the project with the various Coastal Act policies, it is necessary to understand the general setting, the setting as it existed at the time of construction, the setting as it exists today as the Commission acts on the permit application, and the setting that could exist in the future.

**B. General Setting**

The project site is located in a beach and dune area that extends seaward from the base of a high coastal bluff that extends from a point approximately 3.5 miles to the south of the project site where the Mad River reaches the coast to a valley carved by Little River, approximately 1 mile to the north of the project site. To the south of the project site, Highway 101 runs generally parallel to the coastline as much as half a mile inland of the coastal bluff. In the immediate project vicinity, Highway 101 approaches the bluff and then cuts down along the bluff face as it extends northward. The vista point is constructed between the highway and bluff edge just north of where the highway begins its descent down along the

bluff face. To the north of the project site, the highway has been constructed in the dunes generally along the base of the bluffs.

The high coastal bluff in this area marks the inland extent of a former wave cut terrace. Subsequent tectonic events raised the terrace and moved the shoreline farther to the west. The terrace became covered with wind-blown dune sands and subsequent tectonic events lead to the formation of a second terrace at an elevation only slightly below the elevation of the first terrace. This second terrace also became covered with wind-blown dune sands. Thus, the high coastal bluff does not represent the normal inland extent of current wave erosion except during periods of overtopping of the dune-covered terraces or when waves travel up the mouth of the river.

A variety of land uses occur in the surrounding area. The beach and dune area to the north of the curvilinear portion of the revetment is mostly contained within Clam Beach County Park and Little River State Beach, further to the north. A privately owned parcel separates the revetment site from Clam Beach County Park. The area east of the revetment, the bluff, the Vista Point, and Highway 101 is generally occupied by the Arcata-Eureka Airport. The blufftop lands to the south of the revetment include a parcel owned by Humboldt County that contains a large drainpipe that conveys drainage from the airport down to the base of the bluff. The blufftop lands further to the south are privately owned residential parcels. The residential lands between the County owned parcel and Widow White Creek, located approximately one mile south of the curvilinear portion of the revetment, contain existing single-family homes built on relatively large parcels. The Sand Point residential subdivision occupies the blufftop terrace lands that extend from Widow White Creek south to Murray Road. Additional residential areas occupy the terrace further to the south. The extensive beach and dune areas to the south of the revetment are generally in County and private ownership.

The Mad River drains a large area of northwestern California, generally flowing in a northwesterly direction before reaching the coast between the City of Arcata and the community of McKinleyville in coastal lowlands north of Arcata Bay. The river runs along the southern end of the high coastal terrace and bluff upon which Highway 101 was constructed before reaching the lower dune terrace and turning northward and extending along the base of the high coastal terrace.

As part of the coastal development permit application, Caltrans submitted a report entitled, "The Migration of the Mad River Mouth & Its Erosional Impacts Within the Humboldt Bay Littoral Cell, Northern California," dated March 2000 and prepared by Paul D. Komar, Jeffrey C. Borgeld, and Jonathan Allen (Komar et al.). Excerpts of this report are included as Exhibit 7 of the staff recommendation. Following the completion of the report, Dr. Borgeld prepared an addendum dated

September 2000 (Borgeld) that is also included as part of Exhibit 7. According to the Komar and Borgeld reports, the mouth of the Mad River historically was located near the southern end of the high bluff along a portion of the ocean shoreline approximately three miles to the south of the rock revetment. (See page 8 of Exhibit 7.) The reports used survey data and aerial photographs to document the location of the mouth from the late 1800s to the present. Between 1941 and 1970, the mouth changed location but always stayed within an approximately 1.1-mile-wide stretch of coast. The mouth location would typically move northward, creating a sand spit behind the migrating mouth as it moved. However, episodes of breaching, typically occurring during times when spit washover from high seas in combination with high river flows during winter and spring months would reposition the mouth back to the south. After such events, the previous mouth would generally seal as a result of sand deposition, forming a lagoon in the area of former river channel north of the most recent mouth. Photographic evidence suggests that this sequence of events occurred at least four times since 1941. Changes in the morphology of Mad River lagoon in older survey charts suggest that the process occurred prior to 1941, as well.

For reasons that are not clear, sometime between 1969 and 1971, the river mouth began migrating out of the zone within which it had been oscillating since before 1941. The river carved northward through the mature coastal dunes through layers of sand, peat, and other earthen material, ultimately reaching the current location of the curvilinear portion of the revetment in 1992. Dating of the peat layers indicates that that the river had not previously cut through this area north of the historic oscillation zone over the last 1,100 years.

### **C. Setting At Time of Revetment Construction**

During the 22 years preceding construction of the revetment, the mouth of the river migrated at an average rate of 470 feet per year. The northward migration did not, however, occur at a uniform rate. According to Borgeld, the migration occurred primarily during the winter in response to storms. For example, the observed migration from mid-September 1991 to March 1992 averaged 4.3 feet per day. The progression northward also was affected by a spit breaching episode in 1975 and spit washover events, particularly during the 1982-1983 El Nino, that would shift the positioning of the main river channel outlet to the ocean and create multiple river outlets at different time periods.

By 1992, the northward moving river mouth had reached a location where it threatened the bluff face below the highway Vista Point and below the highway itself. As Highway 101 is the major north-south artery for the region, Caltrans applied for and received emergency permits from the County, the Executive Director of the Coastal Commission, and the U.S. Army Corps of Engineers to construct a revetment to halt the erosion.

The Executive Director granted Emergency Permit No. E-1-92-03G on February 4, 1992 to Caltrans for the construction of a revetment that would extend generally in a straight line along the base of the high bluff. However, during construction in early 1992, the northward river mouth migration rate was significantly more rapid than anticipated. According to the mitigation plan submitted with the follow up permit application (see Exhibit 6), the northward migration of the river was outpacing construction, and it became clear that the river would reach the bluff face supporting Highway 101 before construction of the revetment could be completed. Caltrans then applied for a second set of emergency permits from the permitting agencies to construct the revetment with a curvilinear section at the end, that would follow the northern edge of the river mouth and extend perpendicular towards the ocean to create a barrier that would block further northward migration of the river. The Executive Director issued Emergency Permit No. E-1-92-08G on March 18, 1992 to construct the 1,300-foot-long revetment with a curvilinear section at the end.

To facilitate construction and maintenance of the revetment, the revetment was constructed far enough out from the base of the high bluff to allow for the installation of an access road. To ensure greater stability for the revetment, the revetment was constructed within a trench. The sand excavated from the trench was deposited in the mature dunes immediately north of the curvilinear portion of the revetment to create an approximately 6.85-acre staging area. Construction materials were temporarily stored within the staging area and the area provided a platform from which to mechanically lift the quarry rock into position along the revetment.

The construction of the revetment was successful in halting the northward migration of the river mouth. Fixing the northern edge of the river mouth with the revetment caused the high bluff area opposite the river mouth to be exposed to wave erosion for a longer period of time than it otherwise might have had the river continued northward. In addition, with the river mouth fixed on its north side, when the width of the mouth fluctuated in response to high winter river flows or other factors, the mouth would widen to the south, further exposing the high bluff in this location to wave attack. According to Komar, et al., the eroded dune area south of the outlet/inlet experienced continued erosion to the point where it no longer protruded seaward of the revetment. These factors apparently contributed to erosion of the base of the bluff beyond the southern end of the revetment through the winters of 1993-94 and 1994-95. By 1995, erosion of the bluff immediately adjacent to the south of the constructed revetment created enough of a threat to the bluff below the vista point that Caltrans sought and obtained additional emergency permits from the permitting agencies to extend the rock revetment and access road. The Executive Director granted Emergency Permit No. 1-95-05G on March 22, 1995 to extend the revetment and access road

another 1,000 feet to the south to protect this additional portion of the bluff with approximately 12,000 cubic yards of ¼ to 2-ton rock. The extension brought the total length of the revetment to approximately 2,500 linear feet.

Construction of the revetment, access road, and staging area affected an 8.70-acre area. Of this amount, approximately 6.23 acres consisted of dune habitat, of which 4.38-acres consisted of upland dune habitat and 1.85 acres consisted of dune hollow wetlands. In addition, a total of approximately 1.13 acres of riparian scrub wetland area along the base of the bluff was affected by construction of the access road.

**D. Setting Today**

In March, 1999, the long spit south of the curvilinear portion of the revetment naturally breached, shifting the mouth of the river approximately 3 miles to the south, close to the position of the mouth as it existed in 1970. (See Exhibit 4) The 1999 breach site is just a little north of the end of Hiller Road. A combination of high winter storm flows in the river and overwash of the spit by high seas from the ocean may have breached the spit in this location in a manner similar to how past breaching episodes appear to have occurred. After the breaching, the former mouth at the revetment eventually filled with sand and sealed, leaving one outlet/inlet to the river at the new breach site and creating a lagoon within portions of the former river channel north of the breach site. Accordingly, the revetment is not needed to protect Highway 101 and the Vista Point at the current time.

However, the mouth of the river has not remained stationary since the 1999 breaching. The current outlet/inlet is at least several hundred feet north of the 1999 breach location, indicating that the inlet/outlet is once again in a period of northward migration.

The dune area between the current outlet/inlet and the revetment has been reestablishing since the 1999 breaching. Portions of the lagoon that formed after the 1999 breaching has filled partially with sand. During the summer months, the area south of the revetment consists of vast areas of dry sand. However, the dune area south of the revetment has not built up to the same elevations as the dunes that existed prior to the northward migration of the river in the years before 1992. The northward migration had the effect of planing off the dune area and replacing much of it with a low sand spit. According to a memorandum prepared by Caltrans consultant Randy Klein, Hydrologist, dated October 30, 2002 and attached as Exhibit 8, the natural processes of dune formation have been slowed by a greater frequency of wave overwash resulting from the effects and after-effects of the 1997-1998 El Nino event and the following La Nina event. This increased overwashing has counteracted the natural build up of sand first on the

sand spit, and later in the dune area after the mouth had repositioned to the south. The sand dune area south of the revetment is still relatively low in comparison with the more mature dune areas south of the 1999 breach site. As a result, in the wintertime, waves can still occasionally overwash the dune area and wet the sand all the way to the revetment.

The dune area north of the curvilinear portion of the revetment that was filled to create a construction staging area remains unrestored, more than 10 years after construction. The site does have certain existing habitat values however. Both native and exotic vegetation has grown up within the staging area and the site includes certain degraded habitat.

**E. Future Setting**

The dynamic nature of the river mouth suggests that the area around the constructed revetment will change again in the future. As noted above, the river mouth has already migrated at least several hundred feet north from the 1999 breach site near Hiller Road and is advancing steadily northward towards the revetment. Whether or not the river mouth will reach the revetment again during the life of the revetment structure before breaching and repositioning to the south is uncertain. The outlet/inlet may march steadily towards the revetment and the revetment may eventually be needed again to protect the highway and the vista point. On the other hand, the migrating river may breach the sand spit again and reposition the inlet/outlet to the south before reaching the revetment. Even with such breaching, the migration may move forward after a temporary repositioning southward of the mouth. No one can say with certainty whether the river mouth will or will not reach the revetment. The fact that carbon dating of layers of peat indicates that the river has migrated as far north as the revetment only once before means there is no degree of frequency of migration to provide a basis for predicting the migration behavior of the river.

In addition, to the degree the river mouth migration moves northward towards the revetment, there is no certainty as to how fast the migration will move. According to Borgeld, the rate of inlet/outlet migration during the period from 1970 to 1992, the one episode when northern migration reached the revetment location, was approximately 470 feet per year. However, there is no basis for saying that the revetment would migrate north at the same rate. For example, the fact that portions of the dune area were planed off and scoured by the previous migration and that the dune field has not regenerated to the same elevation as it previously existed may mean that there may be less resistance to northward migration than existed during the previous incidence of migration when the dune field had not previously been carved by mouth migration. Other factors may also influence the rate of migration in ways that are not understood.

Therefore, the revetment may be needed again to protect Highway 101 and the Vista Point, although no one can say with certainty if and when the need will arise again.

**F. Conclusion on Setting Against Which to Review the Application**

As noted above, an after-the-fact coastal development permit application is reviewed after construction, but based on the facts about the project setting that would exist at the time of Commission action had the development not been constructed; in such a case, although the Commission acknowledges that the project already exists, the Commission reviews the project's consistency with the Coastal Act as if the development does not exist. In other words, the Commission's action on the application is based on the development's consistency or lack of consistency with the policies given the facts about the setting that exist today at the time of Commission action, not colored by the fact that the project has already been built.

In this case, such an approach means that the Commission, in evaluating the projects consistency with the bluff revetment/seawall provisions of Section 30235 of the Coastal Act, as well as the geologic hazard provisions of Section 30253, must consider that the mouth of the river is no longer adjacent to the revetment, but that it could return. In doing so, the Commission will consider how the revetment will be needed to protect the highway and vista point in the future and if the structure been designed to minimize or avoid adverse impacts on sand supply should the river return. With regard to habitat impacts resulting from the fill, the Commission must consider that the project resulted directly in 1.85 acres of dune hollow wetland fill, 1.13 acres of riparian scrub wetland fill, and 4.38 acres of upland dune habitat that were disturbed by the project. As those resources were disturbed by the project and not the advancing river mouth, the Commission must evaluate the consistency of the project and its proposed habitat mitigation measures that are yet to be done for consistency with the ESHA protection and wetland fill provisions of Sections 30240 and 30233 of the Coastal Act. The Commission must similarly evaluate the development for consistency with all applicable Coastal Act policies against the current project setting with the mouth of the river repositioned some distance south of the revetment as if the revetment had not ever been built but must also require mitigation for the direct impacts of the constructed and proposed project elements and the fact that the river could return to the site.

**G. Detailed Project Description**

The coastal development permit application seeks authorization for revetment development previously performed under emergency permits granted by the Commission to protect the bluff supporting Highway 101 and the highway Vista

Point in the vicinity of Airport Road in the McKinleyville area of Humboldt County. The application also seeks authorization for certain wetland and dune habitat restoration work to be performed as mitigation for the revetment development.

**i. Revetment and Staging Area**

The previously completed revetment and associate development consists of development performed in two phases under separate emergency permits. The first phase completed in 1992 pursuant to Emergency Permit Nos. E-1-92-03G and E-1-92-08G involved the placement of 50,000 cubic yards of imported ½ to 8-ton quarry rock to create an approximately 1,500-foot-long revetment. At its southern end, the first phase of the revetment was constructed in a configuration running parallel to and near the base of the bluff below the Highway 101 roadway. The northern end of the revetment curved westward towards the ocean, following the general curve of the northern edge of the river mouth. The curved portion of the revetment was designed to block the further northward migration of the river. Prior to placement of the rock, the applicant excavated a trench along the alignment of the revetment to provide a stable base for the placement of the rock. The approximately 10,000 cubic yards of sand excavated from the trench was deposited in previously undisturbed dune area to the north of the curvilinear portion of the revetment. This deposition area was utilized as a staging area for stockpiling material and for use as a construction platform for the placement of the rock for the revetment. The project also included the creation of a construction and maintenance access road along straight section of the revetment, utilizing in part an old railroad grade that extended along the base of the bluff. Phase 1 of the revetment disturbed approximately 6.85 acres of vegetated dune area of which approximately 1.85-acres consisted of dune hollow wetlands. The construction of the access road disturbed a portion of the 1.13-acre total of coastal riparian scrub wetland habitat affected by the entire project.

Due to continued erosion off of the southern end of the portion of the revetment constructed during the first phase, Caltrans extended the revetment approximately 1,000 linear feet to the south in 1995. This extension was performed pursuant to Emergency Permit No. 1-95-05G. A total of approximately 12,000 cubic yards of imported 1.4 to 2-ton quarry rock was placed in a straight line configuration. As was done for the first phase, prior to the placement of the rock, a trench was excavated to shape the eroded embankment to create a stable location for the placement of the rock revetment. A total of approximately 7,000 cubic yards of sand was excavated for this purpose and deposited in the staging area created during the first phase north of the curvilinear portion of the revetment. The second phase also involved extending the construction and maintenance access road along the old railroad right-of-way at the base of the bluff that supports the highway and vista point. The construction of this portion of the revetment and access road disturbed the remainder of the 1.13-acre total of coastal riparian scrub wetland habitat not affected by the first phase.

**ii. Mitigation**

**Proposed Wetland and Dune Habitat Mitigation**

The construction of the revetment in 1992 and construction of the revetment extension in 1995 disturbed approximately 7.36 acres of coastal wetland and dune habitat. This acreage consists of 1.85 acres of dune hollow wetlands, 1.13 acres of coastal riparian scrub wetland, and approximately 4.38 acres of upland dune habitat. Caltrans has submitted a mitigation plan that proposes several mitigation elements to restore the directly impacted area of the project site to a functioning upland dune and wetland system. Table 1 below outlines the on-site dune and wetland habitat types under pre-project conditions and current conditions and summarizes the proposed mitigation. The proposed mitigation/restoration areas are described as Areas A-G and are generally depicted on Exhibit No. 6. Caltrans proposes to start construction of the restoration elements described below in September of 2003, complete construction by January of 2004, and begin annual monitoring in September of 2004. Caltrans also proposes to erect protective fencing around all on-site restoration areas to prevent pedestrians and vehicles from disturbing the site during the rehabilitation process.

**Table 1. Proposed Mitigation Summary**

Pre-RSP Construction*	Acres	Current Environment	Acres	Post-Proposed Restoration	Acres
Upland --	2.12	Yellow Bush Lupine	1.73	Native Dune Mat (Area A)	1.73
Dominated by Invasive Exotics	--	<i>Dune Bee Colony</i>	0.24	Dune Bee Colony (Area B)	0.24
	--	Beachgrass-Eroded Foredune	0.26	Native Dune Grass (Area C)	0.26
Upland --	2.26	Beachgrass-Coyote Brush	0.95	Native Coastal Shrub (Area D)	0.92
Plant Community Unknown	--	Ruderal Vegetation	1.72		--
	--	Road	1.02	Road	0.52
<b>Total Onsite Upland Habitat</b>	<b>4.38</b>	<b>Total Onsite Upland Habitat</b>	<b>5.92</b>	<b>Total Onsite Upland Habitat</b>	<b>3.67</b>
Dune Hollow Wetlands (3-Parameter)	1.85	Dune Hollow Wetlands (3-Parameter)	0.19	Dune Hollow Wetlands (Area E-1) (3-Parameter)	1.87
Dune Hollow Wetlands (1-Parameter)	--	Dune Hollow Wetlands (1-Parameter)	0.17	Dune Hollow Wetlands (Area E-2) (1-Parameter)	.33
Coastal Riparian Scrub Wetland (1-Parameter)	1.13	Coastal Riparian Scrub Wetland (1-Parameter)	0.45	Coastal Riparian Scrub Wetland (Area F) (1-Parameter)	.86
<b>Total Onsite Wetland Habitat</b>	<b>2.98</b>	<b>Total Onsite Wetland Habitat</b>	<b>0.81</b>	<b>Total Onsite Wetland Habitat</b>	<b>3.06</b>
Eroded Beach and River mouth	1.34	RSP	1.97	Sand-covered RSP/Dune Mat	1.97
<b>Total Impact Area</b>	<b>8.70</b>	<b>Total Action Area</b>	<b>8.70</b>	<b>Total Mitigation Area</b>	<b>8.70</b>
<b>Off-site Temporal Mitigation</b>					
Eroded Beach	48	Eroded Beach/Beachgrass	48	Open Sand and Dune Mat (Area G)	48

\*Estimated acreages for habitats based on aerial photograph interpretation, and Olofson's 1991 wetland delineation map interpreted by Steve Hansen (2000).

a. Proposed Upland Dune Habitat Mitigation

Caltrans proposes to restore several areas of upland dune habitat by removing invasive exotic species including European beachgrass, yellow bush lupine, and pampas grass and reestablishing native dune vegetation including dune mat, native dunegrass, and/or native shrubs. The proposed upland dune mitigation areas consist of Areas A, B, C, and D as shown on Exhibit No. 6 and as discussed below.

Area A

Area A is approximately 1.73 acres of upland dunes and is within an area of dunes impacted by the deposition of sand in this location when the revetment was constructed. The area is currently dominated by invasive exotic species including primarily yellow bush lupine and European beachgrass and contains few native species. Caltrans proposes to remove exotic plant species and the associated duff layer using a "brush rake/plough blade" method and to recountour the area to match adjacent contours. Following exotic

species removal and recontouring of the site, the area would be revegetated by direct seeding with a mixture of native perennial dune mat species collected from on and off-site sources. Sand excavated from below the duff layer during recontouring of this area would be deposited on the rock revetment to bury the revetment and minimize use of the revetment for breeding and burrowing habitat for predators of the Western Snowy Plover, such as skunks and feral cats. The site would be monitored each year during the peak growing season (i.e. May or June) for five years following restoration. The proposed objective for Area A is to achieve a 50% total cover of native dune mat vegetation, and 0% cover of yellow bush lupine, European beachgrass and pampas grass within five years. In addition, Caltrans proposes that cover values for all species included in the seed mix to be planted would fall within a range consistent with a reference condition derived from data collected from the Lanphere Christensen Dunes Preserve located several miles south of the project site. The cover value ranges for most species is quite wide (e.g. 5% to 75% for many species) since cover values of dune species are known to vary widely.

#### Area B

Area B is a 0.24-acre semi-stable area of exposed sand that would continue to be utilized as a nesting site for *Emphoropsis miserabilis*, a native species of bee that is an important pollination vector for native dune mat vegetation. According to Caltrans' biologist, this type of habitat is considered rare on local dunes. As a result, Caltrans proposes to leave this area intact in its current condition to preserve the integrity of the area as bee habitat. Temporary construction fencing would be erected around the nesting area to ensure that heavy equipment does not enter the area during exotic species removal in adjacent areas.

#### Area C

Area C is a 0.26-acre eroded "foredune" located immediately north of the northwest end of the revetment that is currently sparsely vegetated with European beachgrass and sea rocket and to a lesser extent, native dunegrass. Caltrans proposes to establish a foredune by using soil excavated from Area A described above followed by revegetation with native dunegrass to encourage foredune stabilization. Native dunegrass culms would be harvested on site prior to disturbance and all existing European beachgrass would be buried in place by the formation of the foredune, which would be a minimum of approximately two to three meters deep. The creation of this area is intended to create a protective foredune for the restoration areas located immediately adjacent to the east. The site would be monitored and maintained free of exotic species (European beachgrass, yellow bush lupine, and pampas grass) for five years following revegetation with an objective of achieving a 0% cover of invasive exotics within five years.

#### Area D

Area D includes approximately 0.92 acres of land located adjacent to the west of the existing access road and is dominated by invasive European beachgrass and, to a lesser

extent, native coyote brush and is bordered by coastal scrub habitat to the east. Caltrans proposes to remove invasive exotic species including European beachgrass, yellow bush lupine, and pampas grass. The area would be recontoured to reduce the angle and elevation of the slope between the dune hollow wetland and the adjacent access road and would be revegetated to enlarge the wetland area at the toe of the slope and establish northern coastal scrub species similar to the adjacent scrub habitat. Native species proposed to be planted include wax myrtle, twinberry, red-flowering currant, silk tassel, salal, evergreen huckleberry, and Hooker willow. Exotic species would be removed with mechanical equipment and the area would be monitored for five years with an objective of achieving 50% mean cover of native coastal shrub species on the slope to the access road and a 0% cover of invasive exotic species.

b. Proposed Dune Hollow and Riparian Wetland Mitigation

Construction of the revetment adversely impacted approximately 1.85 acres of dune hollow wetlands and 1.13 acres of riparian wetland. The proposed wetland habitat mitigation areas consist of Areas E and F as shown on Exhibit No. 6 and as discussed below.

Area E

Area E is approximately 2.20 acres located to the north of the rock revetment. Prior to the construction of the revetment, this area was part of the dune hollow wetland system that extends north of the site. Dune hollows that were located immediately north of the rock slope revetment were partially filled with sand displaced by the construction of the revetment and has since been colonized primarily by exotic species with the exception of a 0.36 acre area that is classified as woody and herbaceous dune hollow wetlands consisting primarily of Hooker willow.

Caltrans proposes to restore Area E to dune hollow wetlands by removing invasive exotic vegetation and excavating and recontouring the area to the level of the seasonal fresh water table. The area would be replanted with native plant species collected on-site and supplemented with additional propagule sources from adjacent dune hollow wetlands including willow, salt rush, sough sedge, and small-flowering bulrush. The proposed objective of Area E is to achieve a mean of 95% cover of native wetland vegetation with a minimum 60% cover of willow and a 0% cover of invasive exotic shrubs within a five-year monitoring period.

Area F

The area along the maintenance road south of the curvilinear portion of the revetment demonstrates some wetland characteristics and is generally comprised of Hooker willow and red alder. Caltrans proposes to restore Area F by planting willow along the edge of the road and herbaceous wetland vegetation on the roadbed itself. Invasive exotic shrubs

would be removed from the road and adjacent shoulders using manual methods. The objective of Area F is to achieve a mean of 90% cover of native wetland vegetation with a minimum of 60% willow and a 0% cover of invasive exotic species within a five-year monitoring period.

c. Proposed Mitigation for Temporal Dune Habitat Loss

To mitigate for the temporal loss of upland dune habitat that occurred between the time the rock revetment was constructed in 1992 and the implementation of the proposed mitigation, Caltrans proposes to remove European beachgrass from a 48-acre area defined as Area G south of the curvilinear portion of the revetment to enhance potential habitat for the federally listed Western Snowy Plover.

Area G

Caltrans proposes to implement restoration efforts in Area G to rehabilitate adjacent dune communities to mitigate for temporal loss of dune habitat by removing invasive exotic species from all dunes between the northern tip of the revetment to the rock wall south of the Humboldt County drainage facility (“Flume”) for a five-year period. Revegetation is not proposed for this area. It is anticipated that five years of intensive eradication of invasive exotic species will encourage the establishment of native dune mat vegetation by eliminating competition of (primarily) European beachgrass. The removal of European beachgrass is expected to provide and/or enhance habitat for sensitive species including beach layia (*Layia carnosa*), pink sand verbena (*Abronia umbellata* spp. *breviflora*), and the Western Snowy Plover (*Charadrius alexandrinus*). The proposed objective in Area G is to achieve a 0% cover of European beachgrass within a five-year monitoring period.

iii. **Bisected Jurisdiction**

The project site is bisected by the boundary between the Commission’s retained permit jurisdiction and the coastal development permit jurisdiction of the County. The portion of the development within the Commission’s jurisdiction is the subject of Coastal Development Permit No. 1-00-014. The portion of the development within the certified coastal development permit jurisdiction of Humboldt County is addressed by Public Works Plan No. 1-02-1-PWP.

2. Permitted Revetment

Section 30235 of the Coastal Act states, in part:

*Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent*

*uses or to protect existing structures or public beaches I danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.*

Coastal Act Section 30235 requires that seawalls, revetments, cliff retaining walls, groins and other such structures be approved under certain circumstances. However, Section 30235 also acknowledges that seawalls, revetments, cliff retaining walls, groins and other such structural or “hard” solutions alter natural shoreline processes. Thus, such devices are required to be approved only when the devices (1) are necessary to serve coastal-dependent uses or to protect existing structures or public beaches, and (2) designed to eliminate or mitigate adverse impacts on shoreline sand supply. The Coastal Act does not require the Commission to approve shoreline altering devices to protect vacant land or in connection with construction of new development.

**A. Needed to Protect Existing Structures or Public Beaches**

The applicant seeks permanent authorization for a shoreline revetment granted temporary authorization under a series of emergency permits issued in 1992 and 1995. As described in more detail above in the Detailed Project Description Finding, the constructed revetment is composed of quarry rock set within an excavated trench that is approximately 2,300 feet long, constructed parallel to the bluff along its southern end and constructed in a curvilinear fashion curving west towards the ocean along its northern end.

As discussed previously, at the time the revetment was constructed, the Mad River mouth was migrating northward as much as 4-5 feet per day and was directly threatening the base of the coastal bluff that supports Highway 101 and the highway vista point. The revetment was clearly needed at that point to prevent the bluff from eroding and undermining the highway facilities. The curvilinear portion of the revetment, by stopping the northward advance of the river, also had the effect of protecting the beach and dune area to the north, and keeping them from being planed off by the river. While portions of this beach and dune area are privately held, other portions are owned by Humboldt County and are public. Therefore, the revetment for which the applicant is seeking permanent authorization protects both existing structures (the highway facilities) and public beaches in danger of erosion, consistent with the purposes specified in Section 30235 for which revetments must be approved.

With the repositioning of the river mouth in 1999 to a location approximately 3 miles to the south, the bluff that supports the highway was no longer directly threatened by river erosion. However, the mouth is migrating northward again and has already moved several hundred feet north from the 1999 breach site near Hiller Road and is advancing steadily northward towards the revetment.

Whether or not the river mouth will reach the revetment again during the life of the revetment structure before breaching and repositioning to the south is uncertain. According to Caltrans geologists, it is impossible to say when the river might reach the revetment again because the dynamics of the river system are so poorly understood. The outlet/inlet may march steadily towards the revetment and the revetment may eventually be needed again to protect the highway and the vista point. On the other hand, the migrating river may breach the sand spit again and reposition the inlet/outlet to the south before reaching the revetment. Even with such breaching, the migration may move forward after a temporary repositioning southward of the mouth. No one can say with certainty whether the river mouth will or will not reach the revetment. The fact that carbon dating of layers of peat indicates that the river has migrated as far north as the revetment only once before means there is no degree of frequency of migration to provide a basis for predicting the migration behavior of the river.

In addition, to the degree the river mouth moves northward towards the revetment, there is no certainty as to how fast the migration will move. According to Borgeld, the rate of inlet/outlet migration during the period from 1970 to 1992, the one episode when northern migration reached the revetment location, was approximately 470 feet per year. However, there is no basis for saying that the revetment would migrate north at the same rate. The migration of the river during that period occurred in widely varying rates, rather than maintaining a constant uniform progression. Furthermore, the previous migration of the river may have affected the rate at which any future migration of the mouth may proceed. For example, the fact that portions of the dune area were planed off and scoured by the previous migration and that the dune field has not regenerated to the same elevation as it previously existed may mean that there may be less resistance to northward migration than existed during the previous incidence of migration when the dune field had not previously been carved by mouth migration. Other factors may also influence the rate of migration in ways that are not understood.

The revetment is fundamentally different than many of the shoreline protection projects that are reviewed by the Commission. Most other shoreline protection projects involve the construction of seawalls or revetments along the open seacoast, where the principal forces acting on the bluff to be protected are wave attack from the ocean and sub-aerial erosion. In this case, the revetment was constructed along the banks of a rapidly migrating river. The erosive force of the river was a principal factor in the threat to the stability of the bluff. Whereas bluff retreat from wave attack and sub aerial processes along the open coast may have a degree of predictability based on past erosion from these forces, as discussed above, the past does not really provide a reliable guide as to what degree and within what time frame river mouth migration will or will not threaten the bluff supporting the highway again.

Therefore, given (1) the amount of documented erosion at the site and the area to the south that occurred in the period preceding installation of the revetment due to the migration of the river mouth, and (2) the fact that the river mouth, having repositioned to

the south temporarily is now advancing back toward the site at rates that are impossible to predict with certainty, substantial evidence has been provided to document that the highway facilities and public beach and dune areas to the north of the constructed revetment are in danger from erosion. However, there are a variety of ways in which the threat from erosion could be addressed. Under the policies of the Coastal Act, the project must eliminate or mitigate adverse effects on shoreline sand supply and minimize adverse effects on other coastal resources.

## **B. Alternatives**

The applicant has analyzed a range of alternatives to keeping the revetment for which the applicant is seeking permanent authorization in place to protect the highway facilities and beach areas. These alternatives include (1) relocating Highway 101 away from the threatened bluff, (2) managing the river mouth location by occasionally artificially breaching the sand spit well the south of the affected portion of the Highway such as opposite School Road, (3) installing rock slope protection along and parallel to the base of the bluff without the curvilinear portion that extends westward to the ocean, (4) fixing the mouth of the Mad River where it would not erode the bluff below the highway by building a rock jetties, and (5) removal of the revetment.

The alternative of relocating Highway 101 would have an extremely high construction cost. In addition, constructing a new segment of road to by pass the threatened bluff area would itself have significant environmental impacts.

Managing the river mouth location by periodically artificially breaching the sand spit well to the south of the affected portion of the highway also raises significant concerns. First, Caltrans does not have ownership of the land area of the spit where such a breaching program would be necessary. Second, breaching would expose shoreline areas that support residential development directly opposite the breach site to greater erosion and potentially expose Caltrans to liability.

Installing rock slope protection along and parallel to the bluff without constructing the curvilinear portion that stops the river from migrating any further northward would require placing rock slope protection on a much larger area than the proposed project. In addition, the alternative would do nothing to stop the migration of the river through the beach and dune habitat immediately north of the revetment, ultimately resulting in greater resource damage.

Fixing the mouth of the river by building rock jetties on either site would raise concerns similar to the alternative of managing the river mouth through breaching the sand spit. In addition, given that the river has often breached the sand spit naturally in locations quite some distance from its previous location, large expanses of rock slope protection would have to be placed upstream from the new jetties to ensure that the river mouth is permanently contained and managed.

Finally, removal of the revetment would not ensure the protection of either the highway facilities or the public beach and dune areas to the north.

Therefore, none of the identified alternatives are feasible less environmentally damaging alternatives that would still protect the highway facilities and public beach areas threatened by erosion and the proposed revetment is therefore required to protect existing structures and beaches in danger of erosion.

### **C. Impacts on Shoreline Sand Supply**

Although retention of the seawall on a permanent basis is required to protect the existing highway facilities and public beaches, Section 30235 of the Coastal Act requires that shoreline protection be approved only if it is designed to eliminate or mitigate adverse impacts on local shoreline sand supply. There are a number of potential adverse impacts to public resources associated with the construction of shoreline protection. The natural shoreline processes referenced in Section 30235, such as the formation and retention of sandy beaches, can be significantly altered by construction of a seawall, since bluff retreat is one of several ways that beach area and beach quality sand is added to the shoreline. This retreat is a natural process resulting from many different factors such as erosion by wave action causing cave formation, enlargement and eventual collapse, saturation of the bluff soil from ground water causing the bluff to slough off and natural bluff deterioration. When a seawall is constructed on the beach at the toe of the bluff, it directly impedes these natural processes. The proposed project however does not contribute to this impact on shoreline sand supply in the same way, however. Unlike most locations where revetments are constructed, the proposed revetment was not constructed along the true shoreline edge where it would be continually subject to wave attack. As discussed previously, seismic uplift has created two separate terrace levels between the coastal bluff and the shoreline edge, one of which is very wide. Prior to the migration of the river mouth to the revetment site, the terraces were covered with extensive dune fields that formed an effective barrier to wave attack. The revetment was not constructed so much as to protect against ocean wave attack as it was to prevent river currents from scouring the bluff. Even with the breaching of the sand spit a few miles to the south in 1999 and the repositioning of the river mouth, a dune field has been slowly recreating itself in the area between the bluff face and the usual shoreline. Thus, unlike other situations where wave attack is shrinking the remaining beach in the face of bluffs that are armored to protect them from retreating, the amount of deposited sand between the wave slope and the coastal bluff is actually increasing.

In an analysis attached as Exhibit 9, Phil Williams & Associates, consulting hydrologists hired by bluff top property owners upstream from the revetment site who allege that the revetment has exacerbated the erosion of their properties raises two other possible ways the revetment may be adversely affecting sand supply. First, Phil Williams & Associates contends that by fixing the northern boundary of the river mouth, the revetment halted the

erosion of the dunes to the north reducing the sand supply of sand delivered by littoral transport. Although the revetment had the effect of halting dune erosion to the north, the revetment has not stopped the river from causing dune erosion. As documented by Komar, et al. (Exhibit No. 7), the mouth of this dynamic river system appears to change quite frequently. Currently, the mouth is a few miles to the south of the revetment site and as noted before, is carving through beach and dune areas as it advances northward. Thus, the mouth continues to contribute sand to the littoral system that was picked up by river mouth carving. In addition, the river contributes a great amount of material to the littoral system from a huge watershed area in comparison to the small dune area that the river mouth can carve as it migrates northward. Furthermore, according to the Komar, et al study, the largest single contributor to the littoral system off the coast at the project site is the Eel River, which discharges to the ocean many miles to the south. The littoral drift off the coast in this area is predominantly from south to north, carrying sediments derived from the Eel River watershed to this section of the coast. Therefore, the temporary halt to erosion of the dunes to the north of the revetment does not have a significant adverse effect on shoreline sand supply.

Another way that the Phil Williams & Associates study indicates that the revetment may interfere with shoreline sand supply is by blocking wind blown sand from the north. However, in his memorandum dated October 30, 2002, hydrologist Randy Klein, Caltrans consultant points out that the area potentially deprived of sand for dune formation is the upper part of the wave slope immediately to the northwest of the dunes capping the spit at any location. After studying aerial photographs of the area, Klein notes that the wind 'shadow' behind the revetment is very small. Therefore, the revetment does not significantly affect shoreline sand supply by blocking wind blown sand.

A third way the revetment could be considered to be having an effect on shoreline sand supply is by blocking the littoral drift to the north. The revetment, however, does not actually extend all the way down to the wave slope. Sand material being carried by tidal action would therefore not be blocked by the revetment as the revetment does not extend into the littoral cell. Caltrans geologists have also noted that except for localized erosion around the northwestern end of the revetment typical of what would occur with most revetments, the edge of the wave cut terrace at the shoreline edge to the north of the revetment does not appear to be retreating, suggesting that the littoral system is not directly affected by the revetment.

#### **D. Conclusion**

In conclusion, substantial evidence has been provided to document that the highway facilities and public beach and dune areas to the north of the constructed revetment are in danger from erosion. In addition, an analysis of alternatives indicate that there is not a feasible less environmentally damaging alternative for protecting the highway facilities and public beach. Moreover, retention of the revetment within its unique riverine setting

does not result in a significant adverse effect on shoreline sand supply. Therefore, the Commission is required to approve a shoreline-altering device to protect the highway facilities and the public beach, pursuant to Section 30235. As discussed in the other findings below, the Commission finds that the project as conditioned, is consistent with all other applicable Coastal Act policies. Accordingly, if the Commission had found that the project were inconsistent with an applicable Coastal Act policy, the Commission would nonetheless have been required to approve the project pursuant to Section 30235.

### 3. Geologic Hazards

Section 30253 of the Coastal Act states, in applicable 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.*

Section 30253 requires that new development minimize risks to life and property in areas of high geologic hazard, assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or require the construction of protective devices.

The owners of blufftop properties upstream of the revetment indicate they have experienced increased erosion of their bluffs over the last approximately dozen years, during the time the rock revetment has been in place. The landowners allege that the revetment has had a significant effect on the erosion. Caltrans on the other hand, denies that the revetment has been a significant factor in whatever increased erosion the landowners bluff has experience. The matter is currently the subject of litigation between the property owners and Caltrans. The parties in the lawsuit have hired consultants to perform detailed studies of the factors contributing to the erosion of the property owners bluffs. Included among these reports are the reports and memoranda included either in excerpt form or in their entirety as Exhibits 7-9 of the staff recommendation.

The chief factor cited by the consultants for the upstream property owners that is associated with increased erosion is the alleged widening of the mouth of the river during the time when the revetment halted the northward advance of the river mouth. With the north side of the river mouth blocked in place by the revetment, the mouth allegedly began to widen, subjecting areas upstream to greater and more prolonged wave attack.

**CALTRANS – Mad River Revetment**

**1-00-014**

**Page 31**

The greater accessibility of waves into the river mouth has allegedly accelerated the removal of talus material at the toe of the bluff, further destabilizing portions of the bluff.

The consultants for Caltrans indicate that what appeared to have been a widening of the mouth of the river when it was located adjacent to the river was actually an expression of the greater frequency of wave overtopping of the emerging sand spit creating in the wake of the northward migration of the mouth of the river. As the river mouth migrated northward, it planed off a large amount of sand, reducing the elevation of the sand dunes. These sand dunes in the areas just south of the mouth became a low sand spit with very little capability of blocking significant wave action. As a result, waves would regularly overtop the low sand spit and affect the bluffs behind. Klein (see Exhibit 8) points out that this effect was created by the northward migration of the river and would have occurred whether or not a revetment had been built. The spit has been slow to rebuild to pre-migration elevations since the mouth passed over it on its way north. The Caltrans consultants attribute this in part, to the effects of En Nino and La Nino in 1997-1998, which caused sea elevations to rise along the west coast and enabled even greater overtopping of the emerging sand spit. Frequent overtopping retarded spit maturation and elevation growth, thereby reducing its effectiveness at blocking waves.

The Commission finds that the landowners have not conclusively demonstrated that the revetment proposed for permanent authorization has contributed to geologic instability, erosion or destruction of the surrounding area and that Caltrans has provided substantial evidence supporting their position that there are plausible explanations for the increased erosion they have observed on their property that do not implicate the presence of the revetment as a contributing factor.

The revetment itself was designed to be stable. The revetment was designed pursuant to geotechnical reports prepared for Caltrans that recommended, among other things, that a suitable base for the revetment be established by placing the revetment within an excavated trench. Such a trench was excavated prior to installing the revetment.

However, even though the revetment may have been designed to be stable, it may not remain so if the revetment is not adequately maintained over the life of the project. If the revetment were damaged in the future (e.g. as a result of river action, storms, etc.) it could threaten the stability of the site, which could lead to the need for more bluff alteration. In addition, damage to the revetment could adversely affect the surrounding beach and dune area by leaving debris in the beach and/or creating a hazard to the public using the beach. Therefore, in order to find the proposed seawall consistent with the Coastal Act, the Commission finds that the condition of the seawall in its approved state must be maintained for the life of the seawall. Further, in order to ensure that the permittee and the Commission know when repairs or maintenance are required, the permittee must monitor and report on the condition of the seawall annually, for three years and at three-year intervals for the life of the structure. The monitoring will ensure that the permittee and the Commission are aware of any damage to or weathering of the

seawall wall will identify whether repairs or other actions are necessary to maintain the seawall in its approved state.

Therefore, Special Condition No. 4 requires the applicant to monitor and submit a monitoring report which evaluates the condition and performance of the seawall and below-grade upper retention system and overall site stability, every third year for the life of the structure with recommendations, if any, for necessary maintenance, repair, changes or modifications to the project. In addition, the condition requires the applicant to perform the necessary repairs through the coastal development permit process.

Special Condition No. 5 notifies the applicants that they are responsible for maintenance of the herein approved shore and bluff protection to include removal of debris deposited on the beach after construction of the structures. The condition also indicates that, should it be determined that maintenance of the proposed structures are required in the future, including maintenance of the color and texture, the applicant shall contact the Commission to determine if permits are required.

Special Condition No. 3 requires the applicant to submit a copy of any required permits from the Army Corps of Engineers, to ensure that no additional requirements are placed on the applicant that could require an amendment to this permit.

The subject application includes the after-the-fact construction of a seawall which was constructed pursuant to emergency permits. A condition of approval of the emergency permit required the applicant to obtain a regular coastal development permit within a certain number of days of issuance of the emergency permit or to remove the structure in its entirety. To assure that the permitting for the seawall component of this application is resolved in a timely manner, Special Condition No. 7 has been attached which requires that the applicant satisfy all conditions of this permit which are prerequisite to the issuance of this permit within 180 days of the Commission action.

Also, due to the inherent risk of shoreline development, Special Condition No. 6 requires the applicant to assume the risks of development, waive any claim of liability against the Commission and indemnify the Commission against any damages that might result from the proposed revetment or its construction. The risks of the proposed development include that the proposed revetment will not protect against damage to the highway facilities from bluff failure and erosion. In addition, the structures themselves may cause damage either to the applicants' residence or to neighboring properties by increasing erosion of the bluffs. Such damage may also result from river current or wave action that damages the seawall. Although the Commission has sought to minimize these risks, such risks can never be eliminated entirely. Given that the applicants have chosen to construct the proposed shoreline devices despite these risks, the applicants must assume the risks. Special Condition No. 6 requires the applicant to submit a written agreement incorporating all of the requirements of Special Condition No. 6. Special Condition No. 6 also requires the applicant shall record a deed restriction imposing the conditions of this

permit as covenants, conditions and restrictions on the use and enjoyment of the property in the event that the property is conveyed to another party. Only as conditioned can the proposed project be found consistent with Sections 30235 and 30253 of the Coastal Act.

In summary, the applicant has documented that the existing highway and highway vista point development is in danger from erosion and subsequent bluff collapse. In addition, Caltrans has provided substantial evidence that the revetment does not contribute significantly to geologic instability, erosion or destruction of the surrounding area. As conditioned, there are no other less damaging alternatives available to reduce the risk from bluff erosion or minimize impacts on shoreline sand supply. Thus, the Commission is required to approve the proposed protection for the public highway facilities and public beach. Therefore, as conditioned, the Commission finds that the proposed seawall is consistent with Sections 30235 and 30253 of the Coastal Act.

**4. Dune Hollow Wetland, Riparian, and Upland Dune Habitat**

Several types of wetland and other environmentally sensitive habitat exist at the site and were impacted by the construction of the rock revetment. As discussed in the site description finding above, the site currently contains wetland and environmentally sensitive habitat areas, but in a different extent and configuration than the conditions that existed at the site prior to construction of the revetment. Construction of the rock revetment adversely impacted approximately 7.36 acres of dune hollow wetland, riparian wetland, and upland dune habitat. In addition, the site is known to provide habitat for the federally listed Western Snowy Plover (*Charadrius alexandrinus*), and for pink sand verbena (*Abronia umbellata* spp.), a state listed Special Status species.

Although dune hollow wetlands, riparian wetlands, and upland dune habitat are similarly considered to be environmentally sensitive habitat areas because of their rarity and valuable role and function in coastal ecosystems, Section 30233 of the Coastal Act sets forth more specific standards with regard to development involving filling or dredging of wetlands. Therefore, in reviewing the project, the Commission must apply the standards of Section 30233 to those portions of the project that involve impacts to wetlands. For portions of the project involving other types of environmentally sensitive habitat, the Commission must review the project against Section 30240 which sets forth standards for development in and adjacent to environmentally sensitive habitat areas. The project's consistency with Sections 30233 and 30240 are discussed in sections (A) and (B) below.

**A. Dune Hollow and Riparian Wetlands and Section 30233**

The proposed project involved direct impacts to approximately 2.98 acres of wetlands from associated construction activities, including the placement of fill in approximately 1.85 acres of dune hollow wetlands for an equipment and materials staging area, and placement of fill in approximately 1.13 acres of riparian wetlands for construction of an

access road. This application seeks permanent authorization for the fill resulting from the placement of the rock revetment and construction of the access road.

Coastal Act Section 30233 allows filling and dredging in wetlands only where there is no feasible less environmentally damaging alternative, where feasible mitigation measures have been provided to minimize adverse environmental effects, and where the project is limited to one of eight specified uses.

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

*(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*

...

*(5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*

Section 30233 sets forth a number of different limitations on what development projects may be allowed in coastal wetlands. For analysis purposes, the limitations can be grouped into four general categories or tests. These tests are:

1. that the purpose of the filling, diking, or dredging is for one of the eight uses allowed under Section 30233;
2. that feasible mitigation measures have been provided to minimize adverse environmental effects;
3. that the project has no feasible less environmentally damaging alternative; and
4. that the biological productivity and functional capacity of the habitat shall be maintained and enhanced where feasible.

(1) Allowable Use

The first test for a proposed wetland fill/dredging project is whether the fill/dredging is for one of the eight allowable uses under Section 30233(a). The relevant category of use listed under Section 30233(a) that relates to the proposed seismic retrofit project is subcategory (5), stated as follows:

(5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

To determine if the proposed fill is for an incidental public service purpose, the Commission must first determine that the proposed fill is for a public service purpose. Since construction of the rock revetment was conducted by a public agency to improve public safety on an existing public highway, the Commission finds that the fill/dredging expressly serves a public service purpose consistent with Section 30233(a)(5).

The Commission must next determine if the fill is "incidental." The Commission has in the past determined that the fill for certain highway safety improvement projects was for "incidental" public service purposes under Section 30233(a)(5). For example, in CDP No. 1-94-78 Caltrans proposed to construct a left turn lane along Highway 255 for safety purposes requiring the placement of 0.45 acres of wetland fill. The Commission found that the fill for the safety improvement project was for an "incidental" public service purpose. In the present case, the Commission finds the public safety purpose of the proposed project is incidental to "something else as primary," that is, the transportation service provided by the existing highway and vista point. The expressed purpose and need for the rock revetment is to ensure the safety and structural integrity of Highway 101 and the vista point by protecting it from being undercut by erosion and catastrophic failure. There would be no increase in traffic capacity because the project does not involve any expansion or other improvements to the highway itself.

Therefore, the Commission finds that for the reasons discussed above, the dredging and filling associated with construction of the rock revetment is for an incidental public service purpose, and thus, is an allowable use pursuant to Section 30233(a)(5) of the Coastal Act.

(2) Feasible Mitigation Measures

The second test set forth by Section 30233 is whether feasible mitigation measures have been provided to minimize adverse environmental impacts. The project resulted in adverse impacts to dune hollow and riparian wetlands by resulting in loss of extent of wetland area and function, and loss of wetland and riparian vegetation. The project impacts to dune hollow and riparian wetlands and their mitigation are discussed in the following two sections.

(a) Dune Hollow Habitat

Caltrans proposes to mitigate for impacts to approximately 1.85 acres of dune hollow wetlands resulting from installation of the rock revetment by restoring approximately 2.20 acres of dune hollow wetlands located to the north of the rock revetment at the

project site within the area that had been filled and utilized as a construction staging area. The proposed dune hollow mitigation area is defined as Area E on Exhibit No. 6. Prior to the construction of the revetment and staging area this area was part of the dune hollow wetland system that extended to the north of the site. Dune hollows that were located immediately north of the rock slope revetment were partially filled with sand excavated from the trench within which the revetment was constructed and have since been colonized primarily by exotic species with the exception of a 0.36-acre area that is classified as woody and herbaceous dune hollow wetlands consisting primarily of Hooker willow.

According to information prepared by Caltrans' biologist, woody dune hollows are seasonally inundated freshwater wetlands characterized primarily by Hooker willow and occasionally contain Pacific wax myrtle, Sitka spruce, and coastal pine. The herbaceous layer is typically comprised of salt rush and slough sedge. Herbaceous dune hollows are seasonally inundated freshwater wetlands, but are less stable than woody hollows and in some cases represent an earlier serial stage to woody hollows. Herbaceous hollows are characterized by low growing rushes, sedges, and other herbaceous plants.

Caltrans proposes to restore Area E to dune hollow wetlands by removing invasive exotic vegetation and excavating and recontouring the area to the level of the seasonal fresh water table. The area would be replanted with native plant species collected on-site and supplemented with additional propagule sources from adjacent dune hollow wetlands including willow, salt rush, slough sedge, and small-flowering bulrush. The proposed objective of Area E is to achieve a mean of 95% cover of native wetland vegetation with a minimum 60% cover of willow and a 0% cover of invasive exotic shrubs within a five-year monitoring period. As proposed, the restoration of the dune hollow area (Area E) would result in an approximately 1:1 ratio of habitat creation to habitat loss in the form of on-site, in-kind mitigation.

In past permit actions in the Northern California coastal zone, the Commission has approved wetland mitigation proposals that provide (1) in-kind habitat replacement, (2) mitigation on-site whenever possible, and (3) mitigation at ratios of habitat creation to habitat loss of greater than 1:1, in recognition that wetland restoration projects are difficult to implement successfully and that there is often a significant time lag between the time when the wetlands are filled and the time when wetland vegetation at the mitigation site has grown to the point where it can provide comparable habitat values. Mitigation ratios are higher for more complex wetland habitats than for simpler types of wetland habitats and often exceed 2:1. Wetland mitigation measures that fully conform to these goals are more likely to provide adequate mitigation as required by the third test of Section 30233 of the Coastal Act.

With regard to the kind of habitat replacement, the Commission finds that the proposed dune hollow wetland enhancement at the mitigation site would provide in-kind

**CALTRANS – Mad River Revetment**

**1-00-014**

**Page 37**

mitigation. Caltrans' proposal would enhance approximately 2.20 acres of dune hollow wetland to mitigate for the fill impacts to the dune hollow wetlands.

With regard to the location of the proposed dune hollow restoration, the proposed 2.20 acres of dune hollow restoration would be provided on-site in the area impacted by construction of the project. However, it is not feasible to provide additional area of dune hollow creation on-site due to the extent of other forms of environmentally sensitive habitat areas on the site. Creation of additional dune hollow wetlands on-site would compromise the habitat values and functions of other environmentally sensitive components of the dune system.

With regard to the mitigation ratio, as noted above, mitigation at ratios of habitat creation to habitat loss of greater than 1:1 are necessary to account for some mitigation failure and the temporal loss of habitat values that occurs before the mitigation site provides comparable function and value. The mitigation plan submitted by Caltrans proposes mitigating for the 1.85 acres of dune hollow wetland fill by creating 2.20 acres of dune hollow wetland, or a slightly greater than 1:1 mitigation ratio.

Although the proposed restoration would restore dune hollow wetland values at the mitigation site by creating dune hollow wetland mitigation at a greater than 1:1 mitigation ratio, the Commission finds that the proposed mitigation is not adequate to account for the total impact to dune hollow wetlands resulting from the project because of the complexity of the habitat lost and the temporal loss of habitat. First, dune hollow wetlands are a more complex habitat than other types of wetlands such as riparian or freshwater wetlands. As a result, dune hollow wetlands are more difficult to successfully establish and take a longer period of time before a created dune hollow wetland provides the same level of habitat functions and values of a naturally occurring dune hollow. Secondly, project impacts to dune hollow wetlands occurred at the time the revetment was originally constructed in 1992. Thus, a significant amount of time has passed during which some biological productivity and habitat value provided by the dune hollow wetlands were not available that otherwise would have been realized had the project impact not occurred. In addition to the amount of time that has passed since the project impact occurred, it may take several more years before the proposed mitigation is implemented and functioning as dune hollow habitat. This temporal loss of habitat value and productivity is typically accounted for by increasing mitigation ratios, such that by the time the mitigation is functioning as habitat, the extent and function of the habitat created is at least equal to the extent and function of the habitat impacted.

Therefore, the Commission finds that because of the complexity of the dune hollow wetland habitat that was lost, and the significant time lag between the time the wetlands were filled and the time the mitigation would be implemented to a level where the wetlands would be providing comparable functions and habitat values, the mitigation proposal does not provide adequate wetland creation and must be supplemented by providing greater mitigation that includes additional wetland habitat creation. To provide

## CALTRANS – Mad River Revetment

1-00-014

Page 38

this greater mitigation, the Commission attaches Special Condition No. 1 requiring that an additional 3.75 acres, i.e. an additional 2:1 ratio of wetland creation to habitat impact, be debited from the Caltrans Elk River mitigation bank.

The 17-acre mitigation bank is located along Highway 101 at the Elk River approximately 3.5 miles south of the project site. The mitigation bank was established in 1980 pursuant to a Memorandum of Understanding (MOU) between Caltrans, the Commission, and the California Department of Fish and Game. The bank was originally created to mitigate for two other Caltrans highway projects in the coastal zone including the construction of a bridge along Highway 255 at Mad River Slough (CDP No. 79-P-75) requiring two acres of mitigation, and a freeway project along Highway 101 at Elk River (CDP No. A-79-75) requiring nine acres of mitigation. The MOU specifies that the remaining acreage in the bank shall be available for future use as mitigation for other Caltrans projects. More recently, the bank was used to mitigate for 693 square feet of wetland fill associated with the seismic retrofit of the Samoa Bridge (CDP No. 1-01-069) and to mitigate for 0.25 acres of wetland fill associated with roadway improvements at Cole Avenue (CDP No. 1-02-016). The Department of Fish and Game staff has confirmed with Commission staff that there is approximately 5.25 acres of credit remaining at the 17-acre mitigation bank.

The Elk River mitigation site is composed of mostly high salt marsh that is inundated by tides on average approximately 35 times per year. The marsh was created by breaching levees surrounding what was farmed seasonal wetlands prior to 1980. Pursuant to the MOU, title to the mitigation bank property and the responsibilities for managing the site were transferred from Caltrans to the Department of Fish and Game. Caltrans conducted a 10-year monitoring program at the mitigation bank site to document the anticipated change from diked pasture and other upland habitats to salt marsh habitat. The last monitoring report prepared in 1989 indicates that breaching the dikes and allowing natural vegetative changes to occur had been effective in restoring high salt marsh habitat at the site. The site is vegetated with salt marsh species including pickleweed (*Salicornia virginica*), salt rush (*Juncus sp.*), hairgrass (*Deschampsia caespitosa*), potentilla (*Potentilla egedei*), and saltgrass (*Distichlis spicata*). Wildlife usage of the site is greatest by various bird species including Northern shoveler, Great blue heron, Great egret, Belted kingfisher, Long-billed marsh wren, Barn swallow, Osprey, and Double-crested cormorant.

Additional mitigation in the form of a 2:1 debit at the mitigation bank in addition to the 1:1 proposed dune hollow mitigation on-site for a total of a 3:1 mitigation ratio would ensure that the amount of dune hollow wetland creation would be adequate to mitigate for the amount of dune hollow wetland filled by the project and would not result in an overall loss of wetland area or habitat function. As discussed above, the Commission encourages wetland mitigation at ratios of habitat creation to habitat loss of greater than 1:1 in recognition that wetland restoration projects are difficult to implement successfully and that there is often a significant time lag between the time when the wetlands are filled and

## **CALTRANS – Mad River Revetment**

**1-00-014**

**Page 39**

the time when wetland vegetation at the mitigation site has grown to the point where it can provide comparable habitat values. In this case, the habitat improvements at the bank that will provide additional mitigation for the fill impacts have already been accomplished. The levees at the mitigation bank were breached in the early 1980's and salt marsh habitat has been naturally restoring at the site ever since. Thus, there will be no temporal loss of habitat values between the time when the fill is placed and when restoration of habitat values is achieved. In addition, there is no uncertainty as to whether the mitigation will be successful in creating the desired habitat values, as the ten year monitoring program for the Elk River Mitigation Bank has documented that high salt marsh habitat has been restored and wildlife is using the habitat.

The supplemental dune hollow mitigation at the Elk River mitigation bank required by Special Condition No. 1 would not be in-kind or on-site mitigation for impacts to the dune hollow wetlands as is generally preferred. The Elk River mitigation bank is located in the Humboldt Bay area approximately 15 miles south of the project site. However, as noted previously, it is not desirable to create additional dune hollow wetlands on site because virtually the entire area is comprised of other types of environmentally sensitive habitat that are also essential components of the dune ecosystem. Creating additional area of dune hollow wetland on-site would require converting other forms of ESHA to dune hollow wetlands and would compromise the ecological integrity of the area. The mitigation bank is comprised of high salt marsh habitat, which differs from the dune hollow wetlands that were filled at the project site. Although the supplemental wetland mitigation is of a different type of wetland (i.e. out-of-kind), like dune hollows, salt marsh habitat is similarly rare around the Humboldt Bay area. The high salt marsh habitat at the mitigation bank provides significant functional habitat values and although different than the dune hollow wetlands, the mitigation bank site provides feeding, resting, and nesting habitat for many bird species. Additionally, as the site is occasionally inundated by the tides, benthic organisms and other intertidal species utilize the mitigation bank site as well. Caltrans investigated other potential off-site locations for providing dune hollow mitigation, but was unsuccessful in locating an appropriate site.

Therefore, to ensure that the proposed project would provide adequate mitigation for adverse impacts to dune hollow wetlands, the Commission attaches Special Condition No. 1. This condition requires Caltrans to submit a revised mitigation plan that includes provisions for additional mitigation in the form of the debit of at least 3.75 acres of wetland area from the Elk River mitigation bank as described in the Memorandum of Understanding signed by Caltrans, the Department of Fish and Game (DFG), and the Coastal Commission on April 9, 1980. As the Elk River Mitigation Bank is now owned and managed by the Department of Fish and Game, the condition requires Caltrans to submit written evidence that DFG has given permission for the bank site to be used for mitigating the wetland fill impacts of the proposed project and that mitigation credits in the amount of 3.75 acres are available for the proposed project. Additionally, the condition requires Caltrans to submit a current biological survey to the Executive

Director to demonstrate that the mitigation bank property continues to exhibit the biological functions anticipated by the MOU.

(b) Riparian Wetlands

Caltrans proposes to mitigate for impacts to approximately 1.13 acres of riparian scrub wetland resulting from the installation of the access road by restoring approximately 0.86 acres of riparian habitat. The proposed riparian habitat mitigation area is defined as Area F on Exhibit No. 6.

Area F is located adjacent to an existing access road constructed as part of the project that is used by Caltrans for maintenance of the rock revetment and by Humboldt County for maintenance of an adjacent drainage facility. This area receives runoff from the adjacent bluff and therefore, supports wetland vegetation. Caltrans proposes to remove invasive exotic shrubs from the road and adjacent shoulders using manual methods and to restore the area by planting willows along the edge of the road and herbaceous wetland vegetation on the roadbed itself. The objective of Area F is to achieve a mean of 90% cover of native wetland vegetation with a minimum of 60% willow and a 0% cover of invasive exotic species within a five-year monitoring period.

As proposed, the mitigation would provide a less than 1:1 ratio of riparian habitat creation to riparian habitat loss. As discussed above, in past permit actions in the Northern California coastal zone, the Commission has approved wetland mitigation proposals that provide (1) in-kind habitat replacement, (2) mitigation on-site whenever possible, (3) and mitigation at ratios of habitat creation to habitat loss of greater than 1:1 in recognition that wetland restoration projects are difficult to implement successfully and that there is often a significant time lag between the time when the wetlands are filled and the time when wetland vegetation at the mitigation site has grown to the point where it can provide comparable habitat values. Wetland mitigation measures that fully conform to these goals are more likely to provide adequate mitigation as required by the third test of Section 30233 of the Coastal Act.

In addition, although the proposed mitigation plan proposes to restore riparian habitat on-site, the Commission finds that the proposed mitigation is also not adequate to account for the total impact to riparian wetlands resulting from the project because of the continued use of the proposed mitigation site as an access road and because of the temporal loss of riparian habitat. First, the proposed area to be restored to riparian habitat (Area F) is located on and adjacent to an existing access road. The road is used by the County and by Caltrans to access the area for maintenance purposes. The road is impacted periodically by maintenance vehicles accessing the site and is occasionally mowed to maintain adequate access. The Commission finds that because of the on-going impacts associated with the use of the proposed riparian restoration area as a road, the mitigation as proposed is not adequate to ensure that the riparian habitat would be established in a manner that would effectively mitigate for project impacts to riparian

## **CALTRANS – Mad River Revetment**

**1-00-014**

**Page 41**

habitat. Secondly, impacts to the riparian habitat occurred at the time the revetment was originally constructed in 1992 and with the construction of the revetment extension in 1995. Thus, a significant amount of time has passed during which the habitat values and functions provided by the riparian wetlands were not available. In addition to the amount of time that has passed since the project impact occurred, it may take several more years before the proposed mitigation is implemented and functioning as riparian habitat. As discussed above, this temporal loss of habitat value and productivity is typically accounted for by increasing mitigation ratios, such that by the time the mitigation is functioning as habitat, the extent and function of the habitat created is at least equal to the extent and function of the habitat impacted. It is not feasible to create additional riparian habitat on site, as virtually the entire site is comprised of other forms of environmentally sensitive habitat or is devoted to the road or revetment. Therefore, to provide suitable mitigation for the loss of riparian scrub wetland habitat, the Commission attaches Special Condition No. 1 requiring that 2.26 acres, excluding the proposed 0.86-acre area that would continue to be utilized as a maintenance road, be provided off-site for a 2:1 ratio of riparian wetland creation to riparian habitat impact.

Unlike dune hollow wetlands, riparian wetlands are a much more common and easier to establish type of wetland habitat. Due to the wet climate of the northern portions of the coastal zone, riparian vegetation such as willow, alder, and wax myrtle grows much more readily than in southern parts of the coastal zone and has a higher likelihood of becoming successfully established in a shorter period of time than dune hollow wetlands. Therefore, the Commission finds it is appropriate to require mitigation of riparian habitat at a 2:1 ratio rather than the 3:1 ratio required for dune hollows, or similarly complex habitats.

Caltrans has been pursuing options for areas to provide off-site, in-kind riparian habitat mitigation, but has not yet identified an adequate area. However, due to the relative ease of establishing riparian habitat along the north coast, it is likely that Caltrans can identify an area within a Caltrans-owned right-of-way for example, that would be suitable to support riparian wetland habitat. Commission staff considered requiring the riparian mitigation to be provided at the Elk River mitigation bank described above. However, given the relative ease of establishing riparian habitat compared to establishing other types of wetlands such as dune hollow wetlands, or salt marsh habitat, it was determined that the mitigation bank is best reserved for the future mitigation of more complex habitats.

Therefore, to account for the loss of riparian vegetation and to ensure that the mitigation is successful in establishing the extent of cover and function of riparian habitat impacted by the project, the Commission attaches Special Condition No. 1 that requires Caltrans to submit a revised mitigation plan that provides for the creation of 2.26 acres of riparian habitat at an off-site location rather than restoring the 0.86-acre area that would continue to be utilized as a maintenance road. The condition requires the revised mitigation plan to incorporate provisions for planting riparian species such as willow, red alder, salal,

wax myrtle, cascara, twinberry, or other native riparian species at density and coverage at least as great as the density and coverage of the riparian habitats that were disturbed by the project. In addition, the revised plan is required to include: (1) a planting plan detailing the specific species to be planted; (2) a site plan showing the locations where individual trees and plants would be planted; (3) a description of establishment techniques (e.g., irrigation, fertilization, etc.); (4) a schedule for planting; and (5) evidence that all legal right, interest, or entitlement to carry out the required riparian habitat creation has been obtained.

As conditioned, the Commission finds that the project would not result in significant adverse impacts to wetland habitat and is adequate to minimize significant adverse impacts to wetland habitat consistent with Section 30233 of the Coastal Act.

(iii) Alternatives Analysis

The third test of Section 30233(a) is whether there are feasible less environmentally damaging alternatives to the proposed project. Caltrans and Commission staff considered several alternatives to the proposed project including (1) relocating Highway 101 away from the threatened bluff, (2) managing the river mouth location by occasionally artificially breaching the sand spit well the south of the affected portion of the Highway such as opposite School Road, (3) installing rock slope protection along and parallel to the base of the bluff without the curvilinear portion that extends westward to the ocean, (4) fixing the mouth of the Mad River where it would not erode the bluff below the highway by building a rock jetties, and (5) removal of the revetment. The Commission finds, as discussed below, that there is no feasible less environmentally damaging alternative to the project as conditioned.

The alternative of relocating Highway 101 would have an extremely high construction cost. In addition, constructing a new segment of road to by pass the threatened bluff area would have significant environmental impacts. Therefore, this alternative is not a less environmentally damaging feasible alternative.

Managing the river mouth location by periodically artificially breaching the sand spit well to the south of the affected portion of the highway would eliminate the need for the revetment and its wetland fill. However, Caltrans does not have ownership of the land area of the spit where such a breaching program would be necessary. In addition, breaching would expose shoreline areas that support residential development directly opposite the breach site to greater erosion and could potentially expose Caltrans to liability. Therefore, this alternative is not a less environmentally damaging feasible alternative.

Installing rock slope protection along and parallel to the bluff without constructing the curvilinear portion that stops the river from migrating any further northward would require no fill of dune hollow wetland but probably would result in as much or more

riparian wetland fill. In addition, this alternative would require placing rock slope protection on a much larger area than the proposed project. Furthermore, the alternative would do nothing to stop the migration of the river through the beach and dune habitat immediately north of the revetment, ultimately resulting in greater resource damage. Therefore, this alternative is not a less environmentally damaging feasible alternative.

Fixing the mouth of the river by building rock jetties on either site would raise concerns similar to the alternative of managing the river mouth through breaching the sand spit. In addition, given that the river has often breached the sand spit naturally in locations quite some distance from its previous location, large expanses of rock slope protection would have to be placed upstream from the new jetties to ensure that the river mouth is permanently contained and managed. Therefore, this alternative is not a less environmentally damaging feasible alternative.

Finally, removal of the revetment would not ensure the protection of either the highway facilities or the public beach and dune areas to the north and is thus not a less environmentally damaging feasible alternative.

Therefore, none of the identified alternatives are feasible less environmentally damaging alternatives that would still protect the highway facilities and public beach areas threatened by erosion.

(3) Maintenance and Enhancement of Marine Habitat Values

The fourth general limitation set by Section 30233 is that any proposed dredging or filling project in coastal wetlands must maintain and enhance the biological productivity and functional capacity of the habitat, where feasible.

As discussed in the section of this finding on mitigation, the proposed wetland mitigation and the conditions of the permit will ensure that the project will not have adverse impacts on dune hollow wetlands or riparian wetlands. By mitigating impacts to coastal wetlands, the Commission finds that the project will maintain the biological productivity and functional capacity of the habitat consistent with the requirements of Section 30233 of the Coastal Act.

The Commission thus finds that the project is an allowable use, that there is no feasible less environmentally damaging alternative, that adequate mitigation is required for potential impacts associated with the filling of coastal wetlands, and that wetland habitat values will be maintained or enhanced. Therefore, the Commission finds that the proposed development, as conditioned, is consistent with Section 30233 of the Coastal Act.

**B. Upland Dune Habitat and Section 30240**

In addition to the dune hollow and riparian wetland habitat discussed above, several other types of environmentally sensitive habitat areas (ESHA) occur at the project site including upland dune habitat which is known to provide habitat for the federally listed Western Snowy Plover (*Charadrius alexandrinus*), and for pink sand verbena (*Abronia umbellata* spp.), a state listed Special Status plant species.

Section 30240 of the Coastal Act sets forth standards for development in and adjacent to environmentally sensitive habitat areas and states as follows:

*(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

*(b) 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.*

In reviewing the project for consistency with Section 30240, the Commission must first determine whether the project is a use dependent on the resources of the ESHA. Additionally, the Commission must consider whether environmentally sensitive habitat areas would be protected against significant disruption and whether development adjacent to the ESHAs would be sited and designed to prevent impacts that would significantly degrade the habitat and be compatible with the continuance of the habitat area. These requirements are discussed in Sections (1) and (2) below.

**1. Resource Dependent Use**

With respect to the project's consistency with Section 30240(a), the Commission finds that the project is an allowable use at the site, as the project is dependent on the resources of the area. The project includes several elements involving restoration of environmentally sensitive habitat areas at the site formerly used as a construction staging area but now abandoned for that purpose. The restoration involves the removal of exotic plant species, recontouring dune structures, and planting native dune vegetation. The proposed restoration would facilitate the establishment of a higher functioning dune system and would improve the habitat values at the site for native dune vegetation and for sensitive species including Western snowy plover, pink sand verbena, and beach layia. As the restoration work would restore and enhance the dune habitat that exists at the site, the restoration work does not introduce any new use of the area. With respect to the rock revetment, Caltrans proposes to bury the revetment with sand that would be excavated from one of the dune areas proposed to be restored (Area A). According to Caltrans' biologist, burial of the revetment is considered advantageous for breeding Western

Snowy Plovers in that it will reduce the amount of breeding and burrowing habitat for plover predators, such as skunks and feral cats, both of which are prevalent in the area. While burial of the revetment would primarily benefit plovers, it would also provide additional habitat for dune vegetation to become established, as it is directly adjacent to and contiguous with the dune areas proposed to be restored and is part of the overall restoration effort. Therefore, the Commission finds that the project is dependent on the resources it is intended to restore and as such, is an allowable use within the environmentally sensitive habitat area consistent with Section 30240(a).

2. Designed to Minimize Disruption of Habitat and Significant Degradation

Section 30240(b) requires that development adjacent to ESHAs be sited and designed to prevent impacts that would significantly degrade those areas. Caltrans proposes to restore several areas of upland dune habitat in the same location as its pre-project state to mitigate for the impacts to the ESHA from construction activities associated and the installation of the rock revetment. Given that the upland dune habitat at this location will not be permanently displaced but will be restored to its pre-project state in its original location, the project has been designed to prevent impacts that would significantly degrade the ESHA and would provide for the continuance of the habitat areas consistent with the requirements of Coastal Act Section 30240(b).

Caltrans proposes to mitigate for impacts to upland dune habitat resulting from construction activities and installation of the rock revetment by restoring upland dune habitat including Areas A, B, C, D, and G as depicted on Exhibit No. 6 and described below.

Area A is approximately 1.73 acres of upland dunes and was impacted by the deposition of sand in this location when the revetment was constructed. The area is currently dominated by invasive exotic species including primarily yellow bush lupine and European beach grass and contains few native species. Caltrans proposes to remove exotic plant species and the associated duff layer using a "brush rake/plough blade" method and to recontour the area to match adjacent contours. Following exotic species removal and recontouring of the site, the area would be revegetated by direct seeding with a mixture of native perennial dune mat species collected from on and off-site sources. Sand excavated from below the duff layer during recontouring of this area would be deposited on the rock revetment to bury the revetment and minimize use of the revetment for breeding and burrowing habitat for predators of the Western Snowy Plover, such as skunks and feral cats. The site would be monitored each year during the peak growing season (i.e. May or June) for five years following restoration. The proposed objective for Area A is to achieve a 50% total cover of native dune mat vegetation, and 0% cover of yellow bush lupine, European beach grass and pampas grass within five years. In addition, Caltrans proposes that cover values for all species included in the seed mix to be planted would fall within a range consistent with a reference condition derived from data collected from the LAN here Christensen Dunes Preserve located several miles

south of the project site. The cover value ranges for most species is quite wide (e.g. 5% to 75% for many species) since cover values of dune species are known to vary widely.

Area B is a 0.24-acre semi-stable area of exposed sand that is utilized as a nesting site for *Emphoropsis miserabilis*, a native species of bee that is an important pollination vector for native dune mat vegetation. According to Caltrans' biologist, this type of habitat is considered rare on local dunes. As a result, Caltrans proposes to leave this area intact in its current condition to preserve the integrity of the area as bee habitat. Temporary construction fencing would be erected around the nesting area to ensure that heavy equipment does not enter the area during exotic species removal in adjacent areas.

Area C is a 0.26-acre eroded "foredune" located immediately north of the northwest end of the revetment that is currently sparsely vegetated with European beachgrass and sea rocket and to a lesser extent, native dunegrass. Caltrans proposes to establish a foredune by using soil excavated from Area A described above followed by revegetation with native dunegrass to encourage foredune stabilization. Native dunegrass culms would be harvested on site prior to disturbance and all existing European beachgrass would be buried in place by the formation of the foredune, which would be a minimum of approximately two to three meters deep. The creation of this area is intended to create a protective foredune for the restoration areas located immediately adjacent to the east. The site would be monitored and maintained free of exotic species (European beachgrass, yellow bush lupine, and pampas grass) for five years following revegetation with an objective of achieving a 0% cover of invasive exotics within five years.

Area D includes approximately 0.92 acres of land located adjacent to the west of the existing access road and is dominated by invasive European beachgrass and, to a lesser extent, native coyote brush and is bordered by coastal scrub habitat to the east. Caltrans proposes to remove invasive exotic species including European beachgrass, yellow bush lupine, and pampas grass. The area would be recontoured to reduce the angle and elevation of the slope between the dune hollow wetland and the adjacent access road and would be revegetated to enlarge the wetland area at the toe of the slope and establish northern coastal scrub species similar to the adjacent scrub habitat. Native species proposed to be planted include wax myrtle, twinberry, red-flowering currant, silk tassel, salal, evergreen huckleberry, and Hooker willow. Exotic species would be removed with mechanical equipment and the area would be monitored for five years with an objective of achieving 50% mean cover of native coastal shrub species on the slope to the access road and a 0% cover of invasive exotic species.

Caltrans proposes to implement restoration efforts in Area G to rehabilitate adjacent dune communities to mitigate for temporal loss of dune habitat by removing invasive exotic species from a 48-acre area of dunes between the northern tip of the revetment to the rock wall south of the "Flume" for a five-year period. Revegetation is not proposed for this area. It is anticipated that five years of intensive eradication of invasive exotic species will encourage the establishment of native dune mat vegetation by eliminating

competition of (primarily) European beachgrass. The removal of European beachgrass is expected to provide and/or enhance habitat for sensitive species including beach layia (*Layia carnosa*), pink sand verbena (*Abronia umbellata* spp. *breviflora*), and the Western Snowy Plover (*Charadrius alexandrinus*). The proposed objective in Area G is to achieve a 0% cover of European beachgrass within a five-year monitoring period.

The proposed mitigation elements described above have been designed to prevent significant degradation of the environmentally sensitive habitat areas as a result of the construction of the rock revetment and to ensure that the project is compatible with the continuance of those habitat areas by restoring the habitat to its pre-project state in the same location. Although the upland dune areas were adversely impacted by construction activities associated with the installation of the rock revetment, the proposed mitigation would restore these areas in place to functioning dune habitats so that the upland dune habitat will not be permanently displaced from its original location. The proposed recontouring of the upland dune areas and removal of invasive exotic species would allow for the reestablishment of natural dune system dynamics and promote the recolonization of native dune species including sensitive plant species such as beach layia and pink sand verbena. Additionally, the proposed active planting of Areas A, C, and D with native species would increase the likelihood for successful establishment of native dune mat vegetation. According to information contained in the mitigation plan, revegetation following eradication of exotic species has been shown to decrease erosion, influence species composition, accelerate colonization, and reduce the probability of invasion by non-native species (Pickart & Sawyer 1998). Furthermore, protective fencing would be erected around all on-site restoration areas once restoration activities commence to keep pedestrians and vehicles from disturbing the site during the rehabilitation process and avoid further disruption to the ESHA.

To mitigate for the temporal loss of upland dune habitat that occurred between the time the rock revetment was constructed in 1992 and the implementation of the proposed mitigation, Caltrans proposes to remove European beachgrass from the 48-acre area defined as Area G to enhance potential habitat for the federally listed Western Snowy Plover. When the Mad River mouth moved south in the winter of 1998-1999, the open sand adjacent and to the south of the revetment became suitable snowy plover nesting habitat. According to information contained in the mitigation plan, the encroachment of European beachgrass (*Ammophila arenaria*) has been documented as one of the most significant causes contributing to the decline of the Western Snowy Plover. Around 1898 European beachgrass was introduced to the west coast to stabilize dunes. Since then, it has spread up and down the coast replacing the low, rounded, open mounds formed by the native dunegrass and other beach plants. European beachgrass sprouts from root segments, grows most vigorously in areas of wind-blown sand, and thrives on burial under shifting sand. The invasive grass typically forms a dense cover that often excludes many native species, thereby limiting species diversity typically found in undisturbed foredunes. On many beaches, European beach grass has caused the development of a vegetated foredune that effectively blocks inland sand movement, thereby creating

conditions favorable to the establishment of dense vegetation in the deflation plan. Prior to the introduction of this species, foredunes consisted of open sand ridges and flat plains at or near the water table. Thus, the open features that characterize snowy plover breeding habitat are destroyed in areas with European beachgrass. Overall, European beachgrass has reduced the amount of unvegetated area above the tide line, decreased the width of the beach, and increased its slope, thereby further reducing the amount of potential snowy plover nesting habitat. In addition to the loss of nesting habitat the establishment of European beachgrass may hamper plover brood movements, adversely affect plover food sources, and provide habitat for snowy plover predators that would largely be precluded by the less dense, native dune vegetation. Therefore, the proposed removal of European beachgrass at the site would enhance the value of the upland dune habitat for use by plovers. To further minimize disruption to the ESHA, Caltrans proposes that the upland dune restoration work would occur outside of the snowy plover breeding season (March 15-September 15).

As described above, Caltrans proposes to monitor the proposed areas of upland dune restoration for five years to ensure that perennial exotic species do not recolonize the restored areas and to remove any exotic plants that begin to take hold. The proposed mitigation plan was adapted from information presented in *Ecology and Restoration of Northern California Coastal Dunes* by Pickart and Sawyer (1998), which contains the most current information available on northern California dune restoration projects. Restoration techniques presented in the proposed mitigation plan are designed to work within the context of the dynamics of the site to meet the goals of the restoration. The proposed mitigation plan indicates that a main concept taken from Pickart & Sawyer (1998) is that successful dune restoration is largely dependent on having an understanding of the intricacies of dune ecology, about which there is still much to be learned. Therefore, Caltrans proposes that the proposed monitoring and maintenance schedules provide for adaptive management to be implemented throughout the restoration process and proposed five-year monitoring period.

The Commission finds that because of the evolving nature of the understanding of dune restoration, the dynamic factors affecting restoration success, and the need for some degree of adaptive management to provide for corrective action to ensure proper habitat functions, five years of monitoring and removal of exotics is not a sufficient time period. The proposed area of restoration is relatively small compared to the surrounding dune system beyond Caltrans' ownership. The areas adjacent to the restoration site are largely dominated by the same invasive exotic species proposed to be removed at the project site. A multi-year planning effort is underway to develop a coordinated restoration and management plan for the surrounding dune areas including Clam Beach County Park and Little River State Beach. Although this planning effort is in its early stages, it is likely that these efforts may have future implications for the project site proposed to be restored, as it would be part of the larger dune system covered by the comprehensive restoration effort. Until restoration efforts of the surrounding areas are implemented, which is likely to be several years from now to complete the required planning and

funding, the proposed restoration site is threatened by invasive species from adjacent areas that could compromise or entirely undermine restoration efforts once active monitoring is abandoned after five years. Monitoring the site and removing invasive exotics for a longer period of time would take advantage of the planning efforts underway and would allow the proposed restoration site and monitoring to provide useful information and baseline data to guide future restoration efforts of the larger area. To ensure that the proposed restoration efforts are well established and that native vegetation has been successful to the point of ensuring that invasive exotic species would not overtake the site again immediately following the end of five years, the Commission finds that monitoring of the site should be conducted for a period of ten years.

Therefore, Special Condition No. 1 requires submittal of a revised mitigation plan that includes provisions for monitoring vegetative cover and density at the site and removal of exotics for ten years. Furthermore, although as submitted, Caltrans' mitigation plan calls for monitoring, the plan does not provide for the submittal of monitoring reports to the Commission to ensure the mitigation site becomes established with native dune vegetation as proposed. Therefore, Special Condition No. 1 also requires the revised mitigation plan to include a schedule for monitoring and provisions for submittal of monitoring reports to the Commission by November 1 of each year.

Therefore, as conditioned, the Commission finds that the proposed development adjacent to the ESHA is compatible with the continuance of the ESHA and would not significantly degrade the ESHA consistent with Section 30240.

#### **4. Public Access**

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 30210 of the Coastal Act requires that maximum public access be provided consistent with public safety, public rights, private property rights and the need to protect natural resource areas. In applying Sections 30210, 30211 and 30212, 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 staging area to be removed and restored to habitat and the revetment itself are located within an open beach and sand dune area that is accessible to the public. Many people walk to and past the site from Clam Beach County Park to the north or along the wave slope. As part of the proposed habitat restoration effort within the former staging area, certain parts of the site will be temporarily fenced off from the public to protect new plantings of native vegetation until the plants can become established. To ensure that

such fencing is installed in a manner that would not prevent the passage of public access users up and down the beach around the sensitive plantings, the Commission attaches Special Condition No. 2. The special condition requires the permittee to maintain clearly signed detours providing alternative public access for all access areas that will be temporarily closed. The Commission finds that as conditioned, the project will not have a significant adverse impact on public access use and that the project as proposed without new public access is consistent with the requirements of Coastal Act Sections 30210, 30211, and 30212.

**5. California Environmental Quality Act (CEQA)**

Section 13096 of the Commission's administrative regulations requires Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as modified by any conditions of approval, to be 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 feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The Commission incorporates its findings on conformity with LCP policies at this point as if set forth in full. These 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 so as to be found consistent with 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 made requirements of project approval. As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse impact that the activity may have on the environment. Therefore, the Commission finds that the proposed project can be found to be consistent with the requirements of the Coastal Act to conform to CEQA.

**EXHIBITS:**

1. Regional Location Map
2. Project Plans
3. Revetment Photos
4. Historic Mouth Location
5. Aerials
6. Mitigation Proposal
7. Caltrans Geologic Excerpts
8. Caltrans Hydrologist Memo
9. Opponents Hydrologist Report
10. Caltrans Public Hearing Excerpts
11. General Correspondence

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.

A B C D E F G H I J K L M N O

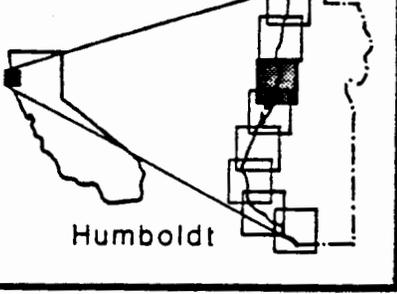


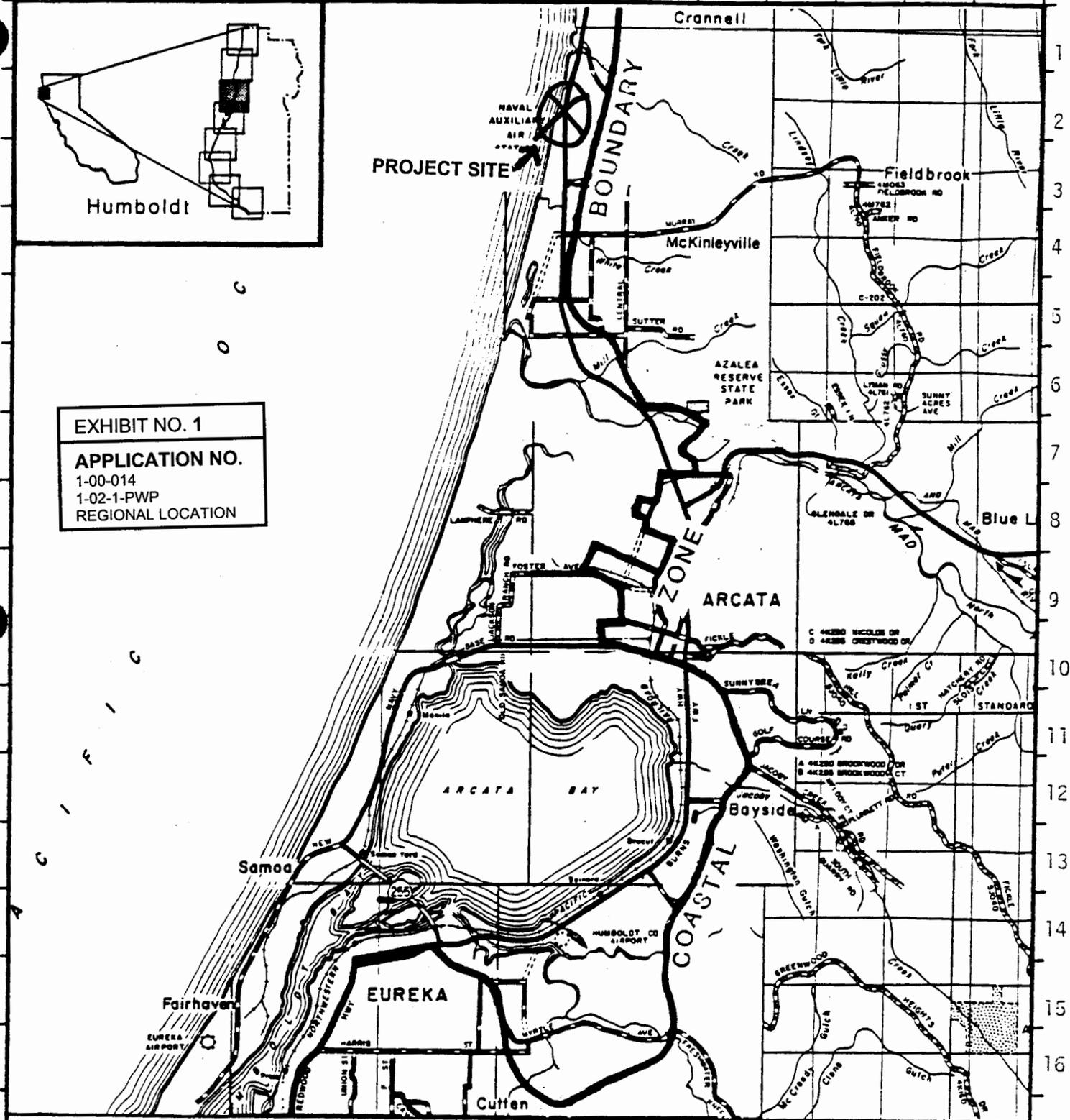
EXHIBIT NO. 1

APPLICATION NO.

1-00-014

1-02-1-PWP

REGIONAL LOCATION

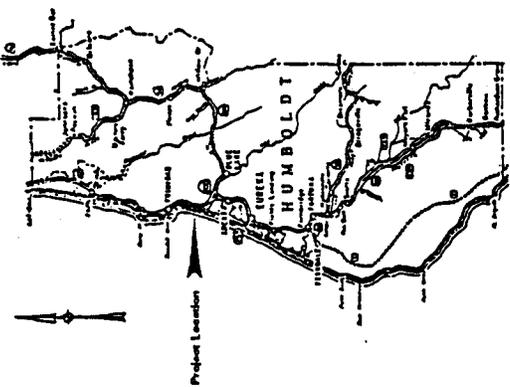


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LOCATION MAP



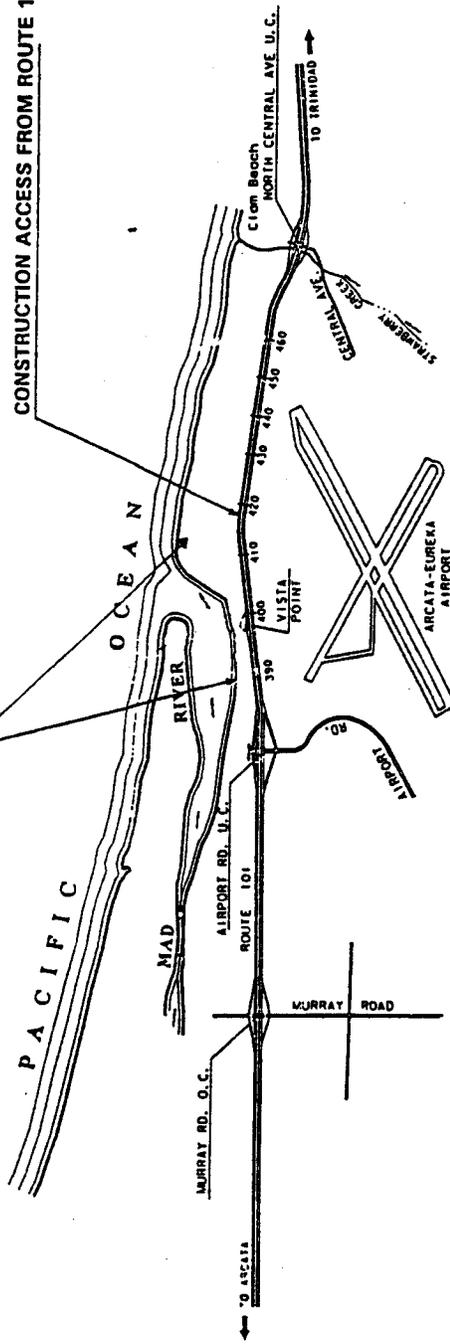


VICINITY MAP  
NO SCALE

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
PROJECT PLANS FOR CONSTRUCTION ON  
STATE HIGHWAY  
IN HUMBOLDT COUNTY  
AT MCKINLEYVILLE  
FROM 0.2 MILE TO 0.7 MILE NORTH OF  
AIRPORT ROAD UNDERCROSSING

Place Rock Slope Protection Revetment

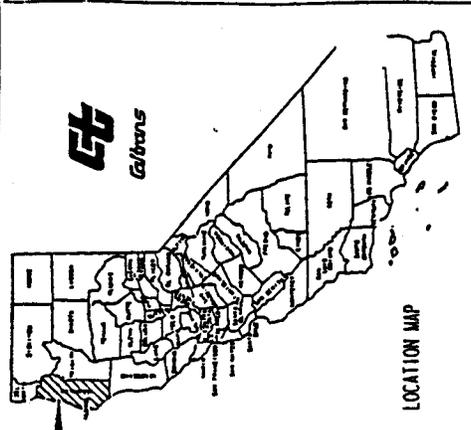
LIMITS OF  
PLACEMENT OF ROCK SLOPE PROTECTION



- NO SCALE -

EXHIBIT NO. 2  
APPLICATION NO.  
1-00-014  
1-02-1-PWP  
PROJECT PLANS (1 of 5)

The Contractor shall possess the Class (or Classes) of license as specified in the "Notice to Contractors".



LOCATION MAP

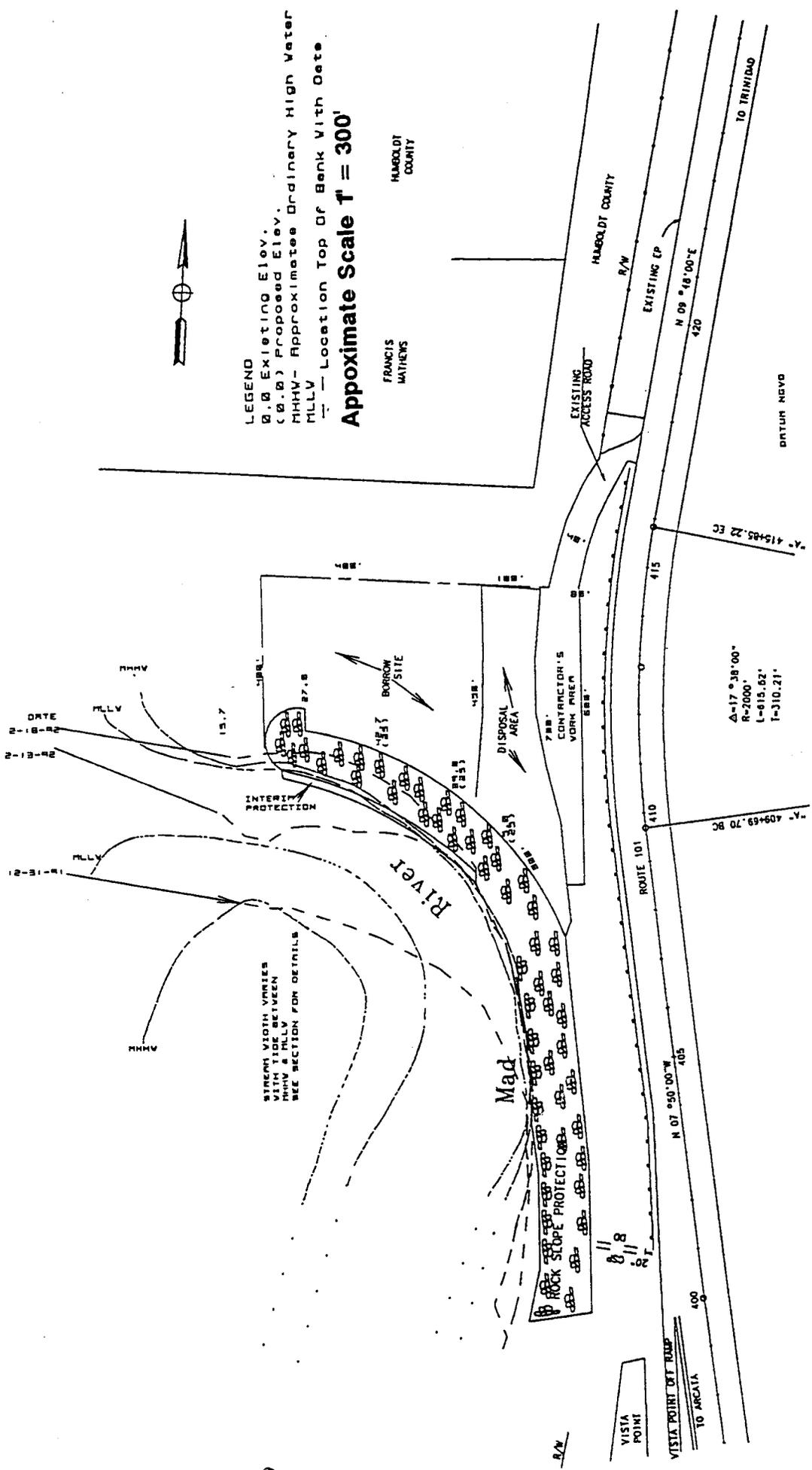


John C. Bullinski  
Project Engineer  
No. 41381  
Registered Civil Engineer  
State of California

Please Referenced Here

DATE	PROJECT NUMBER	PROJECT ENGINEER	PROJECT TITLE
1/21/84	1-00-014	J.C. Bullinski	L.C. BLOMQUIST

295



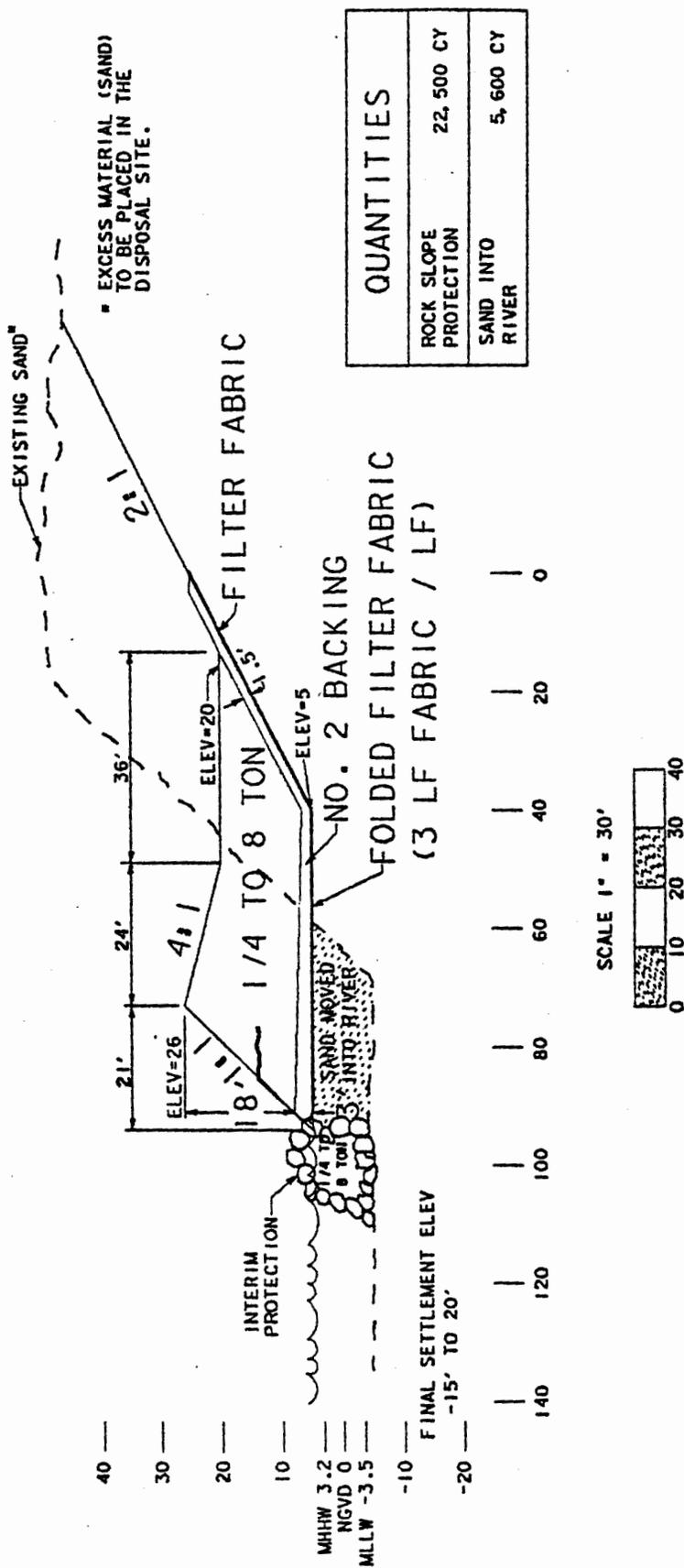
LEGEND  
 (E) Existing Elev.  
 (P) Proposed Elev.  
 MHHV - Approximate Ordinary High Water  
 MLLV - Location Top Of Bank With Date

Approximate Scale 1" = 300'

FRANCIS MATHEWS  
 HUMBOLDT COUNTY

1992 Initial Rock Slope Protection Revetment Project

# TYPICAL CROSS SECTION MODIFIED ALIGNMENT ROCK SLOPE PROTECTION (FACING WEST)



3  
2  
5

**1992 Initial**  
PROPOSED ROCK SLOPE PROTECTION  
MAD RIVER  
MCKINLEYVILLE  
COUNTY OF HUMBOLDT

**SECTION VIEW**  
CALTRANS DISTRICT 01  
PO BOX 3700  
EUREKA, CA

PURPOSE: PROTECTION OF  
HIGHWAY 101  
DATUM: NGVD  
ADJACENT PROPERTY OWNERS  
COUNTY OF HUMBOLDT  
CAROL ANN BELLINE  
FRANCIS B. MATTHEWS



HUMBOLDT COUNTY

"P" 10+00  
Begin Rock Slope Protection

"P" 12+00

"P" 22+25  
End Rock Slope Protection

"P" 23+50

PERMANENT EASEMENT  
HUM CO TO STATE OF CAL

Existing Rock Slope Protection

STOCKPILE AREA

ROUTE 101  
405

EXISTING DOWNDRAINS

Existing State Right-of-Way

MAD RIVER

MAD

MLLW

MHHW

Mean High Water

Existing Toe of Slope and High Tide Line

"P" LINE

C/F

VISTA POINT

VISTA POINT OFF RAMP

400

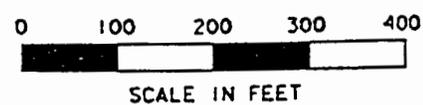
"A" LINE

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TO ARCATA

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Limits of Proposed Placement of Rock Slope Protection

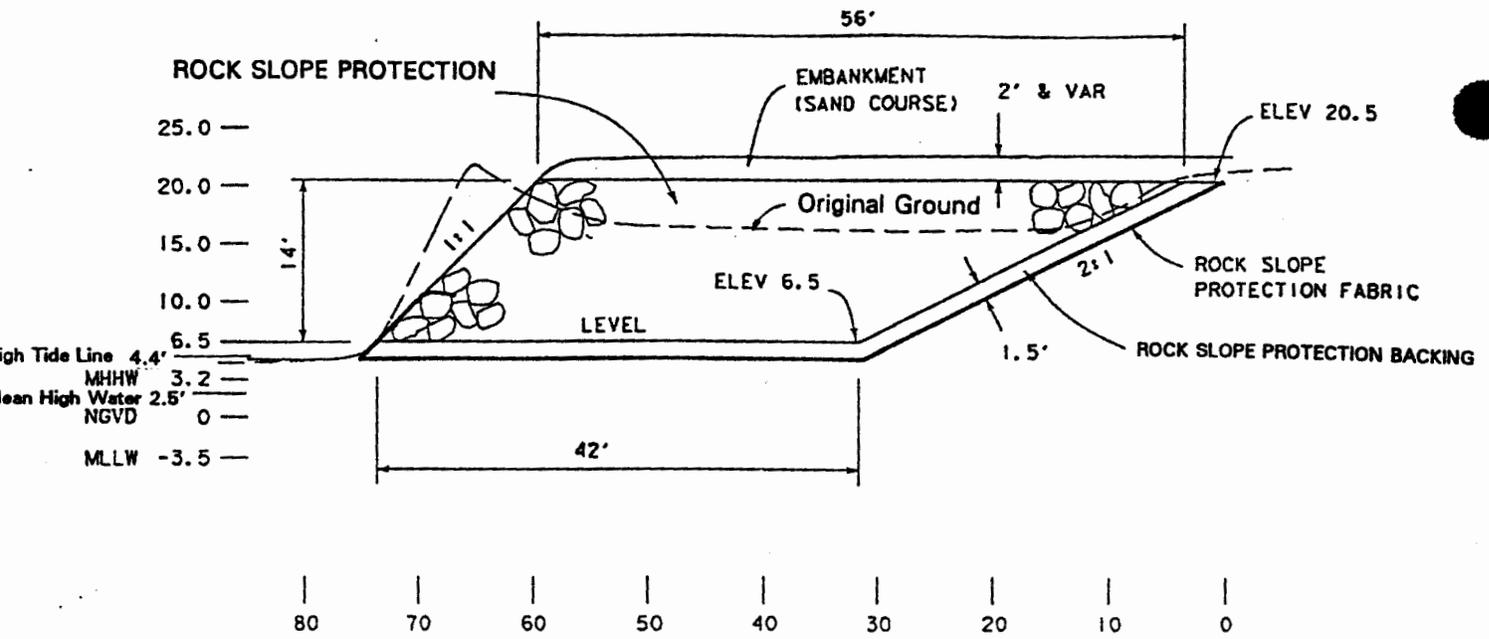


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PURPOSE: PROTECTION OF HIGHWAY 101  
VERTICAL DATUM: NGVD 1929  
ADJACENT PROPERTY OWNERS: COUNTY OF HUMBOLDT

PLAN VIEW  
CALTRANS DISTRICT 01  
PO BOX 3700  
EUREKA, CA

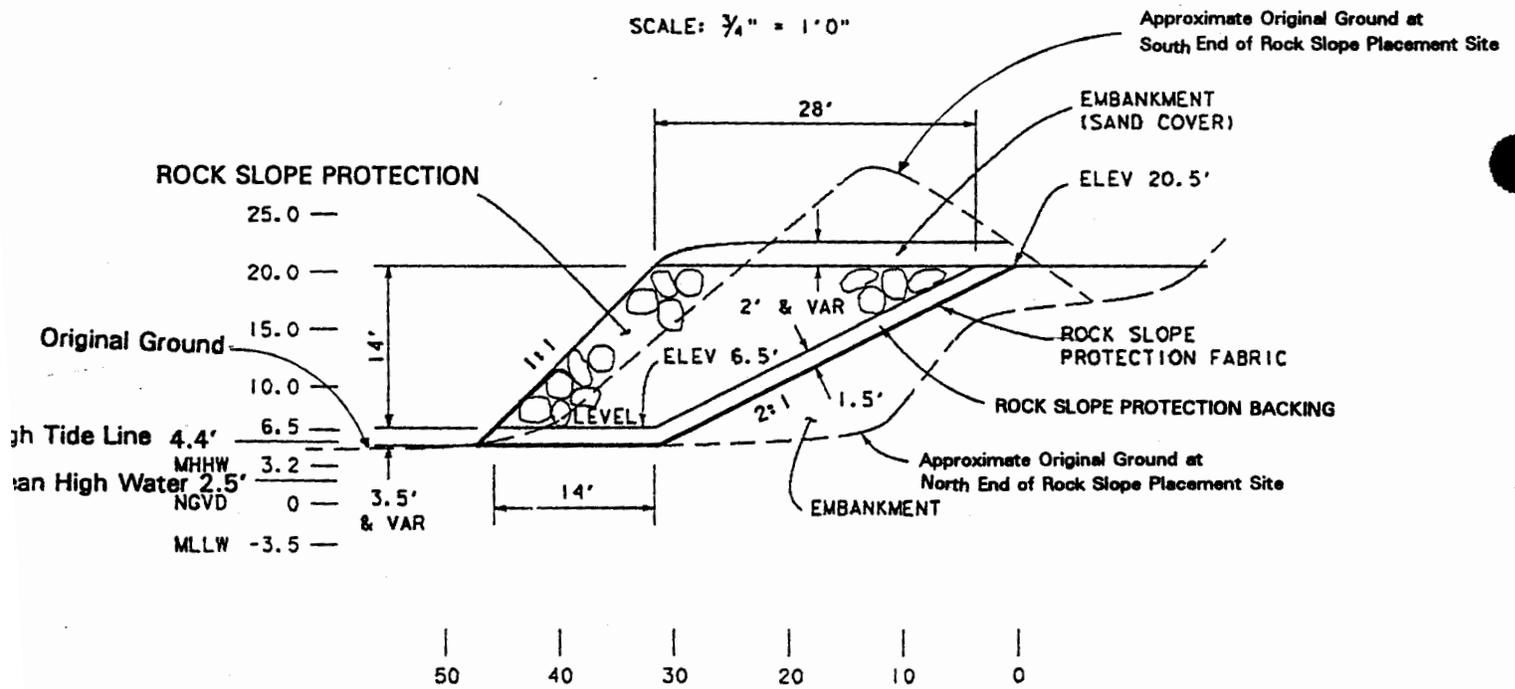
1995 Extension  
PROPOSED ROCK SLOPE PROTECTION  
MAD RIVER  
MCKINLEYVILLE  
COUNTY OF HUMBOLDT



### TYPICAL CROSS SECTION

STA "P" 12+00 TO "P" 12+50

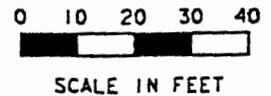
SCALE:  $\frac{3}{4}$ " = 1'0"



### TYPICAL CROSS SECTION

STA "P" 12+50 TO "P" 22+25

SCALE:  $\frac{3}{4}$ " = 1'0"



### QUANTITIES

ROCK SLOPE PROTECTION	
AL	12,000 CY
DW HTL	300 CY
DW HTL AFTER LAUNCHING	1200 CY
DW MHW	50 CY
DW MHW AFTER LAUNCHING	350 CY

595

### SECTION VIEW

CALTRANS DISTRICT 01  
PO BOX 3700  
EUREKA, CA

### 1995 Extension

PROPOSED ROCK SLOPE PROTECTION  
MAD RIVER  
MCKINLEYVILLE  
COUNTY OF HUMBOLDT

PROPOSE: PROTECTION OF  
HIGHWAY 101

VERTICAL DATUM: NGVD 1929

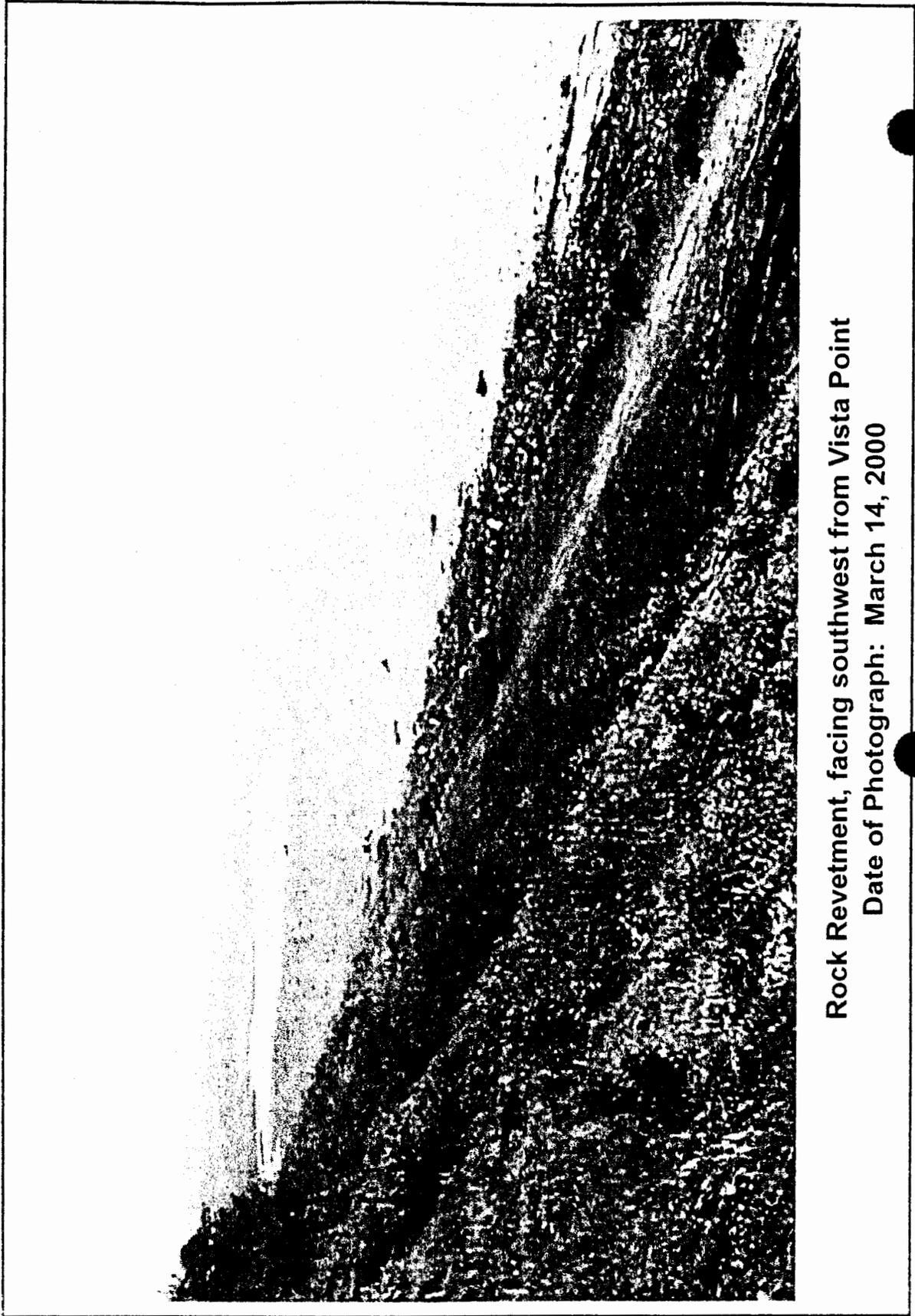
ADJACENT PROPERTY OWNERS:  
COUNTY OF HUMBOLDT



Rock Revetment, Facing Northwest From Vista Point  
Date of Photograph: March 14, 2000

EXHIBIT NO. 3

APPLICATION NO.  
1-00-014 - 1-02-1-PWP  
REVTMENT PHOTOS  
(1 of 2)



Rock Revetment, facing southwest from Vista Point  
Date of Photograph: March 14, 2000

292



# Mad River 1941

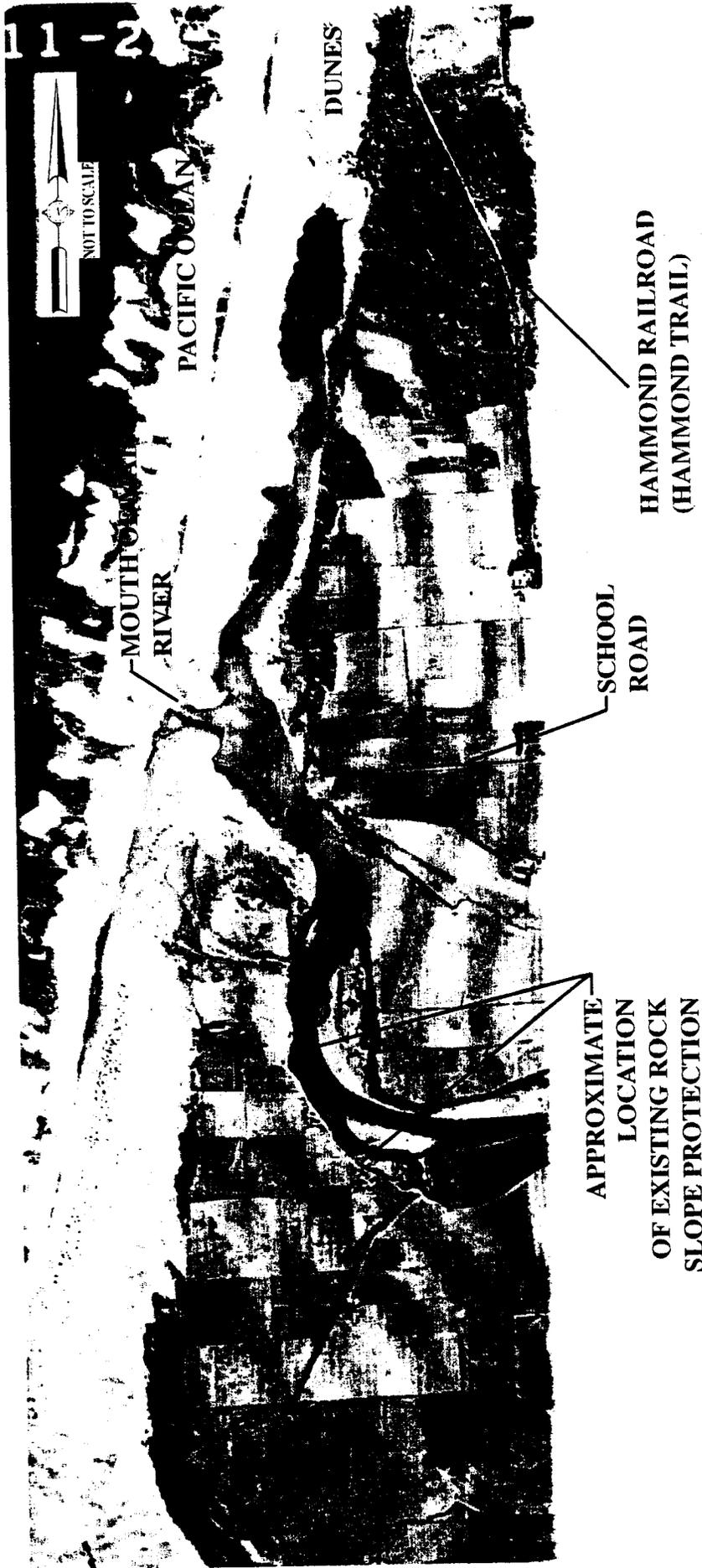


EXHIBIT NO. 5
APPLICATION NO. 1-00-014 1-02-1-PWP AERIALS (1 of 3)

# Mad River 1991



MAD RIVER MOUTH LOCATION  
IN 1991 PRIOR TO CALTRANS  
ROCK SLOPE PROTECTION  
REPLACEMENT

MAD RIVER  
BEACH PARK

PACIFIC OCEAN

SAND SPIT

SCHOOL  
ROAD

HILLER  
ROAD

MURRAY  
ROAD

MAD  
RIVER  
ROAD

APPROXIMATE  
LOCATION  
OF EXISTING ROCK  
SLOPE PROTECTION

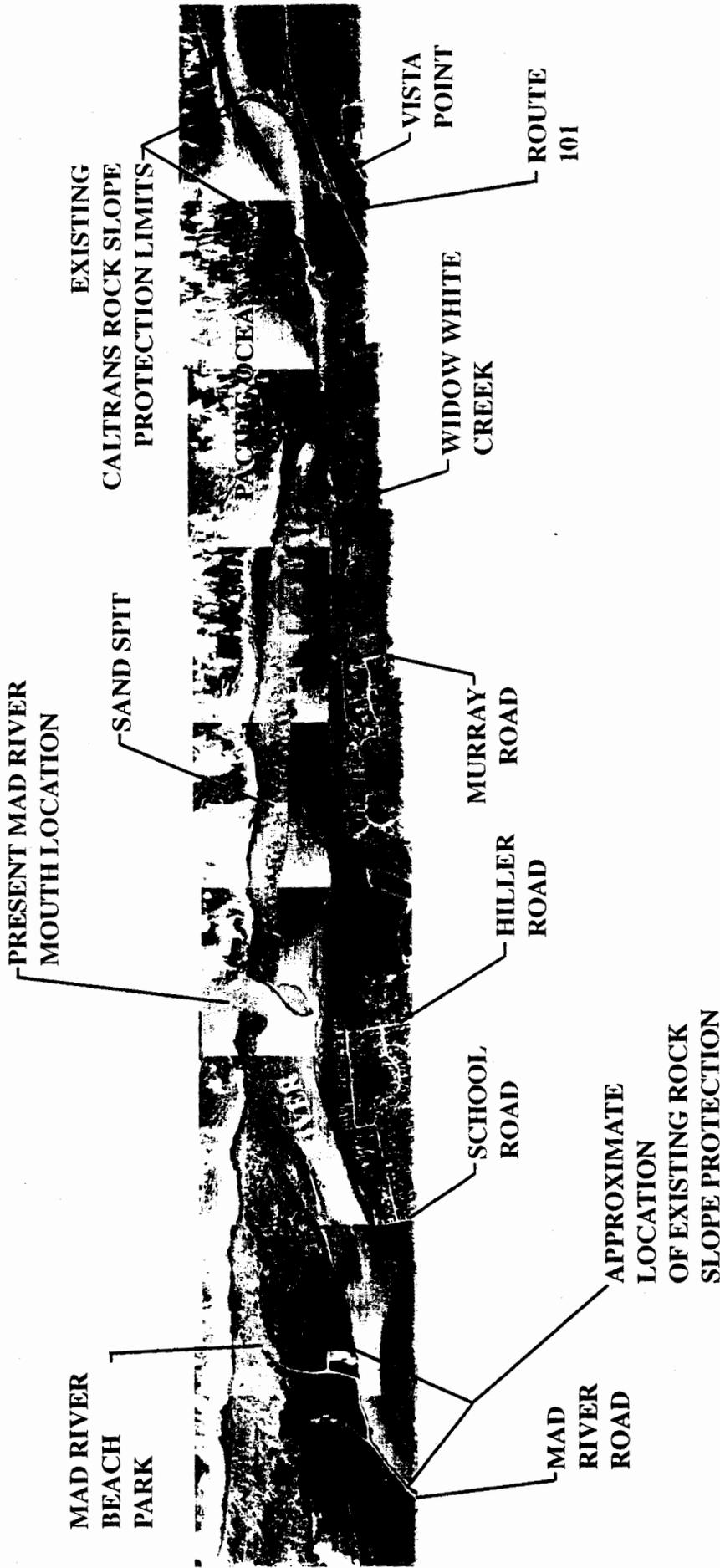
VISTA  
POINT

AIRPORT ROAD

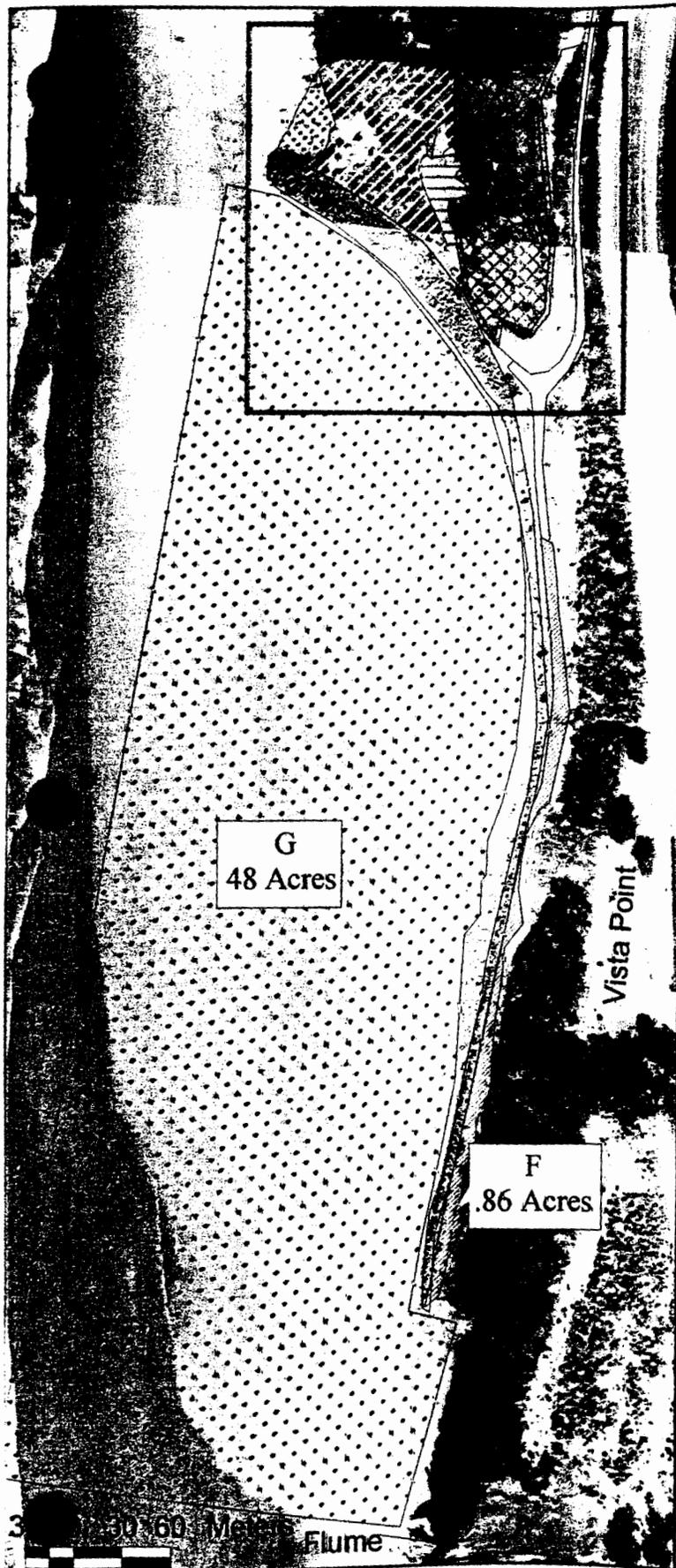
ROUTE 101

WIDOW WHITE CREEK

# Mad River 1999



# Mad River Rock Slope Revetment



## LEGEND

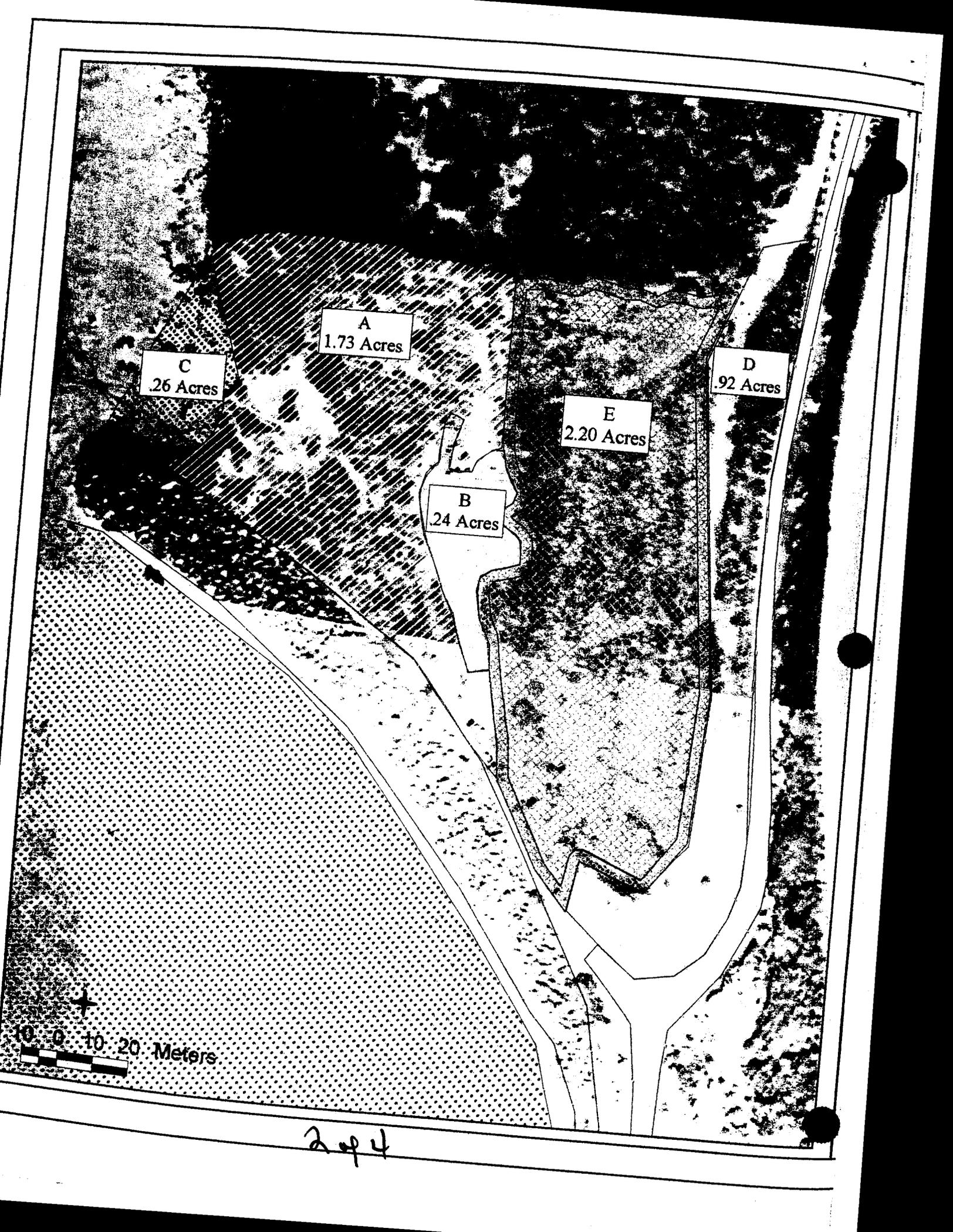
-  Area A - Dune Mat Restoration  
1.73 acres
-  Area B - *Emphoropsis miserabilis*  
0.24 acres
-  Area C - N. Foredune Grassland Restoration  
0.26 acres
-  Area D - Northern Coastal Scrub Restoration  
0.92 acres
- Area E - Dune Hollow Restoration  
2.20 acres
  -  Area E-1 (3-Parameter Wetland)  
1.87 acres
  -  Area E-2 (1-Parameter Wetland)  
0.33 acres
-  Area F - Coast Riparian Scrub Enhancement  
(Minimum 1-Parameter Wetland)  
0.86 acres
-  Area G - Moving Dune Enhancement  
48 acres
-  Road - Ongoing Maintenance Road  
0.52 acres
-  RSR - Rock Slope Revetment  
1.97 acres

Base Map Sources: Humboldt Coast Aerial Photography 2000, USFWS.

EXHIBIT NO. 6

APPLICATION NO.  
1-00-014 - 1-02-1-PWP  
MITIGATION  
PROPOSAL (1 of 4)

Figure 4  
Proposed Mitigation



C  
26 Acres

A  
1.73 Acres

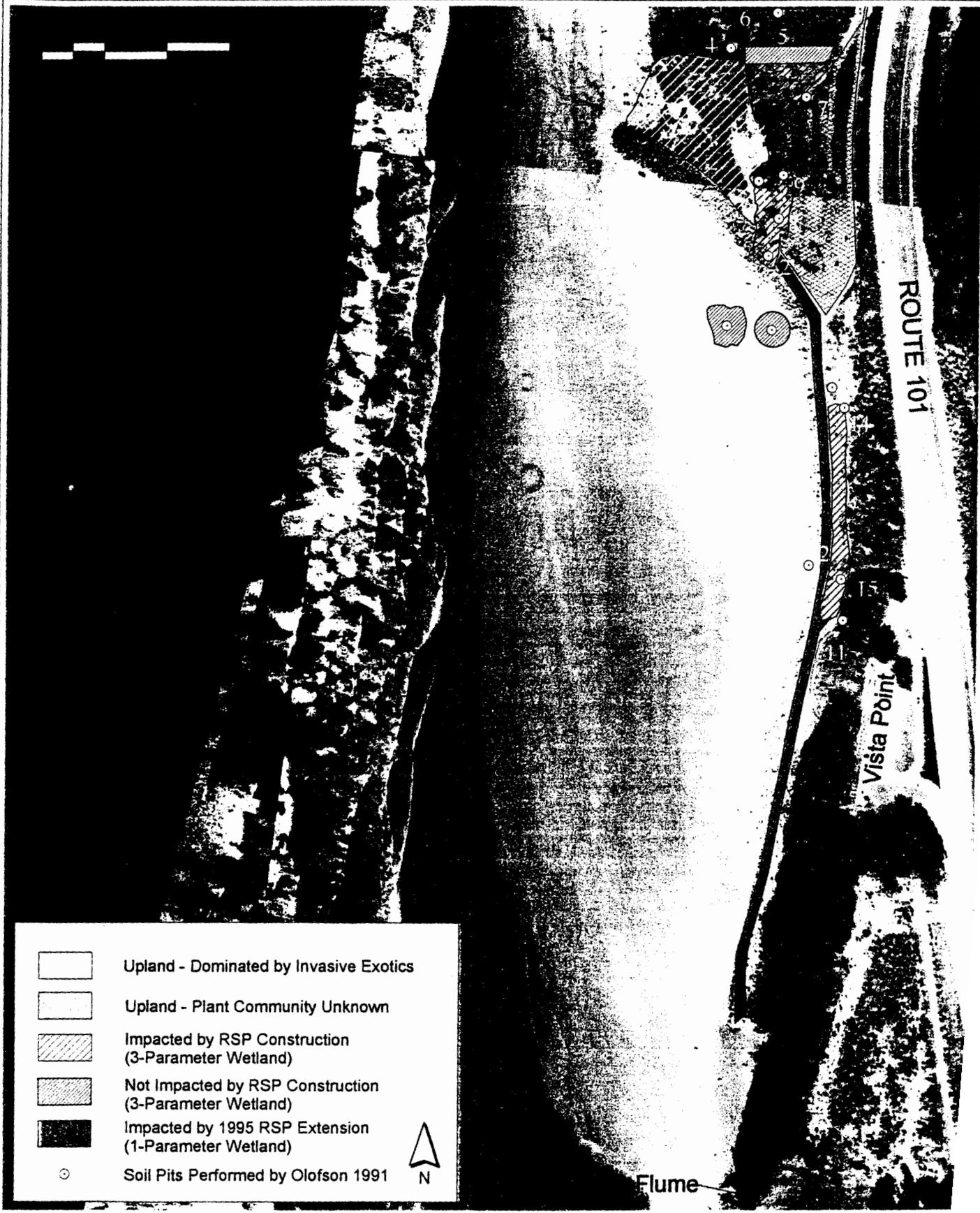
B  
24 Acres

E  
2.20 Acres

D  
.92 Acres

0 10 20 Meters

294

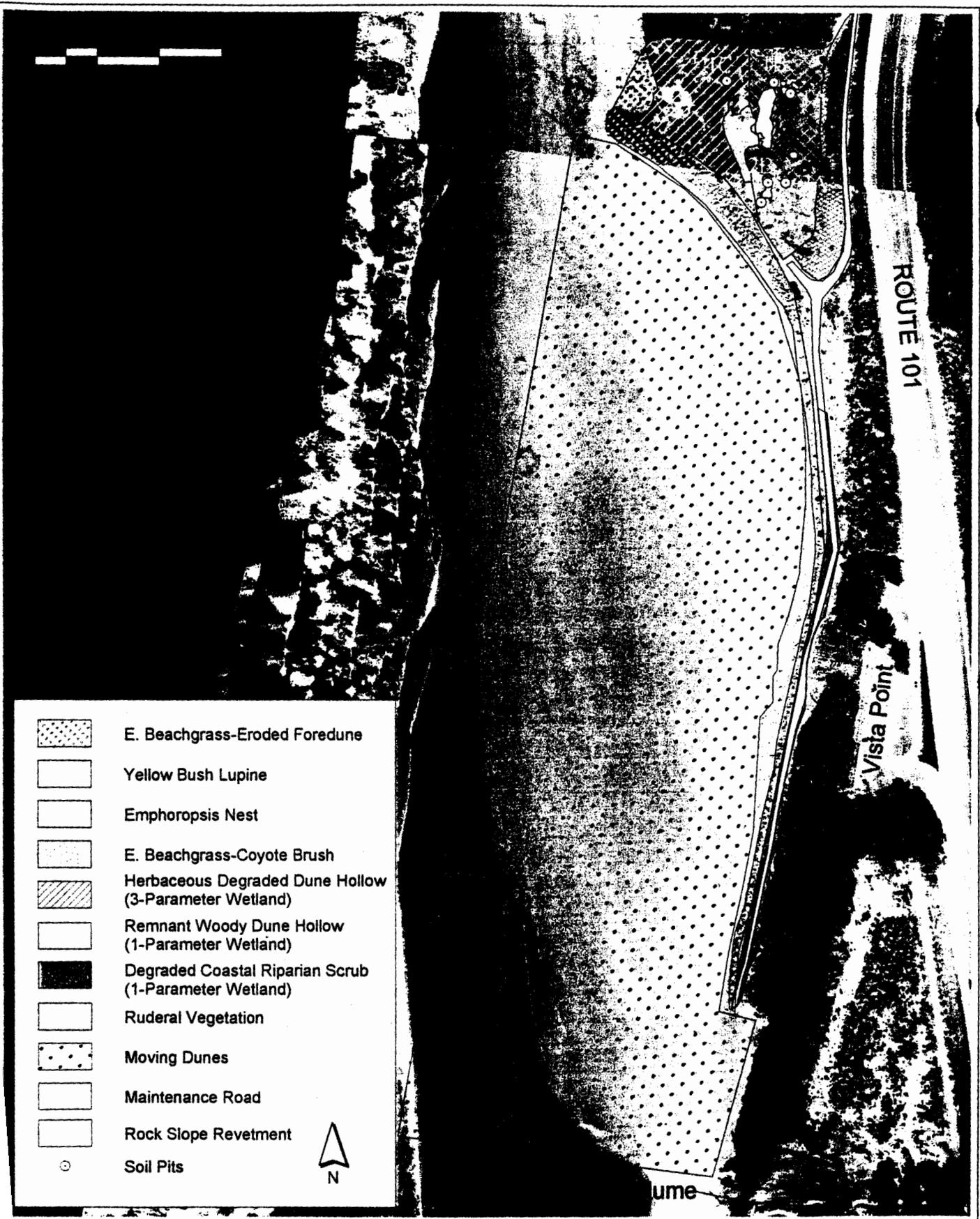


Base Map Source: Humboldt Coast 2000 - U.S. Fish and Wildlife

Estimated acreages for habitats based on aerial photograph interpretation, and Olofson's 1991 wetland delineation map interpreted by Steve Hansen (2000)

Pre-RSP Construction

3 of 4



Base Map Source: Humboldt Coast 2000 - U.S. Fish and Wildlife

Estimated acreages and habitats based on field visits and wetland delineation performed by Mad River Biologists (2002)

Current Environment

4 of 4

Report to the  
California Department of Transportation

**THE MIGRATION OF THE MAD RIVER MOUTH AND ITS  
EROSIONAL IMPACTS WITHIN THE HUMBOLDT BAY  
LITTORAL CELL, NORTHERN CALIFORNIA**

March 2000

Paul D. Komar, Ph.D.<sup>1</sup>, Jeffry C. Borgeld, Ph.D.<sup>2</sup>, and Jonathan Allan, Ph.D.<sup>3</sup>

1 - Professor of Oceanography, College of Oceanic & Atmospheric Sciences, Oregon State University, Corvallis, Oregon 97331

2 - Professor of Oceanography & Chairman, Department of Oceanography, Humboldt State University, Arcata, California 95521

3 - Post-Doctoral Fellow, College of Oceanic & Atmospheric Sciences, Oregon State University, Corvallis, Oregon 97331

EXHIBIT NO. 7

APPLICATION NO.

1-00-014 - 1-02-1-PWP  
CALTRANS GEOLOGIC  
EXCERPTS (1 of 12)

RECEIVED  
MAR 15 2000

CALIFORNIA  
COASTAL COMMISSION

## EXECUTIVE SUMMARY

This study has undertaken a thorough investigation of the Humboldt Bay Littoral Cell (HBLC) on the northern coast of California, to better understand the major changes that have occurred during the past three decades. These changes in the coastal morphology have been associated mainly with the northward migration of the mouth of the Mad River, the erosion by 1991 threatening State Highway 101 and leading to a decision to construct a Rock Slope Protection (RSP) structure. This structure has succeeded in halting the further migration of the river's mouth, and thereby has protected the highway. Subsequent to the construction of the RSP, erosion has developed in three areas: 1) Immediately adjacent and to the north of the RSP, 2) Immediately adjacent and to the south of the RSP, and 3) To the McKinleyville Bluff south of the RSP and north of Widow White Creek. The objective of this study is to understand the causes of this erosion and whether the construction of the RSP has been a contributing factor.

The Humboldt Bay Littoral Cell (HBLC) stretches from Trinidad Head on the north to False Cape in the south, containing a 45-kilometer (28-mile) length of beach. The Eel River is the dominant source of sand on the beach, contributing some 10 times more sediment than the Mad River. Human activities in the watersheds of these rivers have had a significant impact on the delivery of sand and gravel to the coast, with sediment mining in the river beds being the most important factor in reducing the sand supply to the ocean beach. Several lines of evidence lead us to conclude that the net sand transport must be from south to north along the shore of the HBLC, but that it involves relatively small quantities of sand movement on an annual basis. This northward longshore transport has produced a systematic sorting of the sand on the beach, so that it progressively becomes finer grained toward the north.

Beginning in about 1970, the mouth of the Mad River initiated a northward migration that was not halted until 1991 by the construction of the RSP along the north bank of the river's mouth, a project that was undertaken to protect State Highway 101. In total, the migration had shifted the river's mouth to the north by 5.5 kilometers (3.4 miles), eroding away a field of mature, vegetated dunes, and replacing them with a low-lying spit that separated the river and McKinleyville bluff from the ocean. This change in morphology made the area more susceptible to attack by winter storms, when high tides combine with storm-generated waves to wash over the spit. This erosion became greatest during the 1997-98 El Niño winter, when the tides were unusually high and the storm waves reached record size. There were frequent washover events at the north end of the spit, and this together with waves passing through the widened mouth of the river adjacent to the RSP accelerated erosion at the McKinleyville bluff to the south of the RSP. Washover events also occurred through gaps in the dunes at the south end of the spit, widening them so that the spit became more vulnerable to potential breaching. Breaching finally took place in February-March 1999, under La Niña conditions, when a series of storms combined with a flood on the river to cut a new opening through the spit. For a time there were two river mouths, but eventually the mouth adjacent to the RSP sealed up with sand, leaving the new breach at the south to serve as the mouth for the Mad River. In spite of the shift in the position of the river's mouth, erosion problems continue in the vicinity of the RSP due to the low elevation of the beach, which does not provide full protection from wave attack of the bluff, and because of subaerial processes that act on the bluff — rainfall, surface runoff and groundwater seepage.

This report reviews, with some hindsight, whether the construction of the RSP in 1991-92 was an appropriate response to the migration of the Mad River and its associated erosion. We conclude

2912

that it was, especially in view of the emergency status faced in 1991. The RSP can be considered as having been a success in protecting the highway, and also in preventing the further northward migration of the river. Further migration would have resulted in the erosion of Clam Beach with an associated loss of dune habitat, and would have threatened the County Park. The alternative responses considered in 1991 to address the emergency did not offer viable solutions that could have been rapidly implemented, nor would most of them have provided improved protection from erosion impacts beyond that offered by the construction of the RSP.

A related question of concern is whether construction of the RSP has affected the longshore transport of sand on the beach. We conclude that there has been minimal impact. At the location of the RSP the net longshore transport of sediment (to the north) must be very small, so there was little potential for adverse impacts resulting from its construction. What little impact occurred was limited to a minor degree of dune loss to the immediate north of the structure. It should be recognized that had the RSP not been constructed, the extent of dune erosion there would have been much greater.

Construction of the RSP in 1992, resulted in fixing the position of the north bank of the river mouth which has, in turn, contributed to determining where erosion has occurred during storms since its completion. This has occurred mainly during winters when large floods in the river combined with storm waves to widen the mouth of the inlet. Since the north bank of the river's mouth is fixed in position by the RSP, this expansion in the width of the inlet requires that the south bank shift, at least temporarily, further to the south. The experience has been that with a widened inlet, winter storm waves have been able to pass through the entrance during high tides, washing against the bluff and contributing to its erosion. However, this is not the only factor important to erosion of the bluff. Migration of the river's mouth to the north between 1970 and 1991 eroded away the field of high dunes that had protected the bluff from wave attack, and replaced those dunes with a spit having minimal dune development. The low elevations of the spit and newly formed dunes have provided little protection for the bluff, so that during winter storms there has been frequent spit washovers, with the water surging against the bluff and contributing to the erosion. Sand carried over the spit by a washover event is deposited on the landward side of the spit, and this forces the river's channel against the bluff, also contributing to its erosion. It is important to recognize that these natural erosion processes would have impacted the bluff, irrespective of construction of the RSP.

The causes of the continued erosion of the McKinleyville bluff south of Vista Point have been of particular concern in this investigation. Site inspections of the erosion were undertaken in December 1999 and January 2000. It was observed that locally the beach is lower in elevation compared with the beaches to the north and south. We have attributed this to a local deficit in the volume of beach sand, produced by the large quantities of sand that were washed into the abandoned channel of the Mad River following the shift of the active river mouth to the breach near School Road. In addition, a surveyed profile of the beach south of Vista Point was found to be abnormal in its slopes, further indicating that this area has not fully recovered from changes experienced during the 1997-98 El Niño and 1998-99 La Niña winters. Although the elevations of the beach remain low, the surveyed profile does indicate that the elevation at the top of the beach, where it meets the base of the cliff, is sufficiently high that the cliff will be impacted by waves only when high tides are accompanied by storm waves. This is confirmed by our observations that large quantities of sand talus have accumulated along the base of the cliff, with only minor indications that some has been removed by ocean waves. This accumulation of talus is a result of the subaerial processes of cliff erosion — rainfall directly on the face of the cliff, overland water runoff, and in particular the emergence of groundwater from the cliff face. These subaerial processes are now the main factor in the continued cliff erosion, with the small canyon

3 of 12

cut by the failure of the airport down-drain being a zone of particularly significant ongoing bluff erosion.

It is expected that with time, the processes of waves and nearshore currents will carry additional sand into the low stretch of beach south of Vista Point, and its elevations will then be raised. With still more time, beach sand will be blown inland toward the bluff, accumulating to form a new field of dunes. With these natural changes, the beach and dunes will progressively provide more protection to the eroded bluff. Some bluff erosion will continue, however, due to the subaerial processes, but will slow as talus accumulates and becomes covered with vegetation. With sufficient time the eroded bluff south of Vista Point will evolve toward the vegetated condition seen elsewhere, where the McKinleyville bluff has not experienced the same magnitude of recent erosion.

4 of 12

## Chapter 9

### SUMMARY OF CONCLUSIONS AND DISCUSSION

The objective of this study has been to undertake a thorough investigation of the Humboldt Bay Littoral Cell (HBLC) in order to better understand the major changes that have occurred during the past three decades, leading to erosion that first threatened State Highway 101, and now endangers several homes on the McKinleyville Bluff south of Vista Point. This report has documented the geographic and tectonic setting of the HBLC, reported on analyses of the sediment sources and the budget of sediments, and has investigated the waves, tides and variations in sea level that have been important in bringing about shoreline change. A particular focus has been the northward migration of the mouth of the Mad River, beginning in about 1970. This migration initially cut away tracts of vegetated dunes backing the beach, and by the spring of 1991 the river's mouth had reached a position that threatened a portion of Highway 101. This report has reviewed the alternative responses that were considered at that time, leading to the decision to construct the Rock Slope Protection (RSP) structure. We also examined the subsequent erosion that has occurred in the vicinity of the RSP. It is unclear whether this erosion can be attributed solely to the RSP, since the winters of greatest erosion also corresponded with the 1997-98 El Niño and 1998-99 La Niña, climate events that produced elevated tides and high storm waves, leading to erosion irrespective of possible impacts associated with the presence of the RSP. In order to understand the factors important to this recent erosion, we have undertaken detailed analyses of the tides, storm waves and their runup on the beach during the El Niño and La Niña winters. Also important to the developing erosion was the widened mouth of the Mad River during those winters, which permitted the direct attack by waves along the bluff south of Vista Point. Analyses also have been completed of the ongoing erosion problem, in terms of the processes important to the continuing bluff retreat, including the roles of rainfall and groundwater, and the ocean processes of high tides and storm waves.

Based on the review and analyses undertaken in this report, the important findings of this study include:

- The tectonic setting of the HBLC has had a profound effect on its morphology, with the generation of folds and faults that control its topography and determine the uplift versus subsidence of different portions of the littoral cell;
- The Eel River is clearly the dominant source of sand on the beach of the HBLC, with the Mad River having been a much smaller sand source;
- Human activities in the watersheds of the Eel and Mad Rivers have had a significant impact on the delivery of sand and gravel to the coast, with sediment mining in the river beds being the most important factor in reducing the sand supply to the ocean beach;
- While it is not possible to develop a detailed budget of sediments for the beach of the HBLC due to uncertainties in the quantities of sand supplied by the Eel and Mad Rivers, and the volumes of sand then lost from the beach to the offshore, it is clear that the most important aspects of the sediment budget involve the alongshore movement of the river-derived sand, with this sand then being blown inland to form dunes;
- While previous studies had reached different conclusions regarding the direction of the net longshore transport of sand along the shore of the HBLC, several lines of evidence lead us to conclude that the net sand transport must be from south to north, but involves relatively small quantities of sand movement on an annual basis;

- The northward longshore transport has produced a systematic sorting of the sand on the beach, so that it progressively becomes finer grained toward the north;
- The existence of this longshore sorting of the sand away from its primary source, the Eel River, suggests that the beach may have been completely eroded away following the year-1700 subduction earthquake, and that the sorting pattern has developed during the re-establishment of the beach, and will continue to evolve with time;
- The northward migration of the mouth of the Mad River, beginning in about 1970, may have been initiated by the northward longshore transport of sand deflecting the river's mouth, but its continued migration during the next 20 years was likely produced by the increased tidal prism of the growing estuary;
- Migration of the Mad River toward the north cut away the wide expanse of dunes that had separated the ocean beach from the high bluff of the uplifted McKinleyville terrace, replacing those protective dunes with a spit covered by small dunes that provided less protection for the terrace bluff;
- Construction of the Rock Slope Protection structure in 1991-92 succeeded in halting the northward migration of the mouth of the Mad River, and provided protection for the bluff at Vista Point;
- Bluff erosion to the south of the RSP was initiated during winters when high discharges on the river combined with storms to widen the river's mouth, shifting the south bank by up to 1 kilometer to the south, allowing waves to enter the inlet and wash against the bluff;
- Significant erosion occurred during the 1997-98 El Niño due to the combination of persistent high waves together with unusually high tides caused by elevated water levels, with the erosion first washing away the low sand dunes on the spit south of the RSP, and then cutting into the bluff;
- While the waves and tides of the 1998-99 La Niña were less severe in the area of the HBLC, they continued to erode the already weakened sand spit, and were able to combine with a flood on the Mad River in February and March 1999 to breach the spit 5 kilometers (3 miles) to the south of the RSP, returning the inlet to near School Road;
- With the return of the inlet to the south, the beach to the immediate south of the RSP was further reduced in elevation when beach sand was swept into the former river channel;
- Now that the river mouth has repositioned to the south, it should be anticipated that a slow northward migration will once again likely re-initiate.
- The reduced elevation of the beach to the south of the RSP has allowed combinations of high tides and the runup of storm waves to reach the base of the bluff, contributing to its erosion;
- The main factors important to the on-going erosion of the bluff to the south of the RSP are direct rainfall on the slope, overland runoff, and especially the emergence of groundwater from the bluff, with this erosion forming an accumulation of talus sand at the base of the bluff, which is episodically cut back by the runup of storm waves;
- A contributing factor to the bluff erosion has been the airport down-drain, the blockage of which first ponded and then suddenly released the accumulated water, cutting a small canyon into the bluff that continues to be a focal point of erosion;
- It can be expected that with time, sand will return to the eroded beach south of the RSP, first building up the elevation of the beach, with the sand then being blown toward the bluff to re-build a field of protective sand dunes;
- Within approximately a decade, the beach and dunes fronting the area of erosion should naturally recover and fully protect the bluff from wave attack, but there will be a prolonged period of continued bluff retreat due to the subaerial processes of erosion.

In initiating this study, CalTrans posed three questions of particular importance. These questions have been addressed at various points within the chapters of this report, but it is useful to return here to those questions in order to provide summary responses.

Question #1: In hindsight, was the construction of the RSP in 1991-92 an appropriate response to the migration of the Mad River and its associated erosion?

Yes, especially in view of the emergency status in 1991, when it was decided to construct the RSP. The RSP can be considered as having been a success in protecting State Highway 101 from erosion impacts, and also in preventing the further northward migration of the river which would have eroded Clam Beach with the loss of dune habitat, and would have threatened the State Park. As reviewed at length in Chapter 8, the other alternatives considered in 1991 to respond to the emergency did not offer viable solutions that could have been rapidly implemented, nor would most of them have provided improved protection from erosion impacts beyond that offered by construction of the RSP.

Question #2: What has been the impact of the RSP on the longshore sediment transport?

The RSP has had minimal impact on the longshore transport of beach sediment. With only a small portion of its length extending onto the beach, the RSP has never been a significant obstacle to the longshore transport of beach sediment. Furthermore, as discussed in this report, at the location of the RSP the net longshore transport of sediment (to the north) must be very small, so there was little potential for adverse impacts resulting from its construction. What little impact has occurred has been limited to a minor degree of dune loss to the immediate north of the structure. It should be recognized that had the RSP not been constructed, the extent of dune erosion there would have been far greater, perhaps with the loss of nearly the entire field of dunes at Clam Beach.

Question #3: To what degree has the RSP contributed to the shoreline erosion since its construction in 1992 and extension in 1995?

The principal negative impact resulting from the construction of the RSP has been its role in contributing to the erosion of the bluff to the south of Vista Point. This has occurred during winters when large floods in the river combined with storm waves to widen the mouth of the river. Since the north bank of the river's mouth was fixed in position by the presence of the RSP, this expansion of the width of the inlet required that the south bank shift, at least temporarily, further to the south. The experience has been that with a widened inlet, winter storm waves have been able to pass through the inlet during high tides, and wash against the bluff, contributing to its erosion. However, it should be recognized that this was not the only factor important to erosion of the bluff. Migration of the river's mouth to the north between 1970 and 1991 eroded away the field of high dunes that had protected the bluff from wave attack, and replaced those dunes with a spit having minimal dune development. The low elevation of the spit and newly formed dunes provided little protection for the bluff, so that during winter storms there were frequent occurrences of spit washover, with the water surging against the base of the bluff and contributing to the erosion. Sand carried over the spit by the washover was deposited on the landward side of the spit, and this forced the river's channel against the bluff, also contributing to the erosion. It is important to recognize that these natural erosion processes would have impacted the bluff, irrespective of construction of the RSP.

The presence of the RSP is not currently a factor in the continued beach and bluff erosion to the south of Vista Point. The beach is recovering, and is increasingly able to protect the bluff from wave attack, and with the expected reformation of dunes during the next few years, wave erosion of the bluff should effectively cease. Instead, the continued bluff erosion is due to the subaerial processes of rainfall, runoff and groundwater, affecting the face of the bluff and being concentrated down the canyon that was eroded adjacent to the airport down-drain.

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# Historical Locations of Mad River Inlet

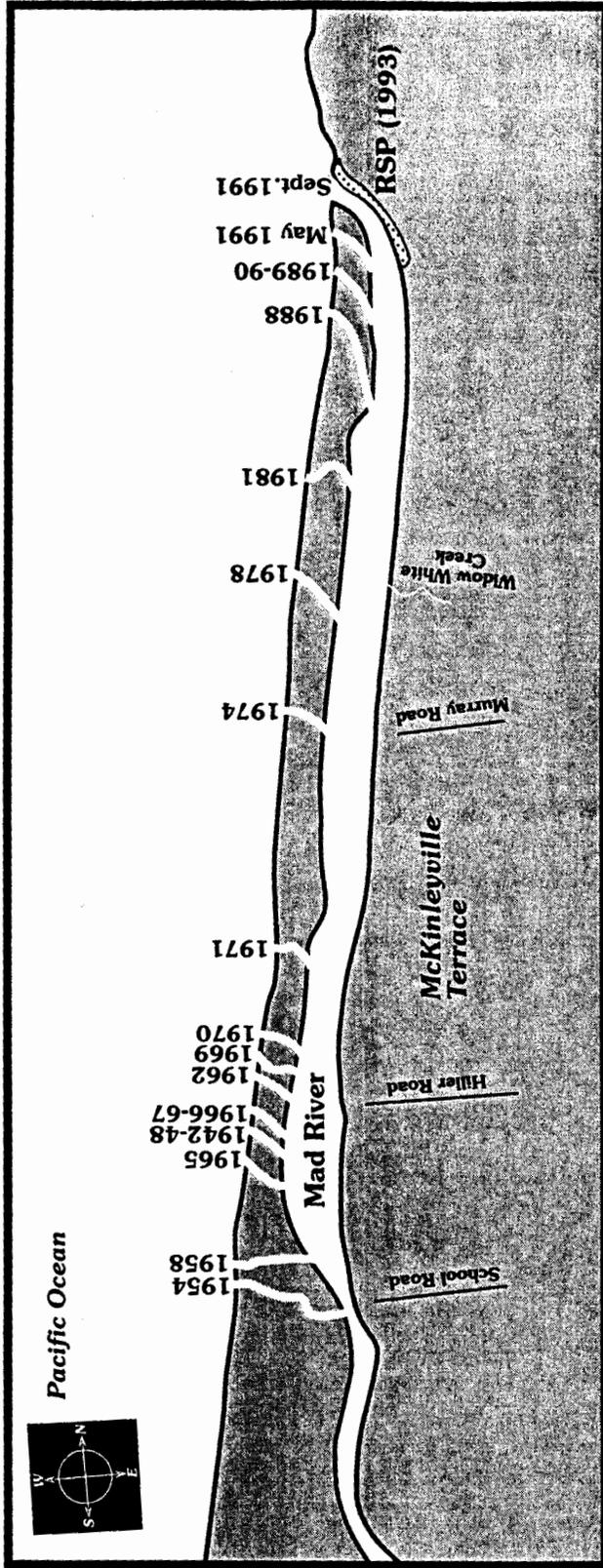
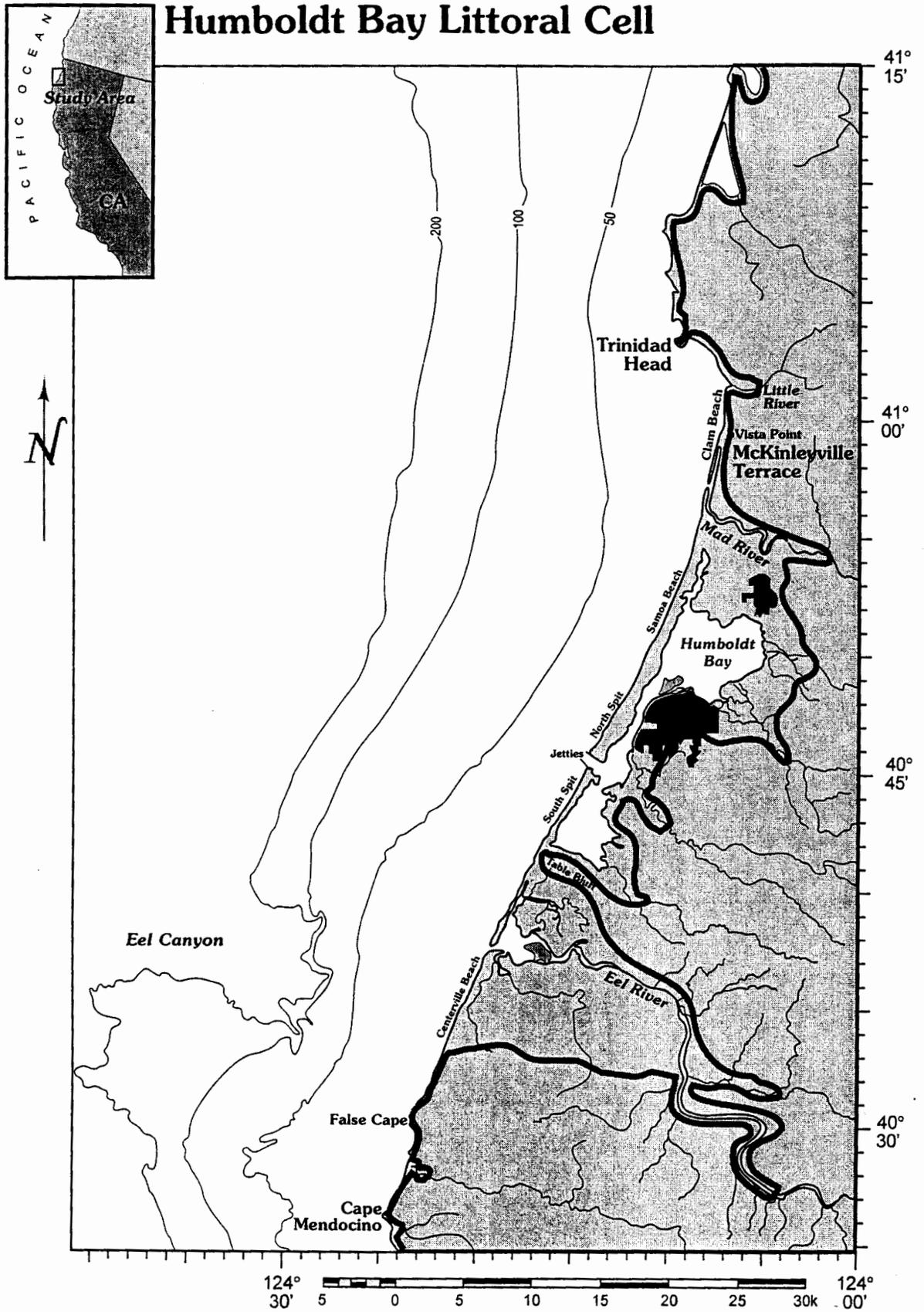


Figure 5-1: The progressive northward shift of the mouth of the Mad River, determined from a series of aerial photographs.

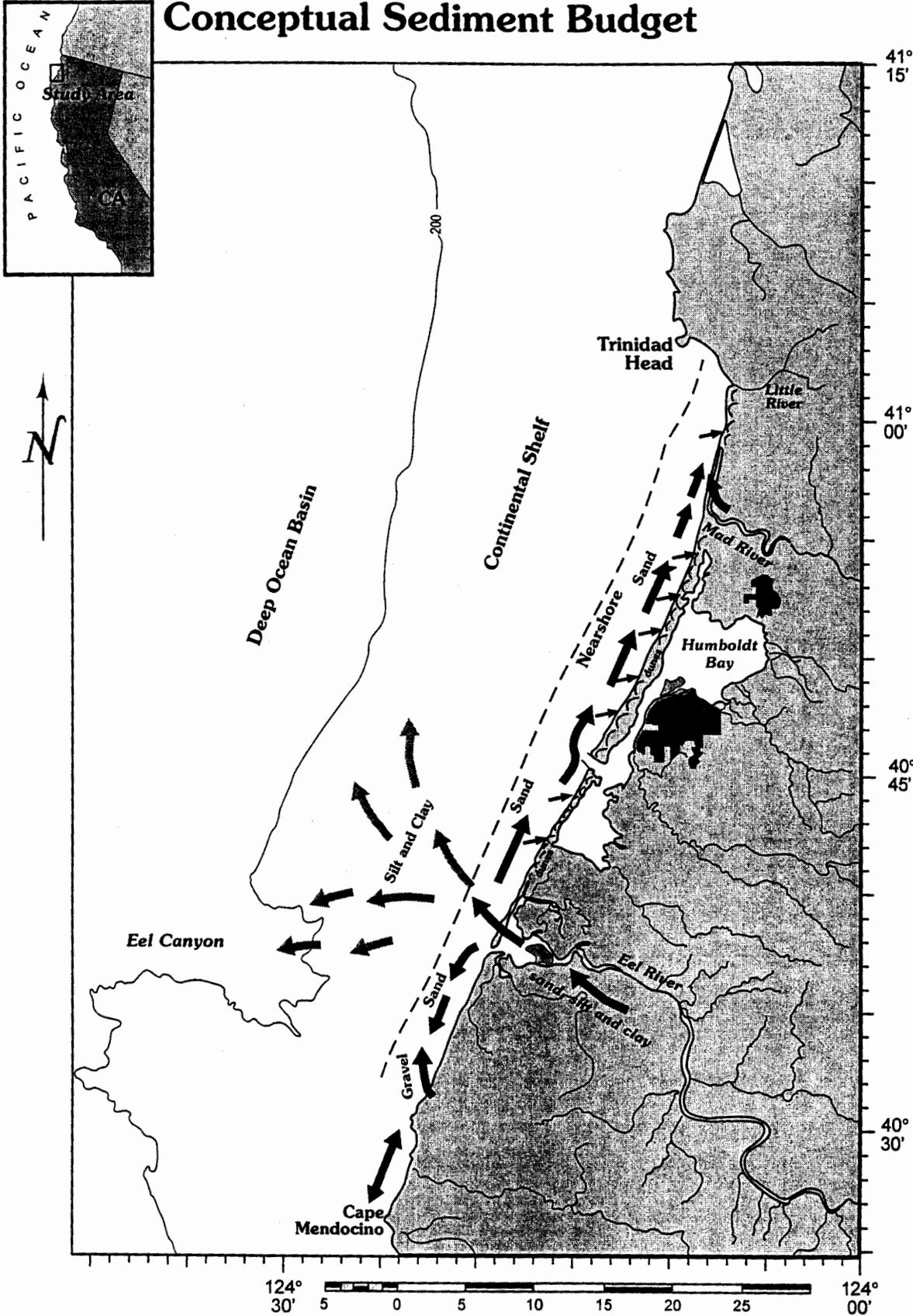
# Humboldt Bay Littoral Cell



**Figure 2-1:** The geomorphology of the Humboldt Bay Littoral Cell, including the principal features on land and in the offshore. Dark gray line indicates bluffs with elevations greater than 25 m (80 ft). Offshore depth contours are in meters.

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# Conceptual Sediment Budget



**Figure 3-1:** Conceptual budget of sediments for the HBLC, where the arrows represent sediments being contributed to the beach from the sources, or lost offshore and blown inland to dunes. Also depicted is the longshore movement of the sand along the HBLC shoreline.

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30

Draft

**MAD RIVER INLET ADDENDUM, September 2000**  
**Future Possible Migration of the Mad River Mouth &**  
**Clarification of Impacts of the 1997-98 El Niño and 1998-99 La Niña Events**

Jeffrey C. Borgeld, Professor  
Department of Oceanography, Humboldt State University  
Arcata, CA 95521-8299

RECEIVED  
SEP 12 2000

Introduction

Following the completion of the final report *The Migration of the Mad River Mouth and Erosional Impacts within the Humboldt Bay Littoral Cell, Northern California* by P.D. Komar, J.C. Borgeld and J. Allan submitted to the California Department of Transportation, this follow-up was requested to re-address two topics and to provide additional explanation. The reader is referred to the original final report for clarification and references, where needed. The two questions addressed in this report are:

CALIFORNIA  
STATE HIGHWAY & TRANSPORTATION COMMISSION

1. With the spit breaching and inlet repositioning that occurred in March 1999, what are the expectations concerning the future location of the Mad River inlet?
2. Given the impact of the 1997-98 El Niño and 1998-99 La Niña events on the Mad River inlet and spit documented in the original report, how significant was the timing of the two climatic events?

**What are the Future Expectations of the Location of the Mad River Inlet?**

Between 1941 and 1970, the Mad River inlet was located within an area approximately 2 km (1.1 n.mi.) wide, north of an older deltaic island and south of mature coastal dunes located just north of Mad River lagoon. Although the data indicate that the river had not moved out of this zone for the last century, aerial photographs clearly indicate that the inlet oscillated within this zone. The inlet position and morphology in aerial photographs suggests that the inlet typically migrated northward with episodic spit breaching that repositioned the inlet back to the south. During the episodes of spit breaching and southward repositioning, a lagoon formed. This lagoon is visible in older surveys and aerial photographs, suggesting that this inlet behavior had occurred for at least the last century and perhaps even earlier.

Starting in 1969 or 1970, the river inlet migrated farther northward eroding through mature dunes that had previously marked the northward limit of inlet. The migration continued northward until 1992 when construction of a Rock Slope Protection (RSP) halted any continued northward migration. From 1970 to 1992, the inlet migrated 5.5 km (3 n.mi.). The average rate of northward migration of the inlet was 143 meters/year (470 ft/yr). Just prior to RSP construction, the inlet position was well documented, clearly indicating that the migration occurred primarily during the winter in response to storms. For example, the river inlet experienced minor migration from May through September of 1991 and then migrated

11 of 12

extreme events had occurred in rapid succession. Ultimately, of special interest here will be the effects that the El Niño winter had on the local beaches and spits followed in such rapid succession by the La Niña winter.

Of particular interest is the contrasting mean sea levels during El Niño and La Niña events, which affect the elevations reached by the tides and concomitantly affect the elevation reached by waves. During an El Niño, the water offshore from the coast of northern California tends to be warmer than usual, and the northward flowing ocean currents are stronger. Both of these factors produce an increase in the level of the ocean along the shore, which causes the measured tides to be higher than those predicted in Tide Tables. It was seen that the monthly mean water levels during the 1997-98 El Niño winter were consistently higher than average, with the largest difference having occurred during the winter months. The significance of this is that it increased the probability that the runup of waves could reach sufficient levels along the shore to produce erosion. During the El Niño, five major storms generated significant wave heights greater than 8 meters (26 feet), with the storm on 19-20 November 1997 reaching wave heights of 9.5 meters (31 feet). This number of severe storms greatly exceeds the normal occurrence of high-energy wave events; during most winters there are only one or two storms when the wave heights exceed 8 meters (26 feet). Moreover, even between major storms, the energy levels of the waves during the 1997-98 El Niño remained higher than normal.

One result of the combined effects of elevated sea levels and larger than normal waves was numerous overwash events and the removal of much of the Mad River spit, which enabled wave run-up to reach the base of the McKinleyville bluff. A similar effect was seen associated with the 1982-83 El Niño event. Following that winter, the spit was able to slowly rebuild, ultimately providing increased protection for the coastal bluff from waves. However, immediately following the 1997-98 El Niño, the 1998-99 La Niña climate event developed. Mean water levels and tides returned to near-normal elevations but wave energies remained elevated. Although wave energies averaged lower during La Niña compared with the preceding El Niño winter, the wave energies were still higher than during normal years. By itself this should have limited erosion as compared to the El Niño conditions, by reducing the measured tides and the probability of coastal erosion. However, the prior years El Niño had effectively removed the spit allowing waves to still reach the base of the McKinleyville bluff. There were fewer high energy wave events during the 1998-99 La Niña than in the preceding El Niño winter, but several storms did achieve wave heights of 8 meters (26 feet) or more. Importantly, waves were still able to reach the base of the McKinleyville bluff because the beach and spit had not recovered significantly during the intervening summer, and this left the area susceptible to renewed winter erosion.

## References

Storlazzi, C.D. and G.B. Griggs (1998) The 1997-98 El Niño and erosion processes along the central coast of California: *Shore & Beach*, v. 66, n. 3, p. 12-17.

Kaminsky, G., P. Ruggiero and G. Geffenbaum (1998) Monitoring coastal change in southwest Washington and northwest Oregon during the 1997-98 El Niño: *Shore & Beach*, v. 66, n. 3, p. 42-51.

120912

October 30, 2002

To: Dr. Mark Johnson, California Coastal Commission  
From: Randy Klein, Hydrologist  
Subject: Caltrans RSP at mouth of Mad River, additional materials and discussion

The following addresses the four issues that arose from your meeting with Dr. Gary Carver on October 14 as well as a few others that may need clarification. This memo reflects opinions of both Dr. Carver and myself. Included are some additional photographs and a map to supplement the materials already submitted with my September 16 memo. To help keep things straight, I continued the numbering sequence from the previous set of materials submitted.

**Issue 1: Effects of RSP on eolian (wind-blown) sand transport and dune formation**

*II) May, 1973, color air photo montage from California State Lands Commission:* These photos show the orientation of wind transport to be at about a 40-45 degree angle to the beach alignment, as indicated by the quasi-linear patches of exposed, loose sand within the dune complex to the north of the river mouth and similar, but more subtle linear features on the spit to the south of the mouth. I have drawn the footprint of the 1995 RSP (after extension) and the area of wind 'shadow' where dune formation may be affected by the RSP. From the photo, it is clear that the source of sand for dune formation is the upper part of the wave slope immediately to the northwest of dunes capping the spit at any location, only a very short distance in the alongshore direction. The area potentially deprived of sand due to the RSP is quite small and a long distance from the dunes fronting the plaintiffs' bluff. Additionally, the dunes on Clam Beach (left or north side of photo montage) are well vegetated and capped by an incipient soil, indicating they are stable and have not been a potential source for eolian material for a long time (several hundred years based on 14C ages for these dunes). The only wind and sand transport direction that the RSP could possibly influence that could have any effect on the sedimentation in front of the plaintiffs' bluff would have to be from the north (parallel to the coastline). Winds strong enough to transport sand from this direction are infrequent and not reflected by the very clear sediment transport direction indicated by the morphology of the dunes or modern weather records.

*JJ) August 14, 1999, color oblique air photo:* This photo was taken about four months after the mouth relocated to its present position near Hiller Road. The section of bluff in the photo extends from the RSP southward to just include the mouth of Widow White Creek (which borders the most southerly extent of the plaintiffs' properties). A dune field can be seen both to the north (left) of the RSP and to the south, except for a small wind shadow just inside the westerly curve of the RSP. Thus, the extent of the effects of the RSP on eolian sand transport and dune formation are confined to the curving portion of the RSP. All areas south of the westward curve of the RSP (along the straight segment of the RSP that fronts the bluffs and to the south of the RSP) experience dune formation processes and rates completely unaffected by the RSP. At present, dunes have formed even within the wind shadow area from sand that has blown over the top of the RSP and/or has wrapped around the westerly tip of the RSP. You may have seen these dunes during your recent field visit.

EXHIBIT NO. 8

APPLICATION NO.  
1-00-014 - 1-02-1-PWP  
CALTRANS HYDROLOGIST  
MEMO (1 of 7)

## **Issue 2: Meandering and point bar formation**

*KK) October 9, 1989 black and white air photo:* This photo shows several obvious point bars (indicative of a well-defined thalweg near the opposite bank) located in the southern portion of the photo (the channel reach from School Road north to near the sewage treatment ponds). The forced meander at the location where the river bends to the north near School Road causes a large and persistent point bar to be maintained just north (downstream) of School Road against the right (east) bank of the channel. The two other bars just downstream are less well-defined, indicating a weakening tendency for meandering in the northerly direction. No other meander features can be discerned farther downstream.

Washover occurred frequently along the northern half of the spit and washover fans were the dominant depositional process in the channel there. Weakly expressed point bars were sometimes visible in the air photo record along the northerly portion of the channel on the east side of the reformed spit, but were ephemeral, being frequently obliterated by washover processes and tidal scour. However, these ephemeral point bars tended to reform at the same locations through time and show that the northern part of the plaintiffs' bluff in the vicinity of the Connors' property was at the apex of a weak but persistent eastward bending meander that formed when the river migrated past this location in the mid-1980s.

*LL) October 23, 1997, black and white air photo set* (these six photos overlap by one-quarter to one-half inch to make a continuous montage). Upstream point bars are essentially the same as in the 1989 photos. These bars persisted throughout the intervening period while point bars cannot be discerned along the northern half of the channel. However, a small portion of the old "Last Chance Dune" complex containing buried fossil driftwood logs remains at the base of the bluffs both to the north and south of Widow White Creek. The preservation of this remnant of the old dunes shows that the thalweg has not been against that bank since the time the river migrated north past that area in the late 1970s or early 1980s (bracketed by air photos in 1975 and 1983), as it would have been easily eroded by fluvial scour had that been the case.

Based on these observations, we contend that the meander pattern of the lower Mad River was and is controlled by upstream conditions, specifically, the forced meander and persistent point bars at the upstream reach of the river channel shown in this photo set (near School Road), and was established prior to construction of the RSP. Thus, the RSP had no effect on meandering of the lower river channel, and meandering was at times either very weak or non-existent in the reach of the river near the plaintiffs bluffs throughout the life of the RSP.

## **Issue 3: Bluff alignment**

*MM) Exhibit 345: Oblique color air photo looking southward along the Mad River spit on December 19, 1991:* This photo, taken just prior to construction of the RSP, shows the alignment of the McKinleyville bluffs. The bluff protrudes westward along the northerly portion (the most eroded section at the north end of the plaintiffs' bluff segment in the left center of the photo). This protrusion explains, in part, the tendency for greater bluff retreat rates as the river mouth migrated past the northern-most properties; those that protruded westward from the bluff line. This is also one reason why by 1991, before the RSP was installed, the most northerly of the plaintiffs'

properties – the Conners’ – is characterized by a steep, actively eroding, poorly vegetated bluff face compared to the most southerly of the plaintiffs’ properties, the Slagles’ adjacent to Widow White Creek, which by 1991 was far less steep, more stable, and far more vegetated than the Conners’.

*NN) 1992 Caltrans topographic map of Mad River spit and bluffs (10 sheets):* I have drawn on this map a bluff top line (green ink) projected from the south through plaintiffs’ segment of bluff. The bluff top within the plaintiffs’ segment is shown as either an orange line (indicating eastward deviations from the projected bluff line) or a red line (indicating westward deviations from the projected bluff line). The northerly part of the plaintiffs’ bluff (the Conner and adjacent non-plaintiff Aniline Bell properties) project westward of the projected bluff line, indicating a greater propensity for erosion when the river migrated north through this area in the late 1980s. This may, in part, explain the greater degree of erosion at these properties prior to RSP construction, as evidenced by photos C-F (Exhibits 192, 193, 195, and 199) from the materials sent with the September 16 memo. Note that the bluff top had already retreated a substantial distance prior to the date of this map.

#### **Issue 4: Inlet width, position, and relationship to bluff erosion and spit condition**

*OO) October 21, 1996, black and white air photo:* This photo shows the wet sand zone in fall, 1996, for comparison with the one below from fall, 1997.

*PP) October 23, 1997, black and white air photo (from set also used in LL):* This photo shows the wet zone to be narrower than in fall, 1996 (OO, above). The south bank of the inlet was positioned opposite the southerly tip of the RSP, about 900 feet north of the northern end of the most northerly of the plaintiffs’ properties – the Conner property. The wet sand zone was narrower than on earlier photos (e.g., photo OO, above). This photo directly contradicts arguments made by the plaintiffs’ experts (PWA Figure 1, Panel H) that the inlet widened continuously following RSP construction and as a result of the RSP.

The inlet width is subject to normal oscillations unrelated to the RSP. Changes in inlet width (i.e., cyclic widening and narrowing) can be explained as follows: the mouth temporarily widens during periods of high river flow (storm discharges) to accommodate the higher flow rate, becoming more consistent with the channel width upstream, and then narrows during periods of low flows as sand deposition extends the spit northward. The photographic record, as extensive as it is, only provides snapshots of how the spit changed following RSP construction, thus seasonal oscillations can only be documented in the photographic record in a fragmentary way. Moreover, the PWA Figure 1 only included a subset of the readily available air photos, thus it gives a skewed and incomplete chronology.

The wetted or inundated area of the beach and spit is controlled by factors completely unrelated to the RSP, not the least of which are the height of the wave overtopped spit, and the preceding high tide and the maximum wave runup potential during that high tide. These factors alone can cause the width of wet sand and drowned spit to vary by hundreds of feet. The spit well south of the plaintiffs’ bluff was substantially lowered from Murray Road northward by wave washover during the 1997-98 El Nino to the extent that the northern most part of the spit was below the exceptional

tide levels during the El Nino (see photos Y and Z from the earlier memo). The slightly submerged northern part of the spit is apparent in many of the 1997-98 photos as a surf line, in contrast to the actual river mouth which was deep enough to preclude breaking waves and remained relatively narrow. Thus, depending on the photos selected and the criteria used for delineating the inlet, erroneous conclusions with respect to both temporal and spatial relationships between the RSP and the plaintiffs' properties can be reached.

With regard to bluff erosion, the October 1997 photos also depict a lack of bluff toe erosion in the bluff located between the southerly tip of the RSP to the north and plaintiffs' most northerly bluff property - the Conners - to the south. The only bluff toe erosion seen in this segment of bluff was confined to a small area and was caused by the separation and failure of the airport down drain culvert in 1995, an event unrelated to the RSP. Moreover, there was no significant toe erosion of this bluff segment over the five years following initial RSP installation. It was not until the 1997-98 El Nino, during which direct wave attack resulting from elevated sea levels combined with a series of large storm events battered the coast for over three months, that toe erosion occurred along this segment of the bluff. This observation begs the question: "how could the RSP be causing erosion along the plaintiffs' bluffs by wave refraction, reflection, or any other process if an erodible segment of bluff remained intact (except for the airport down drain failure) in between the RSP and the plaintiffs' bluff?" We contend it can't.

*QQ, RR, and SS) April, 1997, oblique aerial color photos of bluffs near RSP:* To reiterate and expand upon the statement above, the presence of the un-eroded bluff segment between the plaintiffs' bluffs and the RSP is evidence which directly contradicts the alleged spatial correlation between erosion rate and distance from the RSP as claimed on the plaintiffs experts' exhibit (PWA Figure 1, Panels B through E). In photo *QQ*, we see the severely eroded bluff at the Connors' property. In photo *RR*, we see the southerly tip of the RSP and an un-eroded bluff segment immediately to the south (note that a strip of remnant dune still remains at the base of the bluff). Photo *SS* gives a more distant overview of these areas and clearly shows the point made above that erosion severity diminished from the Connors property northward toward the RSP. It also confirms that erosion also diminished in the southerly direction from the Connors property, as correctly indicated in the PWA graphs. Thus, Panels B through E in PWA Figure 1 tell part of the story, but obscure this crucial fact.

In contrast to PWA Figure 1, the differences in erosion observed between the most northerly and the most southerly of the plaintiffs' properties are best explained by facts not addressed by plaintiffs' experts. I have already addressed the protrusion issue, but, there are others.

First, a very important issue is the age of the reformed spit south of the river mouth: youngest to the north, and thus less developed and less effective as a barrier to open ocean wave washover to the north. Open ocean waves washing over the spit and continuing across the river to impact the base of the bluffs was the principal cause of toe erosion along the bluffs once the river mouth passed. Second, this north to south erosion pattern on the plaintiffs' properties predated the 1992 RSP installation, thus attributing it to the RSP is invalid. Third, by the time the RSP was constructed in 1992, the steeper, taller and more poorly vegetated northern properties were inherently more vulnerable to future river erosion at the toe (or wave action overtopping the spit) than the less steep, lower, better vegetated bluffs to the south. Similarly, the more northerly

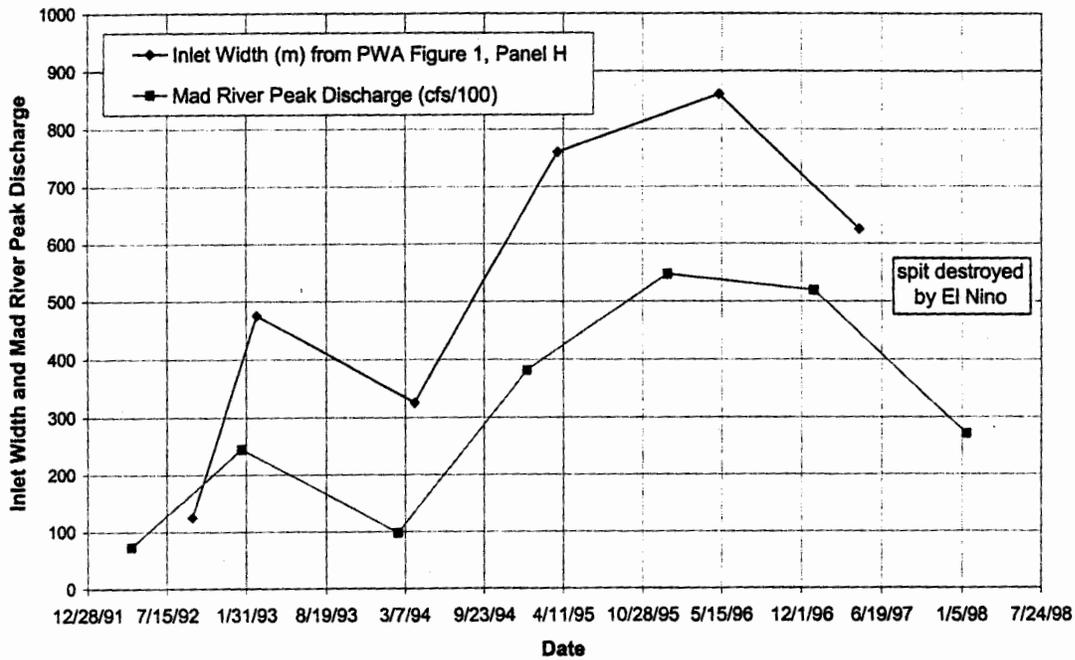
properties, with their taller denuded bluff face, were more vulnerable to sub-aerial erosion processes (surface erosion, slumping). These conditions and processes are by far the most important factors contributing to the bluff erosion and have nothing whatsoever to do with the existence of the RSP or its location.

*TT) Exhibit 181: June 17, 1998, black and white air photo montage:* Following the El Nino winter of 1997-1998, the south bank of the river's outflow channel was located just south of the southerly tip of the RSP, several hundred feet north of the most northerly of the plaintiffs' bluffs. (interestingly, the inlet had pulled away from the RSP by the date of this photo, as evidenced by dry sand and eolian dunes immediately to the south). The plaintiffs' experts claim the inlet width to be about 1250 meters (4100 feet) at the time of this photo (PWA Figure 1, Panel H), apparently measuring the alongshore span of wet sand and slightly submerged spit bounding the flowing channel. In fact, this measurement is not of the inlet, but rather includes the entire wet area of the spit that was planed off and dramatically lowered by the El Nino. Because it was lowered, the post-El Nino spit was subject to much more frequent inundation during high tides and thus was wet at the time of this photo.

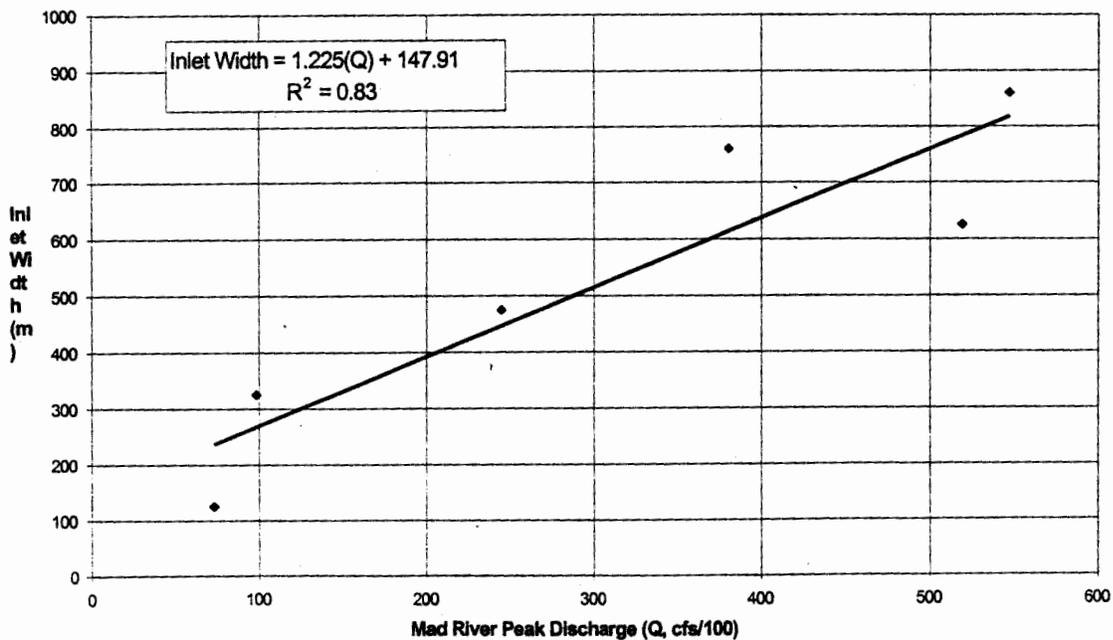
As Dr. Carver may have explained to you, even if the river's northward migration had never been stopped by Caltrans, the southern boundary of the wetted area in this photo would have been the same, since the appearance of ocean water at this location during the El Nino is a function of an immature spit combined with the effects of El Nino and not the RSP or its location to the north. Frequent washover preceding El Nino retarded spit maturation, repeatedly lowering the spit along all but the highest areas well to the south of the plaintiffs' bluff area (see items Y and Z in my earlier memo), thus preventing elevational growth and the concomitant increase in "protectiveness" it might otherwise have lent to the adjacent bluff prior to the arrival of El Nino in 1997-98. Thus, the RSP played no role in either the condition of the spit prior to El Nino or the destruction of the spit during the El Nino.

The cause of apparent changes in inlet width are attributed by the plaintiffs' experts to be effects of the RSP, however, there is a strong correlation, as well as a rational explanation (to accommodate high river discharge), between inlet width data derived by the plaintiffs' experts and peak river discharges, as shown in the graphs below:

**Graph of Inlet Widths (from PWA Fig. 1, Panel H) and Mad River Peak Discharge for the Period Between RSP Construction and 1997-98 El Nino**



**Inlet Width from PWA Fig. 1, Panel H vs Mad River Peak Discharge**



Clearly, peak river discharge strongly controls inlet width, at least for a short period following the peak flow event (until the subsequent seasonal narrowing that occurs during periods of low flow in the subsequent spring and summer months). Moreover, there was a downward trend in inlet width just prior to the El Nino, as shown above, and 1997-98 peak discharge was low, thus one would expect continued inlet narrowing, not widening, were this process not overwhelmed by the arrival of the El Nino and the resulting destruction of the spit. This underscores why distinguishing between the deep water river mouth and the slightly and in part intermittently drowned spit is ambiguous at best. We contend that most of the wet sand apparent in the June 1998 photo reflects spit inundation and not inlet widening.

Notwithstanding uncertainties in inlet width measurements or the causes for varying inlet widths, inlet width and location were irrelevant to bluff erosion on the plaintiffs' properties. While the RSP did fix the north bank of the river mouth, causing any increases in the width of the inlet to be accommodated by southerly expansion, this southerly expansion never caused the inlet to be positioned opposite the plaintiffs' bluff. Most significantly, with the installation of the RSP in 1992, the inlet was never in a position that would have allowed direct wave attack. Instead, it remained aligned immediately west of the RSP from 1992 to the 1999 breach near Hiller Road except for the Spring of 1998; a time immediately following El Nino when ambiguities in delineating inlet width are greatest. This ambiguity affects 1998 inlet widths depicted in both Panels A and H in PWA Figure 1. At that time, the inlet (termed "channel or open ocean" in Panel A) was located opposite the County parcel (between the south end of the RSP and the north end of the plaintiffs' bluff). We contend that the areas of wet sand to the south of the flowing channel, as depicted on the June 17, 1998, air photos, are composed of a spit heavily battered and lowered by the El Nino and hence more subject to frequent tidal inundation, not a widened inlet.

Finally, it must be noted that the dramatic inlet width data point for 1999 shown on PWA Figure 1, Panel H (about 1800 meters), is in error and should not have been included in this graph for two reasons. First, as previously explained, this data point does not represent the inlet but in fact includes the expansive area of spit subject to tidal inundation and wave runup resulting from lowering of the spit by the preceding El Nino. Second, because the inlet had relocated to the south (near Hiller Road) following a natural breaching of the spit at Hiller Road, it was no longer in the vicinity of the RSP or the plaintiffs' bluffs.

There were only two significant episodes of bluff toe erosion at the plaintiffs' properties: the first when the river migrated past the properties in the 1980s, and the second during the 1997-98 El Nino, when bluff toe erosion first occurred at the County parcel. Erosion experienced along the plaintiffs' bluffs during the intervening period consisted of sub-aerial processes affecting the bluff top and face (slumping, surface erosion in response to bluff destabilization from toe removal that occurred prior to RSP construction), and occasional talus removal during tidal flows and high river discharges, processes unrelated to the RSP. With the onset of the 1997-98 El Nino, extreme marine conditions caused the low, immature spit to be repeatedly and dramatically overtopped and planed off even lower over a period of about three months, causing widespread erosion along the plaintiffs' properties. The coastal erosion at the plaintiffs' bluff was not unique to that location: it was coincident with extensive and locally damaging bluff retreat and coastal erosion at many places along the entire West Coast.

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SEP 09 2002

CALIFORNIA  
COASTAL COMMISSION



**PWA**

PHILIP WILLIAMS & ASSOCIATES

CONSULTANTS IN HYDROLOGY

720 CALIFORNIA ST., 6TH FLOOR, SAN FRANCISCO, CA 94108  
TEL 415.262.2300 FAX 415.262.2303  
SFO@PWA-LTD.COM

September 3, 2002

Richard J. Hicks  
Bernheim & Hicks  
528 A Street  
Santa Rosa, CA 95401

RECEIVED  
SEP - 4 2002  
BERNHEIM & HICKS

RE: Mad River Mouth Migration Phase III  
PWA Reference # 1488.03

Dear Richard,

Please find enclosed PWA's issues summary of the Mad River mouth migration per your request. This issues summary presents our primary findings on the causal relationship between the rock slope protection (RSP) and the bluff erosion adjacent to the mouth of the Mad River. The document is organized in three sections: (1) an executive summary that summarizes PWA's findings and conclusions, (2) a numbered list of PWA's principal findings, and (3) supporting analysis and figures.

Sincerely,  
PHILIP WILLIAMS & ASSOCIATES, LTD.

Jeremy P. Lowe  
Senior Associate

Attachment:  
Memorandum

EXHIBIT NO. 9

APPLICATION NO.

1-00-014 - 1-02-1-PWP  
(1 of 9) OPPONENTS  
HYDROLOGIST REPORT



**PWA**

PHILIP WILLIAMS & ASSOCIATES

CONSULTANTS IN HYDROLOGY

720 CALIFORNIA ST., 6TH FLOOR, SAN FRANCISCO, CA 94108

TEL 415.262.2300 FAX 415.262.2303

SFO@PWA-LTD.COM

## MEMORANDUM

DATE: September 3, 2002

TO: Richard Hicks, Bernheim & Hicks

FROM: Jeremy Lowe  
Bob Battalio, P.E.  
Cope Willis

RE: Mad River Mouth – Rock Slope Protection: Issues Summary  
PWA Ref. #: 1488.03

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### 1. EXECUTIVE SUMMARY

Philip Williams and Associates, Ltd. (PWA) was hired by Bernheim & Hicks to provide fluvial, estuarine, and coastal geomorphology and engineering consultation for the plaintiffs in the action Conner versus the State of California. This document provides a summary of PWA's primary findings on the effects of the rock slope protection (RSP) constructed by Caltrans in 1992 on the local coastal, bluff, and fluvial processes and the supporting analysis for these findings. PWA has concluded that the RSP prevented the northward migration of the Mad River mouth, reduced sand supply to the sand spit directly in front of the plaintiffs' properties, and caused the mouth to widen in a southerly direction. By fixing the position of the river mouth and increasing its width, the RSP increased the amount of wave energy reaching the bluff toe at the southern end of the RSP, including the plaintiffs properties, inducing erosion of the bluff toe and destabilizing the cliff face. Not only has the RSP accelerated bluff erosion rates since its construction in 1992, but in addition, due to the removal of talus material at the base of the cliffs and the potential for the mouth to migrate to this area again, the cliffs south of the RSP have an increased risk of erosion in the future. The RSP is, in effect, a river jetty, which would typically require environmental review. However, the project was deemed categorically exempt due to its emergency status; this meant that a public review process that would normally be carried out for this type of project did not take place. Based on Caltrans' documents, the RSP was constructed primarily because it was the lowest cost method

for protecting the highway, even though Caltrans knew it might not be the least environmentally damaging alternative.

## 2. FINDINGS

- 2.1. There appears to be a direct link between the amount and the relative timing of the erosion of the cliff toe and top during this 10-year period and the installation and then extension of the RSP.
- 2.2. Construction of the RSP prevented further northward migration of the Mad River mouth, fixing the position of the mouth between the northern end of the RSP and the plaintiffs' properties.
- 2.3. By fixing the northern boundary of the river mouth and halting the erosion of the dunes to the north, the RSP eliminated a significant source of sand for the spit.
- 2.4. The RSP reduced the supply of sand from littoral and wind transport from the north to the spit, preventing the tip of the spit from gaining elevation as rapidly as would have occurred under unconstrained conditions.
- 2.5. The resulting low elevation spit provided minimal protection to the cliffs from wave attack and increased the frequency of overwash events, causing the river mouth to widen further.
- 2.6. The widened mouth allowed greater direct wave energy to pass into the channel and to interact with the RSP, increasing erosion potential south of the RSP between 1992 and the present.
- 2.7. Because erosion was greatest at the base of the cliff, it is reasonable to assume that the cause of erosion originated at the base of the cliff and that the bluff erosion was not initiated by inherent cliff instabilities or sub-aerial processes.
- 2.8. The RSP set the meander planform geometry of the river channel adjacent to the cliff toe at the northern end of the plaintiffs' properties, further increasing the potential for erosion along the cliff toe.
- 2.9. By inducing the removal of talus material at the cliff toe, the RSP has left the cliff along the plaintiffs' properties at a higher risk of erosion if the river mouth migrates north to the RSP in the future. The RSP will also force the river mouth and associated erosion to reoccur in the same vicinity rather than progressing northward.

2.10. Oriented perpendicular to the coast, the RSP acts as a river jetty, a design that would typically require environmental review. However, Caltrans' declaration of an emergency and Categorical Exemption has so far limited environmental review and alternatives analysis.

2.11. Caltrans was aware that the RSP could have adverse effects to natural processes and property and that there were other alternatives with potentially lesser environmental impacts. However, Caltrans implemented the RSP based primarily on its lower construction cost.

### 3. SUPPORTING ANALYSIS

#### *3.1 Coastal Processes*

Between 1970 and 1990, prior to the construction of the RSP, the Mad River inlet was migrating northward at an average rate of approximately 150 m/yr (Komar *et al.* 2000). As the inlet moved north over this time period, the existing dune field fronting the bluffs between Widow White Creek and Vista Point was eroded. Once the inlet passed a given location, however, the dunes were re-established on the spit and gradually increased in elevation. The growth of dunes requires a supply of dry wind blown sand. At this location, sources of the sand include wind transport of sand from the north and erosion of the dune field north of the RSP and the longshore transport of this material southward through the inlet shoals to the beach south of the RSP. The initial accumulation of sand on the beach south of the RSP due to wave action increases the beach elevation until it becomes sufficiently high and wide to serve as a significant source of wind blown sand. Since the dune growth on the sand spit south of the inlet lagged behind inlet migration northwards, there was a downward slope in the dune height from south to north and, consequently, a diminishing level of protection provided by the dunes in that direction (Panel H, Figure 1). During periods when dune elevations are low, waves may overwash the spit, pushing sand into the river channel and forcing the river channel against the bluff. This material may be transported back to the river mouth to be recycled onto the spit. Once the dunes stabilize and reach higher elevations, waves only overtop the dunes during extreme wave events.

The RSP, constructed by Caltrans in 1992, fixed the position of the Mad River mouth, preventing the river mouth from migrating to the north and resulting in local effects on both the sand spit and the adjacent bluffs. While the sand spit's position was not regulated directly by the RSP but has remained dynamic, it was subject to different processes than would have likely occurred under unconstrained

conditions. The RSP disrupts two important sand sources for the spit. First, the RSP acts as a barrier to sand transported by wind from the north towards the spit. Second, it fixes the northern boundary of the river mouth and halts erosion of the dunes to the north, reducing the supply of sand delivered by littoral transport. Due to the reduced sand supply, the northern tip of the sand spit did not gain elevation as rapidly as would have occurred without the RSP in place (Panel H, Figure 1). The low elevation spit provides minimal protection to the cliffs from wave attack and increases the frequency of overwash events, causing the river mouth to widen (Panel H, Figure 1). The wide mouth allows greater direct wave energy to pass into the channel and to interact with the RSP. By fixing the northern boundary of the river mouth, the RSP allows the mouth to widen only to the south (Panel A, Figure 1). In addition, when reaching the RSP, wave energy is reflected against the bluff toe, locally increasing erosion potential (Panels C - E, Figure 1). The greater accessibility of waves into the river mouth has accelerated the removal of talus material at the toe of the bluff. The talus material would have assisted in stabilizing the cliff; thus, its removal has left the cliff more vulnerable to erosion in the future.

### *3.2 River and Cliff Processes*

Analysis of aerial photos between April 1989 and April 1999 has allowed successive periods of cliff activity to be chronologically associated with the RSP (Figure 1). All measurements provided below are approximate values:

#### *April 1989 – Sept 1992 – Pre-RSP (Panel B, Figure 1):*

At this time, there are high rates of erosion as the migrating river mouth erodes the historic dune field. To the south, the cliff that was eroded as the river migrated north is largely free from erosion from 700-1200m. Further south (1200-1400m), there is some evidence for progradation of the cliff toe without activity at the cliff top, which suggests restorative landslides occurring within the body of the cliff.

#### *March 1993 – March 1995 – Following construction of initial RSP (Panel C, Figure 1):*

There is a high rate of erosion of the cliff toe from 350-600m, immediately to the south of the RSP. As the cliff top is not eroding, it is assumed that the erosion relates to wave/river processes, rather than sub-aerial processes, and is associated with turbulence at the southern tip of the RSP and increased erosion related to the proximity of the mouth. The erosion is sufficient for Caltrans to extend the RSP

further south to protect Vista Point. Further south on the cliff from approximately 850-1400m, the cliff toe shows evidence of progradation. This progradation is interpreted as restorative landslide processes taking place throughout the cliff face as the cliff attempts to recover to a more stable angle.

Nov. 1995 – April 1997 – Following extension of the RSP (Panel D, Figure 1):

At this time, although there are very few major storms, erosion has been reactivated at the cliff toe south of the RSP (approx. 700m-1150m), decreasing to the south, away from the RSP. This activity is interpreted as indicative of renewed basal attack on the cliff associated with extension of the RSP causing systematic problems with spit development and regeneration as detailed above. It is notable that the bluff toe below the airport drain erodes considerably at this time, suggesting that the instability is related to wave/river processes and not surface drainage activity. South of 1200m, erosion of the cliff toe is variable and, in one location (1350-1400m), the toe progrades, suggesting talus accumulation from landslide activity.

April 1997 – April 1999 – Encompassing El Niño event (Panel E, Figure 1):

During this period, an approximately linear trend in erosion of the cliff toe occurs south from the RSP (700m) to 1250m. Erosion of the toe peaks just south of the RSP where toe erosion greatly exceeds cliff top erosion. From approximately 950m to 1250m, the cliff top is also seen to erode suggesting a process of massive instability in the cliffs. At the airport drain, erosion along the cliff top is present rather than at the toe. This activity is interpreted as a consequence of the previous toe erosion, causing upstream gullying of the drain, failure of the drainage pipes and erosion of the cliff top. Overall, the linear trend in the erosional activity south from the RSP is magnified erosional processes in its vicinity due to problems with spit development and regeneration as detailed above.

Summary

From Figure 1, it is reasonable to conclude that, following erosion by the migrating river (before 1989), the cliff in the vicinity of the plaintiff's properties began to undergo a series of restorative landslides caused by sub-aerial processes while, further north, extensive erosion occurred around the south tip of the RSP and can be attributed to it (Panel C, Figure 1). Extension of the RSP in 1995 is associated with renewed erosion of the base of the cliff and thus the creation of greater instability in the

cliff face. Erosion rates are again greatest at the southern tip of the RSP and, generally, decay to the south (Panel D, Figure 1). At this time, the airport drain is also destabilized by basal erosion. Because the erosion is greatest at the base of the cliff, it is reasonable to assume that the cause of erosion originates at the base of the cliff and that the activity is not an inherent facet of either prevailing cliff instability from previous erosion or due to sub-aerial processes.

Disruptions of spit regeneration processes at the river mouth caused by the RSP are likely the primary cause for the increased erosion. In the period encompassing the El Niño event (Panel E, Figure 1), erosion is again greatest close to the RSP, and decays away southwards, but the overall effect is magnified by the El Niño event. Erosion is sufficiently severe that the whole cliff face (toe and top) is destabilized in this period. Also in this period, the airport drain suffers extensive gulying as the destabilized toe creates a knickpoint that erodes up the face of the drain, causing significant recession in the cliff top. The greatest erosional intensity is again seen to correlate to the position of the RSP and, for reasons outlined previously, is likely to be influenced by it.

Given the styles and chronology of cliff erosion up until April 1999, further cliff erosion may be expected into the future from both sub-aerial and basal sources. Overall, the evidence from this quantitative analysis provides conclusions that are in direct contrast to the evidence presented by arguments prepared by Klein in Exhibit 664. There does appear to be a direct link between the amount of erosion and the relative timing of the erosion of the cliff toe and top during this 10-year period and the installation and then extension of the RSP.

Erosion of the cliff toe may also have been caused by the river passing along the base of the cliff. It is reasonable to expect that the prospect of erosion is greatest where the thalweg of the river (the line of maximum depth of the river) is directed towards and is close to the cliff. The position of the thalweg can be approximately defined from aerial photographs and, in Exhibit 663, the river thalweg is plotted for multiple time periods. It is notable that, as the river turns to run along the cliff north of Hiller Road, up to the entry of Widow White Creek, the thalweg position varies in time. This is to be expected because, as the river eroded north through the dunes, the river length increased, causing the gradient and flow of the river to alter progressively in time. Thalweg pattern is related to these factors and thus should be expected to change. However, when river migration is stopped through construction of the RSP, flow patterns near the RSP appear more constant. Two distinct patterns are evident, one related to the extent of the RSP from 1992 to 1994 and another after the RSP extension in 1995. Both create conditions in which

the thalweg is close to plaintiff's properties. It is concluded that, without the RSP, the freely migrating river would have shifted its thalweg position in time, whereas once the right bank of the river mouth was fixed in position, the river flow patterns are affected in such a way as to be potentially detrimental to the cliffs below the plaintiffs' properties.

### ***3.3 Engineering Protocol and Public Review***

The emergency status that Caltrans attributed to the RSP construction may have been avoided in both 1992 and 1995: the potential need for protection of Highway 101 was recognized by Caltrans 8 years before the RSP was constructed, and the increased erosion south of the initial RSP was apparent well before a second emergency was declared by Caltrans in 1995. Caltrans' actions and lack of action likely contributed to the "emergency." The RSP, as constructed in 1992, was configured perpendicular to the coast for the purpose of halting the northward migration of the Mad River. Oriented in this manner, the RSP acts as a short river jetty, a design that normally would require environmental review. Caltrans' internal documents confirm that it was aware that installing an RSP to stop the natural migration of the river could have adverse effects on natural processes and on private property. As a result of Caltrans' declaration of emergency and Categorical Exemption, it appears that the RSP was constructed with limited review of alternatives or effects, despite concerns expressed by Caltrans management and engineers at the Sacramento headquarters that the RSP had the potential for damaging nearby property. The primary consideration appeared to be the cost of the work to Caltrans. Ultimately, Caltrans' actions impacted private property by increasing local erosion rates and increasing the risk of future erosion.

## **4. REFERENCES**

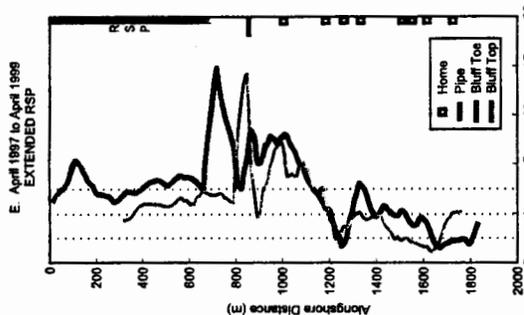
Exhibit 663: Mad River Mouth Migration and Spit Growth: 1970-1998, R. Klein.

Exhibit 664: Mad River RSP Case Opinions, R. Klein, 9/2/01.

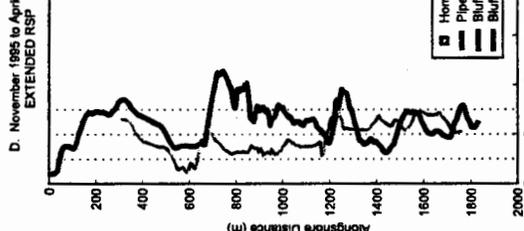
Komar, P.D., Borgeld, J.C., and Allan, J., 2000. The Migration of the Mad River Mouth and its Erosional Impacts Within the Humboldt Bay Littoral Cell, Northern California. Report to the California Department of Transportation. 88p.



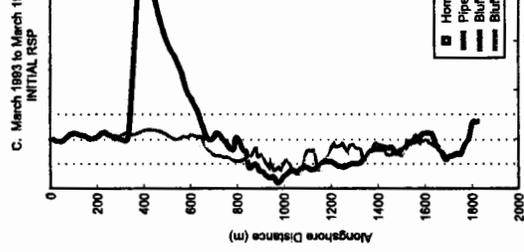
F. 1999 Aerial Photograph



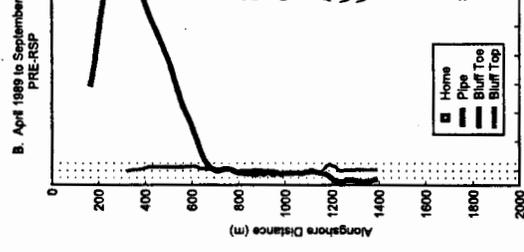
E. April 1987 to April 1999 EXTENDED RSP



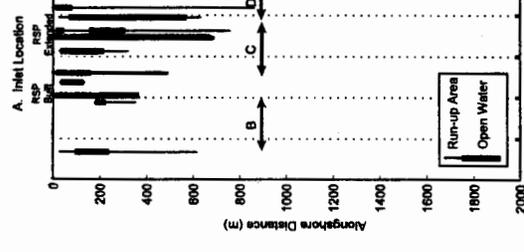
D. November 1985 to April 1987 EXTENDED RSP



C. March 1983 to March 1985 INITIAL RSP



B. April 1989 to September 1991 PRE-RSP

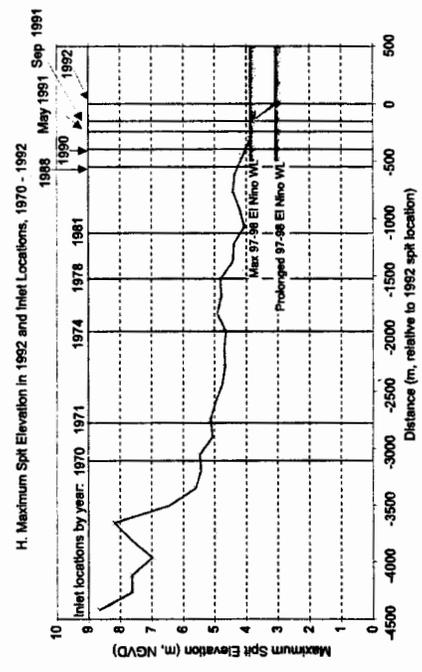


A. Inlet Location

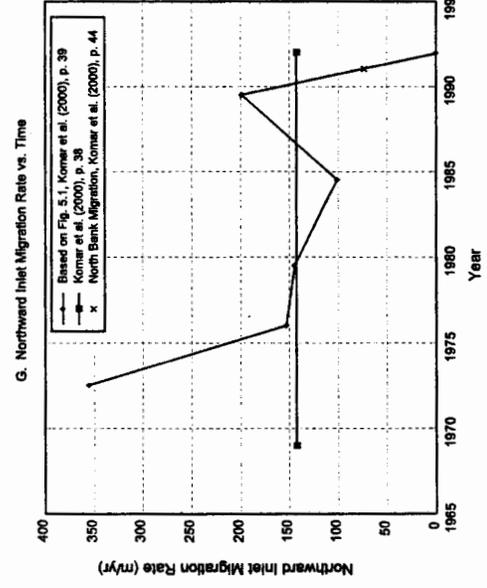
Note: Different scale than following plots

**1. FINDINGS SUMMARY:**

1. Location of bluff erosion is correlated with location of Mad River mouth (Panels A - E).
2. Location of bluff erosion is also correlated with location of RSP (Panels C - E).
3. RSP halted erosion of dunes to the north (Panel G), reducing supply of sand to the spit and the level of protection spit provides bluff from wave attack (Panel H).
4. Wide mouth allows greater amount of wave energy to interact with bluff (Panel A).
5. Bluff slope is steepening, so further bluff erosion can be expected (Panel E).



H. Maximum Spit Elevation in 1992 and Inlet Locations, 1970 - 1992



G. Northward Inlet Migration Rate vs. Time

Based on Fig. 5.1, Komar et al. (2000), p. 39  
 Komar et al. (2000), p. 38  
 North Bank Migration, Komar et al. (2000), p. 44

Sources:  
 Spit Elevation: 10/23/1992 California Topography  
 Water levels: Komar et al. (2000) p. 70

Figure 1  
 Mad River Mouth Migration  
 July 2002



999

# Memorandum

To: Robert Merrill  
 California Coastal Commission  
 Eureka Office  
 P. O. Box 4908  
 Eureka, CA 95502-4908

**RECEIVED**

APR 29 2002

CALIFORNIA  
COASTAL COMMISSION

Date: April 24, 2002

File: Hum-101  
 R151.9 (R94.4)  
 Place RSP at  
 Mad River mouth  
 CDP 1-00-014

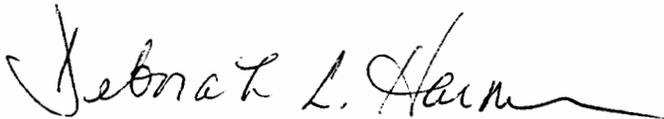
From: **DEPARTMENT OF TRANSPORTATION - North Region, Eureka Office**  
**P. O. Box 3700, Eureka, CA 95502-3700**

Subject: Transmittal of Mad River Public Hearing Record

The California Department of Transportation (Caltrans) held a public hearing on February 7, 2002 to receive comments on the existing rock revetment below the Route 101 Vista Point, near McKinleyville in Humboldt County. This hearing was held to satisfy one of the public works plan certification requirements requested in your April 14, 2000 letter to Caltrans. Copies of the public hearing items are attached.

The other remaining public works plan items consisting of the project alternatives analysis and wetland mitigation plan, will be forwarded to your office under separate cover in three to four weeks.

Please call me at (707) 445-6416 if you have any questions.



DEBORAH L. HARMON, Chief  
 Environmental Management, Branch E-1

Attachments

EXHIBIT NO. 10
APPLICATION NO. 1-00-014 - 1-02-1-PWP (1 of 39) CALTRANS PUBLIC HEARING EXCERPTS

State of California  
Business, Transportation, and Housing Agency  
Department of Transportation  
District 1

## **Record of Public Hearing**

**For Rock Revetment Project  
at Former Mad River Mouth  
near McKinleyville**

**Route: 101**

**County: Humboldt**

**Kilometer Post (Post Mile) Location: R151.9 (R94.4)**

**Project Location: Former Mad River Mouth  
Below Route 101 Vista Point  
McKinleyville**

**Meeting Date: February 7, 2002**

**Meeting Location: Azalea Hall, McKinleyville, CA**

2939

## List of Public Hearing Attachments

Public hearing notification letters to elected officials

Public hearing notice with distribution lists

Public hearing attendance sign-in sheets

Photographs of the hearing

Photographs of meeting exhibits

Hard copy and electronic copy of informational slide presentation (Power Point Presentation)

Copy of public hearing brochure

Comment card submitted with attached comments from John L. White

Speaker cards submitted

Transcript of hearing

Copies of comment letters

McKinleyville Press newspaper article

Humboldt Beacon newspaper article

CALTRANS PUBLIC HEARING  
FOR ROCK REVETMENT PROJECT  
AT FORMER MAD RIVER MOUTH  
NEAR MCKINLEYVILLE

\* \* \*

In re  
PUBLIC HEARING REGARDING  
ROCK REVETMENT PROJECT.  
\_\_\_\_\_ /

R E P O R T E R ' S  
T R A N S C R I P T  
O F  
P R O C E E D I N G S

\* \* \*

THURSDAY, FEBRUARY 7, 2002

\* \* \*

4:30 P.M.

\* \* \*

MARCIE L. CONN, CSR 11974

**CRNICH DEPOSITIONS**  
626 H STREET, EUREKA, CA. 95501  
TELEPHONE 707 443-4879  
FAX 707 443 4870  
CONFERENCE ROOMS

4439

1 EUREKA, CALIFORNIA; TUESDAY, SEPTEMBER 18, 2001

2 INFORMAL HEARING

3 4:30 P.M.

4 \* \* \*

5

6 JOHN L. WHITE, 3412 Letz Avenue,  
7 McKinleyville, California 95519, requested this be  
8 entered into the record:

9 Public Hearing 02/07/02 Pursuant to Section  
10 30605 California Coastal Act re Rock Slope  
11 Protection (RSP) at Former Mad River Mouth.

12 Questions to Caltrans:

13 1. In its "What's being Planned?" section of  
14 Caltrans' "Public Notice," Caltrans states that it  
15 is preparing a "public works plan" and then states  
16 that "Caltrans is not planning to remove or expand  
17 the rock slope revetment."

18 Question: If Caltrans is not planning to remove or  
19 expand the rock slope revetment, what actions are  
20 Caltrans planning that will constitute a "public  
21 works plan"?

22 2. Section 30114 of the Public Resources Code  
23 section of the California Coastal Act defines as  
24 follows:

25 30114. "Public works" means the following:

5439

1 (a) All production, storage, transmission, and  
2 recovery facilities for water, sewerage, telephone,  
3 and other similar utilities owned or operated by any  
4 public agency or by any utility subject to the  
5 jurisdiction of the Public Utilities Commission,  
6 except for energy facilities.

7 (b) All public transportation facilities, including  
8 streets, roads, highways, public parking lots and  
9 structures, ports, harbors, airports, railroads, and  
10 mass transit facilities and stations, bridges,  
11 trolley wires, and other related facilities.

12 [Irrelevant portions omitted.]

13 (c) All publicly financed recreational facilities,  
14 all projects of the State Coastal Conservancy, and  
15 any development by a special district.

16 (d) All community college facilities.

17 Questions:

18 (a) Is it Caltrans' position that its RSP at the  
19 former Mad River Mouth is a "public works" within  
20 any of those recited in the definition of the term  
21 in Section 30114?

22 (b) If so, which one?

23 (c) In 1995, did Caltrans consider its RSP a "public  
24 works"?

25 (d) If it did not, on what basis did it come to that

1 conclusion?

2 (e) If Caltrans did not in 1995 consider its RSP a  
3 "public works," why did it take Caltrans seven years  
4 to determine that the RSP in fact is a "public  
5 works" and what fact or information cause it to make  
6 that determination in 2002?

7 (f) If Caltrans did consider its RSP a "public  
8 works" in 1995, why did it proceed with the  
9 alternative certification process which involved the  
10 public hearings which occurred before the Humboldt  
11 Planning Commission in 1995 and 1998 and the Coastal  
12 Commission in 1999?

13 2. The "Why this Notice..." section of Caltrans'  
14 "Public Notice" states that:

15 "A public hearing is a requirement  
16 of a public works plan certification  
17 process as described in Section  
18 30605 of the California Coastal  
19 Act." (Public Resources Code)

20 That section begins with the statement:

21 "To promote greater efficiency for  
22 the planning of any public works  
23 [irrelevant portion omitted] plans  
24 for public works [irrelevant portion  
25 omitted] may be submitted to the

1           commission for review in the same  
2           manner prescribed for the review of  
3           local coastal programs as set forth  
4           in Chapter 6 (commencing with  
5           Section 3050)."

6   Questions:

7   (a) Is it Caltrans' position that the certification  
8   process that it is initiating by this public hearing  
9   meets the statutory objective of Section 30605,  
10   viz., "To promote greater efficiency for planning  
11   any public works"?

12   (b) If so, how will the efficiency of the "planning"  
13   of the RSP as a "public works" be promoted?

14   3. Section 30600(a) of the California Coastal Act  
15   (Public Resources Code) states that:

16   (a) Except as provided in Subdivision (e), and in  
17   addition to obtaining any other permit required by  
18   law from any local government or from any state,  
19   regional, or local agency, any person, as defined in  
20   Section 21066, wishing to perform or undertake any  
21   development in the coastal zone, other than a  
22   facility subject to Section 25500, shall obtain a  
23   coastal development permit.

24   Questions:

25   (a) Is Caltrans' RSP a "development in the coastal

1 zone" as defined in this section of the California  
2 Coastal Act (Public Resources Code)?

3 (b) If it is "a development in the coastal zone,"  
4 did Caltrans not obtain a coastal development permit  
5 before it installed the RSP and if it did not obtain  
6 such a permit, was it because Caltrans believed in  
7 1992 and in 1995, when the RSP was installed, that  
8 both installations qualified as an exception defined  
9 in Subsection (e) of Section 30600, which states:

10 (e) This section [Section 30600] does not  
11 apply to any of the following projects, [irrelevant  
12 portion omitted]:

13 (2) Emergency projects undertaken, carried  
14 out, or approved by a public agency to maintain  
15 [irrelevant portion omitted] an existing highway."

16 4. Section 30606 of the California Coastal Act  
17 (Public Resources Code) states that:

18 "Prior to the commencement of any  
19 development pursuant to Section  
20 30605, the public agency proposing  
21 the public works project,  
22 [irrelevant portion omitted] shall  
23 notify the commission, and other  
24 interested persons, [et cetera] of  
25 the impending development and

1 provide data to show that it is  
2 consistent with the certified public  
3 works plan or long-range development  
4 plan. No development shall take  
5 place within 30 working days after  
6 the notice."

7 Question:

8 (a) Is Caltrans in violation of this section of the  
9 California Coastal Act?

10 (b) If not, why not?

11 (c) If so, is Caltrans potentially liable to civil  
12 liability fines of not less than \$1,000 per day  
13 under Section 308020 of the Public Resources Code  
14 and if not, why not?

15 5. In its "Why this Notice..." section of its  
16 Public Notice, Caltrans states that:

17 "The emergency permits contained  
18 conditions that Caltrans apply for a  
19 standard coastal development permit  
20 after completing construction. In  
21 lieu of a permit, Caltrans is  
22 applying for certification of a  
23 public works plan for the revetment  
24 from the Coastal Commission."

25 Caltrans has pending before the Coastal Commission

10 of 39

1 both an application for approval of its RSP and an  
2 appeal (from a Humboldt County Planning Commission  
3 denial in 1998 of its application for approval of  
4 the installed RSP).

5 Questions:

6 (a) In view of Caltrans' application and appeal  
7 pending before the Coastal Commission, what is meant  
8 by the statement, "In lieu of a permit?"

9 (b) What will be accomplished by applying for  
10 certification of a public works plan instead of a  
11 standard coastal development permit?

12 (c) In view of its decision to apply for a  
13 certification of a public works plan rather than a  
14 standard coastal development permit, does Caltrans  
15 intend to withdraw either its application or its  
16 appeal now pending before the Coastal Commission?

17 (d) If it does not intend to do so, why not?

18 (e) If it does intend to do so, which one will it  
19 withdraw and when?

20

21

\* \* \*

22

23

MRS. PAT HASSEN, 2975 Fortune Street,

24

McKinleyville, California 95519, stated this into

25

the record:

11 of 39

1 Well, I don't know exactly what he wants,  
2 but we fought the Sand Pointe subdivision through  
3 the Coastal Commission law. There is a subdivision  
4 going in with a whole bunch of houses. We fought it  
5 because of the erosion on the Hammond Trail. On the  
6 Hammond Trail, it's going down into the ocean and  
7 the Mad River at the time. Okay? Understand?

8 Well, the subdivision has finally gone in,  
9 the roads and that. There are no houses yet. But  
10 he was supposed to put the roads and fences and all  
11 that kind of stuff in before he could sell the lots.  
12 Well, they've put -- he calls -- Charlie calls them  
13 like the swells that are supposed to take the water  
14 and hold it, rather than to roll over the bluff.  
15 Okay?

16 So you've got a road, and you've got like  
17 small driveway areas. They have cut out areas and  
18 up the swells up -- okay? -- so you've got cutout  
19 areas that is holding water. Okay?

20 Then the water is supposed to eventually go  
21 into the ground. But when you've got this much wet  
22 soil, it can't absorb. So now we're ending up with  
23 sinkholes. After you get so much water in there,  
24 the ground is just sinking in. Now you've got your  
25 cement area where your swells catches all that's

1 standing up in the air.

2 The swells were supposed to catch so much  
3 of the water. The point was they didn't want all  
4 the water going over the bluff, so they had what  
5 they called swells that would catch the water, just  
6 certain amounts of the water, so it would go over  
7 the bluff and the Hammond Trail rather than having  
8 the whole thing overflow it -- you know what I mean?  
9 -- where it's not flooding. It's kind of hard to  
10 explain it when you are not familiar with the area.

11 Well, now the water is -- with the rain and  
12 this that we get, it just sits there until it  
13 finally gets down in the ground. Then your ground  
14 finally sinks -- and right from the end. And now  
15 these trees are falling off the -- how would you  
16 say -- the east side of Hammond Trail -- excuse  
17 me -- the west side -- I'm sorry -- into the ocean.

18 You've got a small area that goes into the  
19 sand dunes or the ocean -- what do you call -- where  
20 the waves come in, goes up to the bluff area. Okay?  
21 There's a few trees that were left up in through  
22 there that were supposed to hold the bluff area.  
23 They are starting to fall. They are dying and  
24 falling. So that's kind of like the face part of  
25 the Hammond Trail.

1           And then you go north up the Hammond Trail  
2 you got another bluff area. Okay? That goes up to  
3 the new Sand Pointe subdivision. Okay? That area,  
4 if you will look, then you've got roots. You've got  
5 areas that are sinking in through that way, gullies  
6 that are coming in. Does it make sense?

7           But that's the main concern that we're  
8 going -- because of the subdivision is not -- does  
9 not have adequate drainage in order for the water to  
10 go out of the soil. It's not holding it. It's just  
11 sinking the ground and making it slide off.

12           It's difficult if you've never been out  
13 there and haven't seen it. I walk out there every  
14 day and I shake my head and just laugh at the people  
15 that are looking at lots out there. These lots are  
16 selling for \$135,000 to \$250,000. And if you want  
17 to see your home eventually go over the bluff, I  
18 guess it's wonderful. I'm going to step back a  
19 little ways and watch it flow.

20           But anyway, I have talked to somebody else  
21 that did the original trail of the Hammond Trail,  
22 Redwood -- what is it called? Redwood -- Redwood  
23 Action Committee, I believe it is called, that  
24 builds the Hammond Trail. And I talked to that  
25 gentleman. He was out there, and he -- he's been in

1 contact with the county that this subdivision has  
2 inadequate drainage. I'm not putting that right.

3 And I think that's going to cause more  
4 problems of what's happening to the bluff area.  
5 This is about -- less than a fourth of a mile of  
6 where this rock spits are going in or where it's at.  
7 It's just -- well, it is between Widow White Creek  
8 and Murray Road.

9 I hope that makes sense. It's confusing  
10 really unless you've been out there and seen it.

11 (The informal hearing was concluded at 6:30 p.m.)

12

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1 EUREKA, CALIFORNIA; TUESDAY, SEPTEMBER 18, 2001

2 FORMAL HEARING

3 6:30 P.M.

4 \* \* \*

5  
6 MR. TONY ANZIANO: Okay. It looks like  
7 it's six-thirty. Welcome, everybody that came out  
8 this evening. We truly appreciate it. Hopefully  
9 you've all signed in.

10 This is the public hearing for the rock  
11 revetment project at the former mouth of the Mad  
12 River here in McKinleyville. There's a handout that  
13 explains what the meeting is about.

14 Basically the purpose of this meeting and  
15 what this formal hour session is is that it allows  
16 you an opportunity to review the project, ask  
17 questions and then submit verbal or written comments  
18 regarding this particular project.

19 The formal verbal section will be going  
20 from six-thirty to seven-thirty. We originally were  
21 going to be setting a time limit to the speakers to  
22 three minutes. I don't know if we still need to  
23 maintain that or not, but I do have a timekeeper.

24 If you do wish to have verbal comments  
25 recorded, please step up and state your name and

16 of 39

1 your address and speak.

2 Do you want to add anything?

3 MR. CHARLIE FIELDER: No. I think that  
4 covers it. Again, the purpose of this meeting is to  
5 be able to provide comments to the Coastal  
6 Commission as part of our Public Works plan  
7 submission.

8 MR. TONY ANZIANO: Well, Mr. Conner, you're  
9 on, then. You are our speaker.

10 MR. HARRY CONNER: (3578 Letz Avenue,  
11 McKinleyville, California 95521)

12 It's easy to be star around here.

13 I am Harry Conner. My home is at 3578 Letz  
14 Avenue.

15 Caltrans' public information program seems  
16 to be selectively forgetful. Nowhere in the mailing  
17 or displays is there mention that Caltrans' own  
18 experts recommended ten years ago against building  
19 the RSP under Vista Point because of environmental  
20 concerns. Caltrans built it anyway, and it caused  
21 accelerated upstream erosion.

22 Caltrans has spent hundreds of thousands of  
23 taxpayer dollars trying to shirk its responsibility  
24 for that erosion. This farce of renaming that rock  
25 pile a Public Works Project, like a university, is

17 of 39

1 the latest installment of that tremendous taxpayer  
2 expense. And so is this afternoon's dog and pony  
3 show.

4 Caltrans has failed to mention that the  
5 county already turned down their application to  
6 build the RSP. After this construction was  
7 completed, under emergency permit, the county  
8 planning commission held nearly three years of  
9 hearings. The result was a unanimous vote rejecting  
10 Caltrans' application.

11 In the words of one planning commissioner,  
12 and I quote, "We have the supporting data that the  
13 RSP is accelerating erosion and it is, as placed,  
14 detrimental to the public safety, health and  
15 welfare," end quote. The Coastal Commission also  
16 rejected Caltrans' application unanimously.

17 This public information effort also failed  
18 to mention that Caltrans is being sued by property  
19 owners along the bluff for damage already caused by  
20 the RSP and damage to come if the river mouth  
21 returns north. Those property owners oppose the  
22 Caltrans' application.

23 So should any other property owners who  
24 could be dumped on by Caltrans at its convenience.

25 So should the county, which won't want to

1 live with this precedent of allowing the state to  
2 arrogantly ignore local findings and pervert the law  
3 in order to impose its will.

4 Thank you.

5 MR. TONY ANZIANO: Okay. Thank you,  
6 Mr. Conner.

7 That is only speaker slip I have at this  
8 time.

9 MR. CHARLIE FIELDER: I guess we will keep  
10 it open until it's time.

11 MR. TONY ANZIANO: We'll be here until  
12 seven-thirty should anybody else wish to turn in a  
13 speaker card and present testimony.

14 Looks like we may have one more coming in  
15 here.

16 Okay. Our next speaker is Mr. Madrone.

17 MR. SUNGNOME MADRONE: (1519 Fox Farm Road,  
18 Trinidad, California 95570)

19 Thank you.

20 First, I'd like to say that it's really  
21 clear to me that whether you are a property owner  
22 along the bluffs in McKinleyville or you are an  
23 employee at Caltrans or any number of other  
24 regulatory agencies, that basically we're all good  
25 people. And we're all trying to do good things and

1 take care of our own responsibilities and the rest  
2 of it.

3 I know there is a lawsuit right now in  
4 relationship to this project. And what people  
5 believe is or is not happening to their property or  
6 their values or other things. And I know that that  
7 makes it really difficult for people to honestly and  
8 forthrightly deal with some very real and  
9 significant issues regarding the bluffs and the  
10 stability of those bluffs, this project, possible  
11 impacts of it, and other things.

12 And so, unfortunately, it seems like we  
13 talk around the real issues and the real things that  
14 need to happen. And often because of these kinds of  
15 conflicts -- you know, hindsight is always  
16 twenty-twenty if you look backwards. And, yeah,  
17 we're spending hundreds of thousands of dollars to  
18 say that our riprap project didn't cause damages to  
19 other people. So we're spending lots of money on  
20 lawyers and engineers and hydrologists and all kinds  
21 of things.

22 From my perspective, I think it would be a  
23 whole lot more productive to honestly grapple with  
24 what our own responsibilities are as landowners and  
25 as agency representatives. And even if we're

1 absolutely certain that it's not our responsibility,  
2 take it on anyway because it's the appropriate,  
3 responsible thing to do.

4 And then put all of the money into heavy  
5 equipment, rocks, willow cuttings, restoration and  
6 all the kind of things that need to happen along  
7 those bluffs due to Mad River migrating, due to  
8 uncontrolled drainage runoff from these bluffs, due  
9 to riprap structures, changing eddies, tidal inflow  
10 and outflow from the system, all kinds of things.  
11 Bottom line is there is a lot of problems.

12 And what's really clear is that we're not  
13 spending the money on the problems. We are spending  
14 money on the lawyers and litigation and heartache  
15 and a lot of problems. And it's not getting us  
16 anywhere. If we took half of that and put it into  
17 solving some things, we'd be a lot further along.

18 From my perspective, there are a lot of  
19 problems with this project. I've lived in the area  
20 for 29 years. I've spent an enormous amount of  
21 personal and professional time walking these bluffs,  
22 when the Mad River was not there, planning the  
23 Hammond Trail, along the railroad grade that has  
24 existed along that toe of that bluff for about a  
25 hundred years since the Hammond -- and the Little

1 River Railroad Company built that railroad grade.

2 And I'm well aware of the subduction  
3 earthquake history of the area. I've spent a lot of  
4 time with Gary Carver, a renowned local expert with  
5 a geological background and others. And I've  
6 observed the migration of the river. I've observed  
7 the riprap project in great minute detail. I was  
8 planning the Hammond Trail through the area at the  
9 same time. I know the place like the back of my  
10 hand.

11 And I understand why Caltrans responded the  
12 way they did and they did it from a Public Works  
13 perspective, protecting the public future to keep  
14 that highway in place, et cetera. I understand why  
15 the project was modified halfway through it and the  
16 kicker was put in to kick it out into the ocean  
17 instead of running the riprap along the freeway like  
18 it was originally planned. And that protected a lot  
19 of very significant coastal dune habitat that is  
20 unique and rare to this area. We're got the  
21 Lamphere dunes and we've got, you know, Clam Beach  
22 dunes and not a whole lot else.

23 But the problem -- the project has lots of  
24 problems. And I know that Caltrans is working very  
25 hard struggling with trying to resolve those. The

1 landowners have a lot of very real fears and  
2 concerns, and I sympathize with that.

3 The things that -- like I said, I think  
4 what I would recommend is, number one, to put all  
5 the money into the solutions instead of battling  
6 over who is responsible for what. And I think  
7 Caltrans has a lot of responsibility. I think  
8 Humboldt County has a responsibility. And I believe  
9 that the landowners have some responsibility.

10 And I think that as soon as we get out of  
11 the pathway of discussing how to outline all cost  
12 share this efforts, including an RCAA nonprofit cost  
13 shares to help and all kinds of other community  
14 members, I think we could really solve this problem  
15 and feel so much better and probably spend half of  
16 what we'll spend fighting over this the next ten  
17 years.

18 So that's my real solid perspective of what  
19 I think should happen. A couple of specific things  
20 that I have about this project is that, even with  
21 the existing plans and permits and background  
22 information, there are still a couple issues of  
23 responsibility that has not been taken care of. The  
24 responsibility has not been taken care of for these  
25 things.

1           It's not just the structure and the permits  
2 for the structure. But the structure itself created  
3 impacts. Some of those are being argued in court  
4 with lawyers and in other venues like this. Some of  
5 them are undeniable. Like the fact that the  
6 structure and the work that happened out there  
7 created the ability for invasive weeds to enter the  
8 site.

9           Before the project, it was all native dunes  
10 for the most part, although there was some Ammophila  
11 on the coastal dune face, which is an invasive  
12 European beach grass. It was mostly native plants  
13 in the dune hallows in the back area. And it's not  
14 just about mitigating for a wetland or loss of dune  
15 hallows. It's also those upland areas that have  
16 been so disturbed that they allow for nothing but  
17 pampas grass and lupine and broom and other things  
18 to come in which are invasive species that create an  
19 environmental impact.

20           And to this day, at least not as to my  
21 understanding, these issues have not been resolved  
22 of permitting these plants. Now, with the  
23 assistance of Caltrans or RCAA and Humboldt County,  
24 we just went out there and removed all the pampas  
25 about a month ago. But it's not gone.

24 of 39

1           It's going to be an ongoing concern and a  
2 problem. And it's something that should be dealt  
3 with in a management plan and appropriate management  
4 steps and prescriptions to be sure of an ongoing  
5 maintenance program so that the work we all just  
6 did -- and I volunteered a bit for it -- will be  
7 preserved and protected and we don't have an area  
8 that big -- an area for a lot invasive plants and  
9 then march and jump on other habitats and create  
10 environmental problems.

11           The other thing is that while it can be  
12 argued that the riprap structure may or may not be  
13 causing increased erosion to the bluffs south of the  
14 structure, at some distance -- and I'm going to try  
15 to venture into that argument and tell you what I  
16 think about that.

17           But I will tell you that from my  
18 professional experience as an erosion control  
19 expert, somewhat renowned in this area for my  
20 expertise in controlling erosion and having been  
21 just implemented about a million dollars' worth of  
22 trail construction work along these bluffs from  
23 Murray Road to Vista Point in the last eight to ten  
24 years of which my project, the Hammond Trail, had  
25 multiple erosion factors, massive areas of erosion

1 that show on the aerial photos of 1991 back here.  
2 In particular, I'd point out the cubic yard gully on  
3 the west end of Murray Road.

4 So I know all about these bluffs and the  
5 erosion and the substance and the surface materials  
6 and the rest. And you take a look at all the trail  
7 project work we've done, there is no significant  
8 erosion in here. There's a little bit of a problem  
9 at Murray Road with the steps going down from the  
10 sand erosion. But there's no big gullies, no big  
11 blowouts, no big problems.

12 We've put a lot of effort and time into  
13 figuring out how to control that erosion and build a  
14 trail that wasn't going to require a lot of  
15 maintenance or out-sloping rather than putting a lot  
16 of drainage structures and other things. We did all  
17 that.

18 When I was getting the final permits for  
19 that trail project -- and I'm here speaking not for  
20 RCAA today. I'm just speaking for myself, an  
21 individual living in the community for a lot of  
22 years and concerns hoping to offer some suggestions  
23 for peacemaking and solution-oriented approaches to  
24 things.

25 When we were burrowing that trail, the

1 landowners adjacent to the north end of Letz Avenue,  
2 just south of Vista Point, just south of the riprap  
3 structure, were very concerned about the trail  
4 project essentially causing erosion or problems to  
5 them. I understood those concerns very clearly.  
6 But I also made it clear that the trail wasn't going  
7 to cause any problems.

8           There was a problem with the drainage near  
9 the airport, went over the bluff at Letz Avenue.  
10 That got much worse in 1997 and got a whole lot  
11 worse in the last two months with this winter's  
12 rains. But that area has blown out and eroded due  
13 to bluff collapse is what I've been told by the  
14 Public Works Department.

15           And I was there when this all happened,  
16 during the events, and I observed directly what the  
17 conditions were. For thirty or forty years those  
18 pipes were there, and there were major events  
19 happening. And the Mad River wasn't at the toe.  
20 But there were major events: big storms, '64 flood  
21 and the early '70s weather. And so these structures  
22 didn't collapse and that bluff is not collapsing.

23           It may be able to be argued that the riprap  
24 structure does not have an effect on the bluffs  
25 upstream up the Mad River at some distance.

1 Clearly, ten miles up the Mad River, that riprap  
2 structure is having no effect on eddies or tidal  
3 flow or currents or wave wash or anything else.  
4 Five miles upriver, it probably doesn't. Probably  
5 even not a mile.

6 But at some point between zero feet  
7 upstream of the structure and some other number,  
8 some people, landowners, feel that that might be as  
9 far down as Widow White Creek and that all of those  
10 bluffs 1,000 feet or 2,000 feet have been impacted  
11 by it -- you know, by the reflections of the waves  
12 and the tides and other things off of this  
13 structure. I don't know.

14 But what I do know is that the area  
15 immediately south of this structure for some  
16 distance, some several hundred feet or more, has  
17 been directly impacted by this structure. And there  
18 is a very big eddy that's forming there. And you  
19 can look at your aerial photos and your own evidence  
20 and you can see very rapid retreat of that bluff to  
21 the point where the county's parcel -- our public  
22 taxpayers' dollars, not a private landowner but the  
23 private taxpayers.

24 We have a beautiful parcel of land there  
25 that some day could become a vista park with a

1 visitor's center, tied to the airport business  
2 there, tied to the Hammond Trail. It's the best  
3 place to create a center there to connect up the  
4 county. It's got a major economic potential on that  
5 parcel.

6 The neighboring landowners may not want  
7 that. If you lived on a nice quiet cul-de-sac  
8 road -- and I understand that. I don't know that  
9 I'd want it if I lived in that neighborhood either.

10 But I'm thinking about the potential of  
11 this parcel. I'm looking at it as a public space.  
12 And I'm watching it blow out and go down into the  
13 river -- which isn't there now, but it's connective  
14 highway because of the November storms back to the  
15 Mad River estuary.

16 So, you know, these bluffs are collapsing.  
17 Why did the culvert structures there collapse? Why  
18 did that bluff exceed so rapidly? And what  
19 responsibility does Caltrans have for that immediate  
20 area that is public property.

21 And then when you built the first piece of  
22 the riprap structure, immediately after that, for  
23 the first three or four years you had serious  
24 erosion at the south end of the structure for the  
25 first four or five hundred feet right below Vista

29939

1 Point, so then you did the extension project, also  
2 still unpermitted to this day.

3 And yet it was just like what's happening  
4 to the county parcel. Now you're -- wherever it's  
5 extended to, now that's protected. So vi  
6 facility is protected  
7

1 So that's my two cents. Thank you.

2 MR. TONY ANZIANO: Thank you, Mr. Madrone.

3 Okay. Again, that's our last speaker card  
4 at this point. I guess we'll be on hold unless  
5 somebody comes in prior to our seven-thirty cutoff  
6 time.

7 (There was a pause in the proceedings.)

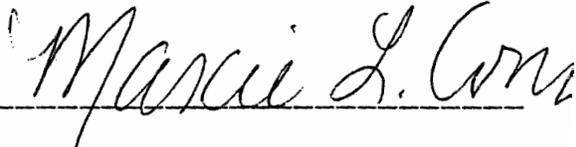
8 MR. CHARLIE FIELDER: Thank you for coming  
9 tonight. It's seven-thirty. The public hearing  
10 period has ended. And we wish you all a good night.

11 (The formal hearing was concluded at 7:30 p.m.)  
12  
13  
14  
15  
16  
17  
18  
19  
20

1 STATE OF CALIFORNIA, )  
2 COUNTY OF HUMBOLDT. ) SS.

3  
4  
5 I, MARCIE L. CONN, a Certified Shorthand  
6 Reporter, State of California, do hereby certify  
7 that I am the Reporter who reported the above and  
8 foregoing proceedings at the Caltrans public hearing  
9 for rock revetment project at the former Mad River  
10 Mouth near McKinleyville; that I reported the same  
11 fully and correctly; and that the foregoing pages  
12 are a full, true, complete and correct transcription  
13 of my shorthand notes taken at said time; and that  
14 the said pages constitute a full, true, complete and  
15 correct statement of the said proceedings then and  
16 there had.

17  
18 Dated this 1st day of March, 2002

19  
20  
21   
22 \_\_\_\_\_  
23 MARCIE L. CONN, CSR 11974

24  
25  
33 of 39



**Public Hearing 02/07/02 Pursuant to §30605 Calif. Coastal Act  
re Rock Slope Protection (RSP) at Former Mad River Mouth**

**Questions to Caltrans:**

1. In its "What's being Planned?" section of Caltrans' "Public Notice", Caltrans states that it is preparing a "public works plan." and then states that "Caltrans is not planning to remove or expand the rock slope revetment."

**Question: If Caltrans is not planning to remove or expand the rock slope revetment, what actions are Caltrans planning that will constitute a "public works plan"?**

2. Section 30114 of the Public Resources Code section of the California Coastal Act defines as follows:

30114. "Public works" means the following:

(a) All production, storage, transmission, and recovery facilities for water, sewerage, telephone, and other similar utilities owned or operated by any public agency or by any utility subject to the jurisdiction of the Public Utilities Commission, except for energy facilities.

(b) All public transportation facilities, including streets, roads, highways, public parking lots and structures, ports, harbors, airports, railroads, and mass transit facilities and stations, bridges, trolley wires, and other related facilities. [*Irrelevant portions omitted.*]

(c) All publicly financed recreational facilities, all projects of the State Coastal Conservancy, and any development by a special district.

(d) All community college facilities.

**Questions: (a) Is it Caltrans' position that its RSP at the former Mad River Mouth is a "public works" within any of those recited in the definition of the term in §30114?**

**(b) If so, which one?**

**(c) In 1995, did Caltrans consider its RSP a "public works"?**

**(d) If it did NOT, on what basis did it come to that conclusion?**

**(e) If Caltrans did NOT in 1995 consider its RSP a "public works", why did it take Caltrans seven years to determine that the RSP in fact is a "public works" and what fact or information cause it to make that determination in 2002?**

**(f) If Caltrans DID consider its RSP a "public works" in 1995, why did it proceed with the alternative certification process which involved the public hearings which occurred before the Humboldt Planning Commission in 1995 and 1998 and the Coastal Commission in 1999?**

2. The "Why this Notice..." section of Caltrans' "Public Notice" states that, "A public hearing is a requirement of a public works plan certification process as described in Section 30605 of the California Coastal Act." (Public Resources Code). That section begins with the statement,

"To promote greater efficiency for the planning of any public works [*irrelevant portion omitted*] plans for public works [*irrelevant portion omitted*] may be submitted to the commission for review in the same manner prescribed for the review of local coastal programs as set forth in Chapter 6 (commencing with Section 3050)."

**Questions: (a) Is it Caltrans' position that the certification process that it is initiating by this public hearing meets the statutory objective of Section 30605, viz., "To promote greater efficiency for planning any public works"?**

**(b) If so, how will the efficiency of the "planning" of the RSP as a "public works" be promoted?**

3. Section 30600 (a) of the California Coastal Act (Public Resources Code) states that:

(a) Except as provided in subdivision (e), and in addition to obtaining any other permit required by law from any local government or from any state, regional, or local agency, any person, as defined in Section 21066, wishing

Deborah Harmon  
Caltrans  
P.O. Box 3700  
Eureka, CA 95502-3700

1-25-02

Dear Ms. Harmon:

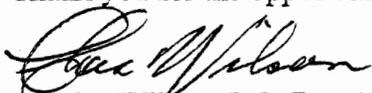
I saw the newspaper public notice about the public hearing on the Rock Slope Protection at "Former" Mad River Mouth. Please send me information on the project, alternatives analysis, and the wetland mitigation plan.

I watched the Mad River mouth migrate from its location near School Road to its location near Vista Point, then back again. I feel the Caltrans work to protect Highway 101 at Vista Point was justified at the time, otherwise the river would have destroyed Clam Beach as well as Highway 101. I feel that the entire problem could have been avoided, however, if work had been done near School Road rather than waiting till it reached Vista Point, and I suggest that this work be considered now to prevent future damage to both man's creations as well as the established natural environment.

I've watched rivers and beaches for 50 years as a civil engineer and before that as a daily beach bum. My theory is that the river's kinetic energy is insufficient to cut a channel into the surf, so the surf directs the river's energy parallel to the surf, cutting the channel further to the north (or south, if it initially meandered in that direction). This process would have continued until the Mad River reached the Little River and the rocks at Moonstone. During severe storms, the waves entered the open mouth and eroded the sandy bluffs which were then unprotected by the coastal dunes. Construction of a short section of revetment at School Road perpendicular to the beach, however, would have protected the entire three miles of bluff which were damaged. The short revetment would not have to extend far into the estuary, and it should not extend all the way to the coastal dune area. The short revetment would direct the river's energy towards the beach dunes during higher floods, say on a ten year cycle, and the river would then cut through the coastal dune portion and through the surf to maintain the mouth at a location near School Road. In between the ten-year breakthroughs, the mouth would wander north or south of School Road, but not far before a ten-year flood brought it back.

The old wooden pilings at Little River, even though they can hardly be seen now, have maintained the location of its mouth for about a hundred years, but previously it wandered in a similar manner to the south, possibly as far as School Road or even further.

Thank you for the opportunity to comment on the project.



Charles Wilson, P.O. Box 127, Orick, CA 95555-0127

cc: Charlie Fielder

Deborah Harmon  
Caltrans  
P.O. Box 3700  
Eureka, Ca. 95502

February 16, 2002

Dear Ms. Harmon,

I am writing in support of Letz Avenue residents challenging Caltrans over the rock emplacement under Vista Point. I am a new resident on Letz avenue, but my neighbors are quite upset over the erosion to their properties. My own property also could suffer damage in the future if Caltrans does not properly remedy the situation. We fully stand behind our neighbors efforts to protect our land.

Sincerely,



Alexander and Stacie Stick  
3282 Letz Avenue McKinleyville, Ca.

39 of 39

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NOV 08 2002

BEFORE THE CALIFORNIA COASTAL COMMISSION

CALIFORNIA COASTAL COMMISSION

In Re: Application of CALTRANS ) Request to Dismiss Caltrans' Application Because It
Application No. 1-00-014 and ) Does Not Meet the Statutory Requirements of the
Public Works Plan No. 1-02-1-PWP ) California Coastal Act and Contingent Request for
Filed March 15, 2000 ) Imposition of Civil Penalties

My Name is John L. White. I reside at 3412 Letz Avenue, McKinleyville, CA 95519, a bluff property south of the Rock Slope Protection (RSP) installed by Caltrans at Vista Point in Humboldt County which has been subjected to accelerated erosion as a result of the manner in which the RSP was installed. I oppose the certification by the California Coastal Commission (CCC) of Caltrans' Public Works Plan and request dismissal of Caltrans' application on procedural grounds and the imposition of civil penalties if Caltrans' application is not dismissed on procedural grounds, irrespective of whether or not Caltrans' "Public Works Plan" is ultimately certified.

EXHIBIT NO. 11
APPLICATION NO.
1-00-014 - 1-02-1-PWP
(1 of 10) GENERAL
CORRESPONDENCE

PROCEDURAL FACTUAL BACKGROUND

Caltrans' prior 1992 Application No. 1-92-69 directly to the CCC for post-installation approval of the RSP which it installed in 1992 and 1995 at Vista Point in the McKinleyville area of Humboldt County and its 1998 Appeal No. A-1-HUM-98-088 to the CCC from the denial by Humboldt County Government of approval thereof both were dismissed by operation of law in March of 2000 by the CCC for Caltrans' failure to submit, within the six-month deadline after the public hearing thereon in 1999 set by the CCC, the evidence demanded by the CCC to enable it to render a decision thereon. Caltrans instead reapplied before the end that six-month of the deadline directly to the CCC under Section 30605 California Coastal Act (CCA), for post-installation approval of its RSP as a "Public Works Plan."

SUMMARY OF MOTIONS AND REQUESTS

Motion and Request to Summarily Dismiss Caltrans' Application for Failure to Meet The Statutory Requirements of Section 30605 of The California Coastal Act (CCA), for the following reasons:

- 1. Caltrans did not seek judicial review Under Section 30801 of the CCA of the CCC's denial its 1992 application appeal for permit approval of its RSP and the CCC's rejection of Caltrans' 98 appeal from the denial by the Humboldt County Government of it application for permit approval of the RSP, both under Section 30600 of the CCA, and therefore is now judicially opped to seek approval of that same RSP by the direct application to the CCC by way of a blic Works Plan" under Section 30605.

2. Caltrans' yet-to-be submitted "Public Works Plan" relating to the RSP installed in 1992 inherently cannot meet the statutory objective of Section 30605 of the CCA of "promoting efficiency in *planning* a public works."

3. Section 30605 Is Not An Alternative To Section 30600 For a *single* Public Works Project.

4. Caltrans does not statutorily qualify to seek approval of its RSP as a "public works plan" under section 30605 after having previously unsuccessfully failed to approval thereof under Section 30600 as a "development" for its failure to submit the evidence

**B. Contingent Motion and Request, if the Above Motion and Request is denied, that the Commission seek judicial imposition of a fine as contemplated by Section 30820(b) upon Caltrans for Violation of Section 30606 of the CCA and also request award of exemplary damages as contemplated by Section 30822 and designate under Section 30823 the monies thus received for mitigation by Caltrans of the accelerated erosion of the McKinleyville section of the bluff south of the RSP which has resulted from the way the RSP was installed and as a result of its failure to timely submit its "Public Works Plan" for review and comment by a designated government agency and the general public, either before the installation of the RSP or promptly thereafter.**

## A R G U M E N T S

### A. REQUEST TO DISMISS CALTRANS' APPLICATION BECAUSE ITS RSP DOES NOT MEET THE STATUTORY REQUIREMENTS OF SECTION 30605 THE CCA.

1. Caltrans did not seek judicial review of the CCC's denial of its application and its appeal for permit approval of its RSP and therefore it is now judicially estopped to belatedly seek approval of that same RSP by the direct application to the CCC by way of a "Public Project Plan" under Section 30605 of the CCA.

(a) The only action contemplated by the CCA which may be taken by a party aggrieved by a decision of the CCC is by judicial review under Section 30801 of the CCA, which provides that:

"Any aggrieved person shall have a right of judicial review of any decision of the commission by filing a petition for a writ of mandate in accordance with Section 10945 of the Code of Civil Procedure, within 60 day after the decision of action has become final.

(b) In its "Why this Notice..." section of the Public Notice" published in the Times-Standard, Caltrans states;

"The emergency permits [obtained by Caltrans in 1992 and 1995] contained conditions that Caltrans apply for a standard coastal development permit after completing construction. *In lieu of* [such] a permit, Caltrans is applying for certification of a public works plan for the revetment from the Coastal Commission."

(c) There is no statutory provision in the CCA for re-application by a public agency directly to the CCC under Section 30605 for post-installation permit approval of a coastal development by belatedly

identifying the development as part of a "public works plan" after its application under Section 30600 for approval of the coastal development was denied both by the relevant local governmental agency and by the CCC.

(d) Therefore, even assuming hypothetically the "plan" which Caltrans submits qualifies as a multiple project "Public Works Plan" and further assuming hypothetically that Caltrans at one time could have elected to seek approval of its RSP by the CCC under Section 30605 of the CCA, having elected instead to seek approval of its RSP under Section 30600 and having failed to appeal the denial of that approval by the CCC, it is now estopped by *res judicata* from seeking approval of the RSP by the CCC under Section 30605 by submitting for certification by the CCC of a public works plan for that RSP.

### 3. Caltrans' "Public Works Plan" Does Not And Inherently Cannot Meet The Statutory Objective Of The Public Works Section Of The CCA Of "Promoting Efficiency In Planning A Public Works."

a. Section 30605 of the CCA (Public Resources Code) begins with the statement:

"To promote greater efficiency for the planning of any public works.... [*irrelevant portion omitted*] and as an alternative to project-by-project review, plans for public works [*irrelevant portion omitted*] may be submitted to the commission for review..." [Underlining and emphasis added.]

b. (a). Section 30606 of the California Coastal Act (Public Resources Code) requires that:

"Prior to the commencement of any development pursuant to section 30605, the public agency proposing the public works project, [*irrelevant portion omitted*] shall notify the commission, and other interested persons, [*et cetera*] of the impending development and provide data to show that it is consistent with the certified public works plan or long-range development plan. No development shall take place within 30 working days after the notice." [Underlining and emphasis added.]

c. The first section of the RSP was installed 11 years ago and its extension over 7 years ago, both without providing data "to show that the RSP was consistent with a certified public works plan".

d. Caltrans stated, in the "What's being Planned?" section of its "Public Notice" which it published in March of this year, that it is preparing a "public works plan." (which to date has not been filed with the CCC) and then stated that, "Caltrans is not planning to remove or expand the rock slope revetment,..." (the RSP), viz., its "public works."

e. Caltrans has thus admitted in print that it had not, as of March, 2002 (when its current application was filed), submitted to the Commission a "plan" for anything, public works project or otherwise, and to date it has not submitted any "plan," much less a plan as the term is used in Section 30605 which would qualify Caltrans for even applying for approval under that section of the CCA.

f. Caltrans "public works plan," when filed, presumably will consist solely of belatedly submitted

evidence which it failed to submit when its prior request for approval of the RSP was pending before the Humboldt County Planning Commission for consideration from 1995 to 1998 and later from 1998 to 2000, when it was pending before the CCC.

g. It was Caltrans failure to submit that evidence, even belatedly, during the pendency of its prior application and appeal, which resulted in its request for approval of the latter being denied the Humboldt County Planning Commission and thereafter both being denied by the CCC.

h. Because it is impossible, a decade after the RSP blocking the northern migration of the Mad River was installed, for Caltrans' "Public Works Plan" to meet the statutory objective of Section 30605 of the CCA, viz., "**promote greater efficiency for the planning** of any public works," and because Caltrans did not, for over a decade, provide data which showed that its RSP "was consistent with the certified public works plan or long-range development plan," as required by section 30606 of the CCA, Caltrans' belated application for approval of its RSP does not statutorily qualify for consideration by the CCC directly under that section of the CCA.

#### **4. Section 30605 Is Not An Alternative To Section 30600 For a SINGLE Public Works Project.**

(a) Section 30605 of the CCA (Public Resources Code) states that:

"To promote greater efficiency for the planning of any public works [*irrelevant portion omitted*] and as an alternative to project-by-project review, plans for public works [*irrelevant portion omitted and underling added*] may be submitted to the commission for review..."

(b) The statutory objective of 30605 is to **promote greater efficiency** for the review by the CCC of **multiple project** public works, not a single public works. It does so by providing a vehicle for approval by a single review by the CCC of multiple **plans** for public works involving multiple project public works, rather than requiring project-by-project review of those projects by a designated local government agency, as would be required under Section 30600.

(c) Caltrans' RSP was a **single** project. The installation of the extension of the RSP in 1995 did not convert the RSP into a multiple project public works because **plans** for the 1995 extension was not formulated by Caltrans until 1994, when the erosion along the bluff south of the RSP caused by the presence of the 1992 RSP became too severe for Caltrans to ignore. In fact, if such a multiple project plan had existed, it would mean that Caltrans knew, when it installed the first section of the RSP in 1992, that another section thereof would ultimately be required because of the predictable erosion of the bluff which the first section would cause at its south end (knowledge which Caltrans denied in its statement in its

request for emergency approval by the Humboldt County government that the construction of the 1992 RSP would have no negative environmental impact) **but did nothing to prevent it!**

(d) A plan involving details of construction and environmental considerations which would provide the CCC with a factual basis for a review of the RSP by the CCC not only was not submitted to the CCC prior to construction of its RSP in 1992 and in 1995, but as of November 6, 2002, over 2 ½ years after its application under Section 30605 was filed, such a plan has not yet been submitted.

Because (a) Caltrans' RSP is a "development" as defined in Section 30600 of the CCA (a fact alleged by Caltrans itself in its application thereunder for over 9 years in its application and pleadings before the Humboldt County Planning Commission and the CCC), not a multiple project "Public Works" within the meaning of Section 30605 thereof, and because whatever "plan" Caltrans does submit to the CCC cannot meet the statutory objective of Section 30605 of promoting "...greater efficiency for the planning" of Public Works, Caltrans' application does not statutorily qualify for consideration on its merits directly by the CCC under Section 30605.

**5. Caltrans Does Not Statutorily Qualify to Seek Approval of its RSP As a "Public Works Plan" Under Section 3605 After Having Previously Unsuccessfully Sought Approval Thereof Under Section 3600 as a "Development" and for the Commission to Rule That Caltrans Does Have Statutory Authority Would By Administrative Action Abrogate the Statutory Limitations on Developments Which Qualify for Approval Directly by the CCC Without Prior Review by a Designated Local Agency.**

(a) In order for Caltrans' to be entitled to have its application for permit approval of its RSP by to be considered by the CCC on its merits directly under Section 30605 of the CCA, without prior consideration by designated local governmental agency, the RSP and the timeliness of Caltrans' application for must statutorily qualify for the Commission to do so. For numerous reasons set forth below, both do not.

(b) If the Commission were to rule (a) that Caltrans' RSP meets the definition of a "Public Works" because it is a facility related to a "transportation facility" as defined by Section 30114(b) of the CCA; and (b) that Caltrans's RSP development is a multiple project also within the meaning of Section 30605; and (c) that Caltrans' "plan" which it presumably will ultimately submit to the CCC is a "plan" within the meaning and intent of Section 30605; and (d) that its post-construction submission of its plan to the CCC will achieve the statutory objective of Section 30605 of promoting "greater efficiency for the planning of multiple-project public works"; and that (e) its submission first to a designated local governmental agency for review as a "development" under Section 30600 and thereafter, after unsuccessfully appealing to the CCC from the local governmental agency's refusal to do so, does not preclude its submission from

achieving that statutory objective, the Commission would be send a message to all public agencies that hereafter ANY "plan" for ANY structure submitted to the CCC by ANY public agency at any time AFTER that structure is installed "on, over, under or near a street, road, highway, public parking lot or parking structure, port, harbor, airport, railroad or mass transit facility" within the coastal zone qualifies as a "public works plan." and will be considered on its merits by direct application to the Commission. For the Commission to so rule would create a precedent-creating administrative decision that would destroy the intent and purpose of both Section 30600 and 30605.

(c) Such a broad interpretation of the scope of Section 30605 would also permit Caltrans or any other public agency to make application directly to the Commission for certification of any structure not only at any time after its installation but also AFTER denial of approval thereof as a development under Section 30600 of the CCA by both the designated local governmental agency and the Commission. It would make review of developments by designated local governmental agencies under Section 30600 mere non-binding advisory opinions.

(d) Such a broad interpretation of the scope of Section 30605 would also vitiate the appeal procedure contemplated by Section 30801 of the CCA because any public agency whose application for permit approval under Section 30600 has been denied by the CCC would be able to nullify that decision rather than appeal it to the to the Superior Court, by applying for approval directly to the CCC under section 30605; thereby permitting review of any development by the CCC to be based on documentary and testimonial evidence not seen or evaluated by the designated local governmental agency and comments by the general public in a prior application under Section 30600.

(e) It is statutorily illogical that where a statute contemplates two **alternate** routes for obtaining governmental approval of an action taken or to be taken by a public agency, that a public agency can first select one of those routes and thereafter, at any time it elects unilaterally to do so after receiving an adverse final decision from the governmental agency charged statutorily with reviewing that action on its merits, abandon that route and re-apply for approval of that action by the alternate statutory route.

(f) If the above Motion and Request is granted, it is respectfully submitted that Caltrans' application for approval of the RSP as a Public Works Plan under Section 30605 should be denied with the condition that if it elects to proceed administratively before the CCA rather than by judicial appeal under Section 30805 of the CCA, the only administrative option available to it at this late point in time is to convert its application into a revival of its original applications (CCC Docket Nos. 1-92-69 and Appeal No. A-1-HUM-98-088), accompanied either by (a) a mitigation plan for mitigating by Caltrans the damage to the environment which includes the portion of the bluff between the southern end of the RS

and Widow White Creek which became unprotected from ocean waves and whose erosion was accelerated by the destruction of the northern end of the spit as a result of the manner in which the RSP was installed, or (b) evidence not previously available to Caltrans which if unrebutted would establish that the destruction of the spit and resulting accelerated erosion of the bluff was not the result of the presence of the RSP and, if Caltrans elects alternative (b), it is further submitted that the Commission should remand Appeal No. A-1-HUM-98-088 back to the Humboldt County Planning Commission for reconsideration, after a public hearing, of Caltrans original application based on the new evidence which Caltrans submits (the absence of which was a basis for the Commission's denial of its original 1969 application and 1998 appeal). This procedure would provide the County's staff and interested members of the general public an opportunity to consider that additional evidence in the light of evidence to the contrary already of record or submitted prior the to public hearing. This procedure and limitation on the options available to Caltrans more than a decade after the RSP was installed would be the most equitable and expeditious way of finally disposing of this docket item, which has been a burden on Humboldt County Government and the interested members of the general public for over a dsecade.

**B. CONTINGENT MOTION AND REQUEST, IN THE EVENT THE COMMISSION DECLINES TO DISMISS CALTRANS' APPLICATION FOR LACK OF A STATUTORY BASIS UNDER SECTION 30605 OF THE CCA, THAT THE COMMISSION SEEK JUDICIAL IMPOSITION OF CIVIL LIABILITY AND EXEMPLARY DAMAGES.**

**1. If, notwithstanding the foregoing reasons why Caltrans' application under Section 30605 does not statutorily qualify for consideration on its merits directly by the CCC, the Commission rules that Caltrans' application is qualified for such consideration, it is moved and requested that the CCC concurrently initiate the steps contemplated by Section 30820(b) and 30805 to subject Caltrans to civil liability of not less than \$1,000.00 per day under Section 30820(b) for installing the RSP over eight years before making application to the CCC for authority to do so under Section 30605 and exemplary damages under Section 30822 for intentionally and knowingly violating the provisions of the CCA in so doing.**

(a). Section 30606 of the California Coastal Act (Public Resources Code) requires that:

*"Prior to the commencement of any development pursuant to section 30605, the public agency proposing the public works project, [irrelevant portion omitted] shall notify the commission, and other interested persons, [et cetera] of the impending development and provide data to show that it is consistent with the certified public works plan or long-range development plan. No development shall take place within 30 working days after the notice." [Italics added.]*

Section 30820(b) of the California Coastal Act states that:

"(b) Any person who performs or undertakes development that is in violation of this division [irrelevant

*portion omitted*] when the person intentionally and knowingly performs or undertakes the development in violation of this division or inconsistent with any previously issued coastal development permit, may, in addition to any other penalties, be civilly liable in accordance with this subdivision. Civil liability may be imposed by the superior court in accordance with this article for a violation as specified in this subdivision in an amount which shall not be less than one thousand dollars (\$1,000), nor more than fifteen thousand dollars (\$15,000), per day for each day in which the violation persists.

- (c) In determining the amount of civil liability, the following factors shall be considered:
- (1) The nature, circumstance, extent, and gravity of the violation.
  - (2) Whether the violation is susceptible to restoration or other remedial measures.
  - (3) The sensitivity of the resource affected by the violation.
  - (4) The cost to the state of bringing the action.
  - (5) With respect to the violator, any voluntary restoration or remedial measures undertaken, any prior history of violations, the degree of culpability, economic profits, if any, resulting from, or expected to result as a consequence of, the violation, and such other matters as justice may require."

Section 30805 of the California Coastal Act states that:

"Any person may maintain an action for the recovery of civil penalties provided for in Section 30820 or 30821.6."

Section 30822 of the California Coastal Act states that:

"Where a person has intentionally and knowingly violated any provision of this division [*Irrelevant portion omitted*], the commission may maintain an action, in addition to Section 30803 or 30805, for exemplary damages and may recover an award, the size of which is left to the discretion of the court. In exercising its discretion, the court shall consider the amount of liability necessary to deter further violations."

(b) Caltrans began development of the RSP in December of 1991 but did not comply with the notice requirement of Section 30606 until March of 2002.

(c) Caltrans not only had constructive knowledge of the provisions of the CCA but, as a California Public Agency which repeatedly must comply with the requirements of the CCA, can reasonably be presumed to have had actual knowledge of the provisions of Sections 30820(b) and 30822.

(d) Caltrans at all times were represented by members of the California State Bar who were competent and available to advise Caltrans on whether or not if it should seek certification by the CCC of its plan for the RSP it installed in 1992 and 1995 under Section 30605 of the CCA; whether or not it should have done so prior to the installation of the RSP; and whether it would be liable under Sections 30820(b) and 30822 for damages for waiting for eight years after installation of its RSP before applying to the CCC for its certification as part of a public works plan and waiting for two years after its approval as a development had been denied by the Humboldt County Planning Commission (CCC's designated local governmental agency); and failing, during the six months period which the CCC gave Caltrans to have its prior application and appeal again considered on its merits, to address the outstanding issues specifically identified by the CCC as necessary to enable it to do so

(e) Caltrans' blatant disregard for a decade of its duties and obligations under the CCA therefore cannot be attributed to mere innocent oversight, ignorance of the provisions of the CCA or simple

negligence.

(f) Caltrans intentionally and knowingly violated provisions of the CCA.

(g) Caltrans clearly violated the "prior to commencement" "notice" and "provide data" provisions of Section 30606,

Caltrans is therefore subject to civil liability of not less than \$1,000 per day thereof for the period of time between when it installed the RSP and the yet to be determinable date thereafter when Caltrans makes an even token effort to comply with the provisions of Section 30605 of the CCA and the Commission should exercise its statutory authority to institute civil proceedings to have that fine imposed.

(h) Because Caltrans has blatantly disregarded for over a decade its responsibilities under Section 30605 et seq. of the CCA, the sections thereof under which Caltrans now seeks after-installation retroactive approval by the CCC of its RSP, Caltrans is also subject to the exemplary damages provided for by Section 30822 of the CCA.

(i) The State of California is a "person" as the term is used in Sections 30805.

(j) It is respectfully submitted that in view of the foregoing facts, the CCC has the administrative authority, which it should exercise, to initiate the civil action contemplated by Sections 30620(b) and 30805 of the CCA on behalf of the citizens of California generally as well as the adversely affected bluff property owners immediately south of the RSP and seek monetary civil liability and exemplary damages as contemplated by Sections 30820 and 30822 of the CCA .

(k) It is respectfully and contingently requested and moved, in view of the foregoing facts, that if the CCC rules that Caltrans's current application is entitled under Section 30605 to consideration on its merits directly by the CCC, the Commission also exercise its discretionary administrative authority to take the actions contemplated by Sections 30820(b) and 30822 and seek imposition of a fine of not less \$1000.00 per day for Caltrans' failure to comply with the provisions of the CCA for over eight years and also seek an award of an exemplary damages as contemplated by Section 308022 for Caltrans' intentional and blatantly obvious violations of the provisions of the California Coastal Act.

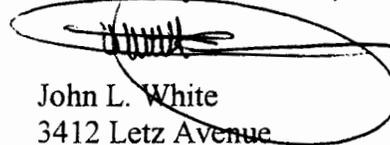
## CONCLUSION

Section 30605 of the California Coastal Act does not provide a statutory haven for Caltrans to avoid the consequences of the prior adverse local governmental agency decision by the Humboldt County Planning Commission, when it denied Caltrans' application under Section 30600 for

approval of its RSP at Vista Point in McKinleyville as a development and Caltrans' failure to avail itself of the six month opportunity given to it by the Commission to avoid the consequences of its adverse decision. It is therefore submitted that the Commission should dismiss Caltrans' present Section 30605 application. It is further submitted that the only administrative options which the Commission should make available to Caltrans at this stage is to make the dismissal without prejudice to Caltrans filing within a short period thereafter, e.g., no more than 60 days, a request that its application be replaced by CCC Application No. 1-92-69 and Appeal No. A-1-HUM-98-088, accompanied either by a mitigation plan for mitigating by Caltrans the damage to the environment, including the damage to portion of the bluff between the southern end of the RSP and Widow White Creek, or by evidence not previously available to Caltrans which if unrebutted would establish that the destruction of the spit and resulting accelerated erosion of the bluff was not the result of the presence of the RSP. It is further submitted that if Caltrans elects the second alternative, the Commission should remand Appeal No.A-1-HUM-98-088 back to the Humboldt County Planning Commission for reconsideration, after a public hearing, of Caltrans original application based on the new evidence which Caltrans submits.

If the Commission nevertheless elects to consider Caltrans' application under Section 30605 on its merits, it is submitted the Commission should initiate a civil action under Section 30805 of the CCA seeking imposition of the fine and exemplary damages contemplated by Sections 30820(b) and 30822 of the CCA for CALTRANS' intentionally and knowingly ignoring the substantive requirements of the CCA and blatantly delaying final disposition of this matter for over a decade.

Respectfully submitted,



John L. White  
3412 Letz Avenue  
McKinleyville, CA 95519  
Tel. 707-839-9527 Fax.707-839-952  
EMail: otterblf@northcoast.com

Filed: November 7, 2002





**BERNHEIM  
& HICKS**  
ATTORNEYS

LAWRENCE BERNHEIM  
RICHARD J. HICKS

November 8, 2002

**RECEIVED**

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CALIFORNIA  
COASTAL COMMISSION

**VIA FACSIMILE AND U.S. MAIL**

California Coastal Commission  
P.O. Box 4908  
Eureka, CA 95502

Attention: Robert Merrill

Re: *Caltrans Mad River RSP Project*  
Application No. 1-00-14 & Public Works Plan No. 1-02-1-PWP  
Our File No. 2978-40507

Ladies and Gentlemen:

Our law firm represents various property owners located south of the rock slope protection revetment and groin ("RSP") installed at the mouth of the Mad River by the State of California Department of Transportation ("Caltrans") in an inverse condemnation proceeding filed against Caltrans in the Humboldt County Superior Court. Our clients include Harry W. Conner, Margaret Conner, Helen Alvarado, John L. White, Christine White, Daniel B. Woods, Debra Woods, American Hospital Management Corporation, Alvin L. Slagle and Diane M. Slagle. The inverse condemnation proceeding is presently scheduled for a trial to commence on December 2, 2002.

Over ten years after Caltrans installed the RSP under "emergency" permits to stop the natural northern migration of the mouth of the Mad River threatening its highway, and after having its "after the fact" applications for a Coastal Development Permit for its project denied by unanimous vote of both the Humboldt County Planning Commission and the California Coastal Commission due to concerns regarding past and future erosion damage to property to the south of the revetment, in March 2000 Caltrans filed a new application before the Coastal Commission for belated approval of its project. With its previous application for a Coastal Development Permit under Section 30600 of the California Coastal Act having been denied by Humboldt County and the Coastal Commission, Caltrans now requests approval of its project, relabeling it as a "public works plan" under Section 30605.

We ask that Caltrans' present application and public works plan to the Coastal Commission be denied for the following reasons:

1. Caltrans' application for a public works plan cannot be properly characterized as a long-range land use development plan for public works subject to review under Section 30605 of the Coastal Act and, therefore, its application should be summarily dismissed.

MAIN OFFICE AND  
MAILING ADDRESS:  
528 A STREET  
SANTA ROSA, CA 95401  
TEL: 707 528 7555  
FAX: 707 528 2307

SONOMA OFFICE:  
670 WEST NAPA STREET  
SUITE 8  
TEL: 707 935 3620

Robert Merrill  
November 8, 2002  
Page 2

2. Caltrans' application and plan includes no measures to mitigate against past, present and future erosion damage to public and private property caused by the RSP and, therefore, the application should be denied in the absence of the implementation of appropriate mitigation measures.

3. Caltrans' application and plan does not comply with the California Environmental Quality Act.

We should note for the record that we understand that Mr. White, one of the property owners we represent in the inverse condemnation proceeding, may be preparing and submitting separate documentation and arguments in opposition to Caltrans' application before the Commission. It is also our understanding that Mr. White, and possibly others, may also wish to appear and speak when the application is heard.

#### ***HISTORICAL REVIEW AND BACKGROUND OF PROJECT.***

Historically, the mouth of the Mad River oscillated in a zone between School Road and Hiller Road in McKinleyville located in Humboldt County. In 1970, River's mouth began a steady migration northward. In 1983, Caltrans was specifically warned by Anna Sparks, then a member of the Humboldt County Board of Supervisors, that the continued northern migration of the mouth of the Mad River would eventually threaten Highway 101 at Caltrans' Vista Point. After the River's mouth continued its march toward the highway, an employee in the Caltrans' Eureka District Office warned his superiors in a 1988 Memorandum that the River had already reached the Vista Point and that, if the erosion continued, "we may be in trouble soon."

Caltrans continued to ignore the threat as the River continued its advance toward the highway.

In the Spring of 1991, at the repeated urging of others outside the agency including Professor Gary Carver at Humboldt State University, Caltrans' Eureka Office finally began to consider alternatives for protecting the highway. However, even at this late date, there was no urgency to Caltrans' efforts. It was not until August 1991 that Caltrans' Eureka Office finally appeared to begin to take the threat seriously and realized that, if it did not do something, the highway might be lost in the ensuing Winter. There is evidence that various regulatory agency, and even the prestigious Bank and Shore Protection Committee within Caltrans' own internal structure, later criticized Caltrans for its failure to respond earlier, when the threat was first brought to its attention.

Early in 1991, Caltrans recognized that, if it implemented any project to stop the River's natural northern migration, there was a potential it would cause damage upstream where County and private properties were located. As early as April 1991, Caltrans' Bank and Shore

Robert Merrill  
November 8, 2002  
Page 3

Protection Committee advised against interfering with the River's progression, and recommended instead that Caltrans allow the migration to continue and that the highway be protected as the River progressed northward. Internal notes in May 1991 by a Caltrans engineer at its Eureka Office reflected concern regarding potential liability to upstream property owners if Caltrans blocked the migration of the River.

In the late Summer of that year, Caltrans began to lobby Humboldt County in an effort to convince the County to undertake a project to re-establish the mouth at its historical location in the School Road/Hiller Road area. The County declined to do so, citing concerns about liability to property owners in the area who would sustain property damage to their bluffs by ocean waves coming through the relocated River mouth.

In late October 1991, Caltrans' Eureka Office issued an Issue Paper recommending that Caltrans design and build an RSP project to stop the River's migration. This recommendation was made notwithstanding concerns about upstream property damage and the Bank and Shore Protection Committee's advice against such a project. The rationale underlying the recommendation was stated as follows: "This is believed to be the most effective quick action that can be taken." It was also far less expensive for Caltrans.

In early November 1991, the top levels of Caltrans' management at its headquarters in Sacramento were still expressing concerns about interfering with the River's natural migration, and advised the Eureka District Office that the migration should be allowed to continue and that rock should be placed along the highway to protect it as the River advanced. Notwithstanding these indications from its Sacramento headquarters, some of the staff at the Eureka Office withdrew this alternative from further consideration at an internal meeting held on November 3. The Eureka District Office's Director at the time, Eugene Wahl, was not present at the meeting and was unaware that his subordinates took this action.

Caltrans' internal documents reflect that, on November 12, Caltrans' management in Sacramento directly and unmistakably expressed its instructions to the Eureka District Office that the River not be blocked. The Eureka Office was instructed to proceed with a project designed to armor the freeway embankment as the River migrated north.

On November 14, 1991, the Eureka District Office issued a revised Issue Paper signed by District Director Eugene Wahl. In accordance with headquarters' instructions, the Paper recommended that RSP be placed along the highway as the River proceeded north. The Issue Paper commented that, although such a project would be far more costly than a project to stop the River's migration, it was preferable. The Paper noted that stopping the River, though far less expensive, would be "very controversial and future liability is likely." The Paper specifically recommended an initial project to immediately place 2,500 feet RSP along the highway, at an estimated cost of \$9 million. This compared to an estimated cost of \$2.7 million for a project to stop the River's migration.

Robert Merrill  
November 8, 2002  
Page 4

Contrary to these recommendations, by early December the Eureka Office was already scaling back the project in the design process to cut costs. By December 3, the Eureka Office was calling for a reduced section, expressly recognizing that, by doing so, it was accepting higher risks. By December 10, the Eureka Office was calling for an RSP of only 1,300 feet instead of the 2,500 feet recommended on November 14. By scaling back the project, the Eureka Office had pared the estimated cost down to \$2.6 million, about the same cost as stopping the River. However, internal documents at Caltrans' Eureka Office confirm that this was done under what was referred to as a "concept of calculated risk."

In the meantime, engineers and hydrologists at Caltrans' headquarters in Sacramento repeatedly objected to the scaled back version of the RSP. However, the Eureka Office ignored these objections, and proceeded with a reduced project. By doing so, Caltrans' Eureka Office was knowingly assuming (1) that, by reducing the section, the RSP might fail during heavy seas, and (2) that, by shortening the length of the RSP, Caltrans might not be able to stay ahead of the River.

Caltrans began installation of RSP along the side of the highway pursuant to the scaled back design on December 30, 1991.

Internal Caltrans documents make it clear that there were those within the Eureka Office who were advocating a project to stop the River and who disagreed with headquarters' decision to refrain from interfering with the River's natural migration. At a meeting of District management at the Eureka Office on January 10, 1992 (while construction of the RSP was underway), there was discussion about how the District could convince Caltrans headquarters to approve a project to stop the River instead of placing rock along the side of the highway. There was also discussion that James Van Loben Sels, then the Caltrans' Director, planned to visit the area in mid-February; it was agreed and that Rick Knapp, then the Deputy District Director for Planning at the Eureka Office and now its District Director, would draft an Issue Paper in an attempt to convince Mr. Van Loben Sels to authorize a project to stop the River.

In view of the scaled back project under construction, it was not surprising that the River encroached into a small portion of the construction area in the latter part of January 1992. Although the area was easily restored by the contractor, the Eureka Office did not instruct the contractor to accelerate work to stay ahead of the River. Instead, the Eureka Office ultimately instructed the contractor to stop work while it used the argument that Caltrans could not stay ahead of the River to persuade its headquarters in Sacramento, the Army Corps of Engineers, the California Coastal Commission, and other regulatory agencies to allow the Eureka Office to turn the RSP westerly toward the ocean to stop the River.

The efforts of the Caltrans' Eureka Office were successful. Mr. Van Loben Sels was persuaded to authorize a change in the project from armoring the highway embankment to a project designed to stop the River. Over the objections of his staff, Lt. Col. Stanley Phernambucq of the Army Corps of Engineers was persuaded to issue an emergency permit to

Robert Merrill  
November 8, 2002  
Page 5

allow Caltrans to stop the River. Among the arguments advanced by Caltrans' Eureka Office was that the RSP was a temporary measure that could be easily removed by Caltrans in the future. The Coastal Commission staff also issued an emergency permit. After the emergency permits were issued, work on the project resumed, and the RSP was quickly installed to block the River's northern migration.

Notwithstanding these developments, Caltrans' Office of Structures & Hydraulics in Sacramento issued its written Report in April 1992 confirming its opinion that any project which interfered with the natural migration of the River might adversely impact private property upstream. Section 2.2 of the Report predicted what in fact would later occur:

"Stopping the northerly progression of the inlet at the 1992 location may accelerate the erosion process on the right bank of the inlet and the estuary channels where privately owned houses are located. . . . Any inlet stabilization at the present inlet location may cause breaching in the existing barrier dunes which protect the inlet and the estuary right banks from direct exposure to the ocean wave attacks."

Also notwithstanding concerns previously expressed by Caltrans' management, Caltrans' hydrologists and engineers at its headquarters in Sacramento, and staff of the Army Corps of Engineers that any project that stopped the River's migration might cause accelerated erosion to property to the south of the RSP, the Caltrans' Eureka Office, through the course of applying for the emergency permits to place the RSP, issued a Categorical Exemption/Exclusion under the California Environmental Quality Act, falsely certifying that the project did not have the potential for significantly affecting the environment, including neighboring private properties. The emergency permits were issued without public hearings, but with the requirement that, to keep the RSP in place, Caltrans would be required to apply for and obtain standard "after the fact" permits after the RSP was installed.

As a condition to the issuance of its emergency permit, the Army Corps of Engineers also required that Caltrans retain a coastal geomorphologist to investigate the causes of the River's migration, what was expected to occur in the future, and to suggest permanent solutions to alleviate the threat to the highway. Caltrans objected to this condition and requested that it be removed. The Corps refused the request, so Caltrans proceeded to retain Jeffrey Borgeld, a professor and the head of Department of Oceanography at Humboldt State University.

Professor Borgeld issued two reports in the Summer of 1993, one of which was entitled "Final Project Evaluation Report: Mad River Migration." Internal Caltrans documents confirm that Caltrans' personnel within the Eureka Office had substantial input into the formulation of this Report. The Report offered possible reasons contributing to the River's northern migration, and concluded:

"The inlet would have certainly continued its northward migration had the RSP not been emplaced in the winter of 1991-92. Now that the location of the inlet has been fixed, it is

Robert Merrill  
November 8, 2002  
Page 6

in a condition where the interplay between waves and tides generally control the dynamics of the inlet. Waves enter the inlet and erode exposed backshore areas [referring to property upstream of the RSP] during high water levels . . . ."

The Report also recommended that the RSP both north and south of the RSP be monitored, noting that coastal sections both north and south had experienced erosion "that will likely continue into the future." The Report further commented: "The erosion could jeopardize the integrity of the RSP and result in a renewed threat to State Route 101, the Vista Point, or other property. It is probable that additional measures will be required to reduce the threat." Professor Borgeld foresaw it would probably be necessary to extend the RSP southward.

By 1995, Caltrans had not yet obtained the required "after the fact" permits for the RSP. The erosion damage anticipated by Caltrans headquarters, engineers and others in 1992, and by Professor Borgeld in his 1993 Report, had moved southward as the mouth of the River widened in response to the RSP, allowing ocean waves entering through the River's mouth to attack the base of the bluff below Caltrans' Vista Point upstream of the RSP.

In the Spring of 1995, Caltrans again applied for and obtained "emergency" permits without public hearings, and extended the RSP southward to protect the Vista Point. As it did in 1992, the Caltrans' Eureka Office issued a Categorical Exemption/Exclusion in connection with its environmental review process, again falsely certifying that there was no potential that the RSP would have a significant impact on the environment including private property. At the time this environmental document was issued, there were people within the Environmental Management Department in Caltrans' Eureka Office expressing concern that the RSP might cause the sand spit protecting the bluffs south of Caltrans' Vista Point to erode, exposing private properties to accelerated erosion damage from ocean waves.

After the RSP was extended, in 1995 Caltrans began its attempts to obtain "after the fact" permits for both the original RSP project and its recent extension. Private property owners on the bluff located south of the Vista Point became aware that accelerated erosion attributable to the RSP was marching toward their properties. They began complaining to Caltrans and various regulatory agencies, including the Coastal Commission, and demanded that Caltrans take action to protect their properties. Caltrans refused, saying that its mission was to protect the highway, not to protect private property.

In September 1995, the Army Corps of Engineers issued its Public Notice setting forth its Preliminary Environmental Assessment, which noted the substantial retreat of the sand spit and the widening of the Mad River inlet following the installation of the RSP in 1992. The Corps expressed concern that the sand spit might continue to retreat and the inlet continue to widen to create a renewed threat of erosion to the bluff south of the RSP. In its conclusion, the Corps stated that, as a result of the RSP, "[t]he Mad River is now forced to oscillate in the southerly direction with yet unclear effects on the future geomorphology of the Mad River inlet

Robert Merrill  
November 8, 2002  
Page 7

and other local geological features. The RSP projects may have unintentionally redirected erosion impacts to other portions of the coastline and adjacent public or private property."

The following month, in October 1995, the United States Environmental Protection Agency expressed concern that the RSP might cause erosion upstream. It expressed the view that a thorough study should be undertaken and suggested that an Environmental Impact Statement might be the most effective way to do so.

On December 7, 1995, Roland Johnson, a prominent local geologist with the firm of SHN Consulting Engineers & Geologists wrote a letter to Harry Conner, one of the private property owners located south of the RSP, concluding that the level of bluff erosion upstream of the RSP became worse subsequent to the placement of the original structure, and that it should be expected that future accelerated erosion damage will occur to Mr. Conner's property and his neighbors as a result of the RSP. Mr. Johnson stated, in part:

"It is my opinion that the primary cause of the accelerated erosion is due to ocean waves that enter the river mouth, advance upstream, and expend their energy by loosening the unconsolidated soil at the river bank. The loosened soil is then washed into the river to be carried away by the river current. . . . Erosion and bluff slope failure affecting you and your neighbors to the south is far more severe than along other segments of the Mad River Estuary. Without some form of stream bank stabilization major portions of your properties are likely to continue to erode and slide into the river.

...

"Now that the river mouth has been stabilized by installation of rock slope protection (RSP) and it is no longer able to continue migrating northward, river bank areas exposed to wave erosion are likely to be regularly impacted far into the foreseeable future. An additional problem resulting from the placement of (RSP) in the river mouth area is that a significant amount of the wave energy that was previously expended on the sandy banks and beaches adjacent to the mouth is now reflected seaward, toward the landward side of the sand spit, and up the river to areas not protected by RSP . . . .

". . . If no stabilization measures are installed, you and your neighbors can expect to experience chronic large scale failures of the bluff slope. Eventually, the bluff tops are likely to retreat significant distances eastward with the most rapid retreat occurring at the northern properties."

By 1997, the River's mouth had widened considerably to the south as expected, exposing an increasingly larger area of the bluff to attack by ocean waves. As explained in the earlier reports of Caltrans' engineers in Sacramento, Professor Borgeld, and Mr. Johnson, the River's mouth was forced to widen in this direction by the Caltrans' placement of the original RSP in 1992. Similar opinions were later expressed by Robert Busch, another prominent local geologist,

Robert Merrill  
November 8, 2002  
Page 8

in written statements submitted to the Humboldt County Planning Commission dated September 14, 1998 and to the California Coastal Commission dated July 9, 1999. The RSP interfered with sand supplied to the protective sand spit lying between the bluff and the ocean to the south of the River's mouth, hampering the development of the spit so that it was lower in elevation, more prone to ocean wave washover, and provided little protection to the bluff from large ocean storm events accompanied by elevated sea levels. As noted by Mr. Busch in particular, no measures were implemented by Caltrans to avoid foreseeable degradation of the spit or to protect the bluffs located south of the RSP.

In short, as a result of the RSP, by 1997 the bluff was left particularly vulnerable to an El Nino event characterized by elevated sea levels and strong ocean storms. Caltrans' engineers, hydrologists and management were aware that it was only a matter of time before the Humboldt County Coast would be subjected to an El Nino event. It arrived in full force during the Winter of 1997-1998.

Beginning in November 1997, heavy storms and ocean surf, accompanied by El Nino's trademark elevated sea levels, easily overtopped and eroded away the protective sand spit, allowing large destructive ocean waves to reach the base of the bluff south of the RSP. This resulted in substantial accelerated erosion at the toe of the bluff where private properties were located, followed by landslides and other bluff failures that threatened private homes at the top.

On September 17, 1998, the Humboldt County Planning Commission unanimously denied Caltrans' application for a Coastal Development Permit approving the 1992 project and its 1995 extension, citing its concerns regarding the adverse effects of the RSP in causing erosion to the bluffs located south of the RSP including private property. Caltrans appealed to the California Coastal Commission which, on September 16, 1999, unanimously denied Caltrans' appeal.

On March 15, 2000, Caltrans filed its application for approval of the "public works project" currently before the California Coastal Commission.

***THE PAST AND PROBABLE FUTURE IMPACT OF THE RSP ON THE  
MCKINLEYVILLE BLUFF LOCATED BETWEEN THE RSP AND WIDOW  
WHITE CREEK.***

Caltrans' own experts, in a March 2000 Report submitted to the California Coastal Commission, have acknowledged what Caltrans' own top management, hydrologists and engineers predicted in 1991 and 1992 would likely occur: That the RSP had contributed to accelerated erosion upstream of the RSP on the McKinleyville bluff between the RSP and Widow White Creek, where private properties and homes were located. This Report, entitled "The Migration of the Mad River Mouth & Its Erosional Impacts Within the Humboldt Bay

Robert Merrill  
November 8, 2002  
Page 9

Littoral Cell, Northern California," was written in specific response to the Coastal Commission's request that Caltrans respond to the property owners' arguments that the RSP had contributed to accelerated erosion of the bluff south of the RSP.

Internal Caltrans documents and records subpoenaed from Professor Borgeld's files confirm that early drafts of the Report were circulated to Caltrans' personnel and attorneys for review and comment. The final version of the Report reflects significant changes, alterations and deletions suggested by Caltrans and its attorneys. Numerous statements and opinions perceived to be damaging to Caltrans' position were revised or removed. Included among the sections deleted at Caltrans' request was a review of alternative mitigation measures to address and minimize erosion damage to the properties located south of the RSP.

The Report's final version as submitted to the Coastal Commission, however, acknowledged the following in its Summary of Conclusions and Discussions, at page 84:

"The principal negative impact resulting from the construction of the RSP has been its role in contributing to the erosion of the bluff to the south of Vista Point. This has occurred during winters when large floods in the river combined with storm waves to widen the mouth of the river. Since the north bank of the river's mouth was fixed in position by the presence of the RSP, this expansion of the width of the inlet required that the south bank shift, at least temporarily, further to the south. The experience has been that with a widened inlet, winter storm waves have been able to pass through the inlet during high tides, and wash against the bluff, contributing to its erosion."

The March 2000 Report also confirmed that, even though the River's mouth had repositioned itself to the south in the Spring of 1999, it was likely that the northward migration would resume. This opinion was later confirmed by Professor Borgeld in an Addendum dated September 2000, in which he commented that the northern migration was already occurring as expected.

Philip Williams & Associates, a highly regarded firm specializing in coastal processes including coastal geomorphology, hydrology and engineering, has reviewed and analyzed the available documentation, including the reports by Professor Borgeld and others, has been to the site, and has extensively analyzed aerial photography commissioned by Caltrans. A copy of their Memorandum dated September 3, 2002 has been forwarded to you. Included among their findings are the following:

1. There appears to be a direct link between the amount and the relative timing of the erosion of the bluff toe and top and the 1992 installation and 1995 extension of the RSP.

Robert Merrill  
November 8, 2002  
Page 10

2. Construction of the RSP prevented further northward migration of the Mad River mouth, fixing the position of the mouth between the northern end of the RSP and the private properties to the south.
3. By fixing the northern boundary of the River mouth and halting the erosion of the dunes to the north, the RSP eliminated a significant source of sand for the spit.
4. The RSP reduced the supply of sand from littoral and wind transport from the north to the spit, preventing the spit from gaining elevation as rapidly as would have occurred under unconstrained conditions.
5. The resulting low elevation spit provided minimal protection to the cliffs from wave attack and increased the frequency of overwash events, causing the River mouth to widen further.
6. The widened mouth allowed greater direct wave energy to pass into the channel and to interact with the RSP, increasing erosion potential south of the RSP between 1992 and the present.
7. Because erosion was greatest at the base of the bluff, it is reasonable to assume that the cause of erosion originated at the base of the bluff and that the bluff erosion was not initiated by inherent bluff instabilities or sub-aerial processes.
8. The RSP set the meander planform geometry of the River channel adjacent to the bluff toe at the northern end of the private properties, further increasing the potential for erosion along the bluff toe.
9. By inducing the removal of talus material at the bluff toe, the RSP has left the bluff along the private properties south of the RSP at a higher risk of erosion if the River mouth migrates north to the RSP in the future. The RSP will also force the River mouth and associated erosion to reoccur in the same vicinity rather than progressing northward.

All of the experts are unanimous in their opinion that the migration of the River's mouth will likely continue and eventually will reach the private properties and the RSP once again. At that time, the private property owners located south of the RSP can expect another round of devastation to their bluffs in response to the RSP unless appropriate mitigation measures are employed.

Robert Merrill  
November 8, 2002  
Page 11

***CALTRANS' APPLICATION FOR A PUBLIC WORKS PLAN SHOULD BE SUMMARILY DISMISSED ON THE GROUNDS THAT THE RSP PROJECT CANNOT BE PROPERLY CHARACTERIZED AS A LONG-RANGE LAND USE DEVELOPMENT PLAN FOR PUBLIC WORKS SUBJECT TO REVIEW UNDER SECTION 30605 OF THE COASTAL ACT.***

In September 1998, the County of Humboldt, acting through its Planning Commission, unanimously denied Caltrans' request for a Coastal Development Permit for the RSP projects, citing concerns regarding the adverse impact of the RSP in causing accelerated erosion to private property located between the RSP and Widow White Creek. Caltrans' appeal of that determination to the Coastal Commission was denied by a unanimous vote at its September 1999 meeting held in Eureka.

In March 2000, Caltrans submitted a new application directly to the Coastal Commission, bypassing the normal procedure requiring that an application for a Coastal Development Permit for a project falling within the County's jurisdiction first be submitted to the County for full review and public hearing.

In attempting to avoid a full and complete review of its application by Humboldt County, Caltrans seeks to invoke the provisions of Section 30605 of the Coastal Act which, by its express terms, is intended to apply to "plans for public works or state university or college or private university long-range land use development plans." The express purpose of Section 30605 is to "[t]o promote greater efficiency for the planning of any public works or state university or college or private university development projects and as an alternative to project-by-project review." The process is an alternative to applying for coastal development permits pursuant to Section 30600, and is obviously intended to only where a series of projects are planned as part of a long range land use development. Plans under Section 30605 are to be submitted to the Coastal Commission for review before any development being undertaken, are to be reviewed in the same manner prescribed for the review of local coastal programs.

Caltrans' application clearly does not qualify as a long-range land use development plan. Instead, Caltrans is requesting approval, after the fact, for an isolated RSP project installed almost 11 years ago which was extended over 7 years ago, pursuant to emergency permits. Caltrans' project was not the subject of any long-range plan on its part but, instead, was claimed by it at the time to have been constructed on an emergency and temporary basis.

That the procedure set forth in Section 30605 for "public works plans" is not intended to apply to "after the fact" permits is clear in light of Section 30606, which prohibits any development being commenced until after 30 working days' notice has been given by the public agency following certification of the public works plan. Section 30606 reads, in full, as follows:

"Prior to the commencement of any development pursuant to Section 30605, the public agency proposing the public works project, or state university or college or private

Robert Merrill  
November 8, 2002  
Page 12

university, shall notify the commission and other interested persons, organizations, and governmental agencies of the impending development and provide data to show that it is consistent with the certified public works plan or long-range development plan. No development shall take place within 30 working days after the notice."

If, indeed, Caltrans' application is to be treated as a public works plan subject to review under Section 30605, its premature installation of the RSP in violation of Section 30605 subjects Caltrans to civil penalties pursuant to Section 30820(b) of the Coastal Act and exemplary damages pursuant to Section 30822.

An interpretation allowing Caltrans' application to proceed as a public works plan under Section 30605 in this case would establish a precedent that would permit any public agency to avoid local governmental review and hearings in connection with virtually every conceivable type of project falling within the jurisdiction of a local governmental entity. We do not believe that this is what was intended by the California Legislature in enacting this statute.

Having been denied in its efforts to obtain a coastal development permit for its project, it would be improper, as a matter of law, to allow Caltrans to circumvent that process by relabeling its application as a "public works plan" subject to review under Section 30605. Caltrans' application, therefore, should be summarily dismissed, regardless of the merits.

Assuming the Commission reaches the merits, however, the application should nonetheless be denied for the reasons reviewed below.

***CALTRANS' APPLICATIONS INCLUDE NO MEASURES TO MITIGATE AGAINST PAST, PRESENT AND FUTURE DAMAGE TO PROPERTIES SOUTH OF THE RSP AND, THEREFORE, THEY SHOULD BE DENIED IN THE ABSENCE OF THE IMPLEMENTATION OF APPROPRIATE MITIGATION MEASURES.***

In its request that the Coastal Commission approve the RSP project, Caltrans has completely ignored the adverse environmental effects the RSP project has had in the past, and is likely to have in the future, on the McKinleyville bluff located between the southerly end of the bluff and Widow White Creek. Although earlier drafts of the March 2000 Report commissioned by Caltrans included a discussion of alternatives designed to mitigate or minimize erosion damage to the private properties located south of the RSP, this section of the Report was deleted from Caltrans' request from its final version.

Caltrans' present application seeks approval of the RSP in its present state and without any discussion or implementation of any measures intended to mitigate or minimize the past, present, or future adverse impacts of the RSP upon the bluff south of the RSP.

Robert Merrill  
November 8, 2002  
Page 13

The California Coastal Act requires an applicant to implement feasible mitigation measures in order to minimize adverse environmental effects. Please refer to the following provisions of the Coastal Act:

§ 30233. Diking, filling or dredging; continued movement of sediment and nutrients.

"(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, *where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects . . .*" (Emphasis added.)

§ 30235. Construction altering natural shoreline.

"Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion *and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.*" (Emphasis added.)

§ 30253. Minimization of adverse impacts.

"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." (Emphasis added.)

The consensus of all experts, including those retained by Caltrans, is that, although the inlet of the Mad River repositioned itself to the south near Hiller Road in March 1999, it will migrate northward as it did in the past until it is once again reaches the RSP installed by Caltrans in 1992. Private property owners located between the RSP and Widow White Creek can fully expect a repeat of the devastation which occurred to their bluffs as a result of the RSP during the Winters of 1997-98 and 1998-99 unless appropriate mitigation measures are implemented beforehand.

Robert Merrill  
November 8, 2002  
Page 14

According to the Kleinfelder Geologic/Geotechnical Investigation and Mitigation Design Report dated August 28, 2001, the most geotechnically feasible mitigation alternative is to protect the base of the bluff by essentially extending the RSP southward. Section 30235 of the Coastal Act, cited above, expressly authorizes the Commission to permit such revetments when required to protect existing structures in danger from erosion.

Caltrans' applications include no mitigation measures intended to minimize the past, present or future adverse impacts of the RSP on the bluff located south of the RSP, such as extending the RSP southward as recommended by Kleinfelder. As a result, the application fails to satisfy the letter or spirit of the California Coastal Act. The applications should either be denied, or approved on the condition that Caltrans extend the RSP southward to Widow White Creek. In this later regard, we note that Section 30607 of the Coastal Act authorizes the Commission to issue a permit or approval "subject to reasonable terms and conditions in order to ensure that such development or action will be in accordance with the provisions of [the Act]."

***CALTRANS' APPLICATIONS DO NOT COMPLY WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT.***

Caltrans has ignored its obligations and responsibilities under the California Environmental Quality Act from the outset. Notwithstanding concerns voiced by its own top management and its hydrologists and engineers in Sacramento that any project designed to block the natural northern migration of the Mad River had the potential to cause accelerated erosion to County and private properties located upstream, Caltrans' Eureka Office in early 1992 falsely certified that the project did not have the potential for significantly affecting the environment including neighboring private properties. Emergency permits were issued by the Coastal Commission, Army Corps of Engineers and other agencies without public hearings or adequate environmental review. A similarly false and improper Categorical Exemption/Exclusion was issued by Caltrans prior to extending the RSP in 1995.

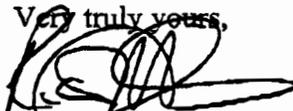
To this date, to our knowledge no Environmental Impact Report has ever been prepared as required by the California Environmental Quality Act with respect to any request or application by Caltrans for approval of the RSP project. See Section 21100 of the California Environmental Quality Act. Because the RSP project has never received proper or adequate environmental review, Caltrans' present request for approval from the Coastal Commission must be denied. See, *City of Coronado v. California Coastal Zone Conservation Commission* (1977) 138 Cal.Rptr. 241, 69 Cal.App.3d 570.

Robert Merrill  
November 8, 2002  
Page 15

**CONCLUSION.**

Caltrans' application and request for approval of its public works plan should be denied. As a preliminary and procedural matter, the application cannot properly be characterized as a "public works plan" subject to review under Section 30605 of the California Coastal Act and, therefore, the application should be summarily dismissed. Substantively, Caltrans' application includes no measures to mitigate against past, present and future erosion damage to public and private property caused by the RSP and, therefore, the application should be denied in the absence of the implementation of appropriate mitigation measures. Finally, and also substantively, the application must be denied due to Caltrans' failure to comply with the requirements of the California Environmental Quality Act.

Very truly yours,



Richard J. Hicks

JH/klm

cc: Ann Cheddar, Esq.  
40507/Merrill 11-8-02

