

CALIFORNIA COASTAL COMMISSION

NORTH COAST AREA

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Filed: July 18, 1997
 49th Day: September 5, 1997
 180th Day: January 14, 1998
 Staff: Robert Merrill-E
 Staff Report: August 28, 1997
 Hearing Date: September 10, 1997
 Commission Action:

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: **1-96-60**

APPLICANTS: **HUMBOLDT BAY HARBOR, RECREATION,
AND CONSERVATION DISTRICT**

AGENTS: Pacific Affiliates

PROJECT LOCATION: At the Woodley Island Marina in Humboldt Bay and along
the ocean side of the Samoa Peninsula, Humboldt County.

PROJECT DESCRIPTION: Maintenance dredge approximately 120,000 cubic yards
of material from the Woodley Island Marina boat basin
and dispose of the dredged material via slurry
pipeline at a beach disposal site in the tidal zone
along the ocean shoreline of the Samoa Peninsula.

LOCAL APPROVALS RECEIVED: Humboldt County: (1) Coastal Development Permit
No. CDP-22-96 approved January 23, 1997,
(2) Conditional Use Permit No. CUP-16-92 approved
January 23, 1997.

Humboldt Bay Harbor District: (1) CEQA Negative
Declaration approved December 5, 1996, (2) Harbor
District Permit for City of Eureka dredging
approved December 5, 1996.

OTHER APPROVALS
OBTAINED OR REQUIRED: (1) State Lands Commission Approval;
(2) Regional Water Quality Control Board water
quality certification or waiver; (3) U.S. Army
Corps of Engineers Individual Permit.

SUBSTANTIVE FILE DOCUMENTS: (1) Humboldt County LCP; (2) Coastal Development
Permit Application No. 1-87-172

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SUMMARY OF STAFF RECOMMENDATION:

Staff recommends that the Commission approve with conditions the coastal development permit application submitted by the Humboldt Bay Harbor District for maintenance dredging at the Woodley Island Marina with disposal of dredged material at a surf zone disposal site on the ocean side of the Samoa Peninsula. The proposed project is similar to a previous maintenance dredging project approved by the Commission in 1988 with surf zone disposal. Based on the results of (1) a monitoring study conducted of the surf zone disposal site used in 1988, (2) the Negative Declaration prepared for the project, and (3) information generated by the applicants' consultants in response to letters commenting on the project by interested state and federal agencies, the staff has concluded that the proposed project will not have a significant impact on the environment. The surf zone disposal site does not have sensitive habitat areas, although intertidal organisms would be temporarily affected by the disposal. The 1988 monitoring report indicated that species abundance and composition recovered to near pre-project levels within four months of deposition of material at the site. The proposed project is consistent with the use limitations of Sections 30233 and 30231 of the Coastal Act for dredging and fill projects. Use of the principal alternative disposal site for the dredged material, the offshore HOODS disposal site, would not result in an environmentally less damaging alternative as use of the HOODS site would require the transfer of dredged sediment to vessels, which in turn would increase turbidity at the transfer site within Humboldt Bay near habitat areas more sensitive than at the proposed surf zone disposal site. To ensure that the Commission has sufficient information to evaluate future maintenance dredging projects at Woodley Island, staff recommends that the Commission attach a condition requiring the implementation of a five year monitoring program at the surf zone disposal site. As conditioned, staff believes that the project is fully consistent with the Coastal Act.

STAFF NOTE

1. Standard of Review.

The portions of the proposed project being considered in Application No. 1-96-68 are located within the Commission's retained jurisdictional area. Therefore, the standard of review that the Commission must apply to the project is the Coastal Act.

2. Relation to Application No. 1-96-61.

Application No. 1-96-60 (Humboldt Bay Harbor District) and Application No. 1-96-61 (City of Eureka) are both scheduled for consideration at the September 10, 1997 Commission meeting. The two applications are related in that the applications (1) both involve dredging mooring areas within Humboldt Bay, (2) are for development that will be performed as one project by the same contractor, (3) will share the same disposal site and disposal pipeline. Two

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separate applications were submitted because the areas to be dredged are administered by the two different public entities pursuant to two separate legislative grants of tidelands.

STAFF RECOMMENDATION:

The staff recommends that the Commission adopt the following resolution:

I. Approval with Conditions.

The Commission hereby grants a permit, subject to the conditions below, for the proposed development on the grounds that the development will be in conformity with the provisions of Chapter 3 of the California Coastal Act of 1976, is located between the sea and the first public road nearest the shoreline and is in conformance with the public access and public recreation policies of Chapter 3 of the Coastal Act, and will not have any significant adverse impacts on the environment within the meaning of the California Environmental Quality Act.

II. Standard Conditions. See attached.

III. Special Conditions.

1. State Lands Commission Review.

PRIOR TO ISSUANCE of the coastal development permit, the applicant shall submit to the Executive Director a written determination from the State Lands Commission that:

- a. No State lands are involved in the development; or
- b. State lands are involved in the development and all permits required by the State Lands Commission have been obtained; or
- c. State lands may be involved in the development, but pending a final determination an agreement has been made with the State Lands Commission for the project to proceed without prejudice to that determination.

2. Monitoring Report.

PRIOR TO ISSUANCE of the coastal development permit, the applicant shall submit for the review and approval of the Executive Director a surf zone disposal monitoring plan that provides for monitoring over a five year period of (1) the pattern and rate of dispersal of material deposited at the site, (2) sediment characteristics at the disposal site and at the control site, (3) the species composition and abundance of intertidal invertebrates in areas directly affected by the disposal of dredge spoils and at a control site near

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the disposal area over a three year period, and (4) the effects of the surf zone disposal on fisheries. The plan shall provide for submittal of reports providing the required monitoring information before, during, and within four months after conclusion of the disposal operation, and yearly reports thereafter to be submitted by July 1 of each year.

3. Corps of Engineers Approval.

PRIOR TO THE COMMENCEMENT OF DREDGING, the applicant shall submit a copy of any necessary U.S. Army Corps of Engineers permit granting approval for the project.

IV. Findings and Declarations.

A. Project and Site Description.

The applicant proposes to maintenance dredge a total of approximately 120,000 cubic yards of material from the Woodley Island Marina boat basin in Humboldt Bay (see Exhibits 1-3). The dredging would be performed as a slurry via a pipeline to a beach disposal site on the ocean side of the Samoa Peninsula, the landmass that forms the western boundary of Humboldt Bay. The dredging would be performed at the same time as a maintenance dredging project along the Eureka waterfront by the City of Eureka (being considered Coastal Development Permit Application No. 1-96-61). The two projects would be performed by the same contractor and would share the same disposal pipeline and disposal site.

The proposed 120,000 cubic yards dredging would restore the marina to its original design depth of -14.0 Mean Lower Low Water (MLLW) and -10.0 MLLW. The 335-berth marina was constructed in 1978, and is used by both commercial fishermen and recreational boaters. The dredging would be performed within the berthing areas and fairways of the marina over a total area of approximately 16.15 acres. The maximum cut (depth of material) is approximately six feet. The marina would continue to operate during the dredging work to ensure commercial and recreational access to coastal waters.

The proposed cutter suction pipeline dredging method involves use of a hollow suction pipe which extends to the bay floor. The pipe contains a rotating cutter head, which can be swept back and forth across the work area, and can be extended into confined areas such as boat slips and under dock faces, etc. As material is loosened by the cutter, it is drawn up the suction pipe to the surface, where the suction pipe is joined to a closed flexible pipeline for pumping to the disposal site. The material drawn up by the suction dredge consists of approximately 20% sediment and 80% bay water.

The slurry pipeline would consist of a 12-inch-in-diameter fused flexible plastic line. The line would extend on floats from the marina basin to the Highway 255 right of way (the highway that crosses Humboldt Bay between Eureka

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and the Samoa Peninsula in a series of bridges). The pipeline would be placed along the shoulder of the right-of-way where the highway crosses Woodley and Indian Island at ground level, and placed in the water in the shadows of the bridges where the highway crosses water. In tidal locations, the pipeline will be floated into position at high tide to avoid unnecessary disturbance to the mudflats. Where the line would cross navigable waters, weight would be attached to submerge the line and permit the normal passage of vessels. Buoys and lights would be installed to prevent navigational hazards. A Notice to Mariners is also filed with the U.S. Coast Guard for the duration of the project, advising marine travellers of the location of the pipeline and dredging activities. Once the pipeline reaches the Samoa Peninsula, the line would cross under the Northwestern Pacific Railroad and New Navy Base Road through existing carrier pipes and then continue across the dunes of the North Spit via off-road vehicle trails to the surf zone disposal site. The slurry material is pumped through the pipeline to the disposal site by several in-line booster pumps.

The surf zone disposal site is shown in Exhibit 2. The pipeline would discharge the dredged material directly into the surf zone. The disposal site would be posted at several locations and barricades and lighting would be provided and maintained through the project to further inform users of the Peninsula of the temporary project activities occurring there. The sediment to be dredged consists of typically fine-grained material composed of approximately 15% sand, 45% silt, and 40% clays. It is anticipated that most of the sub-sand material will disperse as suspended sediment along the large Eel River basin shelf area offshore. According to the applicant, this shelf area also absorbs an estimated average annual sediment load of approximately 24,698,370 cubic yards discharged by the Eel and Mad River systems. The Eel River represents one of the largest suspended sediment sources in the world. The proposed dredging and dispersal would occur during the winter months, between November and mid-March, when ocean turbidity from the river discharges is at a natural seasonal maximum, to minimize the sedimentation impact on the ocean. The applicant expects that most of the material discharged to the surf zone disposal site will be dispersed offshore as part of cyclical process of erosion of the winter beach. Some of the material that erodes away will likely be deposited again at the site as part of the natural spring beach build up, but the applicant indicates that all of the material should leave the site within two years.

The Samoa Peninsula surf disposal site has been used twice previously for dredge material disposal. In 1977, the Corps of Engineers disposed of approximately 1.8 million cubic yards of material from the North Bay Channel Deepening project. In 1988, the site was also used for the disposal of 131,000 cubic yards of material from the last maintenance dredging project at the Woodley Island Marina. The Coastal Commission approved the maintenance dredging and surf zone disposal under Coastal Development Permit No. 1-87-172.

The proposed maintenance dredging project is only one of several dredging projects performed or proposed for Humboldt Bay. The proposed maintenance

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dredging project is separate from a proposed Harbor Channel deepening project to be performed in 1997-1998 by the U.S. Army Corps of Engineers which is designed to deepen navigation channels in the bay to allow for deeper draft vessels to access bay ship terminals. The proposed maintenance dredging project is also separate from the annual Humboldt Bay Channel maintenance dredging projects also performed by the Corps. Between 1982 and 1994, the Bay Channel maintenance project removed approximately 802,000 cubic yards per year. The material from the Corps dredging projects has been and will continue to be disposed of at the "Humboldt Open Ocean Disposal Site (HOODS)." The HOODS site was not officially designated for use as an ocean disposal site when the 1988 Woodley Island Marina maintenance dredging project occurred.

The entire project except for a portion of the pipeline would be located within the Commission's retained jurisdictional area. The segment of pipeline that extends over the Samoa Peninsula from the bay to the mean high tide line of the surf zone disposal site is located within the coastal permit jurisdiction of Humboldt County. The County approved a coastal development permit (CDP-22-96) and a coastal use permit (CUP-16-96) in January of 1997. The County permits required avoidance and mitigation of potential disturbance to sensitive rare plants, including the Menzies wallflower and beach layia. The coastal development permit was not appealed to the Commission.

B. Need for Dredging.

The dredging will support the continued use of the Woodley Island Marina for recreational boaters and commercial fishermen.

The Coastal Act contains strong policy language supporting marina uses, including those which require dredging. Section 30220 provides that:

Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

Section 30224 provides that:

Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.

Section 30234 provides, in part that:

Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded....

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Section 30255 provides that:

Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.

The proposed maintenance dredging project is necessary to ensure the continued use of the Woodley Island Marina for these priority uses. Without the dredging, the berthing areas and fairways of the marina will continue to fill with sediment and will no longer be usable for mooring vessels. Adequate mooring facilities that do not similarly need maintenance dredging at this time are not available elsewhere within Humboldt Bay. Therefore, the Commission finds that the proposed maintenance dredging is necessary to protect recreational boating and commercial fishing, consistent with Sections 30220, 30224, 30234, and 30255 of the Coastal Act.

C. Protection of Marine and Estuarine Resources.

The proposed project involves development within marine and estuarine waters, including the dredging itself, installation and use of the disposal pipeline, and the discharge of the dredged material slurry at the surf zone disposal area. A number of Coastal Act policies address the protection of marine resources from the impacts of dredging and fill projects. These policies include, among others, Section 30231 and 30233.

Section 30231 of the Coastal Act provides as follows, in applicable part:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes...shall be maintained and, where feasible, restored...

Section 30233(a) 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:

(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

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(3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.

(4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(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.

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(7) Restoration purposes.

(8) Nature study, aquaculture, or similar resource dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary....

The above policies set forth a number of different limitations on what development may be allowed in wetlands and other water bodies within the coastal zone. For analysis purposes, the limitations can be grouped into five general categories or tests. These tests are:

- That the purpose of the fill is for one of eight uses allowed under Section 30233;
- That the project has no feasible less environmentally damaging alternative;

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- . That feasible mitigation measures have been provided to minimize adverse environmental effects;
- . That the biological productivity and functional capacity of the habitat shall be maintained and enhanced where feasible; and
- . That dredge spoils suitable for beach replenishment be transported to appropriate beaches or into suitable long shore current systems.

Before turning to the five tests, the Commission must examine the potential impacts of the project on marine and estuarine resources. The project could have three potential adverse effects on such resources, including (1) the removal of habitat at the dredging sites, (2) increasing turbidity levels at the dredge site, and (3) burying intertidal habitat at the dredged material disposal site. None of these impacts, however, have been determined to be significant.

- (1) Removal of Habitat at Dredging Sites. The site of the proposed dredging within the Woodley Island Marina basin provides soft bottom habitat that may be habitat for a variety of benthic organisms. In addition, sparse clumps of eelgrass have materialized sporadically along the slope of the marina since the previous dredging was performed in 1987. The proposed dredging would remove much of this soft bottom habitat area. However, the impact is not judged to be significant for several reasons. First, when the marina was created in 1978, the eelgrass and soft bottom habitat that was removed by excavating the marina basin was reestablished elsewhere in Humboldt Bay as a mitigation measure. At the time, it was recognized that the marina would require periodic maintenance dredging and the mitigation was required to ensure that creation of the marina and its subsequent maintenance dredging would not result in a net loss of habitat. Second, the loss of the sparse patches currently existing within the marina basin will not result in a significant loss of biological productivity. Finally, as occurred after the 1988 maintenance dredging, the site can be expected to be recolonized by the flora and fauna that would be temporarily displaced by the project. These organisms grow in sufficient abundance in areas adjacent to the marina that a ready source of colonizers exists to replace the organisms that are lost.
- (2) Temporary Increase of Turbidity at Dredge Sites. As the proposed dredging will disturb sediments at the dredging locations, a temporary change in turbidity in the immediate areas of the dredging is expected. Increased turbidity can have deleterious effects on the estuarine habitat, burying eelgrass and other vegetation and disturbing the spawning, feeding, and other activities of fish and other fauna. However, the proposed project will minimize turbidity impacts and reduce them to a level of insignificance through (1) the

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use of a suction dredge which creates much less turbidity than other forms of dredging, (2) the use of a pipeline to transport the dredge material to the disposal site as opposed to other forms of transferring the material, such as the use of a hopper barge, and (3) timing the project to occur in the winter months when natural turbidity is high due to increased local river flows.

- (3) Disturbance of Habitat at Disposal Site. The surf zone disposal site is inhabited primarily by intertidal invertebrate fauna, including motile, burrowing crustaceans and polychaete worms. As noted previously, the site was used for the similar disposal of approximately 131,000 cubic yards of dredged material in 1988. A monitoring study was conducted prior to, during, and just after this last episode of dredged material disposal (see Exhibit 4, a copy of the summary and conclusions from the report). The monitoring report stated that prior to the last use of the area for dredged material disposal, in overall species richness, Samoa Beach was intermediate between local semi-protected sandy beaches and sandy beaches exposed to extreme wave conditions. Species abundance and faunal densities were generally low (less than 130 individuals per square meter), with the exception of a burrowing isopod (*Excirrolana linguifrons*), found in the mid intertidal zone at densities up to 2680 individuals per square meter. The material to be discharged from the proposed project will temporarily bury this habitat, until wave and tidal action disperses the material to the offshore shelf. Impacts to the habitat are expected to be similar to the impacts that occurred in 1988. According to the 1988 monitoring study, the habitat area recovered rapidly:

Based on the present study, negative effects of temporary discharge of dredge spoils on intertidal fauna of Samoa Beach were localized and transitory, primarily affecting the abundance of characteristic beach species in the immediate vicinity of the disposal outfall. Within 1 month following the end of disposal operations, most species characteristic of this beach were present at the outfall site, although at reduced densities. Approximately 4 months following termination of beach disposal, populations at the Disposal Site had recovered to levels comparable to those at the Control Site.

Thus, based on the result of the 1988 monitoring report, the impacts of the proposed discharge of dredged material on the surf zone habitat can be expected to be temporary and insignificant.

The Commission notes that the land based portion of the project, the placement, use, and removal of the portion of the pipeline that will cross the Samoa Peninsula, could have potential impacts on certain rare or endangered species. However, except for the area below the mean high tide line, the segment of the pipeline crossing the Samoa Peninsula is entirely within the

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coastal permit jurisdiction of Humboldt County. The County has approved a separate coastal development permit for this portion of the overall project. Therefore, the "project" before the Commission does not include the portion of the overall project that crosses the Samoa Peninsula.

Nonetheless, the County and the lead agency determined that the environmental effects of the pipeline on the terrestrial habitat of the Samoa Peninsula would not be significant. The pipeline will cross through areas where beach layia (*Layia carnosa*) is growing. Beach layia is a federally listed endangered species. In addition, the Western snowy plover has been known to nest in the spring along portions of the upper beach areas of the Samoa Peninsula. However, the project as proposed will minimize impacts to these species and reduce them to a level of insignificance. The pipeline will be routed along old trails to avoid the beach layia and will be placed by hand in sensitive areas to minimize disturbance from construction. In addition, a qualified biologist will be present before and during laying of the pipeline to identify and evaluate the status of the beach layia populations in order to avoid the plants and minimize impacts to beach layia seedlings. A field survey and biological assessment of snowy plovers conducted by Mad River Biologists (MRB) concluded that the proposed outfall area was not suitable habitat for the western Snowy Plover given the narrow band of possible nesting area along the top of the wave slope and presence of debris and predators: "For these reasons, placement and removal of the pipeline should have no significant effect on the Western Snowy Plover." The County approved the coastal development permit with conditions requiring that the proposed mitigation measures to protect beach layia be implemented by the applicants.

1. Permissible Use for Dredging of Coastal Waters.

The first test set forth by the Coastal Act policies that address the protection of marine and estuarine resources is that any proposed dredging or fill project must be for an allowable purpose under Section 30233 of the Coastal Act. The proposed project involves maintenance dredging.

Section 30233(2) allows dredging for maintaining existing, or restoring previously dredged depths in existing vessel berthing and mooring areas, and launching ramps. The proposed dredging is limited to areas that have been previously dredged to the same elevation for vessel berthing and mooring. Therefore, the Commission finds that the proposed dredging and its associated pipeline installation and beach disposal are consistent with the use limitations of Section 30233, as the dredging is for the maintenance of existing vessel berthing and mooring areas.

2. Project Alternatives.

The second test set forth by the Commission's dredging and fill policies is that the proposed dredging or fill project must have no feasible less environmentally damaging alternative. Although the Commission determines that

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the proposed project will have no significant impacts, the Commission has also considered the various identified alternatives, and determines that none of them provides a feasible less environmentally damaging alternative. A total of four possible alternatives have been identified, including: (a) disposing of the dredged material at the offshore HOODS disposal site, (b) disposing of the dredged material at the upland "Superbowl" disposal site, (c) disposing of the dredged material at the upland "L-P" disposal site, and (d) the no project alternative.

a. Disposal at Offshore HOODS Disposal Site.

As noted previously, the federal government has designated an offshore disposal site for dredged material known as the "HOODS" disposal site. The site is between three and four miles offshore, in federal waters. The Commission concurred with a consistency determination made by the Environmental Protection Agency for designation of the site in 1995 (CD-72-95). Over 800,000 cubic yards of dredged material is disposed of annually at the site, mostly from maintenance dredging of Humboldt Bay navigational channels performed by the Corps of Engineers. A possible alternative to the proposed project that would avoid even the temporary impacts on habitat at the surf zone disposal site would be to dispose of the dredged material at the HOODS site. Three state and federal agencies commented to the Corps of Engineers in response to the Corps' public notice of its consideration of federal permits for the project that this alternative should be used to avoid impacts to habitat at the surf disposal zone. The commenting agencies included the California Department of Fish & Game (see Exhibit 5), the U.S. Fish & Wildlife Service (see Exhibit 6), and the Environmental Protection Agency (see Exhibit 7). The Commission acknowledges the concerns raised by the commenting agencies, but finds that, overall, the impacts of the project as proposed would be less than the alternative of using the offshore HOODS disposal site.

The primary reason the Harbor District and the City of Eureka chose not to propose disposal of the dredged material from the maintenance dredging proposed under coastal permit applications 1-96-60 and 1-96-61 at the HOODS site is the tremendous difference in cost. Based on cost estimates provided to the District by dredging companies, the proposed projects with surf zone disposal would cost approximately 2 million dollars. The cost of disposing of the material at the HOODS site would nearly double the total cost to 3.8 million dollars.

Whether or not the extra cost makes use of the HOODS site infeasible, for a variety of reasons the alternative is not environmentally less damaging. As explained by the applicants' consultants in response to the comments received by the three agencies noted above (see Exhibits 4-7, Applicants' Response to Agency Comments), use of the HOODS disposal site would actually increase turbidity impacts in and around the dredging areas.

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Turbidity would be increased near the dredging area because a different method of transferring the dredged material to the disposal site would have to be used. Given the three to four mile distance to the HOODS site across open ocean waters, a pipeline obviously cannot be used to discharge dredged material at the HOODS site and the use of vessels must be relied upon.

Use of a suction dredge is required given the close quarters within the mooring areas where the dredge must operate. The water content of the material dredged with the suction dredge approaches 80%. While the high proportion of water in the slurry material does not present a problem for transferring the dredged material to the disposal site by contained pipelined, the high water volume does present a problem for transferring the dredged material by barge or hopper dredger to an offshore disposal site. When using hoppers or barges to transport the dredged material, a large proportion of the 80% water volume of the dredged material must be decanted (discharged) during vessel loading to accommodate the solids (20%). This decanting would take place in or near the dredge area to allow for efficient filling of the vessels. Significant turbidity can be expected to result from the discharge of the supernatant water, which contains significant amounts of sediment. In addition, given that the sediments to be dredged are predominantly fine-grained material (only approximately 15% is coarse sandy material), the degree of turbidity will be greater than if the material had a more sandy composition.

The dredging areas are located along the shallower margins of the bay which includes sensitive shallow water habitats, including extensive eel grass beds. The eel grass beds provide important spawning, rearing, feeding, and resting habitat for numerous fish and other estuarine species. In addition, the shallow waters of Humboldt and Arcata Bays support extensive commercial shellfish operations that can be adversely affected by high turbidity. Given the more sensitive nature of the estuarine habitat within Humboldt Bay as compared to the ocean surf zone, the overall impact of use of the HOODS site is much greater than the impacts of the project as proposed.

The Commission notes that the HOODS site is well suited to the separate channel dredging projects performed by the CORPS, as the turbidity impacts are proportionately less. The content of the material dredged from the channels in those projects is quite sandy and the channel work areas are generally well flushed. Both of these factors reduce the turbidity impact of the CORPS channel dredging projects.

b. Disposal at Superbowl Disposal Site.

Dredged materials have previously been deposited at an upland disposal site on the Samoa Peninsula known as the "Superbowl" site (see Exhibit 2), adjacent to the Old Eureka Airport/Samoa Dragstrip. The 60-acre site was used for disposal of sediments in the North Bay Channel Improvement Project of 1978-79 and for other projects in the late 1970s. The site reportedly has capacity

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available, and the dredged material could be piped to the disposal site, thus avoiding turbidity impacts at the dredge site as the proposed project would.

However, since the Superbowl site was last used, portions of the site have transformed into freshwater marsh habitat and sensitive plant species have colonized portions of the site. These areas are considered to be environmentally sensitive habitat areas, and are protected by the Coastal Act. Use of the site for the proposed project would likely result in some permanent disturbance of the habitat. As the habitat values at the surf zone disposal site are less significant, and the impacts of the use of the surf zone disposal site would be temporary, the Commission finds that the alternative of using the Superbowl for dredge disposal is not an environmentally less damaging alternative.

c. Disposal at Louisiana Pacific Disposal Site.

Dredged materials have also been previously deposited at an upland disposal site on the Samoa Peninsula known as the "L-P" site (see Exhibit 2), located southwest of the intersection of Highway 255 and New Navy Base Road. The site has been used for numerous maintenance dredging operations at L-P's Samoa facilities and other North Bay dredging projects. Again, dredged material could be transported to the site by pipeline to avoid turbidity impacts at the dredging site.

However, the L-P site has limited remaining capacity. What capacity remains is reserved for the disposal of 110,000 cubic yards of material that will be dredged as part of L-P's Samoa Terminal Reconstruction Project, already approved by the Commission, and 26,000 cubic yards of material associated with the Humboldt Harbor Deepening Project. Sufficient capacity will not remain to accommodate the proposed maintenance dredging project. Therefore, the Commission finds that the alternative of using the L-P disposal site is not a feasible alternative.

d. The No Project Alternative.

The no project alternative would be to not perform the maintenance dredging at the Woodley Island Marina. With no dredging, there would be no impacts from dredging and no impacts from disposal. However, without maintenance dredging, the marina would eventually silt in to the point that it could no longer be used for commercial fishing vessels or recreational boating, except by the shallowest draft vessels. The marina would likely be forced to close, and the boaters who currently use the site would be displaced. As there are limited mooring facilities in Humboldt Bay, many of these users would be forced to leave this region of the coast. Such a result would be contrary to policies of the Coastal Act. As discussed previously, commercial fishing and recreational boating are given high priority under the Coastal Act and the Coastal Act policies call for the protection of these uses and the facilities needed to continue these uses. Therefore, the Commission finds that the no

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**HUMBOLDT BAY HARBOR, RECREATION,
AND CONSERVATION DISTRICT**

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project alternative is not a feasible less environmentally damaging alternative.

3. Feasible Mitigation Measures.

The third test set forth by Section 30231 and 30233 of the Coastal Act is that feasible mitigation measures have been provided to minimize adverse environmental effects. As noted previously, the proposed project will have no significant adverse environmental effects as proposed. The use of suction dredging with transfer of the dredged material will minimize turbidity impacts at the dredging site to a level of insignificance. The use of the surf zone disposal site during winter months will result in only temporary impacts to the invertebrate fauna existing at the site, which will not be significant. Therefore, the Commission finds that additional mitigation measures are neither available nor required in order to minimize environmental effects of the project.

4. Maintenance and Enhancement of Estuarine and Marine Habitat Values.

The fourth general limitation set by Sections 30231 and 30233 on dredging and fill projects is that any proposed dredging or fill project must maintain and enhance the biological capacity of the habitat, where feasible.

As discussed above, although the project as proposed will have adverse impacts on habitat at both the dredging and disposal sites, the impacts will not be significant. By avoiding significant impacts to coastal resources, the project will maintain the biological productivity and functional capacity of the habitat.

However, there will be a continuing need for maintenance dredging of the harbor in the future. Based on past dredging patterns, maintenance dredging will likely be required at roughly ten year intervals. Therefore, the Commission finds that it is necessary for the impacts of the proposed surf disposal to be monitored to ensure that if unexpected impacts were to occur, the results could be used during the evaluation of future dredging projects by the Commission and other agencies. Consideration of the information provided by a monitoring report would help ensure that such future projects are conducted in a manner that will maintain and enhance the biological capacity of the habitat. The Commission notes that it has relied, in part, on information provided by the 1988 monitoring report prepared after the last episode of surf zone dredge material disposal in its evaluation of the current permit application. Accordingly, the Commission attaches Special Condition No. 2 which requires that prior to issuance of the permit, the applicant submit a surf zone disposal monitoring plan for the review and approval of the Executive Director. The plan must provide for monitoring over a five year period of (1) the pattern and rate of dispersal of material deposited at the site, (2) sediment characteristics at the disposal site and at the control site, (3) the species composition and abundance of intertidal invertebrates in

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**HUMBOLDT BAY HARBOR, RECREATION,
AND CONSERVATION DISTRICT**

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areas directly affected by the disposal of dredge spoils and at a control site near the disposal area over a three year period, and (4) the effects of the surf zone disposal on fisheries.

As conditioned, the Commission finds that the proposed project is consistent with the requirements of Sections 30231 and 30233 of the Coastal Act that any proposed dredging or fill project must maintain and enhance the biological productivity and functional capacity of the habitat, where feasible.

5. Use of Dredged Material for Beach Replenishment.

The fifth test set forth above is that dredge spoil suitable for beach replenishment be transported to appropriate beaches or into suitable long shore current systems. One of the concerns of any dredging project is the loss of sand to the particular longshore current cell and the possible resulting downcoast erosion. When possible, sandy dredge spoils should be disposed in a location that will ensure down coast disposal.

The sediment to be dredged consists of typically fine-grained material composed of approximately 15% sand, 45% silt, and 40% clays. Only the sand portion of the material is suitable for beach nourishment, and given the small component of sand in the dredged material, the applicants do not claim that the project can be characterized as a beach nourishment project.

Nevertheless, the proposed disposal site is an appropriate beach for beach replenishment. As the site is within the surf zone, the material will be discharged where the sand component may enter the long shore current system, although the beach in question is not in a sand-starved condition. Furthermore, the site is sufficiently far from the mouth of Humboldt Bay that discharges at the site would not contribute to a mounding or shoaling problem within a navigational area. Therefore, the Commission finds that the small component of the material to be dredged that is suitable for beach nourishment will be transported to an appropriate beach consistent with the sand supply requirements of Section 30233 of the Coastal Act.

D. Public Access.

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

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The objectives of the project to ensure that vessels can continue to use the Woodley Island Marina for mooring will help maintain recreational boating as a form of public access to Humboldt Bay and the ocean. In addition, as the project will have a duration of only a few months, as all portions of the disposal pipeline and the dredging area itself will be sufficiently marked to warn boaters of its presence, and all portions of the line crossing navigational channels will be submerged to the bottom where they will not block vessel passage, the project will have no significant effect on vessel access during project construction. Similarly, as the portion of the pipeline that crosses the Samoa Peninsula and the disposal site will also be marked and lighted during the several months of the winter that the project will be undertaken and will not preclude passage up and down the peninsula by public access users, the project will have no significant impact on public access use of the Samoa Peninsula. Furthermore, as the dredging will only maintain the existing mooring and maneuvering areas within the Woodley Island Marina, the proposed project will not create new vessel mooring opportunities that could draw more people to the waterfront and create more demand for public access.

Therefore, for the reasons indicated above, the proposed project will not have any significant adverse effect on public access. The Commission finds that the proposed project, which does not include any new provision for shoreline public access, is consistent with the public access policies of the Coastal Act.

E. State Lands Commission Review.

The tide and submerged lands in and around the Woodley Island Marina are administered by the Humboldt Bay Harbor, Recreation and Conservation District pursuant to a legislative grant. Thus the dredging area does not require State Lands Commission authorization. However, the dredged material disposal site is located in the surf zone below the mean high tide line in state tidelands that have not been legislatively granted to the District or any other entity. Use of the disposal site will require authorization by the State Lands Commission and the applicant has applied to the Commission for the needed approval. To assure that the applicant obtains a sufficient legal property interest in the site to carry out the project and to comply with the terms and condition of this permit, the Commission attaches Special Condition No. 1 which requires that the applicant submit evidence that the necessary authorization from the State Lands Commission has been obtained prior to issuance of the permit.

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

The project is within and adjacent to a navigable waterway and is subject to review by the U.S. Army Corps of Engineers (Corps). Pursuant to the Federal Coastal Zone Management Act, any permit issued by a federal agency for activities that affect the coastal zone must be consistent with the coastal zone management program for that state. Under agreements between the Coastal

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**HUMBOLDT BAY HARBOR, RECREATION,
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Commission and the U.S. Army Corps of Engineers, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit. To ensure that the project ultimately approved by the Corps is the same as the project authorized herein, the Commission requires as part of Special Condition No. 3 that prior to dredging, the applicant demonstrate that it has all necessary approvals from the U.S. Army Corps of Engineers.

G. California Environmental Quality Act (CEQA).

The lead agency for the project for purposes of CEQA is the Humboldt Bay Harbor, Recreation and Conservation District. The District conducted an initial environmental study and on December 5, 1996, certified a Negative Declaration for the project, finding that the project will not have a significant effect on the environment.

Section 13096 of the California Code of Regulations requires Commission approval of coastal development permit applications to be supported by a finding showing the application, as conditioned by any conditions of approval, to be consistent with any applicable requirements of CEQA. Section 21080.5(d)(2)(1) 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 impact which the activity may have on the environment.

For the reasons discussed in the findings above, the proposed project has been found to not have a significant adverse impact on the environment. The Commission finds that there are no less environmentally damaging feasible alternatives to the proposed project, and therefore it is consistent with the requirements of the Coastal Act and CEQA.

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1-96-60

**HUMBOLDT BAY HARBOR, RECREATION,
AND CONSERVATION DISTRICT**

Page 19

ATTACHMENT A

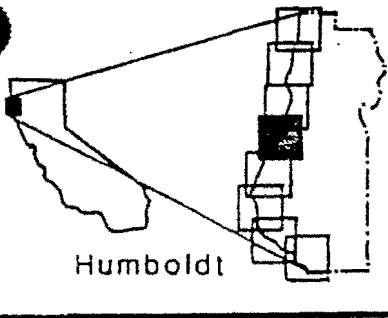
Standard Conditions

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. Compliance. All development must occur in strict compliance with the proposal as set forth in the application for permit, subject to any special conditions set forth below. Any deviation from the approved plans must be reviewed and approved by the staff and may require Commission approval.
4. Interpretation. Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
5. Inspections. The Commission staff shall be allowed to inspect the site and the development during construction, subject to 24-hour advance notice.
6. 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.
7. 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

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DISPOSAL SITE

DREDGING AREA

Samoa

Fairhaven

EURYKA

Cullen

Fields Landing

BOUNDARY

ZONE

ARCATA

COASTAL SEA

ARCATA BAY

Bayside

Freshwater

EXHIBIT NO. 1
APPLICATION NO. 1-96-60
REGIONAL LOCATION
California Coastal Commission



LOCATION MAP



DISPOSAL LINE ROUTE

BEACH DISPOSAL SITE

L.P. UPLAND DISPOSAL SITE

PACIFIC OCEAN

ARCATA BAY

PROJECT LOCATION
EUREKA CHANNEL

EUREKA

SUPERBOWL DISPOSAL SITE

BAR AND ENTRANCE CHANNEL

TO HOODS DISPOSAL SITE

OCEAN DISPOSAL SITE "873"

NORTH SPIT

HUMBOLDT BAY

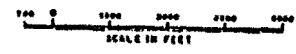
SOUTH SPIT

FELDS LANDING CHANNEL

FIELDS LANDING

TURNING BASIN

VICINITY MAP



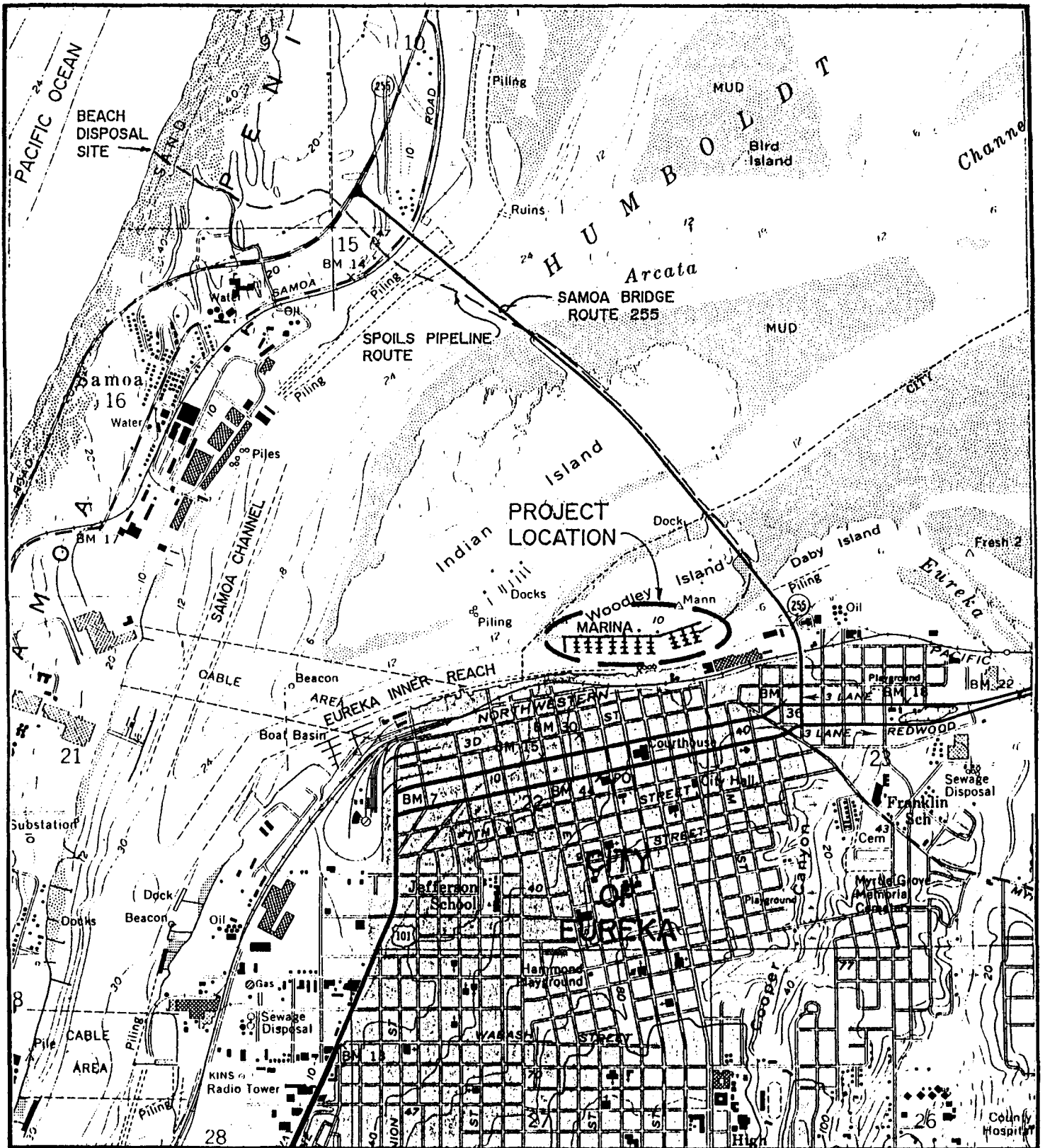
DISPOSAL SITE OPTIONS
WOODLEY ISLAND MARINA
MAINTENANCE DREDGING



PACIFIC AFFILIATES
A CONSULTING ENGINEER
835 THIRD ST. - EUREKA - CALIF. 95501

EXHIBIT NO. 2
APPLICATION NO.
1-96-60
VICINITY MAP





LOCATION MAP

PURPOSE: WOODLEY IS. MARINA MAINTENANCE DREDGING

DATUM MEAN LOWER LOW WATER (MLLW)

ADJACENT PROPERTY OWNERS:

①

②

EUREKA INNER
OF HUMBOLDT
AT WOODLEY ISL
COUNTY OF HUMB
APPLICATION BY I

EXHIBIT NO. 3

APPLICATION NO.

1-96-60

DREDGING LOCATIONS &
AMOUNTS

(1 of 2)

California Coastal Commission

SHEET OF

IA

**CITY OF EUREKA
WATERFRONT MAINTENANCE DREDGING
DREDGE LOCATION AND QUANTITY**

SITE NO.	SITE NAME	ESTIMATED DREDGE CUBIC YARDS
1	DOCK B	15,200
2	EUREKA BOAT BASIN	36,600
3	ACUSHNET BERTH	982
4	LANDING DOCK	8119
5	FISHERMAN'S BUILDING AND F STREET DOCK	4348
6	J STREET DOCK	656
7	ADORNI RECREATION CENTER DOCK	300
8	BONNIE GOOL GUEST DOCK	700
9	SAMOA BRIDGE LAUNCH RAMP	250
TOTAL	-----	67,155

Site numbers listed above are relative to the site numbers shown on the Waterfront Dredge Sites map attached.


EXHIBIT NO. 3
APPLICATION NO. 1-96-60
DREDGING LOCATIONS & AMOUNTS
(2 of 2)
 California Coastal Commission

EXHIBIT NO. 4APPLICATION NO.
1-96-601988 MONITORING
REPORT CONCLUSIONS

BIOLOGICAL MONITORING PROGRAM AT

SAMOA BEACH, HUMBOLDT COUNTY

CALIFORNIA

JANUARY - JULY, 1988

SUMMARY/CONCLUSIONS

1. Between January and July 1988, a biological monitoring program was conducted to examine the effects of disposal of dredged material on Samoa Beach, an exposed sandy beach west of Eureka, Humboldt County, California. Approximately 130,900 cubic yards of bay muds mixed with coarse sediments and shell fragments were pumped onto the beach between February 4 and March 25, 1988.
2. A total of 19 species of marine invertebrates were collected along 3 intertidal transects sampled prior to, one month after, and four months after the termination of disposal of dredged material on the beach. The fauna was dominated by motile, burrowing crustaceans and polychaete worms. In overall species richness, Samoa Beach was intermediate between local semi-protected sandy beaches and sandy beaches exposed to extreme wave conditions.
3. Species abundance and faunal densities were generally low (less than 130 individuals/square meter), with the exception of a burrowing isopod (Excirolana linguifrons), found in the Mid Intertidal Zone at densities up to 2680 individuals/square meter.
4. Based on the present study, negative effects of temporary discharge of dredge spoils on intertidal fauna of Samoa Beach were localized and transitory, primarily affecting the abundance of characteristic beach species in the immediate vicinity of the disposal outfall. Within 1 month following the end of disposal operations, most species characteristic of this beach were present at the outfall site, although at reduced densities. Approximately 4 months following termination of beach disposal, populations at the Disposal Site had recovered to levels comparable to those at the Control Site.
5. One species, Excirolana linguifrons, was far more abundant at the Disposal Site following dredge spoil disposal than at the other sites. This species, which was also the most abundant species on the beach, is an opportunistic scavenger which may have been attracted to the disposal outfall site by dead organisms in the spoils on which to feed.
6. Within 1 month after termination of disposal operations, no effects of disposal on faunal abundance could be detected at a site 100 meters north of the Disposal Site, suggesting that effects of beach disposal were limited to the area immediately around the disposal outfall.
7. Rapid recovery of beach fauna observed in the present study was related to the amount of material deposited, relatively small area affected by disposal, motility of most beach species, proximity of undisturbed populations, and timing of disposal operations.

SUBMITTED BY: Gail Newton and Associates
Biological Consultants
P.O. Box 234
Arcata, CA 95521

EXHIBIT NO. 5
APPLICATION NO. 1-96-60
HOODS DISPOSAL SITE

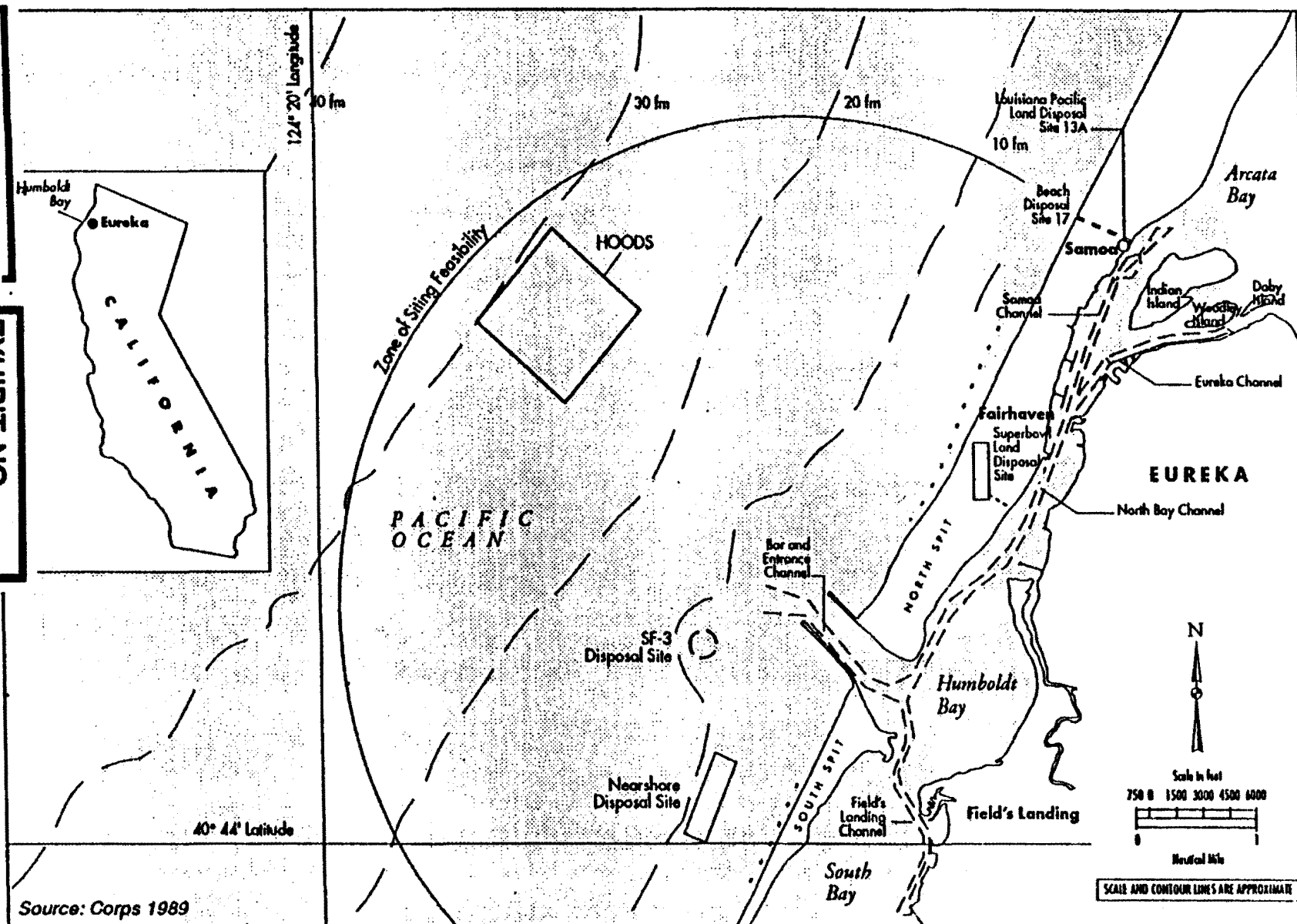


Figure 1-1. Location of Past and Present Ocean and Land Dredged Material Disposal Sites Near Humboldt Bay, California

DEPARTMENT OF FISH AND GAME

1416 NINTH STREET
 P.O. BOX 944209
 SACRAMENTO, CA 94244-2090
 (916) 653-4875



April 2, 1997

Lieutenant Colonel Richard G. Thompson
 District Engineer
 c/o Michael Lamprecht, Regulatory Branch
 P.O. 4863
 Eureka, California 95502-4863

EXHIBIT NO. 6
APPLICATION NO. 1-96-60
FISH & GAME LETTER & APPLICANTS
RESPONSE (1 of 9)
California Coastal Commission

Dear Colonel Thompson:

Department of Fish and Game (DFG) personnel have reviewed Public Notice (PN) 222150N and 222160N describing a combined proposal by the city of Eureka to maintenance dredge portions of the city's waterfront and the Humboldt Bay Harbor District to maintenance dredge Woodley Island Marina. The city of Eureka plans to excavate approximately 67,155 cubic yards (cys) of material from various docks and landings, and the Humboldt Bay Harbor District 120,000 cys from berthing areas. Dredging in both areas would be accomplished by hydraulic cutterhead, with proposed pipeline disposal into the surf zone on the Pacific Ocean side of the north spit (Samoa Peninsula). Disposal would be timed (December to April) to coincide with winter storms and maximum discharge into the nearshore area from the Mad and Eel Rivers. The project sites were last dredged in 1988, followed by disposal at the currently proposed beach location. A DFG monitoring study was conducted on the beach disposal element of the project. Results of this study are found in a report titled Samoa Dredge Spoil Biological Monitoring Program at Samoa Beach, Humboldt County, California, January - July 1988.

The DFG has also reviewed the monitoring report and, in conjunction with the information contained in the PN, has evaluated the potential impacts of this proposal on aquatic and terrestrial resources in the project area. Our concerns, comments, and recommendations are as follows:

- Although designed for maximum dispersion, the surf zone beach site retained dredged sediments from the 1988 disposal well past the July termination date of the monitoring study. Retention appeared to be due primarily to a moderately thin layer of sand that developed over the coarser-grained sand, gravel, and shell fragments of the disposed material. It is also possible that some finer-grained materials were trapped under the sand layer. Study results also indicated that there were apparent short-term reductions in invertebrate species abundance and diversity at the disposal site, when compared to a control site. In addition to grain-size differences, we believe that sediment quality has the potential to be a factor in these reductions. The DFG recommends that, in the event

Lieutenant Thompson

April 2, 1997

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2 - beach disposal is permitted, biological toxicity tests (i.e., suspended and solid phase bioassays) be conducted on project sediments in accordance with protocols and procedures in PN 93-2. Sediments determined to be unsuitable would not be allowed to be placed in an open-water, unconfined environment. Such testing would be consistent with other Corps of Engineers' permit actions within the San Francisco District.

3 - A letter dated December 10, 1996 from the DFG to the Humboldt County Planning Division regarding the Coastal Development and Conditional Use Permit for this project identified several federally-listed plant and wildlife species in the vicinity of the pipeline route. These species were the endangered menzies wallflower (*Erysimum menziesii*), the endangered beach layia (*Layia carnosa*), and the threatened western snowy plover (*Charadrius alexandrinus nevosus*). The DFG requested information regarding the possible presence of these species along the pipeline route, identification of potential impacts to those species which may be present, and a description of operational or compensatory mitigation to offset identified impacts. The PN points out only the presence of the beach layia at the site and indicates that no impacts are expected to this species. However, no further discussion of how or why this conclusion was reached, nor discussion of the other species of concern, brought to the applicant's attention by our letter, took place in the PN. The DFG recommends that this information be provided to our agency, as well as the other state and federal resource agencies, prior to permit issuance.

4 - Of great importance to the DFG is the issue of disposal site location. During the previous dredging and disposal episode, a federally authorized open-water disposal site was not available to the applicants. Since that time, however, the Humboldt Open Ocean Disposal Site (HOODS) has been designated by the federal government at a location approximately 3 miles from the Harbor entrance jetty. The HOODS site was designed to accept both fine-grained silts and clays, as well as coarse-grained sands, and has the capacity to receive all project sediments determined to be chemically suitable. Additionally, two upland disposal sites exist on the Samoa Peninsula in the vicinity of the project site. A thorough alternatives analysis for disposal is not found in the PN, and a convincing argument for the beach disposal option has not been made. Given the short-term impacts to fish and wildlife at the disposal site identified in the 1988 monitoring report, the potential adverse effects from pipeline construction and operation to the dunes habitat of special status species, and the availability of the HOODS site, the DFG strongly recommends against beach disposal of project sediments and in favor of an ocean or upland alternative.

EXHIBIT NO. 6

APPLICATION NO.

1-96-60

FISH & GAME LETTER
& APPLICANTS

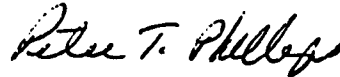
RESPONSE (2 of 9)

 California Coastal Commission

Lieutenant Thompson
April 2, 1997
Page 3

As always, DFG personnel are available to discuss our concerns and comments in greater detail. To arrange for discussion, please contact Mr. Robert N. Tasto, Environmental Specialist, California Department of Fish and Game, Marine Resources Laboratory, 411 Burgess Drive, Menlo Park, CA 94025, telephone (415) 688-6360.

Sincerely,



Peter T. Phillips, Assistant Chief
Environmental Services Division

cc: The Honorable Douglas P. Wheeler
Secretary for Resources
Resources Agency
Sacramento

Robert N. Tasto
Department of Fish and Game
Menlo Park

EXHIBIT NO. 6
APPLICATION NO. 1-96-60
FISH & GAME LETTER & APPLICANTS
RESPONSE (3 of 9)  California Coastal Commission

Humboldt Bay Harbor District / City of Eureka
Cooperative Dredge Project

AGENCY COMMENTS / APPLICANT RESPONSES
PN222150N & PN22160N

Agency Comments: Department of Fish & Game (DFG)
Letter dated April 2, 1997
Mr. Peter T. Phillips

Responses: Pacific Affiliates (referenced to items numbered on agency response letter)

#1 Retention of Dredge Spoils

As part of the natural beach sedimentation cycle, sands are moved off-shore from beaches during the winter, and carried back onto the beaches during the spring and summer. The last dredge/disposal project at this site was conducted between February 11 through March 24, 1988. As noted in a monitoring report generated by the Samoa Dredge Spoils Biological Monitoring Program (Gail Newton & Associates, 1988) a small percentage of spoils was retained on the beach under a subsequent thin layer of sand at the conclusion of the monitoring period, which ended on July 30 of that year. While the partial retention of some material was noted in 1988, as entrained in a thin layer below a subsequent sand layer, there was no indication that such retention, of relatively short-term, created any adverse or nuisance condition, as noted in the conclusion of the Newton report (pg. 21, item #7 attached) "Rapid recovery of beach fauna observed in the present study was related to the amount of material deposited (131,000 cy), relatively small area affected by disposal, motility of most beach species, proximity of undisturbed populations, and timing of disposal operations".

"Short-term reductions" in the invertebrate species abundance and diversity were certainly anticipated, given the nature of the area fauna, "dominated by motile, burrowing crustaceans and polychaete worms" (Newton, pg. 21, #2), it would appear most likely that the temporary effects were physical (material) effects on the substrate rather than chemical, and even if such effects were chemical, they were very localized and temporary, as noted by rapid faunal recovery. Further, as noted in item #6 (pg.21) the Newton report indicates that "within one month after termination of disposal operations, no effects of disposal on faunal abundance could be detected at a site 100 meters north of the disposal site, suggesting that effects of beach disposal were limited to the area immediately around the disposal outfall.

EXHIBIT NO. 6
APPLICATION NO. 1-96-60
FISH & GAME LETTER & APPLICANTS
RESPONSE (4 of 9) California Coastal Commission

The Newton report assumed that the retention of unlike materials (clays) might potentially have some (short-term) impact on beach fauna, however, as questioned in the DFG comment, it is unclear why the short-term retention of some coarser sand, gravel, and shell fragments not unlike existing beach substrate, would pose any significant concern. Monitoring was not conducted beyond the July 1988 date, however, it is very unlikely, by anyone's opinion, that any remaining material would have been retained after the following winter cycle.

The other conclusions of the Newton report (pg. 21, attached) noted that adverse effects were localized and transitory (item #4), and documented fairly rapid recovery of beach fauna to levels noted in the control area within four months of the 1988 dredge project (131,000 cy project). The following is a list of species encountered during baseline studies by Newton & Associates just prior to the 1988 dispersion. It should be noted that fish populations were not included in the Newton study for several reasons. Firstly, fish populations are not at all abundant in the high energy regime of the active surf zone, and secondly, their extreme mobility precludes accurate survey and also likely precludes impacts inasmuch as fish species are likely to temporarily avoid areas of disturbance.

Samoa Spit - Surf Zone Dispersion Area

High Intertidal Zone

Amphipods:	<i>Orchetoidea benedicti</i>	beach hopper
	<i>O. californiana</i>	" "
	<i>O. columbiana</i>	" "
Insects:	<i>Emphyastes fucicola</i>	weevil

Mid Intertidal Zone

Isopods:	<i>Exciorolana linguifrons</i>	?
Decapods:	<i>Emerita analoga</i>	mole crab

Low Intertidal Zone

Amphipods:	<i>Rhepoxynius</i>	?
Decapods:	<i>Emerita analoga</i>	mole crab
Mysids:	<i>Archaeomysis grebnitzkii</i>	opposum shrimp
Polychaetes:	<i>Eteone dilatae</i>	?
	<i>Nephtys californiensis</i>	sand worm
	<i>Pygospio californica</i>	?

EXHIBIT NO. 6
APPLICATION NO. 1-96-60
FISH & GAME LETTER & APPLICANTS
RESPONSE (5 of 9)
 California Coastal Commission

The Samoa spit is a high energy regime and is capable of effectively dispersing spoils under most conditions, however, there are some variables and limitations, such as timing and volume of material. It is possible that the 1988 dredge project was conducted fairly late in the winter season (Feb 11 - Mar 24). The proposed project has a likely operational window between December 1 and March 15, which may allow more complete dispersion, depending on the actual start date, and actual weather/sea conditions for that season at the Samoa dispersion area. The actual start date may be somewhat at the discretion of the RWQCB.

Sediments from areas off-shore of the Samoa spit have been sampled and analyzed pursuant to Louisiana Pacific's monitoring of their plant discharge line. This monitoring was performed annually between 1987 and 1994 by Humboldt State University and the Fred Telonicher Research Marine Lab. Their analysis of grain size distribution from areas located in 12 meters and in 25 meters of water indicated that the size distribution in these areas was controlled primarily by wave and/or current action as opposed to supply factors. Minor annual fluctuations were generally attributed to the relative intensity of annual storm events, as also affected by varied run-off (fluvial) input. This analysis also indicated that the average wave plunge ranged from 9 to 12 meters, averaging about 10 meters. This would be the general depth of wave impacts on the bottom sediments. This does not include bottom impacts attributed to various longshore currents. The LP monitoring also indicated that while infaunal populations remained fairly constant on an annual basis, minor variations appeared to occur as a result of varying environmental factors such as temperature, salinity, and storm intensity effects. Such variations were limited in successive dry years and far more apparent in years of major flood and storm events. In particular "significant changes in sediment and infaunal communities" were noted as a result of the 1994-95 winter season (HSU, 4/95, pg. 1).

#2 Additional Testing - Bioassay & Bioaccumulation

The DFG has proposed that suspended and solid phase bio-assay and toxicity tests be performed on the sediments prior to beach dispersion. Such tests are extremely expensive and should not be conducted blindly or in a shotgun manner for any project, and should, if required, be based upon a rationale derived from the initial chemical characterizations which have been supplied. The Humboldt Bay sediments are relatively clean in respect to that of most other California harbors, as was verified in the initial chemical testing.

Sediment samples from the proposed Harbor Deepening Project by the CORPS were submitted for bio-assay testing. On the basis of one sample location (HB-8), 26,000 cy of material from the turning basin adjacent to the LP mill site was disallowed from open ocean disposal due to trace dioxin levels. The actual dioxin

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levels found were, however, "10-fold below the level that presents a low-risk to the most sensitive species of wildlife (piscivorous, or "fish-eating")", and even much further below low-risk levels for the less sensitive piscivorous species, and even much farther below "high-risk" levels (EIR for Navigation Improvements, USACE, 4/95, pg. 51 attached). Further, dioxin is hydrophobic and binds to sediment, thus sinks to the bottom and is not considered bio-available. The costly exclusion of that material from unconfined ocean disposal on the basis of dioxin levels does not appear entirely justifiable.


Pursuant to outfall discharge monitoring requirements, the area immediately offshore the Samoa spit has been studied annually between the years 1987-94, and such monitoring will likely be performed over the next several years as well (see attached area map). As conducted by the Oceanographic Department of Humboldt State University, the study reports indicate that the sedimentation and the infauna diversity and abundance of the study area has remained fairly constant, with minor fluctuations due to inherent and variable natural environmental factors. Further, chemical analysis of the area sediments and of crab tissue have not indicated any significant impacts from the LP discharge, nor presumably were any apparent effects from proximal beach disposal noted.

It should be borne in mind that Woodley Island dredge spoils were disposed in this area on two previous projects, in 1977 (1.8 mcy) and 1988 (131,000 cy). The fact that the fauna populations in this area was generally consistent with comparable areas, as noted by the Newton study just prior to, and after the 1988 dispersion, seems to preclude long term effects.

The sampling and chemical characterization of the proposed dredge sediments has been completed, as submitted for review by regulatory agencies. To date, there has been no specific exclusion of any material, as based on initial characterization, for open water disposal, or specific recommendations that any of the sampled locations would require additional suspended and solid phase bioassay analysis.

As stated in the EPA's response letter on this project (4/17/97) "Results of sediment testing demonstrate that material from these two projects is predominantly fine-grained (66-89% fines), free of contamination, and would be suitable for ocean disposal based on a consideration of existing (Tier I) information. We believe that a permit for ocean disposal of these sediments at HOODS can be issued without further testing."

With both sites representing "unconfined aquatic disposal" it is difficult to determine the difference. It is understood that benthic fauna is very limited, but not absent, at the HOODS site, and that the site is considered to be "non-dispersive" even though dispersion of fines in the water column is unavoidable, and it is extremely unlikely that the disposal mound remains unperturbed by long-shore currents.

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#3 Federally Listed Species - The DFG is requesting identification and compensatory mitigation concerning three species summarized below. These species have been identified in the project area. The procedures for the avoidance and/or mitigation of these species have been explored, and the incorporation of effective procedures is being addressed. Please note the attached "Special Conditions" recommended by the USFWS in consultation with the USACE dated 5-8-97. Condition #1 will serve to protect the snowy plover habitat (west of the utility road) by the completion of operations prior to the nesting and breeding season. The plant species have been identified in areas along the proposed pipeline route, and such areas will need to be re-surveys prior to actual operations, as included in the attached conditions, along with avoidance/mitigative/compensatory measures.

menzies wallflower (*Erysimum menzesii*)
beach layia (*Layia carnosa*)
western snowy plover (*Charadrius alexandrinus nervosus*)

#4 As indicated in the following discussion, several options for dredge methodology have been explored. The disposal of material at HOODS may appear more acceptable in the regulatory context, however, the dredge methodology required to effect the barge transport of material to HOODS would undoubtedly increase dredge impacts to the (somewhat confined) waters of Humboldt Bay. There are some significant differences between the dredge and transport methods that can be employed in the relatively open waters of the Humboldt Bay channels (by the CORPS) as compared to the close operating quarters required for dredging in the inner reach and marina areas. While some of these differences are environmental, an economic evaluation has also been prepared which clearly indicates that pipeline disposal is the most cost effective method available. Inasmuch as this project depends largely on local funding, budgetary constraints must also be a major consideration.

While the "superbowl" upland site on Samoa was previously designated (City of Eureka) and permitted (California Coastal Commission) for dredge disposal, the status of the previous Coastal permit (CCC) remains in doubt. While the City maintains that the permit "runs with the land", the Coastal Commission feels otherwise. In addition, the superbowl area has subsequently evolved a dune hollow wetlands habitat and several federally listed plant species have encroached in the area (menzies wallflower, beach layia), which would certainly complicate or preclude full utilization for dredge disposal. Even if deemed environmentally appropriate, this option would increase project costs appreciably for additional pipeline costs to reach this site.


Small amounts of dredge spoils have been disposed Louisiana Pacific property in Samoa. Such capability is likely to be retained by LP for it's own future needs.

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Several sites along the Samoa beach site have been designated for spoils disposal in the Humboldt County General Plan as has been used twice previously for the dispersion of Woodley Island Marina maintenance dredging. Both the Harbor District and the City of Eureka need to secure a long-term site for economical maintenance dredge needs, as appears provided for in the Humboldt County General Plan designation.

The Samoa beach disposal site, in conjunction with the cutter-suction dredge methodology, would appear to be a sound option, both environmentally and economically. Further, this location would appear to be ideal for the future maintenance dredging needs of the inner harbor areas. The short term impacts to "fish and wildlife" were evaluated by the 1988 monitoring report (Newton & Associates), and indeed, were found to be temporary and relatively insignificant. As should be re-iterated, the continual and significant use of HOODS (twice yearly) also incurs some "short-term" impacts to fish & wildlife. In comparison, the moderate use of Samoa spit spoils dispersion on an approximate ten year frequency may well result in less overall impacts to the ocean environment. In addition, the use of hopper dredge methodology necessary for transport to the HOODS site would likely increase temporary turbidity impacts to fauna within the confines of Humboldt Bay due to the necessary release of supernatant waters associated with barge loading.

It is clear that the City and the Humboldt Bay Harbor District have an ongoing need for periodic maintenance dredging on about a ten year frequency. It is suggested herein that a regulatory procedure should include sufficient monitoring which might allow for the continued future use of the Samoa site in an economically effective manner, unless adverse impacts are encountered. To date, after twenty years of such use, there appears to be no evidence of significant adverse impacts.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

APR 17 1997

Address Replies to WTR-2

EXHIBIT NO. 7
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California Coastal Commission

Lt. Colonel Richard G. Thompson
District Engineer
U.S. Army Corps of Engineers
ATTN: Michael Lamprecht
P.O. 4863
Eureka, CA 95502-4863

Re: Maintenance Dredging of Eureka Waterfront (PN 222150N) and Woodley Island Marina (PN 22160N)

Dear Colonel Thompson:

US EPA has reviewed the Public Notice describing the combined proposal by the city of Eureka and the Humboldt Bay Harbor District to dredge 67,155 cubic yards from Eureka's waterfront (PN 222150N) and 120,000 cubic yards from the Woodley Island Marina (PN 222160N). Both projects propose to dredge hydraulically and then pump material through a pipe system to a beach on the Pacific Ocean side of the north spit (Samoa Peninsula) where it would be disposed in the surf zone above MLLW. Our suitability determination is based on review of the information presented in the Public Notice as well as the results of chemical and physical analyses performed on sediments to be dredged [Report of Sediment Sample Analysis - September 17, 1996] and the results of an earlier beach monitoring study performed by Gail Newton and Associates at the proposed disposal site (Samoa Dredge Spoil Biological Monitoring Program at Samoa Beach, Humboldt County, CA Jan. - July 1988). Our review was conducted in accordance with the Federal Guidelines (40 CFR 230) published pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, and in accordance with the Ocean Dumping regulations (40 CFR Part 227).

Based on our review of the available information, EPA objects to the proposed surf-zone disposal of the Eureka and Woodley Island Marina sediments. As explained in more detail below, there are potential negative impacts associated with the proposed disposal method and location, and EPA believes that there is a less damaging and practicable disposal alternative available at the Humboldt Open Ocean Disposal Site (HOODS).

Results of sediment testing demonstrate that material from these two projects is predominantly fine-grained (66-89 % fines), free of contamination, and would be suitable for

1 ocean disposal based on a consideration of existing (Tier I) information. We believe that a permit for the ocean disposal of these sediments at HOODS can be issued without further testing. However, the dredged material from these two projects is not physically suitable for use as beach nourishment.

2 The preferred alternative described in the Public Notice involves disposal of the predominantly silty material from these two projects in the high-energy, sandy environment of the surf zone. Dredging and disposal are scheduled to take place between December and April, when winter storms and river runoff significantly increase the turbidity of nearshore waters. The Public Notice states that material disposed during this time period will rapidly disperse in the nearshore environment and that any adverse effects associated with increased turbidity or the deposition of fine material will be short-term and minor to moderate in magnitude relative to background. This statement is derived from the results of beach monitoring following the last dredging episode in 1988 during which material from Humboldt Harbor was disposed at this same location.

2b Based on the four month monitoring study conducted at Samoa Beach, Gail Newton and Associates (1988) concluded that observed negative effects of disposal on intertidal fauna were localized and short-term. However, the results indicate that even four months after disposal, recolonized species remained at reduced densities relative to a control area. Additionally, this study documented a lower level of dredged material dispersion from this location than had been anticipated. A percentage of the fine-grained dredged material is deposited in the lower intertidal zone and rapidly buried by sand in the early spring, restricting its dispersal until the following winter, when offshore currents remove the overlying sand. The study predicts that this

2c phenomenon would result in the repeated exposure of nearshore fauna to the dredged material and resultant short-term reductions in faunal densities until such a time that the material had completely dispersed. No information is provided on the expected time frame for complete dispersion, the ultimate deposition location, or the potential impacts of the dispersed dredged

2d material on other nearshore resources such as fisheries. Based on this information, disposal of fine-grained dredged material at this location may result in long-term adverse on biota living in nearby beach and nearshore habitat.

3 Additionally, two federally listed plants (menzies wallflower and beach layia) and a wildlife species (snowy plover) occur or may occur along the proposed pipeline route and these species may be adversely affected by installation and maintenance of the pipeline as described in the Public Notice. The public notice mentions that beach layia has been identified along the disposal route and that no impacts to this or any other federally listed species are expected but provides no documentation to substantiate this conclusion. We understand that U.S. Fish and Wildlife Service and the California Department of Fish and Game have not yet concurred in this conclusion.


As mentioned earlier, surf zone disposal of material from Humboldt Harbor at the proposed location has been performed during earlier dredging episodes. At that time a federally designated open water disposal site was not available to the applicants. However, EPA has now designated the Humboldt Bay Open Ocean Disposal Site (HOODS) at a location 3 nautical miles

southwest of the Humboldt Harbor entrance jetty. The designation of this site came after 3 years of study by the COE and EPA to identify an environmentally sound location whose use would not harm sensitive species or fisheries resources. Furthermore, HOODS was specifically designed to accept both fine-grained and sandy material, and its location is within a zone of siting feasibility that has been determined by EPA and COE to be generally within a practicable distance for area dredging projects including those in the Humboldt Harbor area.


The Public Notice doesn't provide information to establish that potentially less damaging alternatives (especially HOODS) wouldn't be practicable for the Humboldt Harbor and Woodley Island Marina projects. To the contrary, it states that dredged material disposal at HOODS has not been eliminated as a viable option for aquatic disposal of these sediments. EPA believes that HOODS is both practicable and a less damaging disposal location for this fine-grained, uncontaminated dredged material. We therefore object to surf zone disposal as proposed in the Public Notice. However, should the applicant choose to present information clearly demonstrating that HOODS disposal is not practicable, we would reconsider our position.

Thank you for allowing an extra week for us to provide these comments. If there are any questions, please call me at (415) 744-2125 or have your staff contact Erika Hoffman at (415) 744-1986

Sincerely,


Alexis Strauss, Director
Water Division


cc: USFWS, Sacramento (Warne)
USFWS, Arcada (Brown)
NMFS, (Chris Mobley)
CDFG, Menlo Park (Tasto)
RWQCB, (Bill Rodriguez)
CCC, (Jim Raives)
applicant

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**RESPONSE TO COMMENTS
BY THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
TO THE
U.S. ARMY CORPS OF ENGINEERS PUBLIC NOTICE**

PN22150 & PN22160

**MAINTENANCE DREDGING OF THE EUREKA WATERFRONT
AND WOODLEY ISLAND MARINA**

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The following additional information is provided in response to comments by the United States Environmental Protection Agency with regard to the proposed maintenance Dredging of several sites along the City of Eureka Waterfront and the Humboldt Bay harbor and Recreation District's Woodley Island Marina facility.

The responses have been numbered according to corresponding numbering of questions and comments within the EPA's letter dated April 17, 1997.

1) The proposed dredge spoils disposal method involves beach nourishment and dispersion. The sand fraction of the dredge spoils may be suitably retained on the beach and nearshore environment as "nourishment" while the finer fractions of the material will be "dispersed" elsewhere along the Eel River shelf (offshore). Due to the high energy environment of the surf zone the latter fractions (fines) will not remain on the beach for any appreciable period of time. Such materials will be transported by natural processes of sedimentation and will be deposited with similar size sediments along the Eel River shelf environment.

Dredged sediments are to be discharged onto the active wave slope of the Samoa Beach during the winter period (December - April) when the turbidity of the near-shore water is naturally at an elevated level. This same method of disposal was utilized by the U.S Army Corps of Engineers (USACOE) and the Humboldt Bay Harbor, Recreation and Conservation District (HBHR&CD) in 1978 during deepening of the Humboldt Bay North Bay Channel. The project resulted in the discharge of 1.8 million cubic yards of sediment into the surf zone of the Pacific Ocean along the western side of the Samoa Peninsula at the exact location proposed for this project. In 1988, the Humboldt Bay Harbor, Recreation and Conservation District again utilized the same disposal method and disposal site for the dispersion of 130,000 cubic yards of accumulated sediment from within the Woodley Island Marina facility. These past projects contained environmental documentation, agency reviews and determination of no significant impact.

The current proposal for maintenance dredging and disposal was selected after careful consideration of the present environmental, operational and economic limitations of the process along with review of the past environmental monitoring and associated

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documentation. The biological sampling and environmental analysis conducted prior to the 1978 USACOE/HBHR&CD dredging and disposal project and the 1988 HBHR&CD monitoring program clearly state that environmental effects of the dispersion/nourishment process are insignificant.

2) The Biological Monitoring Program and Report, prepared by Gail Newton and Associates, in conjunction with the 1988 Woodley Island Marina Maintenance Dredging Project states clearly and repeatedly that impacts upon intertidal fauna of the Samoa Peninsula were temporary and transitory, primarily affecting the abundance of characteristic beach species in the immediate vicinity of the disposal outfall. It is neither implied or stated that the impacts were anything more than temporary, minor and localized.

2b) The following text reiterates the sequential observations as stated in the 1988 Biological Monitoring Program and Report.

“Based on the present study, negative effects of temporary discharge of dredge spoils on the intertidal fauna were localized and transitory, primarily effecting abundance of characteristic beach species in the immediate vicinity of the disposal outfall. Within one month following cessation of activities, the majority of species characteristic of this beach were present at the outfall site.”(Pgs. 18 & 21)

“Within one month after termination of disposal operations, species composition and abundance were fairly similar at the North transect (100 meters north of the outfall) and at the Southern Control transect, suggesting that effects of beach disposal of dredge spoils were limited to the area immediately around the disposal outfall. This conclusion was strengthened by qualitative observations of sediment characteristics made during biological sampling. During collection of biological samples, distinct spoils material was evident only at the disposal site, where it had been covered by seasonal on-shore transport of sand. By four (4) months following termination of beach disposal, populations of most of the characteristic beach species were similar or greater than populations of the same species at the control transect.” (Pgs.19 & 21)

“Following cessation of beach disposal, re-colonization of disturbed areas at the disposal site took place rapidly from surrounding adult populations. Re-establishment of populations in the outfall area were made easier by the relatively small area disturbed, the proximity of undisturbed populations and the motility of many beach species.” (Pg. 19 & 21)

“Rapid recovery of beach fauna in the outfall area was enhanced by the timing of operations as sands are moved off the beach in the winter, then carried onshore in the spring and summer in a yearly cycle.” (Pg.20)

The Samoa beach is an exposed sandy beach subject to extreme wave conditions. The intertidal zone is classified as a very restrictive habitat, where only motile forms

capable of rapid burrowing and survival during low tide exposure to air can survive (Environmental Research Inc. 1976). Some comparable data compiled during studies of other exposed, sandy northcoast beaches suggests that the Samoa Beach is fairly rich in species abundance. The beaches used for comparison were the Gold Bluffs Beach and the Beach at the mouth of Redwood Creek both studied during a two year evaluation of Redwood National Park biota. Eight species were collected from Gold Bluffs Beach and eleven species were collected near the mouth of Redwood Creek. In Comparison, the Beach of the Samoa Peninsula, sampled by Gail Newton and Associates in 1988, resulted in the recovery of 19 species, approximately double the species richness of the similar comparative local beaches. Upon thorough, objective review of the 1988 Biological Monitoring Program and Report, it is unclear how a negative determination could be made with regard to this project, past projects and the effect upon marine invertebrate populations of the Samoa beach. (Pg. 18)

2c) Following the 1988 dredging and disposal project, there was burial of a small quantity of sediment within the lower intertidal zone at the discharge site, by the spring on-shore movement of sand. The burial of sediment was confined to the area of the outfall and was undetectable at the north transect 100 meters north of the outfall location. (Pg. 11)

The containment of the sediment lens to the area immediate to the outfall and only within the lower intertidal zone suggests that the volume of sediment retained at the site following cessation of activities was not significant. The report does state that "Faunal densities near the outfall may again be reduced, relative to nearby areas."

If the disposal of 130,000 cubic yards of sediment did not cause significant impacts and the site re-colonized to levels comparable to the control transect within four (4) months following the cessation of operations, how could the minor quantity of sediment left at the site cause significant impacts when uncovered the following winter?

2d) Dispersion of sediment is expected to be complete after a maximum of two (2) seasons of natural off-shore sediment transport. Any residual sediment left within the vicinity of the outfall will become covered in the spring by the natural on-shore movement of sand and will uncover and disperse the following winter as wave action again moves sediment off-shore. This seasonal sediment movement correlates with the winter upland run-off and naturally turbid condition of the nearshore water.

Information provided to the EPA, excerpted from the USACOE Feasibility Study for the Navigational Improvements to Humboldt Bay, 1995, summarizes the local near-shore winter conditions with regard to natural upland run-off, sediment transport and decreased water quality.

During the winter and early spring (Dec. - April), nearshore turbidity along the coastline adjacent to Humboldt Bay is naturally and significantly increased. The natural increase in turbidity is caused by high rainfall (30-50 inches per year) highly erosive soils of the coastal range and significant discharge of turbid water from two major river systems, the Eel and Mad Rivers. Humboldt Bay also contributes to the increased nearshore turbidity discharging upland run-off from several creeks and the Elk River system.

As stated in the "Project Dredging and Disposal Methods Analysis" provided with the application to the USACOE, the Mad and Eel rivers discharge an average of 27,267,000 metric tons of suspended sediment per year to the continental shelf. At a weight of 2432 lbs./cubic yard, this converts to 24,698,370 cubic yards of suspended sediment (The suspended sediment, discharged into the nearshore ocean water by the two rivers, is dispersed along the coastline. Heavier sediments are dropped along the shore while finer sediment remains in suspension until settling in calmer waters farther from shore.) The total project sediment volume of 187,155 cubic yards therefore amounts to 0.0075 percent of the average annual discharge of the two major rivers. If a conservative average of 75% of the total project sediment is suspended sediment (assuming 25% is sand), the suspended sediment volume that would be generated by this project amounts to 0.0057 percent of the discharge of the two northcoast rivers. (Aside from the mechanics of delivery, the dispersion of the project sediment is not different from the annual recurring river sediment discharge.)

The physical characteristics of the material proposed for dispersion consists predominantly of silt and fines and approximately 25-30 percent sand. The sand will remain within the beach and intertidal area while the silt and fines will be suspended within the near-shore water and eventually settle in calmer water off-shore. This process occurs naturally along this stretch of coastline proximal to the mouths of the Eel river, Mad River and mouth of Humboldt Bay. The ultimate disposition of the sediment will be predicated upon grain size and predominant current direction. The finer the sediment, the longer it will remain in suspension and subsequently the farther from shore it will be transported before it finally settles to the ocean floor.

3) A biological assessment of the entire spoils line route, beginning at the Woodley Island Marina and ending at the Pacific Ocean, was conducted in May of 1996 by Karen Theiss and Associates Biological Consultants. The purpose of the assessment was to determine the presence/absence of threatened and or endangered species. One federally listed species of plant was identified along a short section of the spoils line route within an area utilized for placement of dredge spoils pipeline in association with the previously mentioned projects. The applicant's biologist has consulted with Ms. Betty Warne of the United States Fish and Wildlife Service and a Mitigation and Monitoring program has been developed. The Beach Layia Mitigation and Monitoring Program has been patterned after a similar program developed for Louisiana Pacific Corporation Samoa pulp mill. The Louisiana Pacific mitigation and monitoring program initiated in 1994 has

shown favorable results through two years following pipeline installation. Beach Layia population densities have increased beyond pre-construction populations (pers. comm. Karen Theiss).

The Beach layia habitat of the Samoa Peninsula is predominantly contained to the foredune area. The species colonizes vegetative fringe and semi-open dune areas. The species does not tend to thrive in competition with other vegetative species. The entire foredune area is exposed to moderate to strong winds which cause mild disturbance through airborne movement of sand. In conversations with Mr. Herb Peirce of the California Department of Fish and Game and Ms. Karen Theiss, the species does not appear to be impacted by mild substrate disturbance and in some cases, mild disturbance induces an increase in population density.


Mad River Biologists (MRB) conducted a field review and biological assessment of the beach area at the outfall site and concluded that the proposed outfall area was not suitable habitat for the Western Snowy Plover given the narrow band of possible nesting area along the top of the wave slope and the presence debris and predators. "For these reasons, placement and removal of the pipeline should have no significant effect on the Western Snowy Plover." (MRB, Dec. 1996) It was recommended to conduct a site review by a qualified biologist prior to the beginning of any work conducted after April 1, 1998. The applicant agrees with this recommendation.

DREDGING METHODS AND ANALYSIS

During the project alternative evaluation process, considerable study was given to all alternatives prior to selecting the "Project Alternative" for dredging and disposal. Among the many environmental concerns of the project, protection of Humboldt Bay and the many sensitive habitats and resources it contains appeared paramount. Concerns centered around environmental protection of the Bay lead to the preliminary elimination of several dredging methods. Secondly, concerning operations, which dredging methods could be utilized given the physical constraints of the facilities scheduled for maintenance dredging? This question allowed us to eliminate all but one dredge method (cutter-suction pipeline).

Three dredging options were originally considered, self-propelled hopper dredging, clamshell dredging and cutter-suction pipeline dredging. Self-propelled hopper dredging was eliminated as a feasible alternative for the following reasons:

- 1) Eighty-five percent (85%) of the project dredge volume is located within the confined areas of the two marinas (157,000 cubic yards of the total 187,155 cubic yards). Hopper dredges cannot maneuver within confined spaces, nor can they effectively dredge sediments from beneath docks or from within the boat slips of the marinas.


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2) Hopper dredging generates a significant volume of suspended sediment at the dredge site as the hopper is filling with solids. Dredged sediment is suctioned into the hopper of the dredge along with a substantial volume of water. As the hopper fills, the accompanying water, laden with the finer suspended sediment, overflows the hopper into the water body from which it is dredged. The turbidity level will vary during dredging, according to the physical characteristics of the sediment. The finer the sediment, the more the turbidity is increased. When turbidity is increased, dissolved oxygen (DO) levels tend to decline in the vicinity of dredging operations when the suspension of anoxic sediment creates high oxygen demand. This can compromise species survival in the area effected by the sediment plume. Given the anticipated length of the project (120 days), and that the project sites are situated in close proximity to one another along a defined reach of channel, it was considered that increased suspended sediment levels within the channel and adjacent sensitive intertidal areas for the duration of the project would be environmentally damaging and not acceptable. Cutter-suction pipeline dredging was therefore selected as the best technology available for the reduction of this anticipated and potentially significant impact. Conducting the project dredging within the winter months when turbidity levels at the dredge and disposal sites are naturally increased also reduces the overall effect of any dredge related turbidity, as the naturally increased background levels are not significantly elevated by the slight increase caused by dredging and disposal methods selected.

“Concentration of total suspended solids (TSS) vary with the material being dredged and by the type of dredge vessel. Gravel and sand settle out quickly, whereas silt may remain in suspension for several hours. The amount of sediments suspended by hydraulic cutterhead (to be used in this project) are vastly reduced compared to a clamshell dredge. Pipelines extending from the seafloor to the disposal site all but eliminate mid water and surface plumes. Suspended materials are restricted to the immediate vicinity of the cutterhead itself. Elevated suspended sediment concentrations are on the order of a few grams/liter within three (3) meters of a cutterhead dredge, and a few hundred milligrams/liter within 200 meters of the cutter.” (LP Corp. Samoa Terminal Reconstruction Project, HBHR&CD, 1994 and DEIS/EIR Humboldt Bay Harbor and Bay Deepening Navigational Study, April 1994, USACOE.

If the project dredge sites were unconfined wharf frontage, or within open water and possessing a coarse sediment composition, self-propelled hopper dredging coupled with ocean disposal would be the least environmentally damaging and most practical alternative. As described above, the current project is not physically or environmentally well suited for hopper-dredging and ocean disposal of the accumulated sediment.

Clamshell dredging was eliminated for similar reasons.

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- 1) Clamshell dredges are not capable of movement, or the removal sediment removal from within confined spaces, such as within the boat slips of marinas or from beneath floating docks.
- 2) Clamshell dredging creates significant amounts of suspended sediment at the dredge site when sediment is excavated and when it is deposited within a hopper or on a barge in preparation for transport to the designated disposal site.
- 3) Clamshell dredging is not an efficient means of dredging expansive areas such as the two marinas, which comprise 85% of project sediment and 89% of the project area (24 of the 27 acres).

Cutter-suction pipeline dredging was selected as the project alternative for the following reasons:

- 1) Cutter-suction pipeline dredging generates the least amount of suspended sediment within the Bay as the majority of suspended sediment is suctioned into the pipeline integrated into the cutterhead.
- 2) No decanting of dredged sediment occurs at the project site, significantly reducing dredge site water quality impacts.
- 3) Small cutter-suction pipeline dredges can maneuver in confined spaces and remove sediments from beneath structures. This permits efficient dredging and project grade control.

Another project alternative given consideration was to utilize a hopper barge in concert with a cutter-suction pipeline dredge so that the open ocean disposal site could be used. However, pumping the dredge material slurry to a hopper barge produces significant quantities of uncontrolled suspended sediment at the dredge sites as the spoils decant when the barge is filled. The effects of the sediment release would be nearly continuous for the 120 day duration of the project as operations are scheduled 24 hours per day, six days per week.

Disposal options were also equally considered both from an environmental and operational perspective. There are three (3) available options for spoils disposal, upland, beach and open ocean. Each option presents its own unique set of environmental and operational considerations.

Upland disposal of sediment proximal to Humboldt Bay was considered and discussed within project information submitted to the EPA. The Superbowl site, located west of the town of Fairhaven, was the only feasible site for upland disposal. The Superbowl site has been used in conjunction with past dredging projects and would be of sufficient size to contain the project material if grading and diking were permitted


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However, two endangered species of plant, Beach Layia and Menzies wallflower are known to exist at the site along with a freshwater marsh, established following previous activities. The large volume of saltwater pumped to the site with the dredged sediment was also considered to have potential significant effects upon the freshwater marsh and groundwater supplies of the Samoa Peninsula. The disposal pipeline route to the Superbowl site involves the submerged crossing of the Eureka and Samoa Channels. Not only is it costly to mobilize and demobilize the long sections of submerged line, but the crossing of the Samoa Channel may conflict with the proposed Humboldt Bay Deepening Project, sponsored by the USACOE and HBHR&CD, scheduled to begin in August of 1997.

Ocean disposal of the project sediment was eliminated as the primary alternative for the following reasons:

- 1) Preparing sediment for transport to the open ocean site, requires that it be pumped to a hopper barge or dredge. As discussed above, this will significantly compromise the water quality within Humboldt Bay proximal to the project sites for an extended period of time.
- 2) Independent economic evaluations of the three dredging and disposal methods were requested from several dredging contractors in order to qualify our pre-project economic evaluation. Two of the solicited contractors returned evaluations to our office. One evaluation focused upon self-propelled hopper dredging and clamshell/barge dredging coupled with open ocean disposal of sediments. Following review, this evaluation was rejected, as it involved the complete dismantling and reconstruction of the two marinas in order to effectively dredge the sediments. This presented an obvious list of logistical and operational concerns for the two marina operators
- 3) The second economic evaluation focused upon cutter-suction pipeline dredging with separate evaluation for each of the three (3) disposal options considered by this project. The enclosed evaluation estimates upland disposal at 141% of the proposed project cost estimate and open ocean disposal at 192% of the proposed project cost estimate (See enclosed Economic Evaluation by Nahalem River Dredging).

In conclusion, if it was clearly environmentally less impacting to transport the dredged sediment to the open ocean disposal site and if disposal of sediment was the only facet of the project given environmental consideration, it would be the selected disposal alternative. However, based upon a fair and subjective review of past projects and their accompanying environmental documentation as well as giving equal environmental considerations to all other aspects of the current proposal, project dredging and ocean disposal is not the least environmentally damaging alternative.

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
COASTAL CALIFORNIA FISH AND WILDLIFE OFFICE
1125 16TH STREET, ROOM 209
ARCATA, CA 95521
(707) 822-7201
FAX (707) 822-8136

April 22, 1997

In Reply Refer To:
PN 222150N & PN 222160N

Lieutenant Colonel Richard G. Thompson
District Engineer
Corps of Engineers, San Francisco District
Attention: Michael Lamprecht, Regulatory Branch
P.O. Box 4863
Eureka, California 95502-4863

Subject: Public Notice Nos. 222150N & 222160N, City of Eureka and Humboldt Bay Harbor District, Eureka Waterfront and Woodley Island Marina Maintenance Dredging, Humboldt Bay, Humboldt County, California

Dear Sir:

The Service has reviewed the Public Notice for Department of the Army permits numbered 222150N and 222160N that describes a combined application by the City of Eureka and Humboldt Bay Harbor District to conduct maintenance dredging along portions of the City's waterfront and the District's Woodley Island Marina. The U.S. Army Corp of Engineers (Corps) permit manager, Michael Lamprecht, has given the Service additional time beyond the required due date for this notice in order to allow for our completion of these comments. These comments have been prepared under the authority, and in accordance with the provisions, of the Fish and Wildlife Coordination Act.

SERVICE POLICY

When reviewing Corps' Public Notices, the objectives of the Service are: "Ensuring that all authorized works, structures, and activities are (1) judged to be the least ecologically damaging alternative or combination of alternatives (e.g., all appropriate means have been adopted to minimize environmental losses and degradations) and (2) in the public's interest in safeguarding the environment from loss and degradation." (Federal Register, Vol 40, No. 231, December 1, 1975). For impacts to wetlands and aquatic habitats, the Service's goal is no net loss of in-kind habitat values or acreage.

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Proposed Action

We understand that the proposed project would excavate approximately 67,155 cubic yards of dredge material from Eureka's waterfront at various docks and landings, and 120,000 cubic yards of material from the Woodley Island Marina in order to restore berthing depths for the various types of boats and vessels which use these facilities, and to give floating docks clearance during low tides. The project would be conducted by hydraulic dredge with attached pumping stations. Dredge spoils consisting of approximately 80 percent water and 20 percent solids, which are mostly silts, sands, and clays, would be pumped through a pipeline that crosses Humboldt Bay and the Samoa Peninsula (North Spit) and discharges onto the beach, subsequently flowing into the surf. The excavation is proposed to occur between December and April when increased run-off from winter storms is expected to elevate the turbidity of local rivers and hence that of nearshore ocean waters. Discharged dredge spoils are expected to temporarily cover an area of approximately 2 acres extending from 0 feet mean lower low water (MLLW) to just above the high tide line at +10.5 feet MLLW. The high energy surf zone is expected to readily disperse the discharged sediment and minimize the period of time that dredge spoils are stored on the beach.

Upon reviewing the Public Notice, the Service has identified several issues that raise our concern for project effects on fish and wildlife resources. We believe these issues warrant additional evaluation and alteration of the project proposal.

Based upon the description in the Public Notice we believe that the dredging of the marina and waterfront will have a negligible impact upon fish and wildlife and we do not object to this proposed action. However, the preferred method of spoils disposal on the North Spit raises the following concerns:

#1 (1) The results of past studies of this same disposal method on the nearshore beach environment were conducted in 1988 and are discussed in the public notice. Those studies indicate that beach disposal had a short-term impact upon marine invertebrate populations at the disposal site. However, rather than disburasing, the dredge spoils were covered by a layer of sand and remained in place beyond the four-month post-project monitoring period. Although marine invertebrate numbers in the sandy cover layer recovered to a density that was comparable to the study control site, invertebrates had not recolonized the muddy spoils layer under the sand by the end of the study. In addition to concerns about the disposal of the dredge materials themselves, precautionary testing should be conducted of all potentially dredged substrates to assure that hazardous materials are not released into the marine environment, but are disposed at appropriate upland sites.

#2 (2) The public notice assumes that the contribution of spoils discharge to local ocean turbidity will be negligible due to naturally high background turbidity that generally occurs during the period of proposed dredging and discharge of December through April. However, a dry winter, such as we experienced this year, could lead to a much greater localized impact upon turbidity from spoils disposal than expected. Further, turbidity in the immediate vicinity of the disposal site would likely exceed that which normally results from the run-off of local river systems.

Federally Listed Species

#3 The public notice identifies the beach layia (*Layla carnosa*), a federally listed endangered plant species as occurring in the vicinity of the location where the pipeline that carries dredge spoils from the Bay to the beach disposal site would cross the North Spit dune. The PN further states that the beach layia would not be affected by the project but does not justify this conclusion in the document. We have also determined that the federally-listed endangered plant known as Humboldt Bay wallflower (*Erysimum menziesii*), also occurs in the vicinity of the project, along with the federally-listed threatened western snowy plover, (*Charadrius alexandrinus nevosus*). We recommend that the Corps collect additional information about the occurrence of listed species in the vicinity of the project and determine whether any of these species will be affected by the

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proposed action. In the event that listed species are determined to be affected the Corps should initiate Section 7 consultation with the Service.

Alternative Disposal Options

#4
The Humboldt Open Ocean Disposal Site (HOODS) is identified as another viable disposal site for the dredge spoils. In light of the recent efforts to identify and develop this site for spoil disposal from other Humboldt Bay dredging projects, and in consideration of the 404(b) 1 guidelines, the HOODS alternative appears to be the preferred choice for uncontaminated dredge spoils disposal from this project since it appears to be both practicable and would have less adverse impact on the aquatic environment.

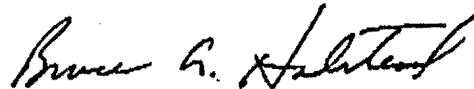
Conclusion

Based upon the information presented in the PN, the Service would recommend denial of the permit at this time. Our basis for this recommendation includes:

- (1) Unknown affects to listed species that occur in the area of the preferred disposal site.
- (2) Selection of beach disposal as the preferred alternative without sufficient justification. Especially when a spoils disposal method that would have fewer impacts upon the aquatic environment is available.


The Service is available to discuss our concerns with the Corps and the applicant if there are any questions regarding these comments. Please contact staff biologist Randy Brown at the letterhead address or phone number.

Sincerely,




Bruce G. Halstead
Project Leader

cc: ARD, FWS, Klamath/Central Pacific Coast, Portland, OR
FWS, Sacramento FO, Sacramento (attn: Betty Warne)
CDFG, Dir., Sacramento, CA
CDFG, Region 1, Reg. Mgr., Redding
CDFG, Eureka
CDFG, Menlo Park
EPA, Region IV, San Francisco
CRWQCB, North Coast Region, Santa Rosa
Ca. Coastal Comm., San Francisco
NMFS, Santa Rosa

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Humboldt Bay Harbor District / City of Eureka
Cooperative Dredge Project

AGENCY COMMENTS / APPLICANT RESPONSES
PN222150N & PN22160N

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Agency Comments: Fish & Wildlife Service
Letter dated April 22, 1997
Mr. Bruce Halstead

Responses: Pacific Affiliates (referenced to items numbered on agency response letter)

- #1. The minor retention of a layer of spoils, as entrained under a subsequent layer of sand was documented in 1988. In overall context, the area of such retention was aerially limited, and it is not at all likely that such material remained beyond the following winter. As part of the natural cycle, sands are moved off-shore from beaches during the winter, and carried back onto the beaches during the spring and summer.

The Samoa spit is a high energy regime and is capable of effectively dispersing spoils under most conditions, however, there are some variables and limitations, such as timing and volume of material. It is possible that the 1988 dredge project was conducted fairly late in the winter season (Feb 11 - Mar 24). The proposed project has a likely operational window between December 1 and March 15, which may allow more complete dispersion, depending on the actual start date, and actual weather/sea conditions for that season at the Samoa dispersion area. The actual start date may be somewhat at the discretion of the RWQCB.


This area was also used for the disposal of 1.8 mcy of Woodley Island Marina dredge spoils in 1977. Prior to the 1988 project, a baseline survey of this area by Newton & Associates indicated that the site infaunal communities were normal relative to comparative sites elsewhere along the Humboldt County coastline. This does not indicate adverse long-term effects. Other studies conducted by the Oceanographic Department of Humboldt State University pursuant to Louisiana Pacific's discharge line of Samoa indicates that while the sediment substrates and faunal communities appear to remain fairly constant in some years, significant changes in both can occur in both periodically as a result of major flood and/or storm events. Sediment influx from the Eel and Mad river systems, and general storm effects, are major variables inherent to the natural cycle of this areas. Any temporary effects from previous or proposed dredge spoils dispersion are not at all dissimilar to that cycle, and in comparison, are not of a scale, in volume or frequency, that would be considered significant within the natural context.

The proposed dredge sediments were sampled and analyzed (Pacific Affiliates Report, 9/96). The chemical analysis does not indicate that any of this material is "hazardous". While it has been suggested that this material is suitable for "open aquatic disposal" in the HOODS site, it is not clear why it should be considered unsuitable for "open aquatic disposal" in the surf zone of the Samoa spit. While the spit area does support burrowing fauna and beach insects, the fish population of the high energy surf zone is very limited and transitory.

2. The FWS quotes December - April as the project window. The project window will likely be November - March 15, which will more effectively utilize the winter season window and will accommodate avoidance/mitigation for several federally listed species noted along portions of the proposed overland pipeline route. This window is important insofar as natural turbidity and dispersion. Such effects, including the high energy of the surf zone, may vary in annual intensity, but still remain significant. The annual average wave plunge in this area, that depth to which waves will impinge upon the bottom sediments, is ten meters, ranging from 9 to 11 meters. This action, combined with tide cycles, will insure significant suspension and dispersion across a vary wide area, especially for finer grained materials. Whether the winter turbidity in the project year is relatively high or low is a significant consideration, however, of more importance is the fact that seasonal turbidity is cyclical to this area and that which may be induced by the proposed project does not represent a significant variance to the natural inherent conditions.


- #3 Federally Listed Species - This project includes identification and compensatory mitigation concerning three federally listed species which have been found to occur in dune areas which are to be crossed by the temporary spoils pipeline. The procedures for the avoidance and/or mitigation of these species have been explored, and the incorporation of effective procedures is being addressed. Please note the attached "Special Conditions" recommended by the USFWS in consultation with the USACE dated 5-8-97. Condition #1 will serve to protect the snowy plover habitat (west of the utility road) by the completion of operations prior to the nesting and breeding season. The plant species have been identified in areas along the proposed pipeline route, and such areas will need to be re-surveyed prior to actual operations, as included in the attached conditions, which also iterates the avoidance/mitigative/compensatory measures to be employed.

- #4 Alternate Disposal Options - As discussed in detail below, the HOODS site is not economically practical for this project. Disposal at the HOODS site is also not necessarily considered to be environmentally superior in an overall sense inasmuch as the use of a hopper dredge for transport to HOODS would increase dredge area turbidity effects within the confines of Humboldt Bay. Turbidity effects within

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the confines of Humboldt Bay may be at a minimum during the CORPS annual channel dredging projects, however, that operation typically involves the removal of predominantly sandy material from the bay channels, and transport of such materials by hopper dredge. This proposed project necessarily involves the removal of predominantly fine-grained sediments from inner harbor areas which are in the lower-mid tidal zones, and are located in the upper reaches of the Bay. The unnecessary generation of turbidity in and near these work areas should be avoided due to the proximity of more sensitive shallow water environments which include eel grass beds, and in the Arcata Bay, commercial oyster beds. Turbidity effects in and near these areas should be held to an absolute minimum, as provided by the cutter-suction dredge methodology.

It does not appear reasonable to significantly increase turbidity effects within the bay in order to attain open "unconfined aquatic disposal" at the HOODS site via hopper dredge, as weighed against the option of minimal turbidity generation within the bay by cutter-suction-pipeline transport to the Samoa spit surf zone dispersion site. Assuming that the impacts at either "unconfined aquatic" disposal sites are about equal, the logic is unavoidable.

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