CALIFORNIA COASTAL COMMISSION

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T14h

Extension Denied:	8/8/06
180th day from Extension Denial:	2/4/07
Staff:	Meg Vaughn- LB
Staff Report:	11/16/06
Hearing Date:	12/12-15/06
Commission Action:	

STAFF REPORT: REGULAR CALENDAR

APPLICATION NUMBER: 5-06-438

APPLICANTS: See Table Below.

PROJECT LOCATIONS: See Table Below, Huntington Beach, Orange County

AGENT: Tetra Tech, Inc.: Natalie Chan, Fernando Pagés, and Sarah McFadden

Daniels, Douglas & La Rae	3602 Venture Drive, Trinidad Island
Dauger, Alan B.	3582 Venture Drive, Trinidad Island
Rayhan, Syrus	3612 Venture Drive, Trinidad Island
Goss, Joseph & Janice	16691 Carousel Lane, Humbolt Island
Vaughan, John C. & Sandra K.	16731 Carousel Land, Humbolt Island

PROJECT DESCRIPTION: Repair and enhancement of existing bulkhead/seawall more specifically described on pages 7 and 8 of this report.

LOCAL APPROVAL: City of Huntington Beach Approval in Concept; Negative Declaration No. 00-05.

SUMMARY OF STAFF RECOMMENDATION

The major issue of this staff report is the imposition of special conditions addressing plastics. At the Commission's August 2006 hearing, the Commission denied permit extensions because the applicants had not addressed concerns regarding the use of plastics in the marine environment. Upon denial of a permit extension request, the Commission must review the applications de novo ("a new"). Staff is recommending approval of the development with special conditions that address the plastics issue. Special condition 7 requires that the applicants submit an amendment or new coastal development permit application if, in the future, environmentally superior alternatives to the proposed plastic bulkhead become available. Staff is also recommending special condition 8 which requires that the applicant monitor the plastic sheetpile bulkhead at least every other year to ascertain whether any deterioration has occurred. These special conditions are necessary to assure that the proposed project is consistent with the marine resource protection policies of the Coastal Act. The applicants object to these two special conditions regarding plastic.

Staff is also recommending seven other special conditions which require 1) compliance with the plans as submitted; 2) a requirement that the applicant comply with construction responsibilities and debris removal measures; 3) compliance with the proposed eelgrass mitigation plan and preparation of pre- and post- construction eelgrass surveys; 4) pre-

construction caluerpa taxifolia surveys; 5) compliance with the soft bottom habitat mitigation plan; and, 6) that approval of the permit does not constitute a waiver of any public rights that may exist at the site, and 7) a requirement for an anchor management plan.

See below for the motion.

SUBSTANTIVE FILE DOCUMENTS: City of Huntington Beach Approval in Concept; Negative Declaration No. 00-05.

STAFF RECOMMENDATION:

The staff recommends that the Commission adopt the following resolution to **APPROVE** the coastal development permit application with special conditions:

MOTION: *"I move that the Commission approve with special conditions Coastal Development Permit 5-06-438 per the staff recommendation."*

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

I. Resolution: Approval with Conditions

The Commission hereby **APPROVES** a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. Standard Conditions

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 this permit is reported to the Commission. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

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

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

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

III. Special Conditions

1. Compliance With Plans Submitted

The permittee shall undertake development in strict conformance with the proposal and plans as set forth in the application for permit, subject to any special conditions set forth in this coastal development permit approval. Any proposed changes to or deviations from the approved plans shall be reported to the Executive Director. No changes to the approved plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

2. Construction Responsibilities and Debris Removal

The permittee shall comply with the following construction-related requirements:

(a) No construction materials, debris, waste, or oils and liquid chemicals shall be placed or stored where it may be subject to wave erosion and dispersion;
(b) Any and all debris resulting from construction activities shall be removed from the site within 10 days of completion of construction;
(c) No machinery or construction materials not essential for project improvements shall be allowed at any time in the intertidal zone;
(d) Sand from the beach, cobbles, or shoreline rocks shall not be used for construction material;
(e) In order to control turbidity a geotextile fabric shall be installed in the area where the toe stone will be placed prior to placement of the toe stone;
(f) Toe stone shall be placed, not dumped, using means to minimize disturbance to bay sediments and to minimize turbidity;
(g) If turbid conditions are generated during construction a silt curtain shall be utilized to control turbidity.

3. Eel Grass Mitigation

A. Compliance with Eelgrass Mitigation Plan. The applicant shall implement and comply with the recommendations and mitigation contained within Eelgrass Mitigation Plan, Revised January 2006, Huntington Harbour Bulkhead Repair Project, prepared by Tetra Tech., Inc. as it pertains to the development that is the

subject of this coastal development permit. The mitigation plan shall be undertaken in full compliance with the "Southern California Eelgrass Mitigation Policy" Revision 8 (except as modified by this condition) adopted by the National Marine Fisheries Service. Any changes to the approved mitigation plan, including but not limited to changes to the monitoring program to ensure success of the eelgrass mitigation site, shall require an amendment to this permit from the Coastal Commission or written concurrence from the Executive Director that the changes do not require a permit amendment.

B. Pre-construction Eelgrass Survey. A valid pre-construction eelgrass survey shall be completed during the period of active growth of eelgrass (typically March through October). The pre-construction survey shall be completed prior to the beginning of construction and shall be valid until the next period of active growth. The survey shall be prepared in full compliance with the "Southern California Eelgrass Mitigation Policy" Revision 8 (except as modified by this condition) adopted by the National Marine Fisheries Service and shall be prepared in consultation with the California Department of Fish and Game. The applicant shall submit the new eelgrass survey for the review and approval of the Executive Director within five (5) working days of completion of the new eelgrass survey and in any event no later than fifteen (15) working days prior to commencement of construction. If the new survey identifies, within the proposed project area, any eelgrass which is not documented in the eelgrass survey described in Special Condition No. 3.A. above, the newly identified eelgrass shall be transplanted prior to commencement of construction at a 1.2:1 ratio at the same transplantation locations identified in the eelgrass mitigation plan described in Special Condition No. 3.A. above. The transplantation shall occur consistent with all provisions of the mitigation plan described in Special Condition 3.A.

C. Post-construction Eelgrass Survey. After completion of project construction, the applicant shall survey the project site to determine if any eelgrass was adversely impacted. This post-construction survey shall be completed in the same month as the pre-construction survey during the next growing season immediately following the completion of construction within coastal waters. The survey shall be prepared in full compliance with the "Southern California Eelgrass Mitigation Policy" Revision 8 (except as modified by this condition) adopted by the National Marine Fisheries Service and shall be prepared in consultation with the California Department of Fish and Game. The applicant shall submit the post-construction eelgrass survey for the review and approval of the Executive Director within thirty (30) days after completion of the survey. If the new survey identifies, within the proposed project area, any eelgrass impacts which is not documented in the eelgrass surveys described in Special Conditions No. 3.A and 3.B above, the newly identified eelgrass impacts shall be mitigated by the applicants at a 1.2:1 ratio at the same locations identified in the eelgrass mitigation plan described in Special Condition No.3.A. above and in accordance with the mitigation plan described in Special Condition No. 3.A. above.

4. Pre-Construction Caulerpa taxifolia Survey

A. Not earlier than 90 days nor later than 30 days prior to commencement or re-commencement of any development authorized under this coastal development permit (the "project"), the applicants shall undertake a survey of the project area and a buffer area at least 10 meters beyond the project area to determine the presence of the invasive alga *Caulerpa taxifolia*. The survey shall include a visual examination of the substrate.

B. The survey protocol shall be prepared in consultation with the Regional Water Quality Control Board, the California Department of Fish and Game, and the National Marine Fisheries Service.

C. Within five (5) business days of completion of the survey, the applicants shall submit the survey:

i. for the review and approval of the Executive Director; and

ii. to the Surveillance Subcommittee of the Southern California Caulerpa Action Team (SCCAT). The SCCAT Surveillance Subcommittee may be contacted through William Paznokas, California Department of Fish & Game (858/467-4218) or Robert Hoffman, National Marine Fisheries Service (562/980-4043), or their successors.

D. If *Caulerpa taxifolia* is found within the project or buffer areas, the applicants shall not proceed with the project until 1) the applicants provide evidence to the Executive Director that all *C. taxifolia* discovered within the project area and all C. taxifolia discovered within the buffer area have been eliminated in a manner that complies with all applicable governmental approval requirements, including but not limited to those of the California Coastal Act, or 2) the applicants have revised the project to avoid any contact with *C. taxifolia*. No revisions to the project shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

5. Compliance with Soft Bottom Habitat Mitigation Plan

The applicant shall implement and comply with the recommendations and mitigation contained within *Soft Bottom Mitigation Plan, Humboldt Island and Trinidad Island Bulkhead Repair Project, Huntington Beach, California* dated April 2000 prepared by Tetra Tech, Inc. of Pasadena, California as they pertain to the development that is the subject of this coastal development permit. The proposed soft bottom mitigation shall be implemented prior to or concurrent with the proposed bulkhead repair and enhancement. Any changes to the approved mitigation plan, including but not limited to changes to the monitoring program to ensure success of the mitigation site, shall require an amendment to this permit from the Coastal

Commission or written concurrence from the Executive Director that the changes do not require a permit amendment.

6. Public Rights

The Coastal Commission's approval of this permit shall not constitute a waiver of any public rights that exist or may exist on the property. The permittee shall not use this permit as evidence of a waiver of any public rights that may exist on the property.

7. Bulkhead Monitoring Plan

1. The permittees shall maintain the bulkhead reinforcement in good condition throughout the life of the development. **PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT**, the applicants shall submit a Monitoring Plan, for the review and approval of the Executive Director. The permittees, and their successors in interest shall be responsible for carrying out all provisions of the approved Monitoring Plan for as long as the bulkhead reinforcement remains in place. The monitoring plan, at a minimum, shall provide for:
    a. Regular inspections by a licensed engineer. These inspections shall be performed at least every 2 years.
    b. The inspections shall examine the exposed portions of the bulkhead reinforcement (to the mud line) for signs of weakness or possible failure, including, but not limited to cracking, bending, splitting, splintering, or flaking. All weak or potential failure areas should be marked on an as-built plan of the bulkhead reinforcement, and there should be photographs and text to explain the nature and extent of each weakness.
2. Inspection reports shall be prepared and conveyed to the Executive Director within 30 days of the inspection work. These reports shall provide information on and photographs from the date of the inspection, the name and qualifications of the person performing the inspection, and an overall assessment of the continued integrity of the bulkhead reinforcement. If the inspection identifies any areas where the bulkhead reinforcement has been damaged, the report shall identify alternatives to remedy the damage.
3. In the event that any sections of the bulkhead reinforcement are damaged or flaking, the permittees shall notify the Commission within 10 days; and in such event, within 30 days of such notification, submit to the Commission a complete application for any coastal development permit amendment, or new permit, necessary for the repair or replacement of the bulkhead reinforcement.

8. Alternatives to Plastic

By acceptance of this permit, the applicant agrees to submit an application for an amendment to this permit or a new coastal development permit if new information becomes available that indicates that plastic has harmful effects on the marine environment, and that environmentally superior, feasible alternative(s) are available. The amendment or new coastal development shall include measures to eliminate or significantly reduce the adverse impacts of the plastic including, if necessary, the replacement of the bulkhead.

9. Anchor Management Plan

A. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit, for the review and approval of the Executive Director, a plan for the avoidance of adverse impacts upon eelgrass due to the placement of anchors utilized by barges in construction of the proposed project. The plan shall be prepared by a qualified professional and shall include the following:

1. The plan shall demonstrate that the use of anchors by barges utilized in the proposed project will avoid impacts upon eelgrass beds.

2. The plan shall include, at a minimum, the following components: a map showing the proposed location of barges and anchors with respect to existing eelgrass beds.

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

IV. Findings and Declarations

The Commission hereby finds and declares:

A. Project Description

The proposed project includes repair and enhancement of existing bulkheads/seawalls. The subject properties front on the waters of Huntington Harbour. The developments are located on Humbolt and Trinidad Islands within Huntington Harbour, City of Huntington Beach, Orange County (Exhibit 1). Humbolt and Trinidad Islands are artificial islands surrounded by cast in place, concrete seawall/bulkheads constructed in the 1960's. The islands are developed primarily with single family residences. The majority of development in Huntington Harbour is dependant upon these types of bulkheads. The existing bulkhead systems in Huntington Harbour were all constructed at approximately the same time using a similar design. Therefore, the problems with the bulkheads encountered on Trinidad Island are similar to those experienced on Humboldt Island.

The proposed project consists of the repair and enhancement of existing bulkheads. The repairs and enhancements will entail replacing portions of the timber pile foundation supports with steel jacks, installing a sheet pile 1 foot 7 inches seaward of the existing bulkhead and filling the voids between the bulkhead and sheet pile, and under the bulkhead and around the jacks with concrete and grouting. In addition, rock slope protection (a.k.a. toe stone) will be placed at a 2(h) to 1(v) slope seaward of the existing bulkhead. A layer of geotextile fabric will be placed beneath the proposed toe stone to prevent the toe stone from sinking into the bay mud (Exhibit 2). The proposed slope protection toe stone will consist of 8-inch diameter or less quarry waste with a mixture of particles ranging from sand to stones less than 8 inches in diameter. The applicants' coastal engineer has stated that this type of toe stone will not migrate or accrete to other areas under the hydrodynamic conditions at the subject site (see Appendix A for reference to engineering study). Therefore, the proposed solution will not replicate the problems associated with the previous protective toe stone structure.

The length of bulkhead involved at each property varies as does the length of sheet pile installed, the quantity of toe stone to be placed, and the width of the proposed toe stone from the existing bulkhead.

Applicant	Site Address	Bulkhead Length (ft)	Sheet Pile Length (ft)	Qty Toe Stone (CY)	Width of Toe Stone (ft)	Temp. Toe Stone Impact (sq. ft.)	Soft Bottom Impacted (sq. ft.)	Soft Bottom Mitigated (sq. ft.)
Daniels	3602 Venture	60	14	8	6	342	14.5	29
Dauger	3582 Venture	60	6	16	6	324	6.2	12.4
Rayhan	3612 Venture	60	15	11	6	360	15.6	31.2
Goss	16691 Carousel	50	50	22	9	450	51.9	103.8
Vaughan	16731 Carousel	87	60	38	8.25	718	62.3	124.6

The sheet pile and concrete/grout backfill between the sheet pile and bulkhead will permanently impact soft bay bottom habitat in the project area. The applicant has mitigated the loss of the soft bottom habitat by restoring a tidal mud flat near the intersection of Pacific Coast Highway and Warner Avenue in the Bolsa Chica Ecological Reserve (Exhibit 1). The applicants have completed the necessary soft bottom habitat mitigation pursuant to coastal development permit No. 5-01-020 (Tetra Tech).

The proposed bulkhead repair and enhancement is necessary to protect the existing bulkhead and the residential structures landward of the bulkhead. The existing bulkheads are reinforced concrete cast in place structures supported on vertical and battered (i.e. angled) timber piles built in the 1960's. The applicant has stated that this bulkhead was designed with toe stone placed seaward of the footing at a slope of 3(h) to 1(v). Due to the

size and weight of the formerly present toe stone, the protective stones have either sunk into the bay mud or migrated away from the bulkhead. In absence of the toe stone, the unconsolidated fine silty and sandy sediments have easily eroded due to tidal currents, propeller wash from recreational boats, maintenance dredging, and the activity of burrowing fish (e.g. the specklefin midshipman).

B. Standard of Review

The City of Huntington Beach Local Coastal Program ("LCP") is effectively. However, the proposed projects are located seaward of the mean high tide line and thus are within the Coastal Commission's original permit jurisdiction area. Therefore, pursuant to Section 30519 of the Coastal Act, the standard of review is the Chapter 3 policies of the Coastal Act. However, the certified LCP may be used for guidance in evaluating the proposed project for consistency with the Chapter 3 policies of the Coastal Act.

C. Project Background

The proposed bulkhead repair projects were originally approved by the Commission under coastal development permits 5-99-032 and 5-00-390. As a condition of approval of those permits, the applicants were required to provide, prior to issuance of the permit, evidence of an approved and valid coastal development permit for the implementation of the eelgrass mitigation plan. That condition was never met and the permits were never issued.

Extension requests for coastal development permits 5-99-031, 5-99-032, 5-00-390 and 5-00-401 were requested by the project applicants. However, each of those permits included some sites which proposed to use polyvinyl chloride (PVC) plastic sheet piles. Because of the Commission's concern regarding adverse impacts potentially caused by the use of plastic in the marine environment, the extension requests were denied at the Commission's August 8, 2006 hearing. Since that action, the project sites have been re-grouped based on project impacts. The project sites that are included in this application do propose to use plastic sheet pile that will displace soft bay bottom habitat, and are expected to adversely impact eelgrass. Special Condition 3 requires that the Eelgrass Mitigation Plan be implemented as proposed and also requires pre- and post- construction eelgrass surveys. Special Conditions 7 and 8 require monitoring of the plastic sheetpile and consideration of alternatives to plastic should such alternatives become available in the future. These conditions will address concerns regarding eelgrass impacts and the use of plastic in the marine environment.

D. Shoreline Protective Devices

Section 30235 of the Coastal Act states:

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

marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.

The proposed development involves structural reinforcements to protect an existing bulkhead necessary to protect existing homes. Trinidad and Humbolt Islands are located in Huntington Harbour. At the subject sites the slope seaward of the bulkhead has eroded, creating a gap between the footing of the bulkhead and the bottom of the harbor floor. This has allowed water to enter behind (i.e. landward of) the bulkhead and undermine the bulkhead foundation. Further, the gap and erosion has exposed the bulkhead's supporting timber piles to deterioration from burrowing marine organisms. Damage to the supporting timber piles has caused the bulkhead to begin to collapse in certain areas. In other areas, the timber piles have not yet been extensively damaged, but will deteriorate over time causing those areas to collapse. If protective measures are not implemented at this stage, additional damage to the bulkhead would result, causing failure of the bulkhead and damage to the structures landward of the bulkhead. The proposed development is designed to shore the existing bulkhead, repair the damage, and prevent similar deterioration in the future.

The proposed project involves the fill of coastal waters with a sheet pile, concrete/grout backfill between the sheet pile and the bulkhead, and with toe stone. The purpose of the proposed fill is to protect existing structures, which is not one of the eight allowable uses enumerated under section 30233 of the Coastal Act. However, as stated in the policy above, section 30235 of the Coastal Act requires the Commission to approve revetments and other similar structures provided that such structures are for the purpose of protecting existing structures and provided that the structures are designed to eliminate or mitigate adverse impacts on local shoreline sand supply. The proposed structure is for the purpose of protecting existing structures. In addition, the proposed project is occurring within an urban harbor at a location isolated from the nearest open coastal shoreline and longshore littoral sand transport mechanisms. The proposed sheet pile and backfill have been designed to minimize the amount of fill of coastal waters. Furthermore, bathymetric conditions were evaluated at the site in order to establish the minimum amount of toe stone necessary to protect the bulkhead and to minimize the amount of soft bay bottom covered which may contribute to shoreline sand supply. Therefore, in this case, by minimizing the area of soft bay bottom covered, the proposed project mitigates adverse impacts on local shoreline sand supply. Accordingly, the proposed project is approvable under section 30235 of the Coastal Act rather than section 30233 of the Coastal Act.

The applicant's coastal engineer indicates that the proposed project is the least environmentally damaging feasible alternative. Section 30108 of the Coastal Act states that "feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors. Alternatives considered were: 1) no project; 2) soft bottom fill; 3) placement of cement slurry to form a protective concrete shield; 4) placement of course rock; 5) installation of a deepened plastic sheet pile which would extend below the depth of scour, instead of the proposed toe stone, to prevent the formation of voids underneath the bulkhead; 6) landward placement of a sheetpile; and 7) minimizing the amount of toe stone placed in front of the bulkhead.

According to the applicant, the no project alternative would not be the least environmentally damaging feasible alternative because without the project the bulkhead at the subject site would loose structural integrity, causing the bulkhead to fail. If the bulkhead were allowed to fail, it would collapse into the harbor. Debris from the collapsed bulkhead would likely fall upon sensitive marine habitat resulting in impacts upon that habitat. In addition, sediment released from behind the collapsed bulkhead would enter the water column causing turbidity and potentially smothering eelgrass beds which exist in the general project vicinity. Furthermore, debris from the collapsed bulkhead would result in the fill of coastal waters, covering soft bottom habitat. The proposed project would have less impact than the no project alternative because impacts upon eelgrass and any permanent impacts upon soft bottom habitat will be controlled and mitigated under the proposed project while such impacts from the no project alternative would be uncontrolled and much more extensive.

The second alternative is to use soft bottom fill to fill in the gap forming at the base of the bulkhead/seawall. Such soft bottom fill could come from dredging projects undertaken in the harbor, similar to the routine dredging projects in Newport Bay which dispose of suitable dredge material in front of the bulkheads in Newport Bay to protect those bulkheads. In Newport Bay, the bulkheads are designed without the type of timber pile foundation that was used in Huntington Harbor and which must be protected using toe stone. Unlike in Huntington Harbour, the bulkhead/seawalls in Newport Bay are not reliant upon a protective swath of toe stone. Therefore, the use of soft bottom fill in Newport Bay provides adequate protection to the bulkhead. Meanwhile, the threat of damage to the bulkhead/seawall system in Huntington Harbour due to erosion and undermining is much greater at the project sites than in Newport Bay due to the differences in the design of the bulkhead systems in each harbor. The bulkheads in Huntington Harbour were designed with timber piles which provide the foundation for the concrete bulkhead/seawall. A protective swath of toe stone at the base of the bulkhead/seawall was part of the design. The protective toe stone is necessary to ensure that soil does not erode from around the timber pilings exposing them to marine boring organisms. The applicant has stated that the soft bottom fill alternative is not a feasible solution in Huntington Harbour because it would replicate the existing condition. Once placed against the footing, erosive forces would rapidly erode the unconsolidated fine silty and sandy sediments in the same fashion that the existing sediment has eroded. In addition, if soft bottom fill were used to protect the subject sites, re-nourishment of the soft bottom fill would need to occur frequently. This frequent re-nourishment would cause frequent disturbance to marine habitat and any eelgrass which may exist in the vicinity of the project site. Whereas, the use of toe stone is anticipated to provide protection for several decades, thus reducing the frequency of disturbance to the site. Therefore, the proposed solution is less environmentally damaging than the second alternative. Furthermore, the placement of soft bottom fill only would not provide the shoring that is necessary to stabilize the existing bulkhead.

The third alternative, placement of cement slurry for slope protection, would not be less environmentally damaging than the proposed solution. It is anticipated that the proposed toe stone will provide a suitable substrate for colonization by marine organisms. In addition, over time it is anticipated by the applicant that sediment will settle upon the proposed toe stone. Providing that there is adequate sunlight it is also anticipated by the applicant that conditions may allow colonization of the toe stone by eelgrass. However,

the use of a cement slurry for slope protection would not provide a suitable substrate for colonization by marine organisms. Therefore, the proposed solution is less environmentally damaging than the third alternative. Furthermore, the placement of cement slurry only would not provide the shoring that is necessary to stabilize the existing bulkhead.

The fourth alternative, placement of course rock only, would also have greater environmental impact than the proposed solution. The placement of course rock, instead of the proposed mixture of 8-inch diameter or smaller quarry waste, would replicate the problems associated with the previous protective structure. Due to the presence of unconsolidated fine silty bay mud and existing hydrodynamic conditions, course rock would tend to sink into the bay mud or migrate from the slope targeted for protection. Accordingly, the course rock would need to be replaced over time, with the attendant construction related impacts upon the marine environment. Therefore, the proposed solution is less environmentally damaging than the fourth alternative. Furthermore, the placement of course rock only would not provide the shoring that is necessary to stabilize the existing bulkhead.

The fifth alternative, placement of a deepened sheet pile in place of the proposed shallower sheet piles and toe stone, is not feasible for several reasons. First, deepened sheetpiles would intersect the existing battered (i.e. angled) timber piles which angle seaward under the bulkhead below the harbor floor, cutting into those support piles (see Exhibit 2 for view of existing bulkhead and timber pile configuration). To avoid this, the deepened sheetpile would have to be located substantially seaward in order to avoid intersecting the battered timber piles. The proposed shallower sheet pile minimizes the seaward encroachment of the structure to 1 foot 7 inches seaward of the footing of the existing bulkhead. This distance is the minimum necessary to clear the footing and to provide structural mass to shore the existing bulkhead. Second, PVC sheetpiles are not long enough to extend deep enough into the harbor bottom. Steel sheetpiles which are long enough would be more difficult to install at this site than the PVC sheetpiles and the steel would be subject to corrosion. Although corrosion of the steel could be addressed, the difficulty of installing the heavier steel piles would lead to more significant construction impacts than that involved with the PVC sheetpiles. Therefore, the fifth alternative is not a feasible solution to the present problem nor is it the least environmentally damaging alternative.

The sixth alternative would involve the installation of a sheetpile landward of the face of the existing bulkhead and then removing the portion of the existing bulkhead seaward of the newly installed sheet pile. The applicant has stated that this alternative is not technically feasible because the foundation slab for the existing bulkhead extends at least 10 feet landward of the face of the existing bulkhead to a point underneath existing patios and houses which are built upon the lot. If a sheet pile were installed landward of the existing bulkhead the sheet pile would need to penetrate through the foundation slab of the existing bulkhead. First, a plastic or steel sheet pile is not strong enough to penetrate the concrete foundation slab of the bulkhead. In addition, even if a strong material could be found to penetrate the concrete foundation slab, the portion of the existing bulkhead seaward of the newly installed sheet pile would loose structural integrity and collapse into the harbor. Any methods used to temporarily stabilize the bulkhead seaward of the sheet pile would require

the placement of structures in the water, resulting in impacts similar or greater than the proposed project. Therefore, the sixth alternative is neither technically feasible or the least environmentally damaging feasible alternative.

The seventh alternative, which is the proposed project, is to minimize the impact of the proposed design by minimizing the seaward encroachment of the bulkhead and by minimizing the amount of toe stone placed in front of the bulkhead. Minimizing the seaward encroachment of the bulkhead and the width of the toe stone from the bulkhead also minimizes permanent impacts upon soft bottom habitat and eelgrass in the project vicinity. In addition, the applicant is proposing to mitigate for the loss of soft bottom habitat. Therefore, the proposed project is the least environmentally damaging feasible alternative.

The proposed bulkhead repair and reinforcement is necessary to protect an existing bulkhead and single family residences. In addition, the proposed development mitigates adverse impacts upon shoreline sand supply and is the least environmentally damaging feasible alternative. Therefore, the Commission finds that the proposed project is consistent with Section 30235 of the Coastal Act.

E. Marine Habitat

Section 30230 of the Coastal Act states:

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

Section 30231 of the Coastal Act states:

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

Huntington Harbour is hydrologically connected to Anaheim Bay National Wildlife Refuge to the north and Bolsa Chica Ecological Reserve to the south. Coastal Act Section 30230 requires that marine resources be maintained, enhanced, and where feasible, restored and provides special protection to areas and species of special biological or economic significance. Coastal Act Section 30231 further requires that the biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health

be maintained and, where feasible, restored. The Commission considers Anaheim Bay National Wildlife Refuge and Bolsa Chica Ecological Reserve to be unique and important coastal wetlands and finds that any development proposed within the connected Huntington Harbour must be undertaken in such a manner to avoid impacts that would significantly degrade the biological productivity and quality of these connected coastal waters and wetlands. Furthermore, the waters of Huntington Harbour are used extensively for boating, and to a lesser degree fishing. Thus, it is important that the proposed project protect the health of recreational users of these waters consistent with Section 30231.

1. Soft Bottom Habitat

The proposed development is occurring in the waters of Huntington Harbour. Except at extreme low tides, the development area would be underwater. The proposed project will result in the coverage of unvegetated soft bottom habitat. Placement of the rock slope protection against the toe of the bulkhead will result in temporary soft bottom impacts. These soft bottom areas contain infaunal clam beds consisting of wavy chione, California chione, and common littlenecks. The applicant estimates that while the toe stone will bury the existing soft bottom habitat and clam beds, the toe stone will be re-colonized naturally by marine organisms within three to five years.

The California Department of Fish and Game (CDFG) has reviewed the proposed development. In their memorandum to Commission staff dated July 6, 1999 regarding the project at Humboldt Island, CDFG stated that the proposed impact upon unvegetated soft bottom habitat will be short term and will not be significant (see Exhibit 4). Another letter from CDFG dated August 31, 2000, states that the applicants proposed mitigation will be adequate to address project impacts. Further, the subject site is not designated in the certified local coastal program as an environmentally sensitive habitat area. Finally, since the proposed toe stone will be placed at a slope of 2(h):1(v) rather than the 3(h):1(v) present in the original bulkhead design, there will be less toe stone covering the soft bay bottom with the repaired bulkhead than there was with the original design.

In addition to the temporary impact upon soft bottom caused by placing the toe stone, the proposed project will have permanent impacts upon soft bottom habitat resulting from the installation of the sheet pile and backfilling the gap between the sheetpile and bulkhead with concrete and grout.

The applicants have completed mitigation for the permanent loss of this soft bottom habitat arising from the proposed project. The completed mitigation plan is contained within the document submitted with the application titled *Soft Bottom Mitigation Plan, Humboldt Island and Trinidad Island Bulkhead Repair Project, Huntington Beach, California* dated April 2000 prepared by Tetra Tech, Inc. of Pasadena, California. The mitigation site is located near the corner of Pacific Coast Highway and Warner Avenue within the Bolsa Chica Ecological Reserve approximately 1 mile southwest of the proposed impact area at Trinidad and Humboldt Islands.

The soft bottom habitat mitigation project was approved under coastal development permit 5-01-020 (Tetra Tech, Inc.) which allowed the restoration of 5,358 square feet of wetlands including removal of concrete and debris, grading to match elevation of adjacent wetlands,

replacement of two 15 inch pipes with 18 inch pipes to improve tidal exchange, and placement of 30.52 square feet of rip rap for erosion control which will fill 30.52 square feet of wetland. Of the 5,358 square foot figure, 2,136 square feet were allowed as a mitigation "bank" to be applied for wetland impacts which may occur under future bulkhead repair projects. In addition, 61 square feet of the 5,358 square feet was applied to off set fill impacts caused by the mitigation itself. The remaining square footage of the mitigation site was applied to impacts created by bulkhead reinforcements on Humboldt Island [5-98-179, 5-98-201, 5-98-443, 5-98-444, 5-99-031, 5-99-032, 5-99-108, 5-99-473] and Trinidad Island [5-00-389 and 5-00-390]. Note that although the soft bottom habitat necessary to mitigate all of the projects listed above, approved coastal development permits 5-99-031, 5-99-032, 5-00-390, and 5-00-401 were not issued due to unmet eelgrass special conditions. Those permits expired when the Commission denied their extension requests at the August 8, 2006 hearing. The projects included under those permits have been re-grouped into the following coastal development permit applications: 5-06-436, 5-06-437, 5-06-438 and 5-06-439. Thus all the soft bottom habitat mitigation for each of these projects was included in the project approved and constructed under coastal development permit 5-01-020.

The mitigation program includes a five year monitoring period, with yearly monitoring and reporting during that period. In conjunction with coastal development permit 5-01-020, the soft bottom mitigation plan was reviewed and approved by the California Department of Fish and Game (4).

The proposed and completed soft bottom habitat mitigation is necessary to mitigate permanent losses of soft bottom habitat arising from the proposed project. Therefore, the Commission imposes Special Condition 5 which requires the applicants to implement the proposed soft bottom mitigation plan. This special condition is necessary to make clear that the proposed development can only be found to be consistent with the Coastal Act if soft bottom habitat impacts are mitigated. The special condition clearly ties the proposed project to the mitigation project that has already occurred.

2. Eelgrass

Eelgrass (Zostera marina) is an aquatic plant consisting of tough cellulose leaves which grows in dense beds in shallow, subtidal or intertidal unconsolidated sediments. Eelgrass is considered worthy of protection because it functions as important habitat for a variety of fish and other wildlife, according to the Southern California Eelgrass Mitigation Policy (SCEMP) adopted by the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS), and the California Department of Fish and Game (CDFG). For instance, eelgrass beds provide areas for fish egg laying, juvenile fish rearing, and water fowl foraging. Sensitive species, such as the California least tern, a federally listed endangered species, utilize eelgrass beds as foraging grounds.

Eelgrass surveys for each of the subject sites were most recently conducted on March 10, 2005. Previous eelgrass surveys were conducted on October 26, 1999, and November 18 & 19, 1999 and dated August 2000. Each of the eelgrass surveys was conducted by Tetra Tech, Inc. The eelgrass surveys indicate that eelgrass is present in scattered patches around Trinidad and Humbolt Islands. According to the applicant's analysis, each of the

project sites contains eelgrass and the proposed development will adversely impact eelgrass at each of the sites (see exhibit 3).

The applicants are proposing to mitigate the impacts to eelgrass by collecting stock material from donor sites including the project sites prior to construction, preparing the material for transplanting, replanting the eelgrass at the subject sites post construction, following up the transplant with monitoring surveys, and evaluating the success of the transplant. Proposed monitoring of the mitigation includes post-transplant monitoring surveys during the active vegetative growth periods of eelgrass (March through October) at intervals of 6 months, 12 months, 24 months, 36 months, 48 months, and 60 months after the transplant to determine the health of the transplanted vegetation and to evaluate transplant success based on established criteria per the Southern California Eelgrass Mitigation Policy. If yearly transplant criteria are not met, then a replant will be conducted. The amount to be replanted is based upon a formula that takes into account area and/or density deficiencies. The proposed success criteria are consistent with the requirements of the Southern California Eelgrass Mitigation Policy.

The proposed Eelgrass Mitigation Plan, dated January 2006, prepared by Tetra Tech, Inc. requires a pre-construction survey to confirm the location and boundary of the previously identified eelgrass beds and also locate any eelgrass beds not previously identified which may be impacted by development. In addition, a post construction eelgrass survey is required to adequately determine the actual amount of eelgrass impacted. The amount of eelgrass revegetation will be based on these pre- and post- construction surveys.

A significant amount of time has passed since the last eelgrass surveys were conducted. Due to the ephemeral nature of eelgrass, the National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Department of Fish and Game recommends that eelgrass surveys be conducted during the active growth phase of eelgrass (typically March through October in southern California). In addition, the resource agencies state that any eelgrass survey performed is only valid until the beginning of the next growing season ("Southern California Eelgrass Mitigation Policy"). Based on these criteria, the eelgrass surveys provided are outdated. Therefore, the Commission imposes Special Condition 3.B. which requires that a valid pre-construction eelgrass survey be conducted within the boundaries of the proposed project during the period of active growth of eelgrass (typically March through October). The pre-construction survey shall be completed prior to the beginning of construction and shall be valid until the next period of active growth. The Commission previously imposed similar conditions for pre-construction eelgrass surveys on Coastal Development Permits 5-97-230 and 5-97-230-A1 (City of Newport Beach), 5-97-231 (County of Orange), 5-97-071 (County of Orange), 5-99-244 (County of Orange-Goldrich-Kest-Grau), 5-98-179 (Kompaniez), 5-98-201 (Anderson), 5-98-443 (Whyte), 5-98-444 (Barrad), 5-99-005 (Dea), 5-99-006 (Fernbach & Holland), 5-99-007 (Aranda et al.), 5-99-008 (Yacoel et. al.), 5-99-030 (Johnson), 5-99-031 (Lady Jr., et. al.), 5-99-032 (Appel et. al.), 5-99-108 (Pineda), 5-98-471 (Maginot), 5-99-472 (Bjork), and 5-99-473 (Gelbard), among others.

The proposed toe stone will be placed using a 40 foot by 50 foot barge mounted crane which will retrieve the material for placement from a nearby 40 foot by 60 foot barge upon which the material is staged. Construction activity, including barge anchoring, vessel

propeller wash, and propeller contact with the harbor bottom could cause scarring to eelgrass beds beyond that which has been identified. The applicant has stated that the anchors for the barges will be placed to avoid eelgrass. The proposed eelgrass mitigation plan includes the following measures to protect eelgrass outside the toe stone footprint: 1) maps depicting all eelgrass in and around the project area will be provided to the contractor prior to commencement of any work; 2) boundaries of the avoidable eelgrass will be marked with buoys prior to initiation of work so that equipment and vessel operators will avoid damage to that eelgrass; 3) barges and other vessels will be anchored away from avoidable eelgrass and anchors and spuds will not be allowed to impinge upon any avoidable eelgrass; 4) installation of the rock blanket will be done in such a way as to avoid eelgrass as much as is practical; 5) in places where the rock is to be placed right next to eelgrass, a ramp, such as a sheet of plywood angled down toward the bulkhead, will be used to keep the rock off the eelgrass bed as it is placed; and, 6) eelgrass beds located on adjacent parcels shall be protected from any impacts by maintaining a buffer of at least 5 feet between the placement of a spud and the eelgrass. In order to assure that these measures are imposed, Special Condition 3 requires implementation of the eelgrass mitigation plan as proposed.

Also, the applicant is proposing to construct the development in a manner which minimizes impacts upon eelgrass by limiting the amount of toe stone placed. For instance, if the applicant were to install an excessive quantity of toe stone in a wide swath adjacent to the bulkhead, impacts to eelgrass could occur. Meanwhile, if too little toe stone were installed the needed protection would not be achieved. In this case, the applicant has designed the development with the optimal quantity of toe stone (i.e. enough to provide protection while minimizing the quantity and footprint). The applicant has provided drawings depicting the development with the minimized footprint, resulting in minimization of eelgrass impacts. If the applicant were not to construct the development in accordance with the plans submitted, additional impacts upon marine resources could occur. Therefore, the Commission imposes Special Condition 1 which requires the applicant to construct the development in accordance with the plans submitted. If any changes to the plans are necessary, Special Condition 1 requires the applicant to report the change to the Executive Director and to obtain an amendment to the coastal development permit or obtain a new coastal development permit, unless the Executive Director determines that no amendment or new permit is required.

Also, as noted above, eelgrass is a sensitive aquatic plant species which provides important habitat for marine life. Eelgrass grows in shallow sandy aquatic environments which provide plenty of sunlight. In 1999, a non-native and invasive aquatic plant species, Caulerpa taxifolia, was discovered in parts of Huntington Harbour (Emergency Coastal Development Permits 5-00-403-G and 5-00-463-G). Caulerpa taxifolia is a type of seaweed which has been identified as a threat to California's coastal marine environment because it has the ability to displace native aquatic plant species and habitats. Information available from the National Marine Fisheries Service indicates that Caulerpa taxifolia can grow in large monotypic stands within which no native aquatic plant species can co-exist. Therefore, native seaweeds, seagrasses, and kelp forests can be displaced by the invasive Caulerpa taxifolia. This displacement of native aquatic plant species can adversely impact marine biodiversity with associated impacts upon fishing, recreational diving, and tourism. Caulerpa taxifolia is known to grow on rock, sand, or mud substrates

in both shallow and deep water areas. Since eelgrass grows in shallow sandy areas, Caulerpa taxifolia could displace eelgrass in Huntington Harbour.

If present in the project area, Caulerpa taxifolia could be dispersed through construction of the proposed project. The placement of rock in areas where Caulerpa taxifolia is present could cause pieces of the plant to break off and settle elsewhere, where it can regenerate. By causing dispersal of Caulerpa taxifolia, the proposed project could have adverse impacts upon marine life, especially sensitive eelgrass habitat. In order to assure that the proposed project does not cause the dispersal of Caulerpa taxifolia, the Commission imposes Special Condition 4. Special Condition 4 requires the applicant, prior to commencement of development, to survey the project area for the presence of Caulerpa taxifolia. If Caulerpa taxifolia is present in the project area, no work may commence and the applicant shall seek an amendment or a new permit to address impacts related to the presence of the Caulerpa taxifolia, unless the Executive Director determines that no amendment or new permit is required.

Special Condition 1 requires the applicant to conform with plans submitted, assuring that impacts upon marine resources are known, avoided, minimized and mitigated, as necessary. Special Condition 3 assures that impacts to eelgrass are mitigated. Special Condition 4 assures that the project will not cause dispersal of the non-native, invasive Caulerpa taxifolia with subsequent displacement of eelgrass habitat. Special Condition 5 assures that eelgrass is not impacted by the placement of anchors for constructed related barges. As conditioned, the Commission finds that the proposed project is consistent with Section 30230 of the Coastal Act.

3. Plastic

The Commission's concerns with plastic tend to fall into two categories. The first is the question of whether chemicals from the plastic leach into the marine waters and environment. The second is the issue of plastic debris breaking off of structures placed in marine waters and circulating in marine waters endlessly. A corollary of the second concern, breakage, is the extremely long life of plastic. Even if broken down into it's smallest parts, those small parts have an expected life of thousands of years. Aside from the adverse visual impacts of plastic debris in the water, it raises the additional, more significant concern of ingestion by marine animals. Documentation of the impacts to marine life stemming from such ingestion is well established.

The applicant's representative has submitted information that indicates that the PVC sheetpile (specifically Shoreguard sheet pile) 1) is widely used in the marine environment, and many of the projects that use Shoreguard PVC sheetpile are projects implemented by state and federal resource agencies; 2) is widely used in water distribution systems throughout the United States and Canada [implying if PVC is safe for human drinking water it should not be expected to have adverse impacts on the marine environment]; 3) the proposed PVC sheet pile has an expected life of more than 100 years with little or no loss in strength. Shoreguard sheetpile is guaranteed for 50 years; 4) The use of PVC sheetpile is endorsed by the U.S. Army Corps of Engineers; 5) the proposed project's PVC sheetpile has almost no opportunity to become plastic debris because it is designed to withstand the forces exerted during the installation process (the sheetpile is vibrated into

place, section by section, with a vibrating hammer) and that forces comparable to those exerted during installation are not likely to occur after installation, and 6) because the sheetpile will be completely encased in rock, sediment, and cement, there will be no opportunity for the sheetpile to crack, deteriorate, break, or otherwise contribute to marine debris.

A study referenced by the applicant's representative as an endorsement of PVC sheetpile by the Army Corps of Engineers, "A Study of the Long-Term Applications of Vinyl Sheet Piles", does not really constitute an endorsement. The executive summary of the report states: "This report, written for the U.S. Army Corps of Engineers, summarizes the results of a brief investigation of the long-term application of vinyl sheet piles to address some of the concerns raised in a recent Engineering and Construction Bulletin about the integrity, durability, impact damage, construction standards, and allowable design of commercially available PVC sheet piles. The data used in this investigation were available from existing literature, technical organizational databases, (e.g. the Vinyl Institute), manufacturers' input, input from the technical experts on vinyl, and a few limited laboratory tests." Based on this review, the Army Corps study concludes, similar to the Commission's current position, that based on the available scientific evidence, PVC sheetpile appears to be acceptable for use in the marine environment. However, the study does not endorse use of PVC, nor does it discount the possibility that additional observations and study over time could show there are issues that need to be addressed.

Information regarding the use of plastic in the marine environment indicates, with regard to the potential for leaching into marine waters, that the evidence does not support a determination that the PVC bulkhead proposed for use in the aquatic environment would be hazardous to human or ecological health. Organotins, the primary leachates of concern, constitute 1% of the PVC chemical make-up. Studies have shown that even though the leaching of organotins does occur, the leachates tend to break down quickly and do not accumulate to levels approaching the reported effective concentrations for the biological indicators used. Similarly, laboratory extraction tests, employing stringent conditions, on CPVC[1] pipes have yielded leached organotin concentrations below even the conservative human health-based criteria. Therefore, even though organotins would be expected to leach from PVC plastic placed in the marine environment, especially immediately upon installation, mitigating factors in the environment such as the dilution provided by surrounding water, the speed with which they break down, and the fact that temperature extremes would not be a factor help ensure that the resultant organotin concentrations in the receiving water would be low and not pose significant adverse impacts to either human or ecological health.

The applicant's representative cites a study by the National Sanitation Foundation which concluded that the use of PVC pipe for drinking water does not pose a risk to human health. The representative extrapolates that if PVC pipe does not pose a threat to human health when used to transport drinking water, it is reasonable to assume it will be safe for use in the marine environment.

[1] CPVC consists of long chains of vinyl chloride, to which chlorine is added. PVC is essentially the parent polymer of CPVC. Because of the higher chlorine content, adverse impacts to water quality would be expected to be greater with CPVC than with PVC. Even so, impacts were found to be minor enough that CPVC is approved by the California State Department of Housing and Community Development for use in transporting human drinking water.

Beyond the information referred to above, very little literature exists on the components of plastic leaching into the marine environment. The majority of literature available regarding plastic in the marine environment addresses the issue of plastic debris. Two papers generally addressing leaching were identified: "A Brief Analysis of Organic Pollutants Sorbed to Pre and Post- Production Plastic Particles from the Los Angeles and San Gabriel River Watersheds", by C.J.Moore, G. L. Lattin, A. F. Zellers, Algalita Marine Research Foundation; and, "Plastics in the Marine Environment: A Technical Perspective, by Tony L. Andrady PhD, Center for Engineering Technology. Both papers are "white papers" from the "Plastic Debris Rivers to Sea" 2005 Conference (September 7-9, 2005, held in Redondo Beach, Calif.). The main conclusion of both the papers cited above is that very few studies have been conducted regarding the effects of plastic leaching in the marine environment. Both papers support the need for future studies on the issue. This supports the imposition of a special condition requiring consideration of alternatives to the plastic, should environmentally superior alternatives be identified in the future.

With regard to the question of leaching, the currently available scientific evidence points to the likelihood that leaching of chemicals is minimal and not likely to have a significant effect on marine resources and the biological productivity and quality of coastal waters necessary to maintain optimum populations of marine organisms and for the protection of human health. State Department of Housing and Community Development studies testing whether PVC plastic pipes are safe for use to convey drinking water have found them to be acceptable for such use, which indirectly supports the conclusion that leaching is not likely to be a significant factor.

Based on current scientific evidence, it appears that leaching does not create adverse impacts on marine resources. However, scientific opinion is constantly evolving. It is possible that new information may become available in the future that reaches a different conclusion. In order to be most protective of marine resources, the Commission has found in past actions that it can only approve the long-term use of plastic in the marine environment if the applicant agrees to submit a permit amendment or a new permit application in the event new information becomes available indicating that plastic does have significant adverse impacts on marine resources. Some of the projects approved by the Commission which incorporate this measure include 5-03-078, Buchanan; 3-03-057, California Department of Parks and Recreation; ND-002-03, U.S. Navy; ND-012-03, U.S. Navy; 3-02-071, Port of San Luis Obispo). The Commission could only find the use of plastics in the marine environment consistent with Sections 30230 and 30231 when the project also includes the requirement that, should newer scientific evidence become available at some point in the future indicating the use of PVC is not acceptable, the applicant agrees to submit an amendment or new permit application to address the new information and incorporate appropriate changes to the project to minimize or eliminate the adverse impacts on the marine environment.

The question of plastic debris in the marine environment also remains a significant concern. Although plastic may break into smaller and smaller pieces, those pieces last for thousands of years. Even when broken into its smallest part, it still presents a problem. The plastic debris is often mistaken by marine life for food and ingested, resulting in illness and death. The proposed bulkhead repair project includes placement of PVC sheetpile

within the marine environment. However, because the sheetpile would be placed below the mudline and/or covered with riprap, the likelihood that pieces would break off is dramatically reduced. Nevertheless, the possibility is not eliminated entirely. In the past, the Commission has found that it can only approve the proposed use of plastic, even in the proposed manner, if the applicant agrees to monitor the sheetpile periodically to assure it remains intact and, if breakage is discovered, to implement remedial action. Some of the projects approved by the Commission which incorporate this measure include, but are not limited to 5-03-078, Buchanan; 3-03-057, California Department of Parks and Recreation; 5-04-297, California Department of Parks and Recreation; 5-06-062, County of Orange; ND-002-03, U.S. Navy; ND-012-03, U.S. Navy; 3-02-071, Port of San Luis Obispo).

Current evidence, including the points outlined by the applicants' representatives provides a basis for finding PVC an acceptable material for the proposed bulkhead repair. If the existing data did not support the likelihood that the material is generally considered safe, the use of the plastic would not be acceptable at all. The current evidence supports the position that the proposed plastic sheetpile is an acceptable material for use in the bulkhead repair. However, analysis does not stop there. Based on current scientific evidence, it appears that leaching does not create adverse impacts on marine resources. Were it not for this evidence, the Commission could not consider approving the PVC in the marine environment. However, scientific opinion is constantly evolving. Even when a thorough analysis of the proposed material has concluded that it is expected to be safe for the life of the project, future observations, studies, and changes in scientific thinking can occur. It is possible that new information may become available in the future that reaches a conclusion that differs from the one currently accepted. In order to be most protective of marine resources, the Commission has required that projects that use PVC in the marine environment include a requirement that if new information becomes available that indicates that plastic has harmful effects on the marine environment, and that environmentally superior, feasible alternative(s) are available, an amendment or new coastal development permit will be submitted to address the new information and to include measures to eliminate or significantly reduce the adverse impacts of the plastic. Therefore, special condition 8 is imposed which requires that future alternatives to the use of plastic be considered if an environmentally superior alternative becomes available in the future. Only as conditioned can the proposed project be found to be consistent with Sections 30230 and 30231 of the Coastal Act.

The applicant's representative has asserted that the riprap will not move for the life of the project. This assertion is based on a study done by Moffatt and Nichol (1994) in conjunction with the Bolsa Chica Lowlands Restoration Environmental Impact Report (prepared for the County of Orange, 2000) which reported the extreme maximum current within Huntington Harbour to be 1.45 feet per second. The applicants' representative, in a letter dated March 17, 2006 states: "Based on the Hydraulic Design of Flood Control Channels Engineer Manual (U.S. Corps of Engineers, 1991), our calculations yield a minimum D_{30} of 0.25-inches. The D_{30} of 8-inch riprap was extrapolated from Table 3-1 (U.S. Corps of Engineers, 1991) to be 3.2 inches. Therefore the design of 8-inch riprap will be more than sufficient for the condition at Huntington Harbour."

However, it is reasonable to say that it can't be known with certainty that the toe stone will never move. For example, the project design standard assumes a water depth at the

sheetpile of –1 MLLW. However, this assumption does not consider conditions during storms or due to future sea level rise. Under these conditions it is possible the toe rock may move, potentially exposing the plastic sheetpile. Furthermore, outside factors could cause the toe rock to move. For example, periodic dredging may have effects on the toe stone.

In recent years the Commission has allowed projects that use plastic in the marine environment only when there is an assurance that the projects will include monitoring of the plastic to assess its condition over time and when the applicant agrees to consider alternatives to plastic in the future should new applicable information becomes available. Monitoring the sheetpile would not require that the buried sheetpile be exposed, but rather confirm whether the sheetpile is indeed still buried. The monitoring would not necessarily have to be performed by an engineer, but rather by anyone able to document via photos and personal observation, whether any portion of the sheetpile has become exposed, and if so, whether any cracks, breaks or deterioration have occurred. If deterioration were observed then the appropriately licensed professional would need to become involved.

The high degree of likelihood that the toe stone will not move provides a basis to approve the project. If it were likely the toe stone would shift, the project may not be found consistent with Coastal Act policies regarding protection of the marine environment. However, because it cannot be known with absolute certainty that the rock will never move, a special condition requiring monitoring of the bulkheads, including the proposed toe stone, is necessary. Therefore, Special Condition 7 is imposed which requires that the applicant agree to submit an amendment or new permit application to address such a future situation. Only as conditioned can the proposed project be found to be consistent with Sections 30230 and 30231 of the Coastal Act.

Based on current scientific information, it appears that placement of the PVC sheetpile as proposed would not create significant adverse impacts on the marine environment. However, this determination is based on the following provisions: that the current scientific information remains viable and unchanged, and that the sheetpile will in fact remain submerged and shielded from breakage. However, scientific knowledge is constantly evolving. It is possible that something that is thought to be true and accurate now, may not be in the future. Likewise, even though the applicant's engineering consultant asserts that the proposed toe stone will never move and the sheet pile will never be exposed, conditions in the harbor are dynamic and it is feasible that harbor conditions could change. There is no certainty that the sheet pile will never be exposed and never suffer damage.

Monitoring every other year, to verify whether the rock has moved and thus whether the plastic sheetpile is exposed, would alert the residents to the sheetpile's condition. If disturbance has occurred, action can then be taken, minimizing adverse impacts that may occur if left undetected.

It is the Commission's practice to take the position that is more likely to be protective of the resource in question, in this case the marine environment. At the same time the Commission recognizes the need to go forward with a project that will protect the existing single family residences that may be jeopardized if the bulkheads are not repaired. In an effort to achieve both goals, the Commission finds that the proposed projects must include

a requirement to monitor the sheet pile, and a requirement to consider environmentally superior alternatives should they become available in the future. Therefore the Commission imposes special condition 7, which requires monitoring of the sheet pile, and special condition 8 which requires consideration of future alternatives to plastic sheetpiles. Only as conditioned can the proposed development be found to be consistent with the marine resource policies of the Coastal Act.

F. Water Quality

Section 30231 of the Coastal Act states:

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

The proposed project will involve the placement of toe stone consisting of 8-inch diameter or smaller quarry waste in coastal waters. If such materials are not placed in an appropriate manner, unconsolidated bay sediments may be disturbed causing turbidity in the water column. The applicant has stated that turbidity will be addressed by first installing the proposed geotextile fabric in the area where the toe stone will be placed and by placing, not dumping, the toe stone at the target location. The applicant has additionally stated that a silt curtain will be used in the event that turbid conditions are generated during construction. Since the proposed methods are required to assure compliance with Section 30231 of the Coastal Act, the Commission imposes Special Condition 2.

The proposed development will occur within and adjacent to coastal waters. Construction will require the use of heavy machinery and require the stockpiling of construction materials. In order to protect the marine environment from degradation, Special Condition 2 requires that all construction materials and machinery shall be stored away from the water. In addition, no machinery or construction materials not essential for the project improvements shall be placed in coastal waters. Local sand, cobbles, or shoreline rocks, not presently used in the existing development, shall not be used for backfill or construction material.

The proposed development has been reviewed by the California Regional Water Quality Control Board (RWQCB), Santa Ana Region. The RWQCB has waived waste discharge requirements for the project (Exhibit 6).

Therefore, as the conditioned, the Commission finds the proposed development is consistent with Section 30231 of the Coastal Act.

G. Public Access

Section 30212 of the Coastal Act states in relevant part:

> *(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where:*
>
> *(2) adequate access exists nearby, or,*
>
> *(b) For purposes of this section, "new development" does not include:*
>
> *(4) The reconstruction or repair of any seawall; provided, however, that the reconstructed or repaired seawall is not a seaward of the location of the former structure.*

The subject sites are located on Trinidad and Humbolt Islands in Huntington Harbour. Much of the Huntington Harbour waterfront is inaccessible to the public. However, Trinidad Island is publicly accessible via a bridge from the mainland. On-street parking is the major source of public parking. In addition, a small public beach flanks Trinidad Lane at the entrance to Trinidad Island, and public fishing docks are located at the ends of Sundancer Lane and Typhoon Lane on Trinidad Island. A public walkway extends for much of the length of Venture Drive and along Typhoon Lane. A public park runs through the center of Trinidad Island. Humbolt Island is publicly accessible via a bridge from the mainland. On street parking is also publicly available. A small public beach flanks Humbolt Drive at the entrance to Humbolt Island.

The proposed development involves structural reinforcements to an existing bulkhead which would result in seaward encroachment of the structure. Therefore, the proposed project is considered new development for the purposes of Coastal Act section 30212. However, the proposed project would be underwater. There is no beach area which provides lateral public access on-site upon which the proposed project would encroach. Further, there is no beach area off-site which provides public access that could be eroded as a result of changes in shoreline processes due to the proposed project. In addition, a special condition is imposed to make it clear that approval of this permit does not constitute a waiver of any public rights that exist or may exist on the property.

Therefore, the Commission finds that no public access dedication is necessary with the proposed development and that the proposed project is consistent with section 30212 of the Coastal Act.

G. Local Coastal Program

Coastal Act section 30604(a) states that, prior to certification of a local coastal program ("LCP"), a coastal development permit can only be issued upon a finding that the proposed development is in conformity with Chapter 3 of the Act and that the permitted development will not prejudice the ability of the local government to prepare an LCP that is in conformity with Chapter 3. An LCP for the City of Huntington Beach was effectively certified in March 1985and subsequently updated. However, the proposed development is occurring within

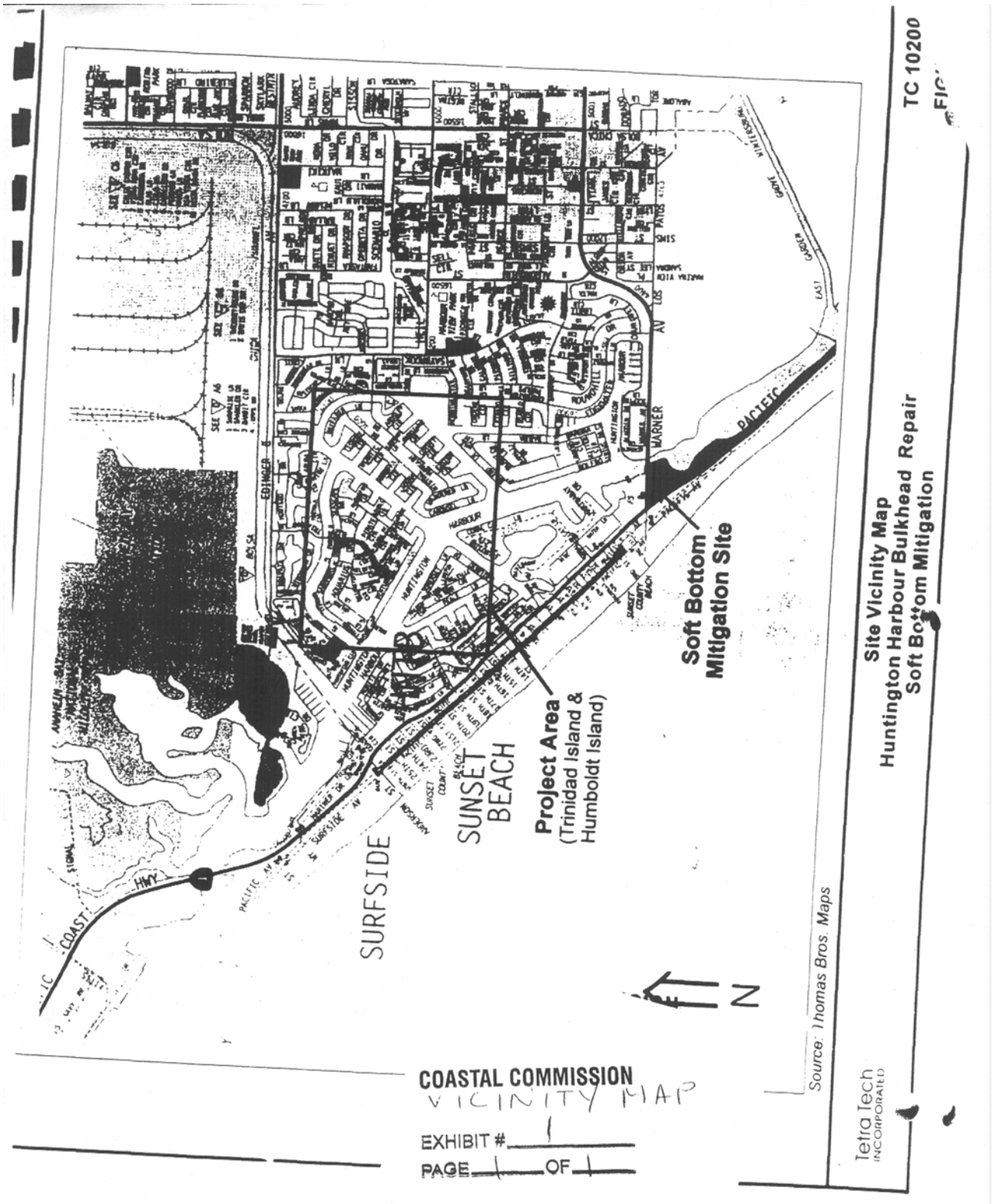
an area of the Commission's original permit jurisdiction, due to the project location seaward of the mean high tide line. Consequently, the standard of review is the Coastal Act and the City's LCP is used only as guidance. As conditioned, the proposed development is consistent with Chapter 3 of the Coastal Act and with the certified LCP for the area.

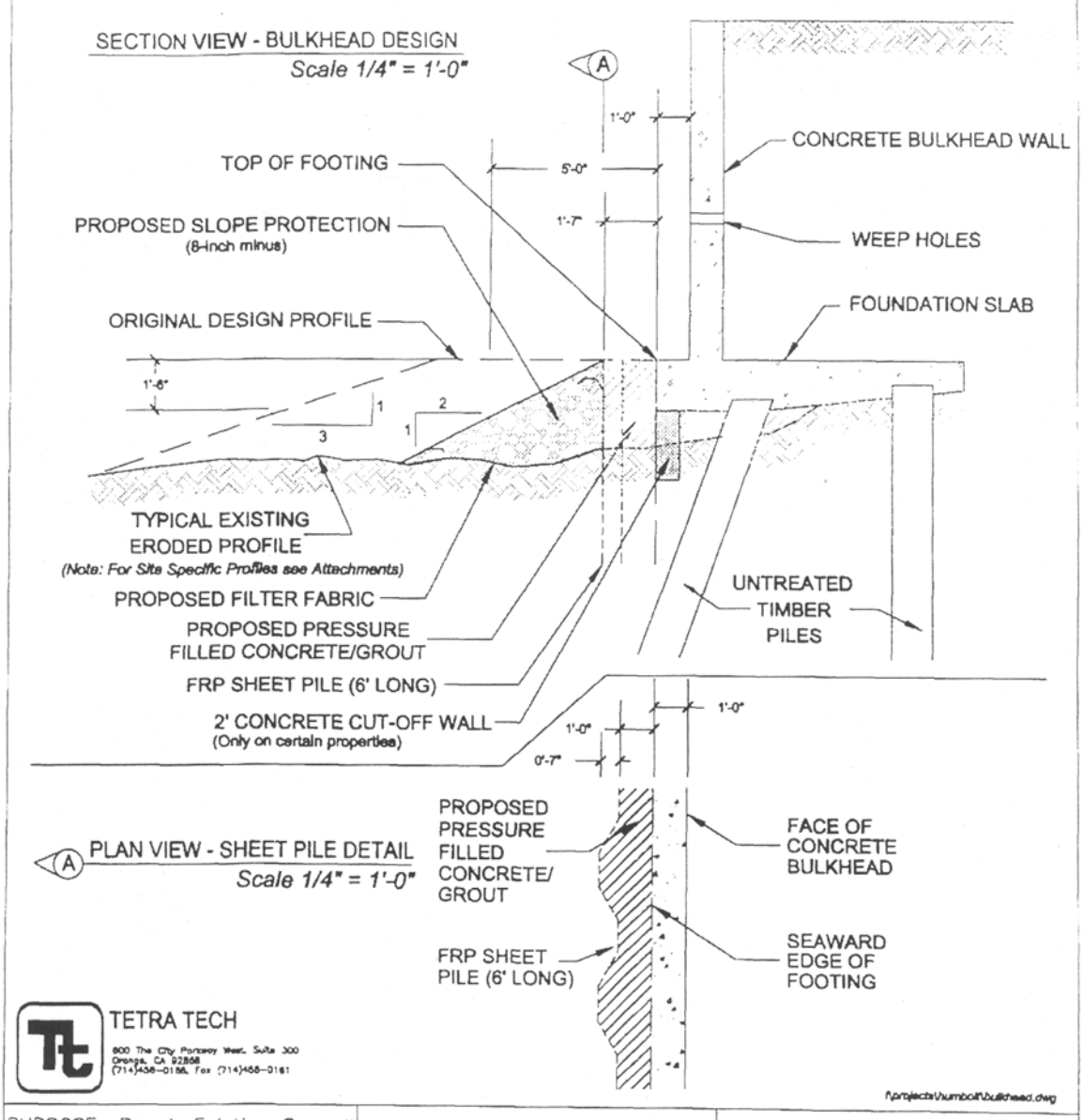
H. California Environmental Quality Act (CEQA)

Section 13096 Title 14 of the California Code of Regulations requires Commission approval of a coastal development permit application to be supported by a finding showing the application, as conditioned by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The proposed project, as conditioned, has been found consistent with the Chapter 3 policies of the Coastal Act. As conditioned, there are no feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, is the least environmentally damaging feasible alternative and can be found consistent with the requirements of the Coastal Act to conform to CEQA.

The project is located in an existing harbor in an urbanized area. Development already exists on the subject site. The project impacts to soft bay bottom habitat and eelgrass will be mitigated. In addition, the proposed development has been conditioned to assure the proposed project is consistent with the resource protection policies of the Coastal Act. The conditions also serve to mitigate significant adverse impacts under CEQA. The conditions are: 1) a requirement that the applicant comply with plans submitted with the application; 2) a requirement that the applicant conform with specific construction responsibilities to avoid impacts upon water quality and marine resources; 3) a requirement to conduct pre- and post-construction eelgrass surveys, and if any unanticipated eelgrass impacts occur those impacts be mitigated; 4) a requirement that the applicant prepare a survey to confirm the absence of Caulerpa taxifolia in the project area; 5) a requirement that the applicant acknowledge that this coastal development permit is not a waiver of any public rights which may exist on the property; 6) clarification that approval of the permit does not waive any public rights that may exist at the sites; 7) consideration of alternatives in the future; 8) a requirement to monitor the plastic sheetpile; and, 9) a requirement for the submittal of an anchor management plan. There are no other feasible alternatives or mitigation measures available which will lessen any significant adverse impact the activity would have on the environment. Therefore, the Commission finds that the proposed project, as conditioned, can be found consistent with the requirements of CEQA.

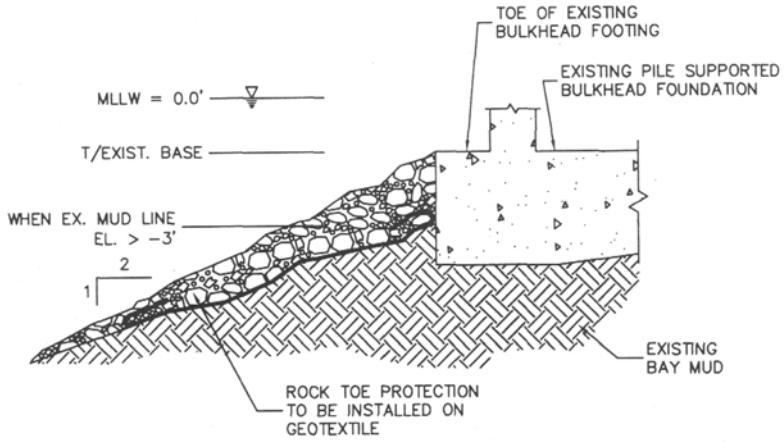

Soft Bottom Mitigation Site
Project Area
(Trinidad Island & Humboldt Island)
SUNSET BEACH
SURFSIDE
PACIFIC COAST HWY
PACIFIC
Source: Thomas Bros. Maps
Tetra Tech
INCORPORATED
Site Vicinity Map
Huntington Harbour Bulkhead Repair
Soft Bottom Mitigation
TC 10200
COASTAL COMMISSION
VICINITY MAP
EXHIBIT # 1
PAGE 1 OF 1



PURPOSE: Repair Existing Seawall Datum: MLLW = 0 Adj. Property Owners: 1. See Attached List	FIGURE 4. ORIGINAL BULKHEAD DESIGN AND SHEET PILE DETAIL Humboit Island & Trinidad Island Huntington Beach, CA 92649	Proposed Repair of Existing Seawall Supplemental Info. Report California Coastal Commission Date: 3/18/99

Original Bulkhead Design with Repairs to
Bulkhead Shown when Erosion at the
Base of the Existing Bulkhead is Moderate to Severe

COASTAL COMMISSION
PLANS
EXHIBIT # 2
PAGE 1 OF 4



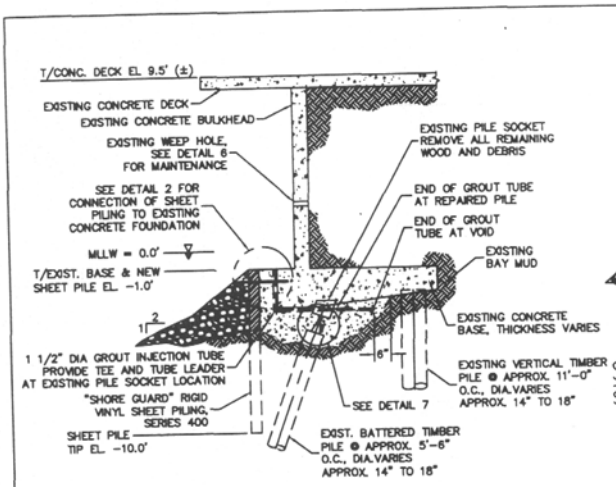
SECTION AT FOOTING TOE: CASE IV (1)

SCALE: 3/8" = 1'- 0" (FOR ROCK BACK FILL ONLY)

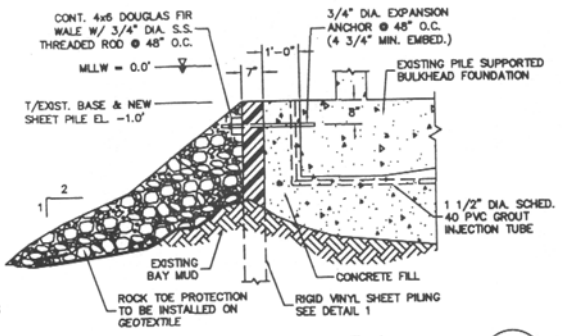
COASTAL COMMISSION
PLANS
EXHIBIT # 2
PAGE 2 OF 4

TETRA TECH
670 North Rosemead Blvd.
Pasadena, CA 91107
(626)351-4664, Fax (626)351-5291

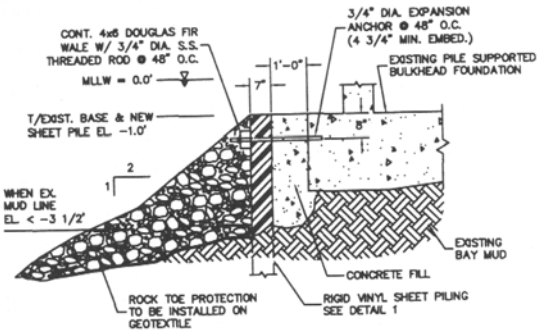
Aug '03 Bulkhead Repair Bid Drawings Sheet 1 of 3	SECTION VIEW	



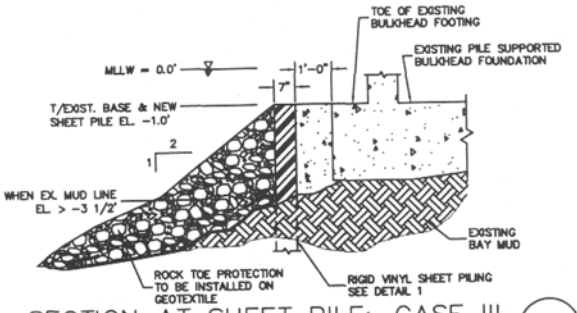
SECTION AT TIMBER PILE REPAIR (1)
SCALE: 1/8" = 1'-0"



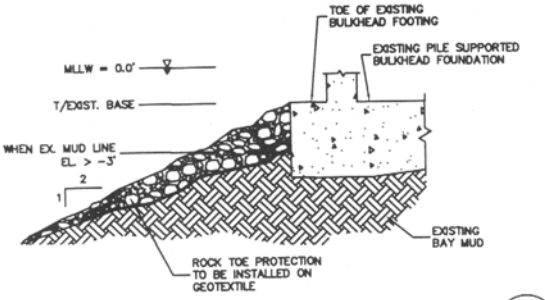
SECTION AT WALE: CASE I (2)
SCALE: 1/4" = 1'-0" (FOUNDATION UNDERMINED)



SECTION AT WALE: CASE II (3)
SCALE: 1/4" = 1'-0" (FOR CANTILEVERED SPANS OF 30" OR MORE SUPPORT WALE REQUIRED)



SECTION AT SHEET PILE: CASE III (4)
SCALE: 1/4" = 1'-0" (FOR CANTILEVERED SPANS OF 30" OR LESS SUPPORT WALE NOT REQUIRED)



SECTION AT SHEET PILE: CASE IV (5)
SCALE: 1/4" = 1'-0" (RIP-RAP TOE PROTECTION ONLY)

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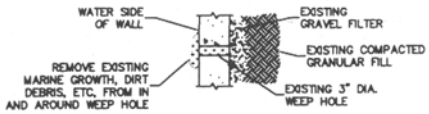
Aug '03 Bulkhead Repair Bid Drawings

Sheet 2 of 3

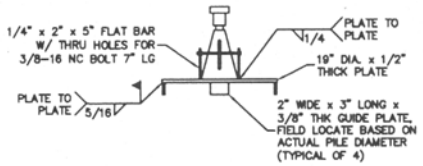
SECTION VIEW

COASTAL COMMISSION

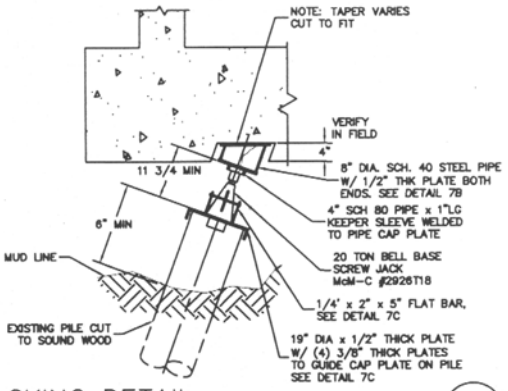
EXHIBIT # 2
PAGE 3 OF 4



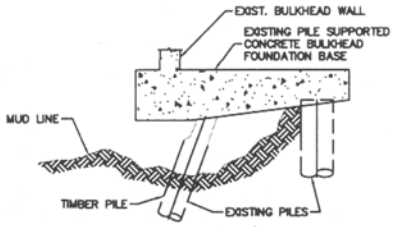
WEEP HOLE DETAIL 6
SCALE: 1/4" = 1'- 0"



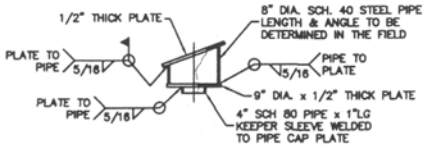
PILE CAP PLATE DETAIL 7C
SCALE: N.T.S.



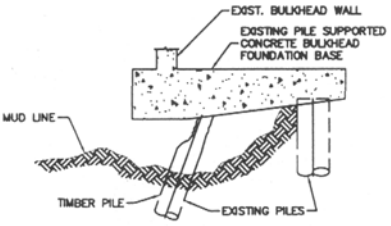
JACKING DETAIL 7
SCALE: 3/4" = 1'- 0"



SECTION 25% OR LESS PILE DETERIORATION 8
SCALE: N.T.S. PILE REPAIR NOT REQUIRED
SEE DETAIL 2



JACKING ASSEMBLY DETAIL 7B
SCALE: N.T.S.
NOTES: FIELD MEASURE EXISTING PILE SOCKET IN CONCRETE BASE SLAB AND CUT TOP PLATE TO FIT SOCKET.
CENTERLINE TOP PLATE = CENTERLINE PIPE
CENTERLINE PIPE = CENTERLINE JACK



SECTION 25% OR MORE PILE DETERIORATION 9
SCALE: N.T.S. PILE REPAIR REQUIRED
SEE DETAILS: 1 & 2

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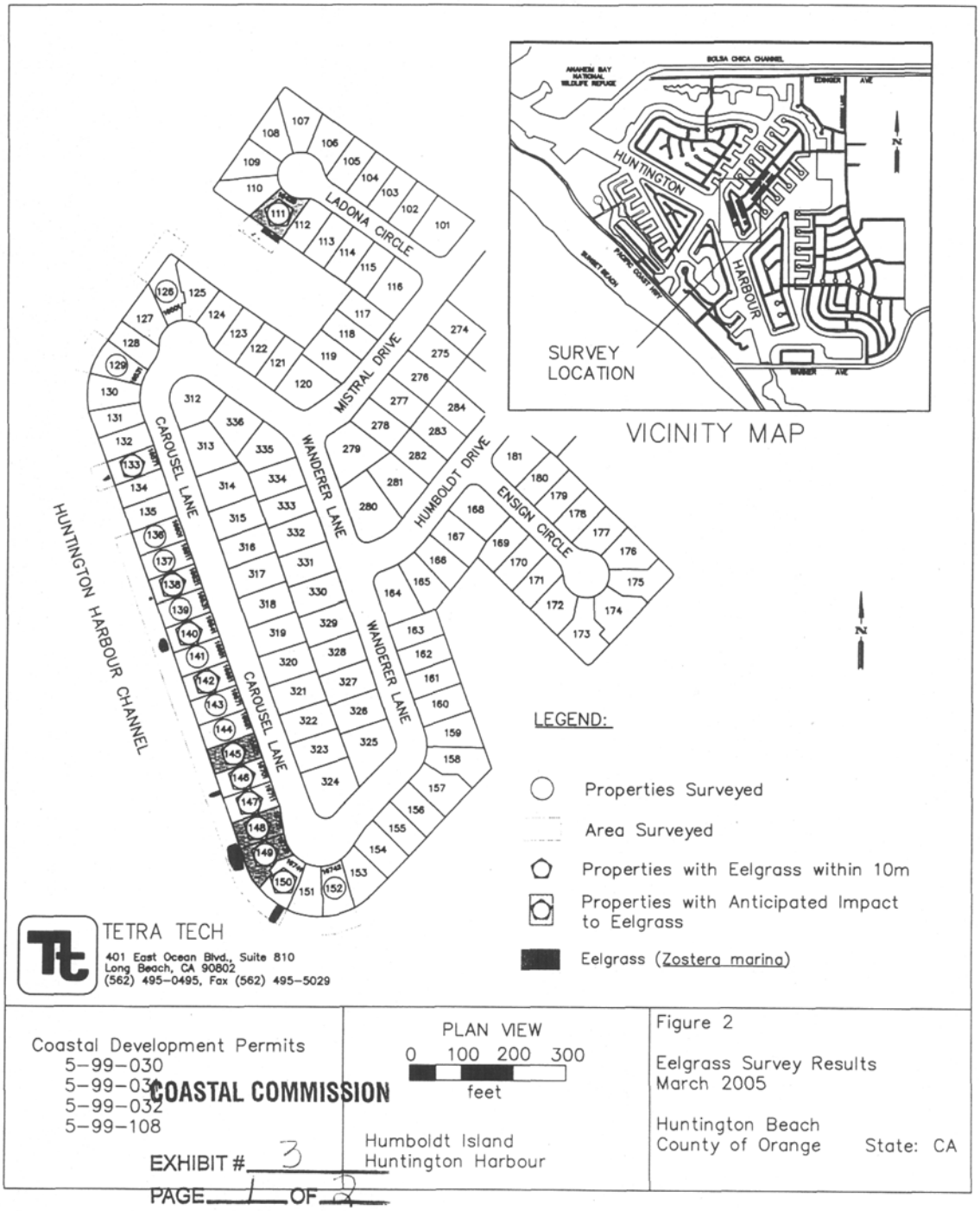
Aug '03 Bulkhead Repair Bid Drawings Sheet 3 of 3	SECTION VIEW	COASTAL COMMISSION EXHIBIT # 2 PAGE 4 OF 4



Coastal Development Permits
5-99-030
5-99-031
5-99-032
5-99-108

COASTAL COMMISSION

EXHIBIT # 3
PAGE 1 OF 2

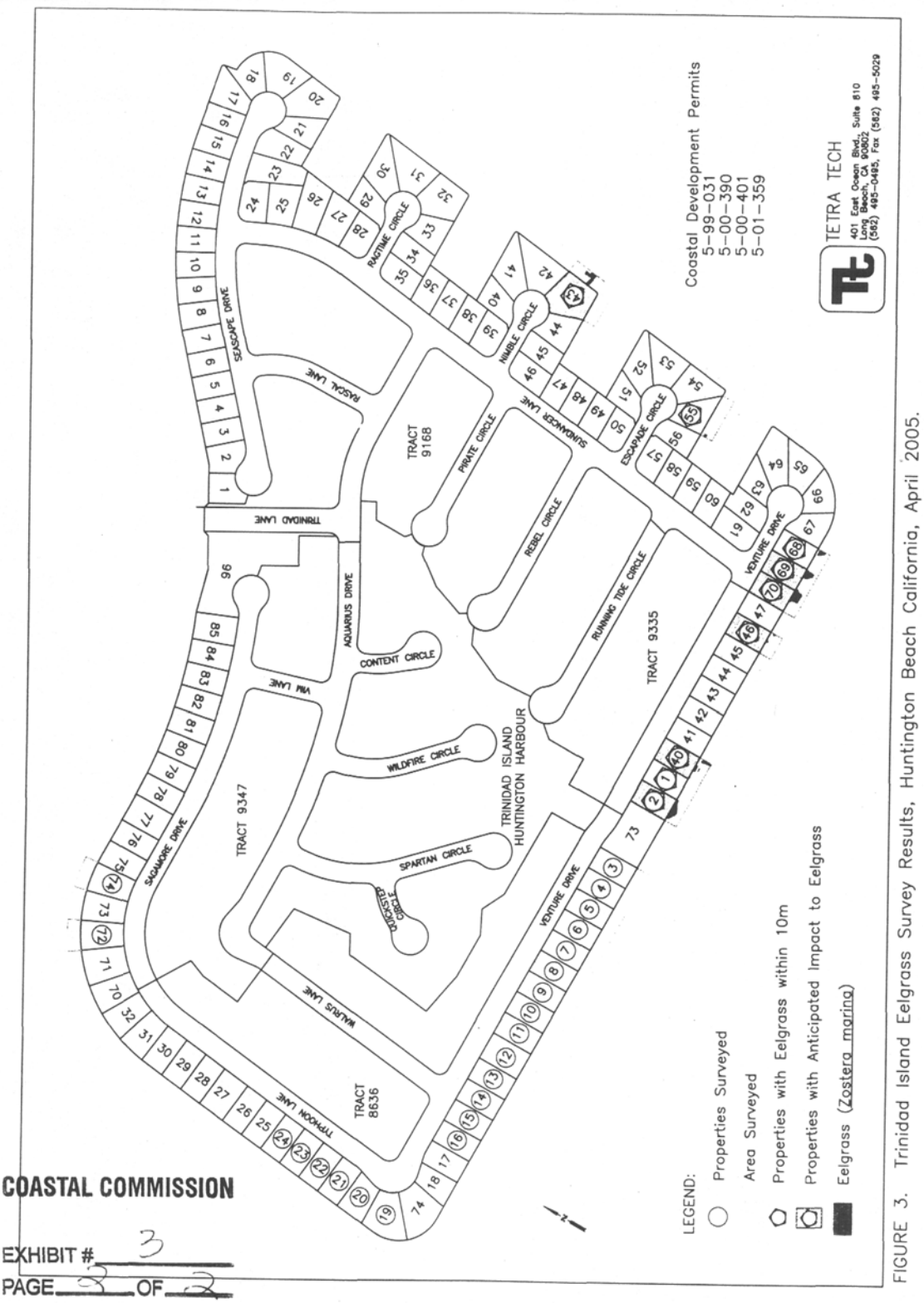


FIGURE 3. Trinidad Island Eelgrass Survey Results, Huntington Beach California, April 2005.

COASTAL COMMISSION

EXHIBIT # 3

PAGE 3 OF 3

To : Mr. Karl Schwing
California Coastal Commission
200 Oceangate Avenue Suite 1000
Long Beach, California 90802

Date July 6, 1999

From : Department of Fish and Game

Subject : Humboldt Island Homeowners Association Bulkhead Repair

This memo is in response to a request from Ms. Sarah McFadden, Tetra Tech Inc., representing the Humboldt Island Homeowners Association, concerning proposed project plans to repair and renovate existing bulkheads for 36 residences on southern Humboldt Island, Huntington Harbor, Huntington Beach, Orange County, California. Damaged piles will be removed and/or repaired at three properties. At 19 properties, vinyl sheet-pile will be installed 1 foot 7 inches seaward of the bulkheads. At all 36 properties a protective rip-rap footing, comprised of quarry waste material ranging from sand to 8 inch fragments, will be placed at the bulkheads. The footing will extend a maximum of 11 feet from the bulkheads.

The proposed project will impact hardscape, the water column, and soft bottom habitat. Impacts to hardscape (i.e., existing bulkheads and structures) and the water column are considered temporary, as the water quality will return to pre-construction conditions and the new structures will eventually be colonized by attachment organisms. However, impacts to soft bottom habitat will not be temporary. Based on information provided to the Department by Tetra Tech Inc., "expansion" of 19 bulkheads will result in a permanent loss of approximately 1,581 square feet of marine soft bottom bay habitat. In addition, approximately 17,700 square feet of soft bottom habitat will be buried by placement of rip-rap. Approximately 780 square feet of this soft bottom substrate is eelgrass (*Zostera marina*) habitat.

The permanent loss of marine soft bottom bay habitat is of concern to the Department. The Department strongly recommends that bulkhead projects be designed to eliminate or minimize loss of marine bay habitat. To accomplish this goal, we recommend that each property owner strive to construct its bulkhead either in place of the existing bulkhead or immediately in front of the existing bulkhead so that installation results in no net loss of intertidal habitat when measured at the Mean Higher High Water line. The Humboldt Island Homeowners' project has proposed sheet piling to be placed 1 foot 7 inches seaward of those bulkheads in need of repair. The sheet piling retains concrete and grout which is pumped in to fill existing voids in the bulkhead. Presumably the 1 foot 7 inch distance is necessary to allow sufficient clearance for concrete and grout piping, and to enable a pneumatic hammer to clear the bulkhead footing. It is the Department's position that bulkhead projects be constructed in such a manner to be the least environmentally damaging practicable alternative. Thus, we recommend the project proponent investigate alternative methodologies for filling voids in bulkheads. If this is deemed structurally unfeasible, then any incurred loss of marine soft bottom bay habitat should be mitigated.

The Department recognizes that placement of rip-rap at the bulkheads would result in an initial loss of ecological benefits to species associated with soft bottom habitat. However, in the case of unvegetated soft bottom habitat this loss would likely be short-term, as different organisms would recolonize the rip-rap. Thus, we believe that placement of rip-rap on unvegetated soft bottom habitat would not have a significant impact on the environment.

In contrast, impacts to vegetated soft bottom habitat, i.e., eelgrass, from placement of rip-rap are significant. It is well documented that eelgrass habitat provides forage, cover, reproductive opportunities, and other benefits to various fish species, and may be used by these species as permanent residence or nursery habitat. Impacts to eelgrass habitat have significant impacts on the environment, and eelgrass loss must be mitigated.

The project proponents plan to offset the loss of eelgrass in a manner consistent with the Southern California Eelgrass Policy, as amended. However, a specific eelgrass mitigation plan identifying the mitigation site has not been detailed at this time. In addition, the project proponent has not proposed a mitigation plan, nor recognized the necessity to compensate for the loss of 1,581 square feet of marine soft bottom bay habitat. The location and plans for mitigation sites are the responsibility of the project proponent. Therefore, until appropriate mitigation plans both for eelgrass loss and loss of soft bottom habitat have been developed and provided to the Department for review and approval, we cannot support this project.

As always, Department personnel are available to discuss our comments, concerns, and recommendations in greater detail. To arrange for a discussion, please contact Ms. Marilyn Fluharty, Environmental Specialist, California Department of Fish and Game, 4949 Viewridge Avenue, San Diego, California 92123, or by telephone at (619) 467-4231.

Sincerely,

DeWayne Johnston
Regional Manager
Marine Region

cc: Ms. Marilyn Fluharty
Department of Fish and Game
San Diego, California

DEPARTMENT OF FISH AND GAME
MARINE REGION
· BURGESS DRIVE
NLO PARK, CA 94025
J) 688-6340

August 31, 2000

Ms. Mary Beth Broeren
Senior Planner
City of Huntington Beach
2000 Main Street
Huntington Beach, California 92648

Dear Ms. Broeren:

Department of Fish and Game (Department) personnel have reviewed the Draft Negative Declaration/ Environmental Assessment No. 00-05 for the Humboldt Island and Trinidad Island Seawall Repairs (No. 00-05). The proposed project will repair and renovate existing bulkheads at 40 properties on Humboldt Island and 64 properties on Trinidad Island, Huntington Harbor, Huntington Beach, Orange County, California. It is anticipated that 24 properties will require removal and/or repair of damaged piles. At 44 properties, vinyl sheet-pile will be installed 1-foot, 7-inches seaward of the bulkheads. At all properties, a protective rip-rap footing comprised of quarry waste material, ranging from sand to 8-inch fragments, will be placed at the bulkheads. The footing will extend a maximum of 11 feet from the bulkheads. Sheet-pile installation will eliminate soft bottom habitat while slope protection will impact eelgrass (*Zostera marina*) habitat.

Tetra Tech, Inc., the property owners' authorized agents, have prepared two separate mitigation plans to compensate for loss of soft bottom habitat and impacts to eelgrass. The "Soft Bottom Mitigation Plan," describes procedures to restore and create tidal influence to existing wetland areas located in the Bolsa Chica Ecological Reserve, managed by the Department, in an area bordered by Pacific Coast Highway and Warner Avenue, approximately 0.5- to 1.2-miles southwest of the bulkhead projects. The "Eelgrass Mitigation and Eelgrass Transplant Report," describes procedures for eelgrass transplant at a site delineated for eelgrass mitigation by Orange County, approximately 1 mile northwest of the impact area. Tetra Tech, Inc., transplanted 3,600 square feet of eelgrass in June 2000.

The Department has reviewed the mitigation plans and finds them adequate compensation for project induced losses. Thus, we conclude that the project, as currently proposed, would not have a significant adverse impact upon the existing marine environment provided the described mitigation plans are carried out in full.

As always, Department personnel are available to discuss our comments, concerns, and recommendations in greater detail. To arrange for a discussion, please contact Ms. Marilyn Fluharty, Environmental Specialist, California Department of Fish and Game, 4949 Viewridge Avenue, San Diego, CA 92123, telephone (858) 467-4231.

Sincerely,

Robert N. Tasto, Supervisor
Project Review and Water Quality Program
Marine Region

cc: Ms. Marilyn Fluharty
Department of Fish and Game
San Diego, CA

Appendix A
Substantive File Documents
Page 21 of 22

Applicants Engineering Analyses and Letters

- Letter from Tetra Tech, Inc. to California Coastal Commission titled *Response to May 12, 1999 Letter Regarding Follow-Up Notice of Incomplete Applications* dated May 24, 1999
- Letter from Tetra Tech, Inc. to California Department of Fish and Game dated July 29, 1999
- Letter from Tetra Tech, Inc. to California Coastal Commission titled *Coastal Development Permit Applications for Humboldt Island Bulkhead Repairs* dated August 18, 1999
- Letter from Tetra Tech, Inc. to California Coastal Commission titled *Coastal Development Permit Applications for Humboldt Island Bulkhead Repairs* dated August 25, 1999

Biological Surveys and Mitigation Plans

- *Eelgrass Survey Report, Trinidad Island – Huntington Harbour* conducted October 26, 1999, and November 18 & 19, 1999 and dated August 2000 prepared by Tetra Tech, Inc. of Pasadena, CA
- *Eelgrass Mitigation and Eelgrass Transplant Report, Humboldt Island & Trinidad Island Bulkhead Repair Project, Huntington Beach, California* dated August 2000 prepared by Tetra Tech, Inc. of Pasadena, California
- *Soft Bottom Mitigation Plan, Humboldt Island and Trinidad Island Bulkhead Repair Project, Huntington Beach, California* dated April 2000 prepared by Tetra Tech, Inc. of Pasadena, California
- *Eelgrass (Zostera marina) survey, impact assessment, and mitigation plan* dated December 1999 prepared for the County of Orange by Coastal Resources Management.

Local Government Approvals

- *Negative Declaration No. 00-05 for the Humboldt Island and Trinidad Island Seawall (Bulkhead) Repairs* prepared by the City of Huntington Beach and Tetra Tech, Inc. of Pasadena, California

California Department of Fish and Game Letters and Approvals

- Memorandum from California Department of Fish and Game to the California Coastal Commission titled *Humboldt Island Homeowners Association Bulkhead Repair* dated July 6, 1999
- Letter from California Department of Fish and Game to City of Huntington Beach dated August 31, 2000 approving the Soft Bottom Mitigation Plan and Eelgrass Mitigation and Eelgrass Transplant Report cited above

Other Agency Approvals and Correspondence

- Letter from the California State Lands Commission dated March 24, 2000 regarding *Proposed Bulkhead Repairs on 62 Residential Properties at Trinidad Island, Huntington Harbour, Orange County*
- California Regional Water Quality Control Board, Santa Ana Region, Clean Water Act Section 401 Water Quality Certification for the Proposed Trinidad Island Bulkhead Repair on Properties Containing Eelgrass and Soft Bottom Habitat, City of Huntington Beach (ACOE Reference #200100038-YJC) dated December 8, 2000

Coastal Development Permits

Exhibit 5 p. 1 of 2

- Eelgrass Impacts: 5-97-230 and 5-97-230-A1 (City of Newport Beach), 5-97-231 (County of Orange), 5-97-071 (County of Orange), and 5-99-244 (County of Orange-Goldrich-Kest-Grau)
- Emergency Coastal Development Permit 5-00-403-G
- Humboldt Island Bulkhead Reinforcements: 5-97-223 (Shea/Albert);5-98-179 (Kompaniez), 5-98-201 (Anderson), 5-98-443 (Whyte), 5-98-444 (Barrad), 5-99-005 (Dea), 5-99-006 (Fernbach & Holland), 5-99-007 (Aranda et al.), 5-99-008 (Yacoel et. al.), 5-99-030 (Johnson), 5-99-031 (Lady, Jr./Zlatko/Woods), 5-99-032 (Yacoel et al), 5-99-108 (Pineda), 5-98-471 (Maginot), 5-99-472 (Bjork), 5-99-473 (Gelbard)

Pending Coastal Development Permit Applications

- Trinidad Island: 5-00-389 (Ashby et. al.); 5-00-390 (Burggraf et. al.); 5-00-402 (Buettner et. al.)

Exhibit 5 p. 2 of 2