

CALIFORNIA COASTAL COMMISSION
Central Coast
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RECORD PACKET COPY

Filed: 11/13/95
49th Day: 1/1/96
180th Day: 5/20/96
Staff: SM-SC
Staff Report: 11/29/95 0263M
Hearing Date: 12/14/95
Commission Action:

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: 3-95-77

APPLICANT: Pismo Coast Village, Inc. AGENT: Bob Lupinek of Garing,
Taylor and Associates

PROJECT LOCATION: 165 South Dolliver Street, City of Pismo Beach, San Luis
Obispo County

PROJECT DESCRIPTION: Construction of sheetpile barrier, concrete headwall
with 3 30" diameter flapgate openings, and concrete
approach channel with rock slope protection; placement
of 1 ton rock slope protection along the exterior of
the sheetpile barrier involving the removal of
existing gunite; installation of a 1500 gpm wetwell
and pumping facility including inlet and outlet
piping; pedestrian barrier fencing; and finishing work
including fine grading and revegetation.

LOCAL APPROVALS RECEIVED: none required

SUBSTANTIVE FILE DOCUMENTS: Coastal Development Permit application file No.
3-95-77; De-Minimus Waiver No. 3-95-76;
California Environmental Quality Act.

SUMMARY OF STAFF RECOMMENDATION:

The staff recommends that the Commission grant a coastal development permit for the proposed project, subject to special conditions designed to protect biological resources and water quality within the project vicinity, on the basis that as conditioned, the proposed project will be consistent with Coastal Act policies.

STAFF RECOMMENDATION:

The staff recommends that the Commission adopt the following resolution:

I. Approval with Conditions.

The Commission hereby grants a permit, subject to the conditions below, for the proposed development on the grounds that the development will be in conformity with the provisions of Chapter 3 of the California Coastal Act of 1976, 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, and will not have any significant adverse impacts on the environment within the meaning of the California Environmental Quality Act.

II. Standard Conditions.

Attached as Exhibit A.

III. Special Conditions.

1. Final Project Plans. PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the permittee shall submit, for Executive Director review and approval, final project engineering plans which incorporate urban pollutant reduction measures for the project site (e.g., oil/water separators, sediment/grease traps).
2. Landscape Plans. PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the permittee shall submit, for Executive Director review and approval, detailed landscape plans for the project area (including berm/levee areas) which utilize native vegetation and document methods of irrigation, maintenance, monitoring, and remedial action.
3. Construction Phasing Plan. PRIOR TO COMMENCEMENT OF CONSTRUCTION, the shall provide, for Executive Director review and approval, a written plan and supporting graphics outlining phasing and construction sequence; seasonal considerations; and location of equipment staging areas, temporary security fencing, concrete washdown facility, and any similar elements which would affect water quality or biological resources within the vicinity of the project site.
4. Other Approvals. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, the applicant shall submit to the Executive Director evidence that the following authorizations have been obtained:
 - a. A 1601 Streambed Alteration Agreement from the Department of Fish and Game authorizing the subject construction activities during the winter season;
 - b. U.S. Army Corps of Engineers approval of the project under the Corp's Nationwide Permit Program, accompanied by a Biological Opinion and Incidental Take Permit from the U.S. Fish and Wildlife Service as required by Section 7 of the Endangered Species Act.
5. Removal of the Collapsed Outfall Structure. PRIOR TO THE INSTALLATION OF THE NEW OUTFALL STRUCTURE, permittee shall remove, and dispose in a landfill, all debris associated with the collapsed outfall structure.
6. Site Preparation and Construction Requirements. All site preparation and construction activities shall be consistent with the submitted Operation/Installation Plan for Sheet Pile Cofferdam (prepared by Garing, Taylor and Associates, dated November 13, 1995), and incorporate the recommendations contained in submitted Geotechnical evaluations (Exhibit G), as well as the mitigation measures contained in the submitted Tidewater Goby Survey (Exhibit H). PRIOR TO THE COMMENCEMENT OF

CONSTRUCTION, the project manager shall submit written evidence to the Executive Director that construction contractor(s) have been briefed on all Coastal Development Permit conditions. A biological monitor, acceptable to the permittee and the Executive Director shall be present on the site during staging and construction to ensure that measures designed to protect identified resources are adequately and consistently implemented.

7. Marine/Wetland Resource Protection. With the exception of the sheetpile wall and slope protection authorized by this permit, no construction materials, equipment, concrete, or debris shall be allowed to enter coastal waters. Dewatering activities shall not involve any discharge to Pismo Creek Lagoon.
8. Monitoring/Maintenance Requirements. DURING CONSTRUCTION AND ON AN ONGOING BASIS FOLLOWING THE COMPLETION OF CONSTRUCTION, the applicant shall implement the submitted Preliminary Monitoring and Maintenance Plan (Exhibit H). Any revisions to the project, or remedial actions found to be necessary, shall be immediately reported by letter report to the Executive Director for review and approval, and may require subsequent Commission review.
9. As-Built Plans and Final Inspection. WITHIN TWO WEEKS OF THE CONCLUSION OF CONSTRUCTION ACTIVITIES, the applicant shall submit, for Executive Director review, as-built plans and a final inspection report completed by the engineering geologist.

IV. Findings and Declarations.

A. Project Background and Purpose:

The purpose of the subject project is to replace a drainage outfall structure which failed during the March storms of 1995. The original structure consisted of a concrete drainage ramp extending to a concrete headwall containing three 18 inch diameter flapgate openings. The exterior of this structure was armored with air blown mortar (gunite) and rip-rap, and functioned as an integral component of the berm which separates the Pismo Coast Village Recreational Vehicle Resort from the adjacent Pismo Creek.

The geotechnical investigation prepared for this project attributes the failure of the original structure to the heavy rainfall which occurred on March 9 and 10, 1995. These storms caused Meadow Creek to overflow its banks approximately 1/2 mile east of the site, and flow onto the Pismo Coast Village Resort and through the flood gates of the original structure. The turbulence which occurred at the base of the structure as these high flows were discharged through the flap gates scoured the soil beneath the structure's foundation, causing the wall to become unsupported. Due to the lack of an adequate foundation embedment at the structure's base, combined with extreme turbulence resulting from the high flows, the berm failed, taking the entire outfall structure and soil from two campsites with it.

Since the failure of the original structure, no repairs have been initiated, leaving this area subject to further damage and property loss in situations of heavy rain and/or ocean wave attack. The subject project seeks to remedy this situation by installing a new outfall structure which has been designed to withstand the combined erosional forces of drainage, creek flow, and wave attack present at the site.

2. Project Description:

The replacement outfall will be in the same location as the original outfall, and involve the following elements:

- a. Installation of a sheet pile wall. After all debris has been removed from the replacement structure's footprint, a sheet pile wall of approximately 135 feet in length will be installed by pile driving it to an approximate depth of 11.75 feet below mean sea level. Once installed to this depth, the top of the wall will be at an elevation of ten feet. At its northern limit, the wall will extend into an existing berm armored with rip-rap. The wall forms an obtuse angle at its centerpoint, then extends in a southeasterly direction into an existing earthen berm.

After the sheetpile wall has been installed, the area on the landward side of the wall will be dewatered and backfilled to an elevation of 3, one foot below the outfall openings, to provide a silt and debris trap during the remaining construction period in case of flooding from the inland side. An opening for the drainage outlet will then be cut in the sheet pile wall just north of the wall's centerpoint.

- b. Berm Repair and Rip Rap Placement. The remaining gunite on the creek side of the sheetpile wall will be removed and replaced with one ton rip rap over a liner of geotextile filter fabric. Rip rap stones will be individually placed to insure a three-point contact with underlying stones, and will not exceed a slope face angle of 1.5:1 (horizontal to vertical ratio). The placement of the rip rap will be entirely within the footprint of previously existing gunite and rip rap slope protection, and will extend to the same height of the existing berm at the limits of the wall, and to the bottom of the flapgate openings in the discharge area.
- c. Concrete Headwall and Cap. The three 30" drainage outlets will be supported by a concrete headwall and cap constructed on top of the installed sheetpile. This cap will be 30" in width, will extend the entire length of the sheetpile wall, and will be reinforced with rebar welded to the top of the sheetpile.
- d. Concrete Drainage Channel. On the inland side of the flapgate openings, a 6" thick concrete drainage channel with 6" concrete curbs and a storm drain inlet will be constructed to replace the drainage channel that was lost when the previous structure collapsed in order to facilitate positive drainage and prevent erosion.

- e. Wetwell, piping, and pumping facilities. The replacement outfall structure incorporates a 1500 gallon per minute (gpm) wetwell pumping facility which pumps water collected by the storm drain inlet located along the south side of the concrete channel through PVC pipes to a 10" opening in the headwall. This aspect of the project constitutes the replacement of a smaller pumping facility which was a component of the original outfall structure.
- f. Revegetation and Erosion Control. Along both sides of the concrete drainage channel, 100 square feet of 75 lb. rock slope protection will be placed over geotextile fabric in order to protect the soils adjacent to the drainage channel from erosion during flood flows. The remaining areas of exposed soil on the project site will be revegetated.

3. Project Location:

The project site is located on beach front property owned by the Pismo Coast Village Recreational Vehicle Resort, in the City of Pismo Beach, San Luis Obispo County (Exhibits B and C). The subject replacement outfall structure will be constructed along an existing berm which separates the western portion of the Pismo Coast Village Recreational Vehicle Resort from the south bank of Pismo Creek and its seasonal lagoon, near its confluence with the Pacific Ocean, which lies approximately 400 feet west of the project site (Exhibit D).

A boundary determination was undertaken in August, 1995, to determine whether this project fell within the permit jurisdiction of the California Coastal Commission or the City of Pismo Beach. The results of that determination found that the project site lies entirely within the Coastal Commission's permit jurisdiction (Exhibit F).

As a result of the collapse of the original structure, which was an integral component of the previously existing berm, portions of the resort's land were eroded, and are currently covered by waters of Pismo Creek (Exhibit E). The northern portion of the remaining berm, which forms the southern bank of Pismo Creek, is covered by a combination of large rock and pieces of concrete cemented together with poured concrete and air blown mortar. Although mostly unvegetated, some native and non-native plant species exist in the cracks and open sand areas of the berm. At the toe of the remaining berm can be found plants common to coastal wetlands.

South and west of the remaining berm exist small pioneer dunes of Pismo State Beach, which represent the northernmost portion of the Nipomo Dune Complex, stretching 18 miles south to Point Sal.

4. Biological and Marine Resources:

The biological survey completed for this project document the presence of three types of environmentally sensitive habitat areas within the project's immediate vicinity. These include the aquatic habitat within the water covered areas of Pismo Creek, which have been found to support large numbers of the federally endangered Tidewater Goby; small areas of estuarine and salt marsh habitat along the south bank of Pismo Creek; and the pioneer dune community south and west of the remaining berm.

The following Coastal Act policies protect terrestrial and marine habitats of special biological significance, and apply to the subject project:

a. Section 30230.

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.

Analysis: The above policy requires that the subject project maintain the quality of the marine resources contained in the waters of Pismo Creek, especially the significant biological resources present, which in this case includes the federally endangered Tidewater goby.

One federally endangered aquatic species, the Tidewater Goby, has been found in abundance within the waters of Pismo Creek, including within the area of outfall collapse which is currently covered by water.

The replacement outfall structure will eliminate a small amount of aquatic habitat which has formed in the area of the collapsed berm, and temporarily disturb aquatic areas along the creek bank during construction activities. Both of these areas have been shown to support the federally endangered Tidewater goby.

In response to this constraint, the applicant hired a professional biologist authorized by the U.S. Fish and Wildlife Service to survey the project area for Tidewater gobies. This survey found an abundance of Tidewater gobies in the Pismo Creek Lagoon. As a result of this abundance, the report states "loss of a relatively small portion of the population inhabiting the construction area will not significantly impact the population as a whole". The report estimates that any mortality to Tidewater gobies would be significantly less than 1% of the tideater goby population present in the lagoon, since less than 1% of the lagoon/estuary surface area will be disturbed by the project.

With respect to habitat impacts, the report states "we do not expect that added turbidity created by the excavation and vibration during the sheet-pile installation to adversely affect tidewater goby habitat". In addition, due to the fact that the project will affect less than 5% of the lagoon/estuary margin, no significant adverse long-term impacts to tidewater goby habitat are expected.

In order to minimize any impacts to Tidewater gobies as a result of project implementation, mitigation measures involving seining fish from the construction area and transporting them to an area outside of the construction zone, and preventing their return using a screen barrier, have been developed (Exhibit H). Special condition 6 of the coastal development permit requires implementation of these measures in order to maintain consistency with Coastal Act Section 30230.

It should also be noted that other state and federal laws require the project to be approved by the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and Department of Fish and Game. These requirements are referenced by special Condition 4 of the coastal development permit, which requires evidence of these approvals to be submitted prior to the commencement of construction. Although a 1601 Streambed Alteration Agreement has already been issued by the Department of Fish and Game, it will need to be amended in order to allow for construction during the winter season.

Conclusion: As conditioned, the subject project will maintain the marine resources contained in the waters of Pismo Creek and will not adversely affect the biological productivity of these waters. Because mitigation measures which specially protect species of special biological significance are required to be implemented as a condition of project approval, the project is consistent with Section 30230 of the Coastal Act.

b. Section 30231.

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.

Analysis: The subject project has the potential to adversely affect the biological productivity and coastal water quality of Pismo Creek Lagoon during construction activities, as well as during the subsequent functioning of the outfall structure.

Because construction activities adjacent to Pismo Creek involve the pouring of concrete, which can change the alkalinity of any water it comes in contact with, a focused effort must be made to prevent water contact with uncured concrete. Measures to avoid adverse impacts to water quality and biological resources (other than the Tidewater goby) have not been provided by the project applicant.

Therefore, Special Conditions 3 of the coastal development permit requires the permittee to submit a construction plan which contains measures specifically designed to prevent construction activities from adversely effecting water quality and biological resources. Special Condition 7 specifically prohibits the permittee from allowing any concrete or other construction debris from entering coastal waters.

Subsequent operation of the outfall facility threatens biological productivity and water quality of Pismo Creek due to the fact that the area which will be drained, a recreational vehicle resort, contains urban pollutants, such as those typically found in parking lots. As proposed, the replacement outfall structure would drain this area directly to Pismo Creek, without providing any measures to reduce the quantity of urban pollutants contained in this runoff such as oil/water separators and sediment/grease traps.

Pollutant reducing mechanisms have not been proposed as part of this project on the basis that no such elements existed as part of the previously existing outfall structure. The old outfall however, pre-dated the Coastal Act and thus was not subject to its resource protection standards. This project is new development and is therefore required to meet Coastal Act standards. It is necessary to meet the intent of Coastal Act Section 30231, which calls for the implementation of measures to avoid adverse impacts to coastal water quality and biological productivity whenever feasible. Therefore, Special Condition 1 of the coastal development permit requires the permittee to submit, for Executive Director review and approval, final plans which incorporate urban pollutant reduction measures, prior to the issuance of the permit.

Conclusion: Coastal Act Section 30231 requires that adverse impacts to the quality of coastal waters be protected in order to maintain, and where feasible, enhance, biological productivity, as well as to protect human health. Measures to achieve this Coastal Act requirement have not been provided by the project applicant, and are therefore have been required as conditions of coastal development permit approval. Only as conditioned can the project be found to be consistent with Section 30231.

c. Section 30233.

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

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

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

Analysis: Because the subject constitutes the replacement of a previously existing drainage outfall structure, which is considered a public service project, it is an allowable use in a wetland area according to the above policy. However, there has been some question as to whether or not the project conforms with the requirement that such projects "maintain or enhance the functional capacity of the wetland or estuary".

As originally proposed, the project involved an increase in the footprint of the rip rap protection along the creek bank, which would encroach into previously undisturbed wetland areas. In responding to concerns expressed by Commission staff regarding this impact, the project was revised a manner which maintains the footprint of the previously existing outfall structure, and avoids further encroachment into Pismo Creek.

In addition, the slope of the rip rap north of the outfall structure will be at a steeper angle than the previously existing berm, thereby providing a small amount of additional area which will be covered by waters of the lagoon.

To further enhance the functional capacity of the wetland area in which the project is located, as called for by Coastal Act Section 30233(c), Special Condition 5 requires the permittee to remove all remaining debris resulting from the collapse of the previous outfall.

Conclusion: The proposed project, as conditioned, is consistent with Coastal Act Section 30233 because it will both maintain and enhance the functional capacity of the Pismo Creek Lagoon/Estuary.

d. Section 30240.

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

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Although no rare or endangered plant species were found in or near the project site, several rare plants have been noted in the coastal sand dunes south of the site, including beach spectacle-pod, southwestern spiny rush, dunedelion, and crisped monardella. In addition, the survey notes that a thorough survey throughout the entire year would be necessary for a complete identification of all plant species present on the site due to annual and seasonal variations.

At least 27 sensitive terrestrial and vertebrate wildlife species have been documented as potential users of the habitat present at the project site, including the California Red-legged frog which is federally proposed as endangered.

Analysis: Construction activities associated with the subject project have the potential to adversely effect environmentally sensitive habitat areas and special status species by disrupting and removing small amounts of native dune and wetland vegetation.

Although none of the native dune or wetland vegetation within the project vicinity has been found to be rare or endangered, such vegetation provides habitat for many special status wildlife species of the area.

In order to mitigate impacts of vegetation removal, the applicant has proposed to landscape the project area, but has not submitted a landscape plan for Commission staff review. As a result, Special Condition 2 of the coastal development permit requires the permittee to submit a detailed revegetation plan which utilizes native vegetation and documents methods of irrigation and maintenance that will be implemented. Special attention will be given to plant selection and location, in order to replicate natural vegetation patterns of the area.

Conclusion: Coastal Act Section 30240 protects environmentally sensitive habitat areas from disruption, and requires development adjacent to such areas to be compatible with the continuance of those habitats. The subject project, which will impact a minor amount of native vegetation considered environmentally sensitive habitat, is consistent with this requirement because as conditioned, revegetation of the project area with an equal or greater amount of equivalent native vegetation will be provided.

5. Hazards:

The subject project is in a very hazardous location, subject to three principal sources of erosion: winter storm wave activity, flows along Pismo Creek, and the discharge of concentrated drainage from upland areas. In order to protect the property of the Pismo Coast Village Recreational Vehicle Resort from ongoing damage, as well as to protect the safety of the public visting this resort, a replacement drainage structure which can withstand the erosional forces at this location is needed.

The Coastal Act Section 30253 states in part:

New development shall:

- (1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.
- (2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

Analysis: As stated above, the subject project is needed in order to minimize risks to life and property, consistent with part (1) of the above policy. With respect to part (2), geotechnical reports analyzing the project's structural stability and effect on natural shoreline processes have been prepared and reviewed by Commission staff.

In addition to finding that the subject project will not contribute to erosion, or result in adverse effects to the surrounding areas, these reports provide specific recommendations regarding the design and installation of the project, intended to ensure its structural integrity. They have been reviewed by the Commission staff's engineer, and have been revised and supplemented in order to respond to the questions and concerns raised.

The culmination of the geotechnical recommendations developed throughout this process are attached as Exhibit G, and are required to be implemented by Special Condition 6 of the Coastal Development Permit. In addition, Special Condition 9 attached to the permit requires the permittee to submit as-built plans and a final inspection report completed by the engineering geologist at the conclusion of construction activities.

Conclusion: The subject project is needed to abate a hazardous situation which currently exists at the project site, and will not create nor contribute to erosion, geologic instability, or destruction of the site or surrounding area. As conditioned, it is consistent with Coastal Act Section 30253 because specific means of ensuring structural integrity have been incorporated into project design and implementation.

6. Access and Recreation:

Because the subject project constitutes the replacement of a previously existing outfall structure, no change in public access or recreation opportunities will result. Public access and recreational opportunities are available immediately adjacent to the project site, on beach areas owned and managed by the California Department of Parks and Recreation (State Parks). State Parks has submitted a letter of support for the project, confirming that the project will not impact recreational uses of the State Beach.

8. California Environmental Quality Act:

Throughout project review, many alternatives to the subject project were considered, and the subject project was found to be least environmentally damaging alternative available to abate the hazardous situation which currently exists at the project site. As detailed in the findings of this report, the subject project has been conditioned to include mitigation measures which will avoid any significant impact to environmental resources, and is consistent with Chapter 3 policies of the Coastal Act.

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COASTAL DEVELOPMENT PERMIT

STANDARD CONDITIONS:

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. Compliance. All development must occur in strict compliance with the proposal as set forth in the application for permit, subject to any special conditions set forth below. Any deviation from the approved plans must be reviewed and approved by the staff and may require Commission approval.
4. Interpretation. Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
5. Inspections. The Commission staff shall be allowed to inspect the site and the project during its development, subject to 24-hour advance notice.
6. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
7. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

EXHIBIT NO. A
APPLICATION NO. 3-95-77
Pismo Coast Village
Standard Conditions

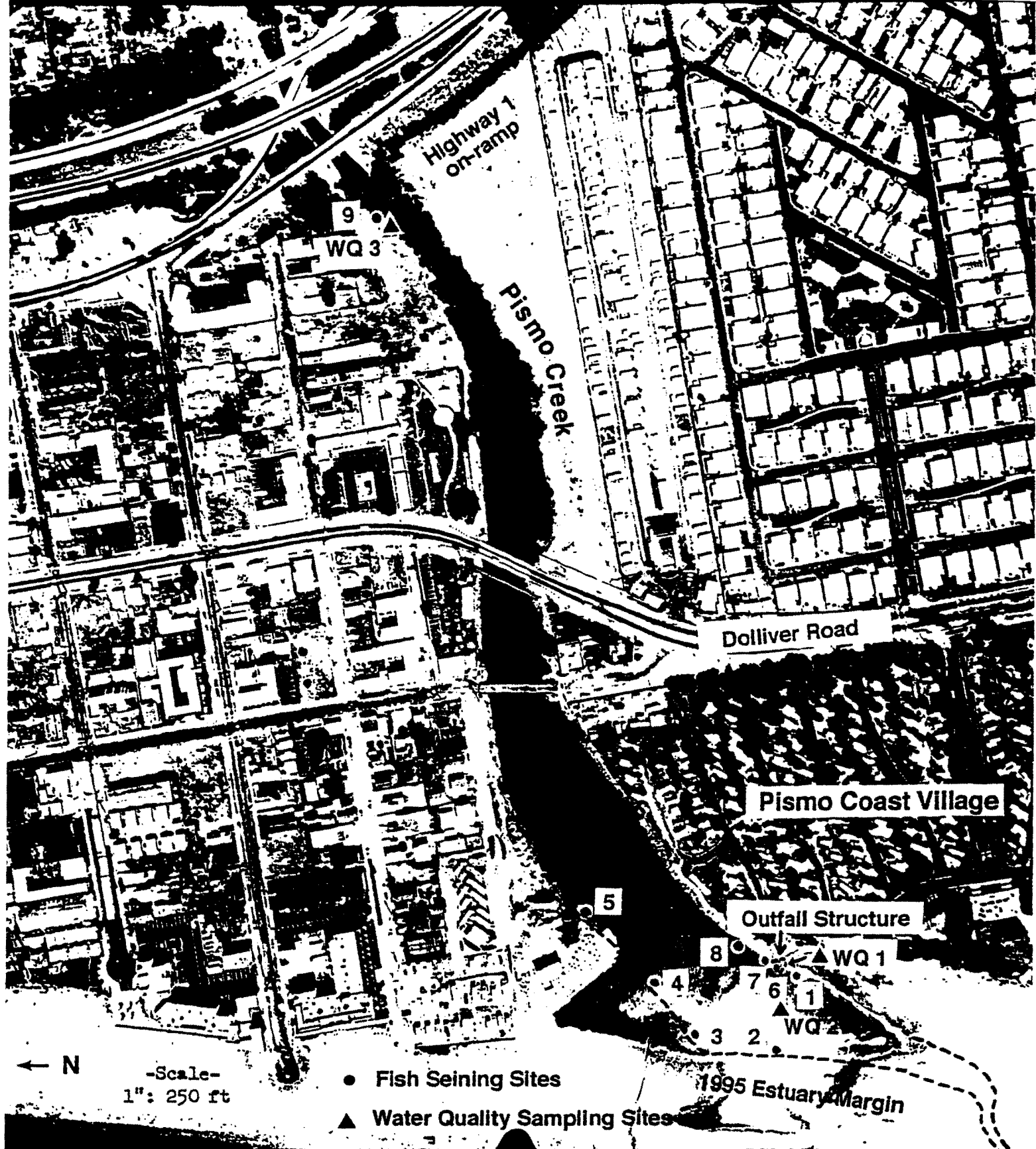
MO
BEACH



**SITE
LOCATION**

**GROVER
BEACH**

EXHIBIT NO. C
APPLICATION NO. 3-95-77
Pismo Coast Village Area Map



Tidewater Goby Survey
at Pismo Creek Lagoon/Estuary,
San Luis Obispo County,
California, 1995

Project #137-01

Figure 1.

Seining Sites and Water
Quality Sites at
Pismo Creek Lagoon/Estuary.
10 November 1995.

D.W. ALLEY & As
P.O. Box 200
Brookdale, CA 9

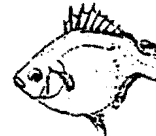


EXHIBIT NO. 

APPLICATION NO.
3-95-77

Pismo Coast Village
Site Map

APPENDIX 6. Shows the outlet before (top photograph) and after the storm damage of 1994-95 (bottom photograph)



EXHIBIT NO. E
APPLICATION NO. 3-95-77
Pismo Coast Village Before + After Photos of Outfall Collapse

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
 SAN FRANCISCO, CA 94105-2219
 VOICE AND TDD (415) 904-5200



RECEIVED
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16 August 1995

MEMORANDUM

TO: Steve Guiney, Santa Cruz

FROM: Allyson C. Hitt, Technical Services *ACH*

SUBJECT: Boundary Determination 18-95
 Pismo Creek

CALIFORNIA
 COASTAL COMMISSION
 CENTRAL COAST AREA

Enclosed is a copy of a portion of the adopted Post-LCP Certification Map for the City of Pismo Beach with the approximate location of the flapgate project site highlighted. Also included is a copy of the project site map for the area with the Commission's permit jurisdiction boundary shown thereon.

Based on the information provided, the project area lies entirely within the Commission's permit jurisdiction. Development on the project area would require a Coastal Development Permit from the Commission.

As you know, the boundary between the Commission's retained permit and appeal jurisdictions is based on the State Lands Commission staff delineation of potential public trust lands, and its exact location may vary depending on what lands are actually subject to the public trust. Questions regarding the exact location and extent of public trust lands should be referred to the State Lands Commission for determination. Their status determination procedure may or may not result in a different boundary.

Please contact me if you have any questions regarding this determination.

Enclosures

cc: L. Strnad, CCC-SC

EXHIBIT NO.	F
APPLICATION NO.	3-95-77
Pismo Coast Village	
Boundary Determination	

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

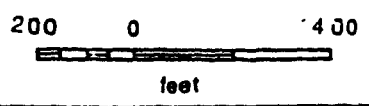
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Public Rd.

Approximate
Location in Question

portion of
post LCP cert. map

BD #18-95
Pismo Creek



City of Pismo Beach

EXHIBIT F, p.2

HIGHWAY 1 (DOLLIVER ST.)

CYPRESS ST.

S 31° 42' 15" W 23.93'

S 42° 40' 45" E

605.54'

C R E E K

Permit Jurisdiction Boundary

IN OUT

N 47° 17' 45" E

[Faint, illegible text, likely a permit or project description]

BD #18-95

Pismo Creek

N 59° 20' 01" W

400.55'



PROJECT SITE
EXHIBIT F, P. 3

RECEIVED
AUG 0 1
CALIF
COASTAL
CENTRAL

5) Bluff Retreat Rate with Proposed Structure

As discussed in the section on Coastal Retreat Rates, the episodic erosion and deposition rate of the beach would remain the same, however, its affect in the discharge area would be nearly zero unless subjected to unknown, catastrophic conditions (i.e. tsunamis or earthquake). This assumes maintenance is performed on the structure as recommended within this report. An inspection should be conducted by an engineering geologist during periods of large wave action or storm conditions which impact the structure.

6) Potential for Scouring at Base

Any replacement structure design should be based upon the design wave calculated above, and assuming that it will be founded through the loose materials and into firm materials. Based upon site conditions, it is assumed that the creek will scour to a depth of 0.00 feet (NGVD Datum). To reduce the potential additional scour, rip rap should be placed and maintained near the base of the flood gate wall and extend up to elevation 4.0 feet. The base of a sheet pile wall should extend to a depth of elevation -11 feet or as approved by the engineering geologist.

CONCLUSIONS

Based upon the evaluation performed, the previous flood gate wall was undermined and lost due to the turbulence which occurred at the base of the structure as the water discharged from the flood gates. This turbulence resulted in the scour which removed the soil from beneath the foundation causing the wall to become unsupported. The unsupported wall failed when insufficient soil remained to support the structure. The continued flow eroded the ramp and soil originally located behind the wall. Localized deepening of the creek occurred due to the turbulence experienced around debris in the new channel. Neither wave action nor flooding along Pismo Creek appeared to have contributed to the structural failure. The replacement structure should be constructed to prevent the hydraulic jump from occurring beneath the flood gate and eroding the soil in front of the wall. In addition, it should be constructed to prevent loss of the structure by flooding along Pismo Creek. This is accomplished by construction of the structure and repair of the berm to its pre-failure height and resistance to water flow. Wave and tidal activity may impact the proposed structures and with proper maintenance it should not be damaged anymore than the adjacent berm. Based upon the need to replace the structure and our understanding of the cause of its loss, it is recommended that the replacement structure be constructed in a manner which protects it from scour, from active marine erosion, and water flow during flooding of Pismo Creek.

RECOMMENDATIONS

Based upon the geologic evaluation performed and the need to replacement the structure, it is recommended that a sheet pile type wall be utilized and the berm be repaired. Rip rap armor should be placed full height on the face of the berm and up to a height of elevation 4.0 feet along the face of the sheet pile wall where not covered by the repaired berm. This type of structure allows for the greatest degree of protection from scour and permits the construction of the drainage discharge elements. Not repairing or reconstructing the flood gate wall will result in uncontrolled drainage which will further damage the resort facilities.

EXHIBIT NO. G
APPLICATION NO. 3-95-77
Pismo Coast Village
Geotechnical Recommendation



Sheet Pile Wall

The sheet pile wall and associated drainage facilities should be designed by the general civil engineer.

- 1) Sheet Pile Wall Based upon the design wave heights, it is recommended that the wall be constructed to elevation 10.0 feet except as necessary to allow for an overflow.
- 2) Depth and Placement of the Sheet Pile Initially, all vegetation, debris, gunite cover, loose beach sand and other loose material should be removed from along the proposed sheet pile wall alignment. The sheet pile should be vibrated or driven according to the manufactures specifications to a minimum depth of elevation -11.0 feet. The limits of the wall should be established by the general civil engineer based upon the recommendation of this report and limits of the structure requiring protection.
- 3) Backfill Prior to backfill, standing water should be pumped from behind the sheet pile wall. All vegetation, debris, gunite cover, loose beach sand and other loose material should then be removed. If the resulting surface is unstable, a geotextile stabilization fabric (Mirafi 500X or 600X or equivalent) may be placed as directed by the engineering geologist or soils engineer. An alternative to the fabric is stabilization by the placement of 3/4 or 1 1/2 crushed rock into the unstable subgrade as directed by the engineering geologist or soils engineer. Once stabilized, fill can then be placed in thin lifts, moisture conditioned, and compacted to a minimum of 90 percent relative density as directed by the engineering geologist or soils engineer. Large sections of concrete can either be buried beneath the backfill or stacked with the rip rap as approved by the engineering geologist.
- 4) Maintenance The sheet pile may require maintenance during the life span of the structure. It should be inspected during any periods when it has been exposed to direct attack by ocean waves or flooding along Pismo Creek. Inspection should also be made after the winter months, as such inspection may disclose conditions that require repair or improvement not normally visible after beach deposits have been established during the summer months.
- 5) Construction Observation As per the requirements of this report and in accordance with Caltrans guidelines, all construction should be inspected by our engineering geologist or his representative to verify compliance with the intent of this report. This inspection should include verification of pile embedment, and lateral limits. Continuous inspection by the engineering geologist maybe necessary to verify embedment of the sheet pile is in conformance with the intent of this report. Care should be taken to remove all debris from along the alignment of the wall. It is unknown if stone or broken concrete exists within those portions of the alignment currently covered by the berm. Localized stone removal maybe necessary to allow embedment to proposed design depth.



Berm Repair and Rip Rap Placement

The revetment should be constructed according to the guidelines issued by the U.S. Army Corp of Engineers, Bank and Shore Protection Manual, and State of California, Coastal Commission guidelines.

- 1) Rip Rap Stone Size Based upon the design wave height, it is recommended that the bed stone/foundation rock be one ton class as per Caltrans design specifications.
- 2) Depth and Placement of Rock Initially, all vegetation, debris, gunite cover, loose beach sand and other loose material should be removed from the face of the berm and beach area beneath the sheet pile wall. The area to be covered by the rip rap shall be lined with a geotextile filter fabric, Mirafi 700X or equivalent. The limits of the rip rap should be established by the general civil engineer based upon the recommendation of this report and limits of the bluff protected.

The rip rap stone should be individually placed according to Caltrans-Placement Method "A." The larger stone should be placed along the base of the berm. Stone should be placed with a three-point contact on the underlying stones. Construction of the armor by dumping of stones will not be allowed. The maximum slope face angle should be 1.5:1 (horizontal to vertical). The rip rap should extend to the top of the berm or to the bottom of the drain openings along the face of the sheet pile.

- 3) Maintenance The rip rap will likely require maintenance during the life span of the structure. It should be inspected during any periods when it has been exposed to direct attack by ocean waves or flooding along Pismo Creek. Inspection should also be made after the winter months, as such inspection may disclose conditions that require repair or improvement not normally visible after beach deposits have been established during the summer months.
- 4) Construction Observation As per the requirements of this report and in accordance with Caltrans guidelines, all construction should be inspected by our engineering geologist or his representative to verify compliance with the intent of this report. This inspection should include verification of keyway excavation, grubbing of loose materials, placement of geotextile fabric, and rip rap stone, and limits of the stone. Continuous inspection by the engineering geologist should be maintained during the placement of the rip rap stone according to Caltrans requirements.

LIMITATIONS

The recommendations contained in this report are based, in part, on certain plans, information and data that have been provided to us. Any changes in those plans, information and data will render our recommendations invalid unless we are commissioned to review the changes and to make any necessary modifications and/or additions to recommendations.

November 7, 1995

Project L0940

2.0 PURPOSE AND SCOPE

The purpose of this work was to evaluate the soil conditions at the site based on available information and to check of the proposed sheet pile section using the geotechnical parameters obtained from this evaluation. The scope of this work included the following items:

- 1) A review of available published and unpublished geotechnical and geologic data pertinent to the project site.
- 2) A site visit to formulate a general description of the surface conditions.
- 3) Analysis of the data gathered and development of geotechnical soil parameters for design of a sheet pile wall.
- 4) Preparation of this report summarizing our findings, conclusions, and recommendations.

3.0 SUBSURFACE SOIL CONDITIONS

Our understanding of the subsurface soils at the site are based on the site geology, visual observations and the borings performed by Terratech for the Addi Street and Sea Venture projects located directly north of the site. The logs from these projects are included in Appendix A. In general, loose to medium dense, poorly graded sands are anticipated to be encountered in the upper 15 feet at the site.

4.0 CONCLUSIONS AND RECOMMENDATIONS

- 1) The site is suitable for the installation of a sheet pile wall provided the recommendations presented in the report are incorporated into the project plans and specifications.



- 2) The soil parameters for this design are provided in the following sections of this report.
- 3) The Geotechnical Engineer should be notified at least two working days before construction operations commence, and should be present to observe and provide consultation to the Piling and Grading Contractor in the field.
- 4) Field observation and testing should be provided by this firm during installation of the piling, placement of fill and construction of the revetment. This will allow us to provide remedial recommendations as required. Any work performed without the full knowledge of, and under direct observation of this firm, may render the recommendations of this report invalid.

4.1 Site Preparation

- 1) All deleterious materials should be removed from the proposed work area. This includes, but is not limited to any buried utility lines, debris, loose soils and any other surface and subsurface structures. Void left from site clearing should be cleaned and backfilled as recommended for structural fill.

4.2 Structural Fill

- 1) The native sands are suitable for use as structural fill. Structural fill should not contain rocks larger than four inches in greatest dimension, and should have no more than 15 percent larger than 2.5 inches in greatest dimension.
- 2) Import material should be free of organics and other deleterious material and should have low expansion potential, with a plasticity index of 15 or less. Before delivery to the site, a sample of the proposed import should be tested in our laboratory to determine suitability for use as structural fill.



- 3) The structural fill should be placed in layers, each not exceeding 8 inches in thickness before compaction. The fill should be conditioned with water, or allowed to dry, to produce a soil water content at or slightly above optimum moisture content, and should be compacted to at least 90 percent relative compaction based on ASTM 1557-78.

4.3 Lateral Pressures

- 1) We recommend using the following lateral pressures (soil) for design of the sheet piling.

Lateral Pressure and Condition	Equivalent Fluid Pressure, pcf
Active Case, drained	43
At-Rest Case, drained	64
Passive Case, drained(submerged)	330 (150)

- 2) An equivalent fluid pressure of 62.4 pcf should be used when the wall retains water. A soil unit weight of 120 pcf may also be utilized in the design.
- 3) In addition to the lateral soil pressure give above, the sheet pile wall should be able to support any design live load, such as from vehicle and construction surcharges, etc., to be supported during reconstruction.

4.4 Design Check

- 1) Based on the information obtained from the Addi Street project and using Figure 24 of NAVFAC Manual 7.02 (see Figure 3 attached) the sheet piles should have a depth of penetration of between 1.5H to 2.5H (where H is height of piling above lowest adjacent grade). The range in depth is provided



to allow for variation in the soil density and backfill condition. If soil conditions are loose to a significant depth the 2.5H value would be appropriate. For soil on both sides of the piles and a 2 to 3 foot cantilever the depth of penetration provided would be more than adequate. Using the same Figure and a 5 foot cantilever of water behind the wall, the depth of penetration provided would also appear to be adequate. However, with the loss of the rip-rap in front of the wall a 9 foot cantilever would be created. A depth of penetration of at least 18 feet below MSL would be required for a depth ratio of 2.0H. If the soils were in a loose condition below this depth, penetration of the piling in the area of the drains may need to extend to 22.5 feet below MSL.

- 2) The moment applied was also determined from the Figure using the Kp/Ka ratio. Using a moment ratio of 1.25, the applied moment to the sheet piling was calculated to be approximately 330 kip-in/foot. The PLZ25 section proposed has an allowable bending moment capacity in excess of 500 kip-in/ft.
- 3) The results of this analysis indicates that a lighter section (PLZ23) could be used over those portions that retain 2 feet of soil or less.
- 4) As indicated in the specification prepared by GTA, the sheet piling will conform to the requirements of ASTM A690. This specification (A690) covers the use of high strength low-alloy steel H-piles and sheet piling for dock walls, sea walls, bulkheads and like applications in marine environments. This type of steel has two to three times greater resistance to seawater "Splash Zone" corrosion than ordinary steel (A36). Based on information from our Coastal Bluff Evaluation Report (Oct 3, 1995), it is anticipated that the sheet pile wall will only experience periodic wetting from seawater and will therefore not be in a constant splash zone situation. Considering the type



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of steel specified, the overdesign of the wall section, and the environment of the installation corrosion should not be of concern and the wall should perform as intended for its design life.

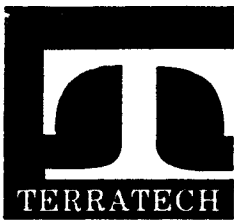
4.4 Drainage and Erosion Protection

- 1) Gradients should be planned to prevent drainage of surface water onto fill areas. Facilities should be maintained in good operating condition.
- 2) Modifications to the revetment that steepen or otherwise modify the proposed construction, should not be attempted. All modifications should be made under the direction or approval of the engineer. A monitoring program should also be implemented to observe the performance of the wall and revetment.

5.0 LIMITATIONS

- 1) This report has been prepared using soils information from an adjacent project. Although considered to be relatively representative of the site, soil and geologic conditions could vary significantly. Remedial recommendations may therefore be required if conditions change from what was anticipated.
- 2) The recommendations contained in this report are based, in part, on generalized plans, information and data that have been provided to us. Any changes in those plans, information and data will render our recommendations invalid unless we are commissioned to review the changes and to make any necessary modifications and/or additions to our recommendations.
- 3) Our recommendations have been made in accordance with the principles and practices generally employed by the geotechnical engineering and engineering geology professions. No other warranties, either expressed or implied, are made as to the professional advice provided.





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November 14, 1995
Project L0940

Attn; Mr. Steve Monowitz
CALIFORNIA COASTAL COMMISSION
725 Front Street, Suite 300
Santa Cruz, California 95060

CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

SUBJECT: Sheet Pile - Design Assumptions
Replacement of Collapsed Outfall Structure
165 Dolliver Street, Pismo Beach, California

- References:
- 1) Coastal Bluff Evaluation for Drainage Outfall Structure, Pismo Coast Village Recreational Resort by Terratech, Inc., dated October 3, 1995.
 - 2) Addendum to Coastal Bluff Evaluation for Drainage Outfall Structure, Pismo Coast Village Recreational Resort by Terratech, Inc., dated October 19, 1995.
 - 3) Sheet Pile Wall, Pismo Coast Village Recreational Resort by Terratech, Inc., dated November 7, 1995.
 - 4) Preliminary Monitoring and Maintenance Plan for the Proposed Outlet Structure, Pismo Coast Village Recreational Resort by Terratech, Inc., dated November 10, 1995.

Dear Mr. Monowitz:

I am writing this letter in hopes of clarifying a design assumption utilized in the geotechnical assessment of the sheet pile wall report (reference 3). Mr. Church within our office completed the requested assessment to confirm the adequacy of the sheet pile wall with respect to the geotechnical conditions. As indicated in the within the report, he conducted two assessments, the first being of the design as proposed and the second assuming a "worst case scenario" as discussed with Lesley Ewing. The design consideration for first assessment were based upon the recommendations of Coastal Bluff Evaluation (reference 1) and flood hazard analysis performed by Garing, Taylor and Associates. The second assessment, a "worst case" scenario assumes several conditions would occur simultaneously.

First Assessment - Proposed Sheet Pile Wall (Tip Elevation minus 11.75 feet below MSL)

The proposed design (sheet pile tip depth minus 11.75 feet) is based on a structure being able to resist erosion or damage from wave attack as well as interior or exterior flooding. The design frequency for each of these events is once or twice per century for coastal storms (reference 1) and once per century for internal flooding (FEMA) on either the Pismo or Meadow Creeks. The proposed design upgrades the site structures from that which originally failed due to improper design. The assessment verified the adequacy of the proposed design with respect to the geotechnical considerations and forms the basis of the final structure design.

EXHIBIT G, p. 9

November 14, 1995

Project L0940

Second Assessment - Proposed Sheet Pile Wall (Tip Elevation minus 18 feet below MSL)

This assessment was performed assuming loss of rip rap stone outside of the wall and ponding of 5 feet of water behind the wall. If designed with these conditions, the sheet pile wall would be required to be deepened to a depth of minus 18 feet below mean sea level. Loss of rip rap would require storm activity and wave attack in excess of that discussed in the Coastal Bluff Evaluation (twice in a century event). In addition, to have ponding to elevation 9 feet, 100 year flooding along Pismo or Meadow Creeks would have to occur according to FEMA (once in a century). To statistically have the necessary flooding and wave attack, it would occur simultaneously once every 2500 years. This exceeds the 75 year lifespans required in the Interpretative Guidelines issued by the California Coastal Commission for coastal structures.

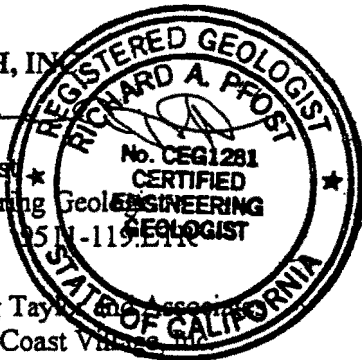
This second assessment also assumes no maintenance as required by the Preliminary Maintenance and Monitoring Plan (reference 4). This plan recommends the maintenance of the rip rap as indicated by regular monitoring as well as special event monitoring. The potential for the loss of the rip rap is considered very remote assuming proper construction and maintenance of the revetment as proposed. Therefore, the project design should be based upon the first assessment and not the second.

If there should be any further questions, please do not hesitate to contact me at (805) 543-5493.

Sincerely,

TERRATECH, INC.

Richard A. Pfoos
Senior Engineering Geologist
Doc. No. 9511-119



cc Garing Taylor
Pismo Coast Village
Lyon and Carmel



upstream of the damaged outfall (Table 2). Tidewater gobies were distributed throughout the lagoon, including the upper lagoon. Despite the small area sampled along the bank in the upper lagoon and the difficulty in beaching the seine, gobies were still captured. This indicated that they were probably quite abundant there. Opossum shrimp were very abundant at seine haul locations 1 and 4.

Water quality conditions were good for tidewater gobies in Pismo Creek Lagoon/Estuary. Water quality was similar throughout the lagoon/estuary with regard to salinity and water temperature (Table 3). The water column was slightly saline from top to bottom at Stations 1 and 2 in the lower lagoon. A loosely defined, slightly salty lens was detected on the bottom in the upper lagoon, with cooler freshwater entering from upstream. Light rainfall had occurred previously on 31 October (Halloween night), with the channel being open on 10 November, as it had been throughout the summer (Blain Forest, Pismo Coast Village General Manager, pers. comm.).

POTENTIAL CONSTRUCTION IMPACTS AND SUGGESTED MITIGATIONS

Tidewater goby mortality and habitat disruption limited to the cove created by the flood damage and 3-4 m beyond the mouth of the cove may occur during excavation of the existing outfall structure and installation of the sheet-piling. Additional mortality may occur when rip-rap is placed in the lagoon. The disturbed area will vary between 17 and 35 feet from the sheet-piling wall, which may extend out into the lagoon approximately 5 feet where the berm is intact (Bob Lupinek, pers. comm.). Mortality, should it occur, would likely constitute significantly less than 1% of the tidewater goby population present in the lagoon, considering that the potentially disturbed area will be less than 1% of the lagoon/estuary surface area. We do not expect that added turbidity created by the excavation and vibration during sheet-pile installation to adversely affect tidewater goby habitat.

EXHIBIT NO. H
APPLICATION NO. 3-95-77
Pismo Coast Village
Goby Mitigation

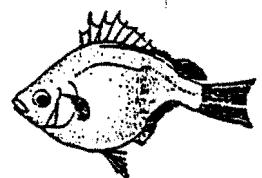
Because of the great abundance of tidewater goby throughout the lagoon/estuary, loss of a relatively small proportion of the population inhabiting the construction area will not significantly affect the population as a whole.

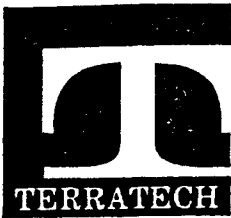
Mitigation deemed acceptable to the USFWS (Marie Lindsey, pers. comm.) for potential take of tidewater gobies would be to remove tidewater gobies from the minimum area to be disturbed by construction and to prevent their return until after the project is completed. We concur with this approach. The area to be seined would include the cove created by the outfall damage, the breached portion of the berm, and the lagoon margin adjacent to the location of the sheet-piling installation and rip-rapping. These areas would be seined to remove as many gobies as possible from that area, including the lagoon's bottom within 15 feet of the existing lagoon margin in the sheet-piling vicinity. A screen barrier would be constructed immediately to prevent gobies from returning to the construction area. Sediment retention fences would be required along the berm to prevent soil from entering the lagoon.

Some tidewater gobies will remain in the construction area after seining efforts. However, the recovery permit to be obtained from the USFWS after the Section 7 Consultation will allow the incidental take of fish that cannot be removed. Once the sheet-piling is in place, it would be acceptable to dewater the area behind the sheet-piling (Marie Lindsey, USFWS, pers. comm.).

We expect no significant adverse long-term impacts to tidewater goby habitat from the project because less than 5% of the lagoon/estuary margin will be affected. A post-construction survey may be required to verify the continued presence of tidewater goby. This may involve a snorkel survey or seining, whichever the USFWS requires.

EXHIBIT H, p. 2





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November 10, 1995
Project L0940

PISMO COAST VILLAGE INC.
165 Dolliver Street
Pismo Beach, California 93449

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CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

SUBJECT: Preliminary Monitoring and Maintenance
Plan for the Proposed Outlet Structure
Pismo Coast Village Recreational Resort
165 Dolliver Street, Pismo Beach, California

- References:
- 1) Coastal Bluff Evaluation for Drainage Outfall Structure, Pismo Coast Village Recreational Resort by Terratech, Inc., dated October 3, 1995.
 - 2) Addendum to Coastal Bluff Evaluation for Drainage Outfall Structure, Pismo Coast Village Recreational Resort by Terratech, Inc., dated October 19, 1995.
 - 3) Discussion of Additional Conditions, Replacement of Collapsed Outfall Structure, Pismo Coast Village Recreational Resort by Terratech, Inc., dated November 4, 1995.
 - 4) Sheet Pile Wall, Pismo Coast Village by Terratech, Inc., dated November 7, 1995.
 - 5) Seawall and Outlet Structure Plan, Pismo Coast Village by Garing, Taylor and Associates, Inc., dated September 14, 1995, revised November 7, 1995.
 - 6) Letter Requesting Additional Information for Processing the Coastal Permit issued by the California Coastal Commission dated October 26, 1995.
 - 7) Letter Regarding Pismo Coast Village Outfall Replacement issued by the California Coastal Commission dated November 8, 1995.

1.0 INTRODUCTION

As requested by the staff of the California Coastal Commission during our meeting on November 6, 1995 and in their confirmation letter of November 8, 1995, the following preliminary monitoring and maintenance plan was compiled. This plan assumes reconstruction will be performed in two phases, the first being installation of a sheet pile wall "cofferdam," and the second phase being the completion of the outlet structure as proposed in the above referenced plan by Garing, Taylor and Associates (Reference 5). The plan reflects the necessary monitoring based upon the sequence of construction to be permitted by the California Coastal Commission. It is understood that prior to the initiation of construction, it must be approved and "permitted" by the appropriate governing agencies.

EXHIBIT NO. I
APPLICATION NO. 3-95-77
Pismo Coast Village
Monitoring/Maintenance

2.0 FIRST PHASE - CONSTRUCTION OF COFFERDAM STRUCTURE

This phase of construction reflects partial construction of the proposed outlet structure plan as "permitted" by the California Coastal Commission. This partial construction will be limited to the installation of the sheet pile wall only according to the project plans as necessary to form a cofferdam. In lieu of further construction until the second phase, an increased level of monitoring must be performed. This monitoring will be supported by a general engineering contractor who will remain "on standby" as necessary to install protective rip rap or other measures as deemed necessary to protect resort facilities and/or the sheet pile structure. If work is performed during an emergency, it must be either fully permitted in the future by the governing agencies or removed. It is uncertain when the final phase of construction will be allowed, therefore, it is unknown how long this monitoring period will be required.

2.1 Description

The cofferdam structure will consist of the placement of the sheet pile wall portion of the proposed outfall structure. The sheet pile will be constructed according to the project plans and specifications prepared by Garing Taylor and Associates. No other elements of the design will be "permitted" at this time, therefore, no rip rap, pile cap, backfill, pump station, or permanent drainage facilities can be constructed. Existing debris may only be removed at this time as necessary to allow the sheet pile to be constructed along its allowed 6 foot wide alignment footprint. Due to environmental conditions known to exist at the site, no disturbance of the existing wet areas by construction will be allowed. Prior to the initiation of construction, the contractor should verify the status of the environmental constraints with the project engineer.

Limiting construction to this isolated element of the overall design is based upon a regular program of maintenance and monitoring. In addition, the contractor will be maintained on a "24 hour notice" with equipment and materials as necessary to provide rip rap stone, pumps, or other drainage control facilities as necessary to protect the sheet pile wall and existing resort property. The project engineer, engineering geologist, and property owner should also remain on a "will call" basis to provide required support as required. Rip rap stone and geotextile separator fabric proposed for use on the project should be stockpiled on-site or be available at a nearby site.

2.2 Maintenance

Until the outlet structure and associated structures (as per Reference 5) are complete, the sheet pile wall constructed during Phase I should be maintained jointly by the owner and the contractor. Any modifications required during construction should be brought to the attention of the project engineer or as necessary to the engineering geologist. A daily inspection of the sheet pile wall should be performed by the owner or his representative or by the contractor. Concerns identified should be brought to the attention of the project engineer or as necessary the engineering geologist. Prior to initiation of construction associated with Phase 2, a record of maintenance performed should be submitted to the project engineer for review. Evidence of materials deterioration, changes in alignment, erosion of adjacent berms, water flow changes in Pismo Creek/Meadow Creek, or drainage flow changes within the resort should be reported immediately to the project engineer or engineering geologist.



2.3 Monitoring

In addition to the monitoring required to provide the necessary maintenance, additional inspections should be performed as weather conditions change, if continuous or high intensity rainfall is predicted, heavy surf is predicted or occurs, or after an earthquake. If the following conditions occur, then the identified inspection with potential need for emergency protection identified.

- 1) **Rainfall.** If the following predicted rainfall events or if actual heavy rainfall conditions are experienced, the need for placement of emergency protection will be triggered. This need will be verified by the project engineer or engineering geologist, who will request emergency permitting from the California Coastal Commission. If unavailable for permitting, the protection will be installed with the knowledge that it may be removed if not allowed by the California Coastal Commission. It is anticipated that any additional protection will be limited in scope to that currently proposed (Reference 5).
 - i. When greater than 2 inches of rainfall is predicted within a twenty-four hour period.
 - ii. When greater than 1 inch of rainfall is predicted within a one hour period.
 - iii. Anytime a flood hazard warning is issued within the Pismo/Meadow Creek watershed.
 - iv. Anytime there is a documented water level rise in Pismo Creek.
 - v. As required by the project engineer or engineering geologist.

- 2) **Heavy Surf/Beach Erosion.** If there is a prediction of heavy surf, if significant beach erosion occurs, or if threatening wave conditions are experienced, the need for placement of emergency protection will be triggered. This need will be verified by the project engineer or engineering geologist, who will request emergency action from the California Coastal Commission. If unavailable for permitting, the protection will be installed with the knowledge that it may be removed if not allowed by the California Coastal Commission. It is anticipated that any additional protection will be limited in scope to that currently proposed (Reference 5).
 - i. Significant loss of the existing barrier berm.
 - ii. Significant flooding associated with tidal fluctuations.
 - iii. Significant scour of the beach and creek area.
 - iv. Significant ponding of water behind berm within the resort.



- 3) **Earthquake.** If a significant earthquake is experienced, the need for placement of emergency protection will be triggered. This need will be verified by the project engineer or engineering geologist, who will request emergency action from the California Coastal Commission. If unavailable for permitting, the protection will be installed with the knowledge that it may be removed if not allowed by the California Coastal Commission. It is anticipated that any additional protection will be limited in scope to that currently proposed (Reference 5).

3.0 SECOND PHASE - PROPOSED SEAWALL AND OUTLET STRUCTURE

This phase reflects complete construction of the proposed outlet structure as proposed in Reference 5. It will complete the remaining portions of the structure and erosion control protection partially constructed during Phase I. Monitoring will continue to be performed, however, it will confirm the character of the structure during the first winter. It will then be a part of a long term plan to document stability of existing adjacent structures. This monitoring will be recommended as a part of a long term plan to maintain protection from wave attack and flooding of the resort.

3.1 Description

The outlet and erosion /wave protection structure as proposed (Reference 5) will consist of the sheet pile wall supporting the discharge pipes and pile caps, erosion and wave protection (rip rap), backfill, pump station, and permanent drainage facilities. All work will be constructed according to the project plans and specifications prepared by Garing Taylor and Associates. Due to environmental conditions known to exist at the site, prior to the initiation of construction, the contractor should verify the status of constraints with the project engineer.

3.2 Maintenance

After completion of the outlet structure and associated erosion control protection (as per Reference 5) responsibility for its maintenance is with the owner. Any conditions observed after completion should be brought to the attention of the project engineer or as necessary the engineering geologist. Through the winter months, a daily inspection of the entire structure should be performed by the owner or his representative. After construction is complete, a record (including photographs) of maintenance should be maintained. Evidence of materials deterioration, changes in alignment, erosion of adjacent berms, settlement of concrete, or drainage flow problems within the resort should be reported immediately to the project engineer or engineering geologist. Additional recommendations for maintenance may be included in the final construction inspection report issued by the engineering geologist.

It is known that the owner maintains an extensive collection of materials associated with the marine and creek conditions adjacent to the resort. The resort manager, Mr. Blaine Forest has personally monitored and documented the conditions including those leading to the failure of the outlet structure. Extensive discussions with Mr. Forest regarding the site conditions, geologic processes, and engineering design criteria confirm his knowledge and understanding of the environment and need to maintain critical facilities. It is recommended that he or a member of his staff be briefed regarding the drainage control, coastal conditions, and resort facilities such that they can act as a monitor to perform the recommended site reviews, understand the need for maintenance, and maintain contact with the project



engineer, engineering geologist, or a general engineering contractor as necessary.

3.3 Monitoring

As discussed in conjunction with the California Coastal Commission staff, a program of regular monitoring should be performed. In the short term (through the first winter), it will confirm the adequacy of the design and construction. A long term program will serve to support the maintenance of the structure and immediately adjacent erosion protection structures. In addition, the long term monitoring will allow for assessment and planning for protection along the beach front, Pismo Creek, and overflow flooding.

A monitoring program should consist of on-site inspections by the owners, project engineer, and engineering geologist. Need and schedule for monitoring inspections will vary depending upon weather and marine conditions. Therefore, the following recommended schedule should serve as a guide, with actual needs dictated by performance of the site to the storm conditions which affect the site.

If conditions are identified during the inspections which require remedial action, the owner should be immediately contacted. All remedial work should be performed as permitted by the laws and regulations of the City of Pismo Beach, State of California, and United States Government.

- 1) **Owner.** A representative of the owner knowledgeable with the site conditions should perform regular inspections of the outlet structure area, perimeter berms, dune/beach area, and drainage facilities. It should be performed as an extension of the inspections recommended in maintenance section above. The following inspection guide is recommended:
 - i. Winter (December, January, February, March) - daily inspection.
 - ii. Spring (April, May) - weekly inspection depending upon rainfall amounts.
 - iii. Summer (June, July, August, September) - monthly inspection.
 - iv. Fall (October, November) - weekly inspection depending upon rainfall amounts.
- 2) **Project Engineer.** The project engineer should perform a yearly inspection of the outlet structure area and drainage facilities. In addition, inspections should be performed as individual storm or flood events occur which result in the outlet structure discharging water. In addition, they should be contacted if deterioration of the structure or other condition is observed which indicates problems during maintenance inspections. The project engineer should be contacted if significant flooding is predicted as defined below:
 - i. When greater than 2 inches of rainfall is predicted within a 24 hour period.
 - ii. When greater than 1 inch of rainfall is predicted within a hour period.



- iii. Anytime a flood hazard warning is issued within the Pismo/Meadow Creek watershed.
- iv. Anytime there is a documented water level rise in Pismo Creek.
- v. As requested or recommended by the owner or engineering geologist.

3) **Engineering Geologist.** The engineering geologist should perform a yearly inspection of the property perimeter, including the outlet structure, beach/dune, and creek berm areas. In addition, as individual storm/flood events, or during periods when waves strike the outlet structure, perimeter berm, or protective rip rap. Should deterioration of the structure, loss of rip rap, or other condition be observed which indicates problems during maintenance inspections, the engineering geologist should be contacted. The engineering geologist should be contacted if significant storm activity is predicted as defined below:

- i. When high intensity rainfall (greater than 2 inches of rainfall is predicted within a 24 hour period).
- ii. Anytime a flood hazard warning is issued within the Pismo/Meadow Creek watershed.
- iii. Significant loss of the existing barrier berm.
- iv. Significant flooding associated with tidal fluctuations.
- v. Significant scour of the beach and creek area.
- vi. Significant ponding of water behind berm within the resort.
- vii. If a significant earthquake is experienced.
- viii. As requested or recommended by the owner or project engineer.

4.0 CONCLUSION

This proposed maintenance and monitoring plan reflects the phases of construction currently proposed. During construction, conditions may differ from that assumed, necessitating minor design changes. As a result, specific items may be identified which require specific maintenance details. These items and the necessary maintenance or monitoring requirements will be identified in the final construction inspection report issued by the engineering geologist to the project engineer. The additional monitoring should be performed as recommended by the engineering geologist, project engineer, and the owner. The record of all inspections, monitoring, or related observations should be maintained to support future planning decisions. This preliminary maintenance and monitoring plan is submitted as requested and may be revised as additional information is obtained in the future.



