

CALIFORNIA COASTAL COMMISSION

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STAFF REPORT: REGULAR CALENDAR

APPLICATION NUMBER: 5-00-011

APPLICANT: Three Arch Bay Community Services District

AGENT: Bill Lawson, John M. Tettemer & Associates, Inc.
Alan Swanson, John M. Tettemer & Associates, Inc.
Nancy Parker, John M. Tettemer & Associates, Inc.

PROJECT LOCATION: Within the private streets of Vista Del Sol, N. La Senda, S. Portola, S. Alta Mira, N. Stonington, N. Vista De Catalina, Vista De La Luna, Vista De San Clemente, and the vacant lot at 4 N. La Senda, Laguna Beach (Three Arch Bay), Orange County.

PROJECT DESCRIPTION: Construction of a new storm drain system and ocean outfall and abandonment of portions of an existing storm drain system including the installation of approximately 3,000 lineal feet of reinforced concrete pipe varying in diameter from 18 inches to 48 inches primarily within the Vista Del Sol private right-of-way; installation of reinforced concrete junction structures and catch basins with fossil filters; and the construction of a 48 inch diameter concrete-lined outlet tunnel (outfall) extending from N. La Senda Drive to the ocean (located in the bluff on a rocky shelf above sea level).

SUMMARY OF STAFF RECOMMENDATION:

The major issues of this staff report are impacts upon rocky intertidal habitat (i.e. tide pools) which the Commission designates as Environmentally Sensitive Habitat Area (ESHA), water quality, hazards, and visual resources. Staff recommends **DENIAL** of the proposed development because the proposed project would construct a new storm drain outfall which would discharge into a rocky intertidal habitat considered to be environmentally sensitive. These discharges would degrade the environmentally sensitive habitat. Therefore, the construction of the storm drain outfall at the proposed location would not be consistent with Section 30230, 30231 and 30240 of the Coastal Act. In addition, alternatives which have not been demonstrated to be infeasible are available which would avoid or substantially reduce impacts upon rocky intertidal habitat.

LOCAL AND OTHER AGENCY APPROVALS RECEIVED: Resolution No. 227 of the Three Arch Bay Community Services District Approving a Mitigated Negative Declaration for the Three Arch Bay Vista Del Sol Storm Drain Improvement Project; San Diego Regional Water Quality Control Board 401 Certification/Waiver #00C-012; Letter from the California State Lands Commission dated April 26, 2000 stating project will not encroach upon state sovereign lands, public easement, or navigable waters.

SUBSTANTIVE FILE DOCUMENTS: City of Laguna Beach Certified Local Coastal Program; Coastal Development Permit 5-86-720; Coastal Development Permit Exemption dated August 27, 1998; La Senda Storm Drain Alternatives dated October 1999 by FJK Engineering of Costa Mesa, California; Three Arch Bay Community Services District *Mitigated Negative Declaration* (SCH#99071101) & *Technical Appendices for the Vista Del Sol Storm Drain Project* dated July 1999 prepared by John M. Tettemer & Associates of Costa Mesa, California; *Three Arch Bay Intertidal Characterization* prepared by Marine Research Specialists of Ventura, California dated October 3, 2000; Letter report by Leighton & Associates titled *Erosion Occurring at the Outlet as the Result of Storm Water Discharge and Effects of Wave Attack on the Outlet Structure, Three Arch Bay, City of Laguna Beach, California* dated October 17, 2000; 1999 *Monitoring of rocky intertidal resources along the central and southern California mainland. 3-year report for San Luis Obispo, Santa Barbara, and Orange Counties (Fall 1995 Spring 1998)*. Technical Report. U. S. Department of Interior, Minerals Management Service, Pacific OCS Region (MMS Cooperative Agreement No. 14-35-0001-30761 with Southern California Educational Initiative, Marine Science Institute, University of California, Santa Barbara). (P.T. Raimondi, first author; R. F. Ambrose, J. M. Engle, and M. Wilson, second authors).

PROCEDURAL NOTE:

The City of Laguna Beach has a certified local coastal program ("LCP"). However, the proposed project is located within Three Arch Bay, one of several locked gate communities in Laguna Beach where certification has been deferred. Therefore, the standard of review is the Chapter 3 policies of the Coastal Act. The Laguna Beach certified LCP will also be used as guidance.

I. STAFF RECOMMENDATION:

MOTION: *I move that the Commission approve Coastal Development Permit No. 5-00-011 for the development proposed by the applicant.*

STAFF RECOMMENDATION OF DENIAL:

Staff recommends a **NO** vote. Failure of this motion will result in denial of the permit and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO DENY THE PERMIT:

The Commission hereby denies a coastal development permit for the proposed development on the ground that the development will not conform with the policies of Chapter 3 of the Coastal Act and will 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. Approval of the permit would not comply with the California Environmental Quality Act because there are feasible mitigation measures or alternatives that would substantially lessen the significant adverse impacts of the development on the environment.

II. FINDINGS AND DECLARATIONS:

The Commission hereby finds and declares:

A. PROJECT DESCRIPTION AND LOCATION

The proposed development is a replacement storm drain system and new ocean outfall (Exhibit 2). This development will occur in the private, gated community of Three Arch Bay in Laguna Beach, Orange County (Exhibit 1). Three Arch Bay has approximately 500 residential lots, with a drainage area that is approximately 280 acres. The development will occur within the seaward and inland portions of Three Arch Bay (which is bisected by Pacific Coast Highway). Elevations within the community range from 780 feet above sea level on the inland side to 60 feet at the top of the coastal bluff at the seaward side of the community. The new storm drain line will be placed primarily within Vista Del Sol and N. La Senda, with catch basins and pipes connecting to this new storm drain line extending from S. Portola, S. Alta Mira, N. Stonington, N. Vista De Catalina, Vista De La Luna, and Vista De San Clemente. The seaward end of the new storm drain system and the new outfall will be constructed at the vacant lot at 4 N. La Senda.

The existing storm drain system was constructed in the 1920's and 1930s (Exhibit 3). This storm drain system was primarily constructed within shallow swales and depressions present at the time of initial development of the Three Arch Bay community. These existing facilities do not follow lot lines or street rights-of-way and in some cases cross beneath existing residential structures. The proposed system would re-route the facilities so that (excepting the ocean outfall) the storm drain system is within street rights of way or other common property within Three Arch Bay. In addition, video inspections of the existing system shows that some of the storm drain lines are leaking and are in need of repair or replacement. The proposed system would replace or repair selected storm drain lines. In addition, there are existing storm water conveyance problems associated with the existing storm drain system. For instance, the existing facilities allow storm water to sheet flow from the inland part of Three Arch Bay over Pacific Coast Highway causing hazardous conditions on the highway. The proposed system would re-direct these flows through an underground system under Pacific Coast Highway. These inland facilities would be designed to handle 25-year run-off.

Though the inland portions will be upgraded to handle the 25 year storm event, other sections will be upgraded to accommodate a 100 year storm event as storm flows in excess of the 25 year event pond on N. La Senda just north of Vista Del Sol causing flooding of the residential lots in the area.

Construction of the new storm drain system and ocean outfall would involve abandoning portions of the existing storm drain system and installing approximately 3,000 lineal feet of reinforced concrete pipe varying in diameter from 18 inches to 48 inches primarily within the Vista Del Sol private right-of-way. The system also includes installation of reinforced concrete junction structures and catch basins. Finally, the system includes the construction of a 48 inch diameter concrete-lined outlet tunnel (outfall) extending from N. La Senda Drive to the ocean (located in the bluff on a rocky shelf above sea level). The applicant's project description is as follows:

The storm drain will be constructed of reinforced concrete pipe of various sizes ranging from 18-inches to 48-inches in diameter (I.D.). As indicated above, most of the pipe will be installed by conventional cut and cover construction techniques. A trench will be excavated with a backhoe to a width approximately one to two feet wider than the outside diameter of the pipe and to a depth at least four inches below the bottom of the pipe. Excavated materials will be placed in 10-CY trucks using a front-end loader. The pipe will then be installed in the trench with suitable bedding material (per Orange County Std. Plan 1319) using a small crane and the trench will then be backfilled to grade using a front-end loader and hand operated compaction equipment.

In most locations, existing street pavement will need to be removed for the trench excavation; a hand operated jackhammer or air/hydraulic pavement breaking equipment mounted on a loader or backhoe will be used for this purpose. It is anticipated that the pavement will first be saw-cut to define the removal area and to simplify the removal of material along the edges of the area. These paved areas will then be restored on completion of the pipe backfill work using conventional paving repair equipment. Existing utilities such as sewer, water, gas, electrical, and cable TV lines will need to be protected during construction and in some areas utility relocations may be necessary to accommodate the new storm drain pipe in the street section.

A shaft approximately 14 feet wide by 20 feet long will need to be excavated to a depth of approximately 40 feet in the knuckle of the street approximately where Vista del Sol intersects with North La Senda. Much of this excavation will be performed using a clam-bucket mounted on a crane or similar equipment that will raise the excavated materials to the ground surface and place it in waiting trucks. A front-end loader may also be used to support the crane operation. The shaft will be used for access to the tunnel heading, and for installation and removal of all tunneling equipment and materials. Ultimately, the special manhole that will accommodate maintenance access as well as the vertical drop portion of the storm drain will be constructed in this shaft. The shaft and tunnel excavation will be shored and ventilated in accordance with Cal OSHA requirements. On completion of the tunneling work and construction of the special manhole, the shaft will be completely backfilled with compacted earth materials (stockpiled from the excavation) to the original street grade and the street surface will be restored. Again, a crane or similar equipment will be used to lower the backfill material to the bottom of the excavation where the soil will be compacted using hand compactors and/or small vibrator compaction equipment. Street pavement in the shaft excavation area will be removed and restored in a manner similar that used for the pipe trench areas.

The tunnel portion of the work will be constructed using conventional hand excavation methods, and also utilizing low profile (diesel) tunnel loaders or possibly roadheaders in soft rock. A 7-foot (\pm) diameter tunnel will be excavated to the line and grade shown on the plans to the ocean outlet at the base of the existing bluff. One of the potential contractors for this portion of the work has indicated that it may also be necessary to excavate a "tail tunnel" i.e., a short (20 feet \pm) tunnel, also 7-feet in diameter, in the opposite direction from the main tunnel, to accommodate pipe jacking and excavation equipment and facilitate the removal of cuttings. The tunnel will be shored with steel ribs, with or without steel lagging, as needed to support the excavation. The shoring will be designed to push up and out in order to keep potential settlement from reaching

the ground surface. All cuttings and equipment will be removed from the excavation at the 40-foot shaft location using a crane or automated lift device. No excavated material will be disposed of into the ocean at the outlet end of the tunnel.

Reinforced concrete pipe sections, 48-inches I.D. and 4 to 8 feet in length will be lowered by crane to the bottom of the access shaft and installed in the tunnel as the tunneling excavation progresses. The pipe sections will be jacked along on rails or other supports within the tunnel to their final location. Four or five special 2-foot long energy dissipater rings will also be installed along the pipe alignment near the outlet end of the system to help reduce the storm water velocity at the outlet. After the pipe is installed, the void between the outside of the pipe and the tunnel walls will be filled under pressure with concrete grout. The "tail tunnel" mentioned earlier will also be bulk-headed at the special manhole and completely backfilled with concrete grout.

At the outlet end of the pipe, a headwall will be constructed to close the end of the tunnel excavation and finish the interface of the pipe end with the face of the bluff. The headwall will be constructed of reinforced concrete, but the exposed surface of the concrete will be color tinted to match the surrounding rock materials and will be contoured to resemble the adjoining rock. Only the opening of the 48-inch pipe should be discernible after the work is completed. The rock shelf between the ocean and end of the pipe will not be disturbed any more than necessary to construct the tunnel, pipe outlet and headwall. Should any damage to the shelf area below the tunnel outlet occur, it will be repaired or restored to acceptable color and contours by the placement of color tinted high-early-strength concrete or epoxy cement grout. All materials for the headwall construction work will be brought to the work area through the tunnel. No access from the ocean side of the bluff is available for delivery of equipment or materials.

The proposed new ocean outfall for the storm drain system will be constructed at the lower elevations of a bluff on a rocky shelf above mean high tide. The 48 inch diameter pipe will be flanked by an approximately 10 foot square headwall. In addition, a 10 foot wide by 33 foot long concrete spillway will be constructed on the rock shelf below the new outfall. There are tide pools below and flanking the outfall and spillway. Discharges from the new outfall and spillway will discharge into the tide pools and ocean in this area.

The proposed project includes 11 new storm drain catch basin inlets. Nine of the inlet basins will be constructed beneath the curb and street. These catch basins will be outfitted with fossil filters. The last two catch basin inlets (Inlets 1 and 2) are located along Vista del Sol at the inland reaches of Three Arch Bay outside of -but adjacent to- the road at the toe of a canyon. These new inlets will replace, in the same location, the existing deteriorating inlets which are present. No vegetation removal will occur to construct Inlets 1 and 2.

As noted above, the proposed project includes the installation of a storm drain outfall which will pass through the vacant lot and discharge from the bluffs at 4 N. La Senda. The applicant does not own this lot and the owner of the lot has not granted permission to the applicant to construct the storm drain tunnel and outfall on their lot. However, the applicant has provided information indicating that the Community Services District has the power of eminent domain. Once approvals are granted, the applicant has indicated their intention to exercise that power to gain the legal ability to undertake the development on 4 N. La Senda.

The site is located within a locked gate community through which there is no public access. The nearest public access exists at 1,000 Steps County Beach approximately ½ mile upcoast of the site.

B. PRIOR COMMISSION ACTIONS

On December 10, 1986, the Commission approved Coastal Development Permit 5-86-720 for the repair and replacement of existing storm drain pipes and the installation of a new storm drains and catch basins within Vista del Sol, N. La Senda, S. La Senda and various roads within the community. The approval included a new ocean outfall in the alignment of the existing 24 inch outfall which passes through 8 and 10 N. La Senda. The major issue outlined in the staff report was the potential for growth inducing effects through enlarging the capacity of the storm drain system with subsequent adverse impacts upon public access. The primary concern was related to approximately 13 acres of undeveloped land in upper (inland) Three Arch Bay which could potentially be subdivided for new houses. However, the Commission found that although the new storm drain system would provide capacity for new development to occur, any new development would require a coastal development permit and that the impacts from such development would be mitigated at that time. In addition, it was found that the improved storm drain system would create a benefit to coastal resources by better accommodating existing runoff and preventing erosion. The approval was granted without special conditions.

The approved permit was extended nine times. However, the improvements were not constructed and the permit expired. The storm drain system that is before the Commission at this time (5-00-011) is similar to the previously approved system and is designed to achieve similar goals of the previously approved system. However, the location of the ocean outfall previously approved differs significantly from that now proposed. The previously approved (but not constructed) outfall was located in the same alignment as the alignment of the existing 24 inch outfall. There is no indication in the file that tide pools would have been impacted by that alignment. Whereas, the newly proposed alignment would have impacts upon tide pools.

C. BIOLOGICAL RESOURCES

Section 30230 of the Coastal Act states that:

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 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 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.

Section 30240 of the Coastal Act states that:

(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.

The California Coastal Resource Guide describes the intertidal zone as follows:

Between the high and low tide marks lies a strip of shoreline that is regularly covered and uncovered by the advance and retreat of the tides. This meeting ground between land and sea is called the intertidal. The plants and animals inhabiting this region are hardy and adaptable, able to withstand periodic exposure to air and the force of the pounding surf. Intertidal communities occur on sandy beaches, in bays and estuaries, and on wharf pilings, but the communities of rocky shorelines are perhaps the most diverse and the most densely populated. Rock faces, crevices, undersides of rocks, and tidepools each support an array of species.

1. Biological Resources Present in Project Area

The proposed storm drain outfall will terminate near the bottom of a coastal bluff approximately 10 feet above sea level. The outfall would discharge above and into existing rocky intertidal habitat (tide pools) (Exhibit 4). These tide pools are a part of a Marine Life Refuge created through a cooperative arrangement between the City of Laguna Beach and the California Department of Fish and Game. As stated in the City's certified local coastal program, one purpose of the Marine Life Refuge is to "...preserve tidepool life."

A survey of biological resources was prepared for the outfall site titled Three-Arch Bay Intertidal Characterization by Marine Research Specialists of Ventura, California dated October 3, 2000. The lower intertidal zone in the project area is characterized by a rock shelf that extends out from the bluff into the sea, forming a shallow reef. Middle and upper intertidal areas are also present in the outfall area. Twenty-five plant and animal species were identified in the project area including six species of algae, one species of flowering plant, one sponge species, one anemone species, nine mollusca species, five barnacle species, and starfish and urchin. Among these species, the survey documents the presence of California mussel (*Mytilus californianus*), striped shore crab (*Pachygrapsus crassus*) and solitary green anemone (*Anthopleura xanthogrammica*) in the lower and middle tidal zones. Offshore of the reef, large schools of northern anchovy (*Engraulis mordax*) were present. In addition, the

brown pelican (*Pelecanus occidentalis*) and Brandt's cormorant (*Phalacrocorax penicillatus*) were observed in waters offshore of the proposed outfall.

Many of the species present in the project area may be commonly found along the coast of southern California. However, due to the project site's isolated nature, the area is considered undisturbed and "[c]ompared to locations that are more accessible to the public, epifaunal diversity and densities are high at the proposed project site". Furthermore, the biological report states that "[a]lthough they could not be sampled by the quadrat method due to their mobility, the striped shore crab *Pachygrapsus crassus* is extremely abundant at the project site." In addition, there are important marine species present at the site including surf grass (*Phyllospadix* spp.). Furthermore, there are marine species present such as purple sea urchin (*Strongylocentrotus purpuratus*) which are particularly sensitive to freshwater input and changes in water salinity.

2. Presence of Environmentally Sensitive Habitat Areas (ESHA)

Section 30240 of the Coastal Act requires that environmentally sensitive habitat areas be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. The intertidal area into which the proposed storm drain outfall will discharge is an environmentally sensitive habitat area (ESHA).

Section 30107.5 of the Coastal Act states:

"Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

Rocky intertidal habitat is recognized as an important biological resource due to the presence of marine life that is unique to the habitat type. As stated in the City's certified Local Coastal Program, intertidal habitat is "...[r]ich in oxygen and providing an abundant food supply, these tide pools support many species of seaweeds, barnacles, anemones, worms, snails, sea slugs, periwinkles, starfish and mussels. While some species, such as the blind goby, spend their entire lives in tide pools, other creatures depend on the tide pools during some part of their life cycle, either for spawning during their juvenile years, or in the later stages of their lives."

Rocky intertidal habitat is also valued as an important scientific and recreational resource. It has been observed that the biological diversity and general health of rocky intertidal habitat is in decline due to a variety of anthropogenic factors including poor water quality and overuse related to educational and recreational interest in the habitat type¹. However, as noted in the biological report, the rocky intertidal habitat at the project site is undisturbed and species diversity and coverage is especially high. The high quality of the intertidal habitat in the project area makes this habitat especially valuable.

¹ 1999 Monitoring of rocky intertidal resources along the central and southern California mainland. 3-year report for San Luis Obispo, Santa Barbara, and Orange Counties (Fall 1995 Spring 1998). Technical Report. U. S. Department of Interior, Minerals Management Service, Pacific OCS Region (MMS Cooperative Agreement No. 14-35-0001-30761 with Southern California Educational Initiative, Marine Science Institute, University of California, Santa Barbara). (P.T. Raimondi, first author; R. F. Ambrose, J. M. Engle, and M. Wilson, second authors).

In addition, rocky intertidal habitat is recognized as a sensitive resource that could be easily disturbed or degraded by human activities and development. Tide pool function is integrally related to temperature and water salinity. Changes to temperature and water salinity can adversely impact intertidal organisms by disrupting metabolic processes, changing oxygen availability in the water, and changing osmotic pressures within the organisms' cells. Such changes disrupt the organisms ability to metabolize food and/or photosynthesize among other impacts which subsequently cause the organism to die. Accordingly, these habitats can be easily disturbed or degraded when a human activity or development causes a change to water temperature and salinity. The introduction of freshwater and organic and inorganic water contaminants to the intertidal environment can cause such changes. Even with proposed BMPs designed to reduce water contamination, the introduction of freshwater to the intertidal environment will adversely impact marine plants and animals that are dependent upon salt water.

Since the intertidal habitat within the project area is especially valuable and the habitat can be easily disturbed by human activity and development, the Commission finds that this intertidal habitat is an Environmentally Sensitive Habitat Area as defined under Section 30107.5 of the Coastal Act. In addition, designation of this intertidal habitat as ESHA is consistent with the Local Coastal Program that is certified for other parts of the City of Laguna Beach where Policy 8-1 of the Open Space/Conservation Element states that "...areas of open coastal waters, including tide pools...[and]...near-shore reefs and rocky intertidal areas..." are to be considered ESHA.

3. Impacts Upon Biological Resources

The proposed project will introduce freshwater and organic and inorganic water contaminants to the intertidal habitat via discharges from the proposed storm drain outfall. These discharges will change water temperature and salinity with subsequent impacts upon the intertidal habitat. In addition, as noted in the biological report "...[h]igh numbers of limpets, periwinkle snails, barnacles, and leather tube algae occur in the upper intertidal zone immediately beneath the proposed drainage pipe terminus. Because these species are adapted to being wetted by occasional ocean spray, continued discharge would most likely impact the upper intertidal population in the area affected by freshwater flow." The biological report goes on to state that "...[i]mpacts to lower and middle intertidal species are expected to be less severe because they will be exposed to freshwater flows only during low tidal cycles". However, the Commission's biologist points out that although the frequency of impact would be lower, the organisms in lower intertidal tide pools are poorly adapted to deal with freshwater impacts and therefore would periodically suffer severe stress. Accordingly, any impact would be more severe. Thus, there would very likely be negative impacts to ESHA.

Furthermore, the biological report notes that the introduction of organic and inorganic contaminants such as fecal coliform and suspended sediments will degrade local water quality. The applicant is proposing certain water quality BMPs which will reduce the amount of organic and inorganic contaminants in the water. However, some contaminants will remain in the water. These water contaminants will have adverse effects upon the marine organisms in the ESHA. In addition, even if the storm water were to be purified before discharge into

the intertidal habitat, the introduction of freshwater to the habitat will adversely impact the marine life which is adapted to and dependent upon saltwater.

Section 30240(a) of the Coastal Act requires that environmentally sensitive habitat areas be protected against any significant disruption of habitat values and that only uses dependent on those resources can be allowed within ESHA. The discharge of freshwater into an intertidal habitat that is adapted to a salt water environment would significantly disrupt the value of the habitat and would not be compatible with maintenance of the resource. Therefore, the proposed project is not consistent with Section 30240(a) of the Coastal Act. The intertidal habitat on the site, which the Commission designates as ESHA, would not be protected against any significant disruption of habitat values. Rather, some of these areas would be negatively impacted as a result of the proposed development.

Additionally, Section 30240(b) of the Coastal Act requires that development in areas adjacent to ESHA is sited and designed to prevent impacts which would significantly degrade these areas, and is compatible with the continuance of the habitat areas. The development proposed is not consistent with this policy. In this case, the applicant is proposing to discharge storm water into the ESHA which will cause changes to temperature and water salinity and introduce water contaminants to the ESHA. Therefore, the ESHA is not protected and results in the degradation of the ESHA.

In addition, Section 30230 of the Coastal Act requires that marine resources be maintained, enhanced, and where feasible, restored. Section 30230 grants special protection to areas of special biological significance. The California Department of Fish and Game and the City of Laguna Beach have designated this area as a Marine Life Refuge intended to protect, among other things, the tidepools that would be affected by the proposed development. Furthermore, Section 30230 requires that uses of the marine environment 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, among other purposes, long-term scientific and educational purposes. The proposed project will degrade a rocky intertidal habitat that is biologically significant due to the undisturbed character of the habitat. Such undisturbed habitat is scientifically significant due to its rarity and ecological diversity. The preservation of undisturbed habitat is necessary for comparative analyses with other rocky intertidal areas experiencing disturbance. The proposed degradation of this resource is not consistent with Section 30230 of the Coastal Act.

Section 30231 of the Coastal Act requires that the biological productivity and the quality of coastal waters be maintained or restored by, among other means, minimizing adverse effects of waste water discharges. The proposed project would reduce the biological productivity of an intertidal ESHA by discharging waste water to the ESHA. As will be discussed below, there are alternatives which would avoid or minimize such impacts. Therefore, the proposed project cannot be found consistent with Section 30231 of the Coastal Act.

4. Alternatives

There are alternatives to the proposed project which would reduce or avoid impacts upon the intertidal ESHA. The existing storm drain outfall discharges approximately 180 feet north of the proposed location. This existing storm drain outfall is in need of repair. Repairs to the existing outfall would require lining the existing pipe which is cracking and deteriorating.

Lining the existing pipe would reduce the diameter of the pipe and thus the capacity of the pipe. The reduction of capacity would not allow the outfall to handle the additional water being routed to the outfall by the inland changes to the storm drain system. However, there are a variety of alternatives which would provide adequate storm drain outfall capacity which involve repairing the existing outfall and adding a second outfall or simply abandoning the existing outfall and constructing a new outfall in a location other than the proposed location.

One alternative analyzed by the applicant (Alternative "F2") proposes to abandon the existing outfall and construct a new outfall in the same alignment below the existing storm drain line. The applicant did not select this alternative because it would require obtaining more easements from the property owners through which the storm drain line would pass than the proposed alignment. However, as is the case for the proposed alignment, the applicant would exercise their power of eminent domain to obtain one easement and would have the same authority to obtain additional easements. In addition, the applicant's analysis states that geotechnical features would require more remedial work than the proposed alignment. However, the applicant has not made any assertion that this alternative is technically infeasible. In addition, this alignment would cause the storm drain to discharge in approximately the same location as the existing alignment. Since, the mean high tide line intersects the bluff face in this location, there are no tide pools in the immediate vicinity of the outfall. Accordingly, Alternative F2 would have less or no direct impact from changes in temperature and water salinity upon rocky intertidal habitat. It is notable that under Coastal Development Permit 5-86-720, the Commission previously found a project similar to Alternative F2 to be consistent with Coastal Act policies.

In addition to Alternative F2, there are other alternatives which would reduce or avoid impacts upon intertidal ESHA which must be more fully explored by the applicant (Exhibit 5). For instance, Alternative F1 proposes a similar alignment to Alternative F2 and shares some of the geotechnical issues present in Alternative F2. However, F1 may also avoid impacts upon intertidal ESHA similar to F2.

Another alternative (Alternative B) proposes an outfall upcoast of F1 in an area that also appears to lack tide pool habitat. This alternative would involve some construction challenges but the information submitted does not suggest these challenges are insurmountable or cause the alternative to be infeasible.

Alternative H analyzed by the applicant would place the storm drain outlet approximately 550 feet downcoast of the proposed location below an existing gazebo lookout point. Under this alternative the existing 24 inch outlet would be repaired and remain in operation and the new outfall would handle the flows from larger storm events which the repaired 24 inch line would be unable to discharge. The discharge point of Alternative H would be located at the northern end of the sandy and rocky beach at Mussel Cove and would require the placement of rip rap for energy dissipation. The beach in this location is composed of bedrock overlain by shallow sand and cobbles. There is no public access through the private Three Arch Bay community to this beach, however, the beach is used by residents of Three Arch Bay. The applicant's alternatives analysis states that this alternative is not preferable because the alignment would have adverse visual impacts and would present a potential safety hazard to individuals using the beach. However, an alternatives analysis contained in a document titled La Senda Storm Drain Alternatives prepared by an opponent to the proposed project provides some variations on Alternative H which would mitigate the impacts from this alignment (Exhibit 6). For

instance, visual impacts could be mitigated with structures disguised to look like the bedrock. Erosion impacts could be mitigated with energy dissipation mechanisms. Meanwhile, safety considerations could be mitigated with low flow diversion and using an alignment which discharges as far from human use areas as possible. Meanwhile, adverse impacts to intertidal ESHA would be minimized or avoided because such habitat does not appear to be present in the alternative discharge area. However, a biological analysis would need to be prepared for the area to document any habitat and impacts that may be present at this alternative location.

In addition to the variations on Alternative H, the La Senda Storm Drain Alternatives document analyzes a new alternative (Alternative X) which would have the storm drain tunnel and outlet discharge into the small cove between Mussel Cove and the proposed project site. This alternative may be beneficial due to its isolation from human use areas. Meanwhile, impacts upon intertidal habitat cannot be discerned from the information provided. In addition, there may be issues related discharges into the small cove and tidal flushing. However, the alternative does not appear to be infeasible and should certainly be investigated by the applicant.

In general, the alternatives analysis rejects various alternatives due to the quantity of easements necessary, remedial geotechnical work, and cost. However, no assertion has been made that the other alternatives are technically or financially infeasible. In addition, the alternatives analysis does not demonstrate that the proposed project is the least environmentally damaging feasible alternative. Several of the alternatives may be both feasible and less environmentally damaging than the proposed project. The submitted information on the alternatives is not adequate to make this determination.

Installation of a storm drain outlet along this area of the coast presents several challenges. Challenges include geologic stability of the outlet location; wave induced and stormwater-discharge induced erosion at the outlet location; proximity of the storm drain outlet to human use areas; tidal flushing conditions which are necessary to transport discharged storm water offshore; and the presence of sensitive biological species in the outlet area, among others. The proposed outlet location has many benefits related to these issues. For instance, as will be discussed in more detail in the hazards section of this staff report, the proposed outlet location is geologically stable. In addition, it is not located near any sandy beach where human activity is normally concentrated. In addition, tidal flushing at the proposed location is beneficial. However, some of the alternatives share the characteristics of the proposed location without the impacts upon ESHA. For instance, Alternatives B, F1 and F2 are located away from human use areas and are located in the same shallow cove as the proposed alignment and would presumably have similar tidal flushing characteristics. In addition, the physical characteristics of these alternative outlet locations suggest that intertidal ESHA would not be present in these locations. Meanwhile, issues related to geology at the alternative locations could be mitigated.

Finally, the proposed location is preferable to the applicant because of cost and because they will only need to obtain one easement from a property owner rather than several easements. However, the applicant has not indicated the difference in cost would cause any of the alternatives to be infeasible and the applicant has the ability to obtain any necessary easements through eminent domain.

The proposed location discharges into a high quality intertidal habitat that has been identified by the Commission as ESHA. This discharge will degrade the ESHA and is not consistent with Sections 30230, 30231, and 30240 of the Coastal Act. Although the applicant points to some technical difficulties with some of the alternatives, the applicant does not claim and has not provided any information that indicates they are infeasible. Meanwhile, there are characteristics to the alternatives which suggest they would be less environmentally damaging than the proposed project.

5. Conclusion

As discussed above, alternatives are available that would allow construction of a storm drain outfall which avoid or minimize impacts to intertidal ESHA. Since the proposed project causes impacts upon intertidal ESHA, it cannot be found consistent with Section 30240 of the Coastal Act. In addition, the proposed project would impact a resource that is biologically significant and would not minimize impacts caused by wastewater discharges. Accordingly, the project cannot be found consistent with Sections 30230 and 30231 of the Coastal Act. Therefore, the proposed project must be denied.

D. HAZARDS

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.

Section 30251 of the Coastal Act states:

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

Section 30253 of the Coastal Act 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.*

The proposed development includes the installation of a new storm drain system including a new ocean outfall. The ocean outfall will be constructed on the face of an oceanfront bluff. The results from a preliminary geologic investigation are reported in a report prepared by John M. Tettemer and Associates, Inc. dated May 29, 1997, referred to as the *Letter Report on Additional Analysis of the Three Arch Bay Storm Drain Facilities*. A more site specific geotechnical investigation is contained in the document prepared by Leighton & Associates dated November 6, 1998 titled *Preliminary Geotechnical Investigation Proposed Storm Drain Improvements and Ocean Outlet, Three Arch Bay, Laguna Beach, Orange County, California*. Additional technical analyses are contained in the document by John M. Tettemer and Associates dated June 25, 1999 referred to as the *Letter Report on Alternative H for Three Arch Bay Community Services District* and in the document by Leighton & Associates dated October 17, 2000 titled *Erosion Occurring at the Outlet as the Result of Storm Water Discharge and Effects of Wave Attack on the Outlet Structure*.

The geologic investigations report that the study area is underlain by massive bedrock of the San Onofre Breccia. Two geologic fault zones traverse the site and both are ancient and inactive. Zones of weakness along the faults have contributed to cave formation where the bluff is subject to wave attack. According to the 1997 Tettemer & Associates report, remedial work would be required to address geologic conditions at the various alternative ocean outfall alignments. However, the proposed alignment would be located in a massive unfractured/unfaulted section of the bluff and requires the least amount of remedial work. The more site specific geotechnical report prepared by Leighton & Associates dated 1998 states that the proposed alignment is feasible and provides recommendations regarding tunnel depth and construction methods.

1. Future Protective Devices

The subject site is located on a bluff face. In general, bluffs are inherently hazardous. It is the nature of bluffs to erode. Bluff failure can be episodic, and bluffs that seem stable now may not be so in the future. Even when a thorough professional geotechnical analysis of a site has concluded that a proposed development is expected be safe from bluff retreat hazards for the life of the project, it has been the experience of the Commission that in some instances, unexpected bluff retreat episodes sometimes do occur that threaten development during the life of the structure (e.g. coastal development permit files 5-99-332-A1 (Frahm); P-80-7431 (Kinard); 5-93-254-G (Arnold); 5-88-177(Arnold)). In the Commission's experience, geologists can identify areas of geologic instability, but they cannot predict with absolute certainty if or when bluff erosion on a particular site may take place, and cannot predict if or when development may become endangered.

Section 30253 of the Coastal Act requires that new development shall not require construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. The proposed development could not be found consistent with Section 30253 of the Coastal Act if projected bluff retreat would affect the proposed development and necessitate construction of a shoreline protection device.

The Coastal Act limits construction of protective devices because they have a variety of negative impacts on coastal resources including adverse affects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beach. Under Coastal Act Section 30235, a shoreline protective structure must be approved if: (1) there is an existing principal structure in imminent danger from erosion; (2) shoreline altering construction is required to protect the existing threatened structure; and (3) the required protection is designed to eliminate or mitigate the adverse impacts on shoreline sand supply.

The Commission has generally interpreted Section 30235 to require the Commission to approve shoreline protection for development only for existing principal structures. The construction of a shoreline protective device to protect a new development would not be required by Section 30235 of the Coastal Act. In addition, the construction of a shoreline protective device to protect new development would conflict with Section 30251 of the Coastal Act which states that permitted development shall minimize the alteration of natural land forms, including coastal bluffs which would be subject to increased erosion from such a device.

No shoreline protection device is proposed. A study prepared by Leighton & Associates dated October 17, 2000 discusses anticipated bluff erosion at the site. The report states that the proposed storm drain outfall would be located within a resistant headland where it appears no major changes to the bluff have occurred since a 1959 analysis prepared by the U.S. Army Corps of Engineers. Furthermore, the report states "...due to the relatively hard nature of the bedrock and the orientation of the joint patterns, it is our opinion that the subject bluff is relatively stable compared to other locations along the south Laguna coast, but like all coastal bluffs, will continue to retreat episodically over time".

The proposed development, which includes a new storm drain outfall, constitutes new development. As new development, the proposed project can only be found consistent with Section 30253 of the Coastal Act if a shoreline/bluff protection device that would substantially alter natural landforms is not expected to be needed in the future. The applicant's geotechnical consultant has indicated that the proposed outfall location is stable. If not for the information provided by the applicant that the site is safe for development, the Commission could not conclude that the proposed development will not in any way "require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs." However, as stated above, the record of coastal development permit applications and Commission actions has also shown that geologic conditions change over time and that predictions regarding site stability based upon the geologic sciences are inexact. Even though there is evidence that geologic conditions change, the Commission must rely upon, and hold the applicant to their information which states that the site is safe for development. Therefore, to find the proposed development consistent with Section 30253, the Commission would impose a special condition which requires the applicant to record a deed restriction against the property placing the applicant and their successors in interest on notice that no protective devices shall be permitted to protect the proposed development and that the applicant waives, on behalf of itself and all successors and assigns, any rights to construct protective devices that may exist under Coastal Act Section 30235.

2. Geologic stability of alternative outfall locations

The alternatives analysis has identified several possible outfall locations up and down coast from the proposed location. In addition the document titled La Senda Storm Drain Alternatives proposes additional alternatives. Several of these locations may have some geologic conditions that would make it difficult to install the outfall pipe. The analysis of these alternatives has not provided any information to indicate that these locations are infeasible. In addition the analysis of these alternatives has not given any information that these locations would have any different long-term threat from erosion than the proposed outfall location. The provided information suggests that there are alternative outfall locations that, with appropriate conditions, may be consistent with Sections 30251 and 30253. The provided information is not now adequate to identify these locations.

3. Geotechnical Recommendations

The geotechnical consultant has found that the proposed development is feasible provided the recommendations contained in the Geotechnical Investigation prepared by the consultant are implemented in design and construction of the project. The geotechnical recommendations address location of the outlet tunnel, lateral earth pressures, cement type and corrosion measures, earthwork, temporary construction shoring, among others. In order to assure that risks are minimized as required by Section 30235, the Commission would require implementation of the geotechnical consultant's recommendations.

4. Assumption of Risk

Although adherence to the geotechnical consultant's recommendations will minimize the risk of damage from erosion, the risk is not eliminated entirely. The site is a shorefront development which may be subject to hazards from coastal erosion, wave attack and similar natural hazards. If the proposed project were not being denied, the Commission would require that the applicant record an assumption-of-risk deed restriction to inform the applicant and all current and future owners of the subject site that the site is subject to hazards from landslides and coastal erosion/wave attack.

5. Conclusion

The Commission finds that the proposed development could only be consistent with Sections 30251 and 30253 of the Coastal Act if conditioned as discussed above. However, the Commission is denying the proposed project based upon impacts to sensitive biological resources.

E. VISUAL QUALITY

Section 30251 of the Coastal Act states:

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.

New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

The proposed project includes the construction of a new storm drain outlet in the face of a coastal bluff. If not sited appropriately, this structure would have adverse impacts upon views to and along the ocean and would be visually incompatible with the character of the surrounding area. Furthermore, appropriate siting can restore and enhance visual quality.

The proposed project is located in a private community (Three Arch Bay) that is between the first public road (Pacific Coast Highway in this area) and the sea. This existing, pre-Coastal Act private community is built upon a bluff top terrace which descends from PCH to the water. Several rows of homes and various other structures in the private community obstruct public views of the water from PCH. Upon completion of the development, the only significant visible structure would be the outlet at the bluff face. Public views to the shoreline from inland areas such as PCH will not be adversely affected by the proposed development.

The proposed development is occurring on a bluff and rocky shoreline that is flanked on either side by rocky headlands which extend into the ocean. If the public wished to view the coastline in this area they would need to come around the headlands and view the bluffs from the water (i.e. from a boat). There is no beach from which to view the bluffs in this area. Therefore, due to physical and public access constraints, public enjoyment of views to and along the coast in this area is limited compared with other areas along the coast.

Nevertheless, while public views are limited compared to other areas, these views to and along the shoreline are available. Degradation of those views would be inconsistent with Section 30251 of the Coastal Act. Degradation of views can occur when development is not consistent with the character of surrounding development. For instance, if measures were not taken to disguise the storm drain outlet, significant visual impacts would occur.

The applicant has proposed to color-match the concrete to the color of the adjacent rock. In addition, the applicant has proposed to texture the headwall surrounding the outfall tunnel to mimic the look of rock. Since these measures are necessary to find the project consistent with Section 30251 of the Coastal Act, the Commission would impose conditions requiring the color and texture treatment. However, the Commission is denying the proposed development based upon impacts to sensitive biological resources.

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.

1. Construction Impacts to Water Quality

Storage or placement of construction materials, debris, or waste in a location subject to wave erosion and dispersion or which may be discharged into coastal water via rain would result in adverse impacts upon the marine environment that would reduce the biological productivity of coastal waters. For instance, construction debris entering coastal waters may cover and displace rocky intertidal and soft bottom habitat. In addition, the use of machinery in coastal waters not designed for such use may result in the release of lubricants or oils that are toxic to marine life. Sediment discharged to coastal waters may cause turbidity which can shade and reduce the productivity of marine life and foraging avian and marine species ability to see food in the water column. Discharges of sediment laden water from construction clean-up activities can also cause turbidity.

In order to avoid adverse construction-related impacts upon marine resources, the Commission would require the applicant to conform with certain construction related requirements to provide for the safe storage of construction materials and the safe disposal of construction debris. Only as conditioned for appropriate storage of construction materials and equipment could the Commission find that the proposed development is consistent with Section 30230 of the Coastal Act as it pertains to construction related activities.

2. Runoff Discharged into the Proposed Project

The proposed development would increase the capacity of the existing storm water system. Pollutants such as sediment or toxic substances such as grease, motor oil, heavy metals, and pesticides contained within the runoff discharged into the Pacific Ocean would have significant adverse impacts on water quality.

The Negative Declaration states that the proposed development would not result in a net increase in the quantity of storm water discharged to coastal waters. The storm waters that will be discharged through the new storm drain and outlet to the Pacific Ocean are of the same type and quantity as that presently discharged into the Pacific Ocean. Therefore, while the capacity of the storm drain system is increasing, the area drained is not increasing. Rather, the proposed storm drain improvements and additions would redistribute existing storm water within the communities storm drain system in order to allow Three Arch Bay to abandon existing deteriorating portions of the storm drain system and to prevent flooding of Pacific Coast Highway and residential property within Three Arch Bay.

While the proposed storm drain system would only redistribute existing runoff and not increase it, pollutants carried in the existing runoff affect the water quality of the Pacific Ocean. The Commission finds that it is necessary to minimize to the extent feasible within its jurisdiction the cumulative adverse impacts on water quality resulting from continued entry of existing pollutants into the Pacific Ocean. Reductions in the amount of pollutants in the existing runoff would be one step to begin to reduce cumulative adverse impacts to coastal water quality.

Installation of structural BMPs would reduce pollutants, such as trash, motor oil, and grease that are normally carried into coastal waters via storm drains. By catching the pollutants before they enter the storm drains, structural BMPs would reduce pollutant levels in runoff entering the Pacific Ocean through the proposed pipe, thus minimizing to the extent feasible cumulative adverse impacts upon water quality. In addition, low flow discharges tend to have a high concentration of pollutants because such flows tend to originate from non-storm-related discharges, such as landscape watering. Diverting low flows to the sewer system for sewer treatment would reduce the impact such low flows have upon water quality in the Pacific Ocean.

The applicant has identified several BMPs which would be appropriate for reducing pollutants in storm water discharges. These BMPs include storm drain stenciling and signage, media filtration (sand filter, catch basins filter), low flow diversion, street cleaning, catch basin cleaning, mud and debris removal from storm drain pipes, and public education. The applicants proposal includes the installation of trash racks in the catch basins and the installation of an inlet filter system (e.g. DrainPac, Fossil Filter). In addition, the applicant has indicated an intention to equip the storm drain system so that low flows can be diverted for sewer treatment. However, low flow sewer treatment is not proposed at this time because the applicant has not yet obtained permission to do the diversion from the South Coast Water District (SCWD). However, the applicant does have an application pending with SCWD for approval of the diversion.

The implementation of the proposed BMPs would be necessary to reduce the cumulative adverse impact existing polluted runoff has upon the Pacific Ocean. Therefore, the Commission would impose special conditions requiring the implementation of the proposed BMPs. Only through conditions could the Commission find the proposed development consistent with Section 30231 of the Coastal Act as it pertains to storm drain discharge impacts upon water quality. However, the Commission is denying the proposed project based upon adverse impacts upon intertidal ESHA.

G. PUBLIC ACCESS

1. First Public Road

Section 30604(c) of the Coastal Act requires that every coastal development permit issued for any development between the first public road and the sea include a specific finding regarding the conformity of the proposed development with the public access and recreation policies of Chapter 3 of the Coastal Act. The portions of the proposed development seaward of Pacific Coast Highway, including the new storm drain pipes and inlets and the storm drain outfall are located between the first public road and the sea.

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.

The proposed project is located within an existing locked gate community located between

the sea and the first public road paralleling the sea. Public access through this community does not currently exist. The proposed development will not effect the existing public access conditions. It is the locked gate community, not this storm drain system, that impedes public access. The proposed development will not result in any adverse impacts to existing public access in the area. Therefore the Commission finds that the project is consistent with the public access policies of the Coastal Act.

2. Growth Inducement

Section 30254 of the Coastal Act states, in relevant part:

New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division...

The Mitigated Negative Declaration states that the proposed storm drain improvements will not increase the development potential of the area served by the proposed improvements. Rather, the proposed storm drain system improvements are designed to increase the capacity of the system to handle 25 to 100-year storm flows (varies throughout the system) in order to protect the existing residential development and Pacific Coast Highway. A letter report dated May 29, 1997 by John M. Tettemer and Associates states that the proposed system is being designed to handle 25 to 100-year storm flows (as opposed to the more common 10-year flow design standard) because many of the residential driveways in the community are at or below street grade and do not allow the streets to function as storm water detention areas as they do in other development areas. Therefore, the additional capacity is to provide flood protection and not to increased development density. In addition, the City of Laguna Beach designates the areas serviced by the proposed development for Single Family Residential. Increasing the capacity of the storm water system would not be pivotal to increasing development density in this area. Alternatively, other public works improvements, such as increased sewer capacity and roadway capacity would tend to be growth-inducing in this area. However, no such increase in sewer or roadway capacity is proposed. Therefore, the Commission finds the proposed development will not be growth-inducing and is consistent with Section 30254 of the Coastal Act.

H. LOCAL COASTAL PROGRAM

Section 30604 of the Coastal Act provides that a coastal development permit shall be issued only if the proposed development would not prejudice the ability of the local government having jurisdiction to prepare a local coastal program (LCP) which conforms with, and is adequate to carry out, the Chapter 3 policies of the Coastal Act.

The City of Laguna Beach Local Coastal Program was certified with suggested modifications, except for the areas of deferred certification, in July 1992. In February 1993 the Commission concurred with the Executive Director's determination that the suggested modification had been properly accepted and the City assumed permit issuing authority at that time. The subject site is located within the Three Arch Bay area of deferred certification. Certification in this area was deferred due to issues of public access arising from the locked gate nature of the community.

As noted above, the proposed project is being denied due to adverse impacts of the proposed project upon intertidal ESHA. These impacts are inconsistent with Sections 30230, 30231, and 30240 of the Coastal Act. Similar to Sections 30230, 30231, and 30240 of the Coastal Act, the City's certified Local Coastal Program contains policies which recognize intertidal areas as sensitive habitat and protect that habitat. For instance, Policy 8-J of the Conservation/Open Space Element of the certified Local Coastal Program states, in relevant part:

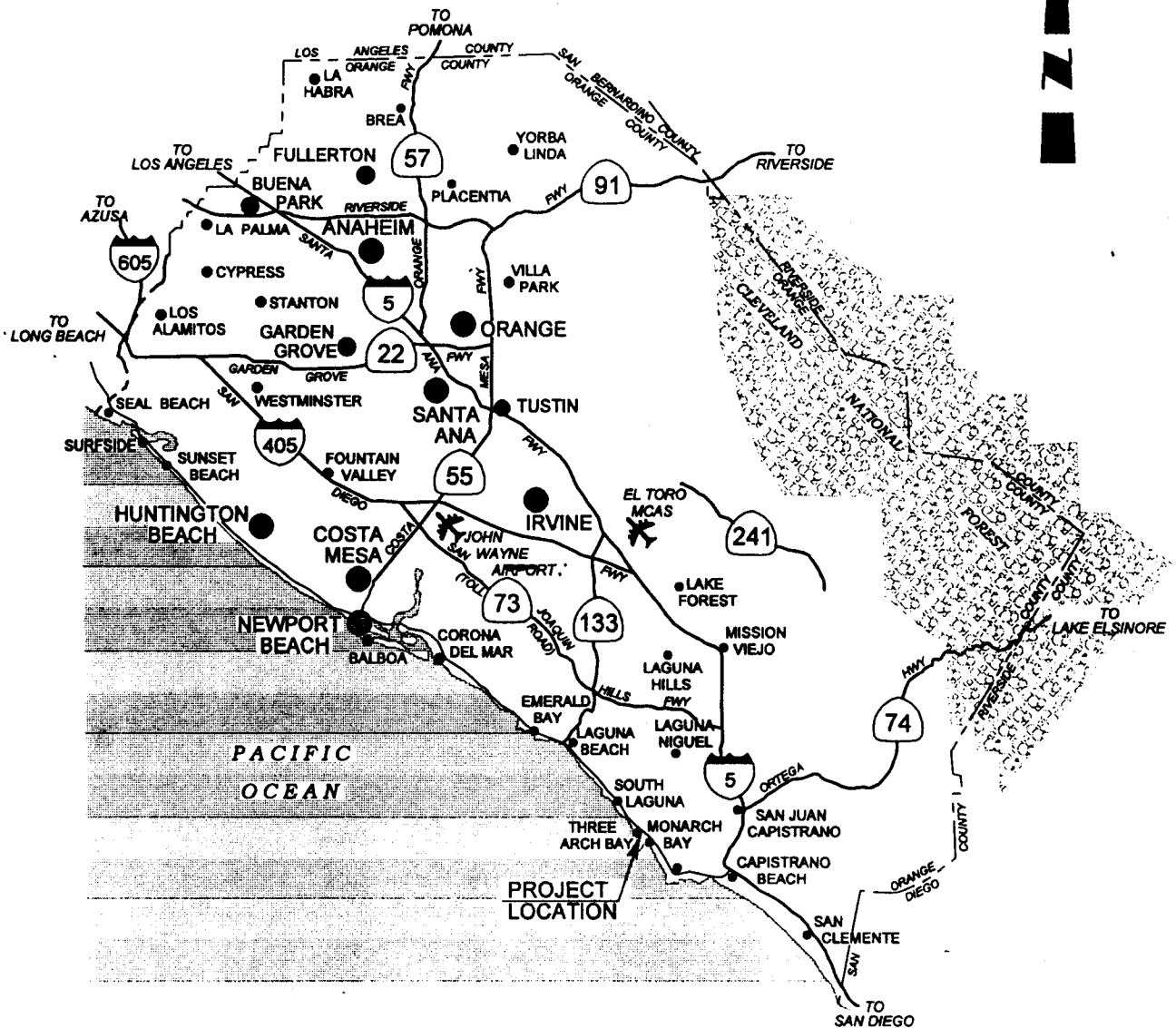
- ... 1. *No new development proposals shall be located in areas designated as "Environmentally Sensitive Areas" on the Coastal ESA Map except for uses dependent upon such resources.*
2. *When new development proposals are situated in areas adjacent to areas designated as "Environmentally Sensitive Areas" on the Coastal ESA Map and where these are confirmed by subsequent on-site assessment, require that development be designed and sited to prevent impacts which would significantly degrade such areas...*

The certified LCP designates tide pools as ESHA. In addition, the tide pools in the project area are in a Marine Life Refuge. The certified LCP protects the sensitive marine resources within Marine Life Refuges. Since the proposed development would adversely impact an ESHA and resources within a Marine Life Refuge, the development would not be consistent with policies contained in the certified Local Coastal Program. The Commission finds that approval of this development would prevent the City of Laguna Beach from preparing a total Local Coastal Program for the areas of deferred certification that conforms with and is adequate to carry out the Chapter 3 policies of the Coastal Act. Therefore, the proposed development must be denied.

I. CALIFORNIA ENVIRONMENTAL QUALITY ACT

Section 13096 of Title 14 of the California Code of Regulations requires Commission approval of coastal development permits to be supported by a finding showing the permit, 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.

As explained above and as incorporated here by reference, the proposed project is inconsistent with Sections 30230, 30231, and 30240 of the Coastal Act due to adverse impacts upon intertidal habitat that is sensitive to human activity and development and is an Environmentally Sensitive Habitat Area. The Commission has also found that there are feasible alternatives which would avoid such impacts. Therefore, the Commission finds that the proposed project is inconsistent with the California Environmental Quality Act. Therefore, the proposed project must be denied.



COASTAL COMMISSION
5-00-011

EXHIBIT # 1
PAGE 1 OF 2



John M. Tettemer
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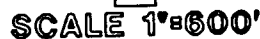
THREE ARCH BAY

VICINITY MAP

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07/99

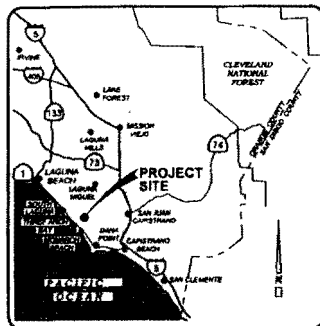
FIGURE
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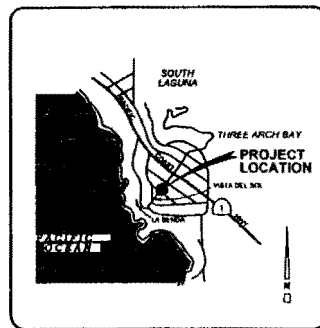


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FIGURE 2



VICINITY MAP
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LOCATION MAP
N.T.S.

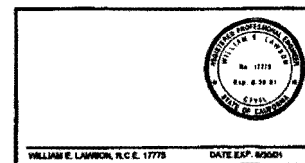
THREE ARCH BAY STORM DRAIN FACILITIES

NOVEMBER 2000

PROJECT OWNER:
THREE ARCH BAY DISTRICT
5 BAY DRIVE
LAGUNA BEACH, CA 92651

PLANS PREPARED BY:

Tetterer & Associates
consulting engineers
ENGINEERING - MANAGEMENT - PLANNING
2880 RED HILL AVENUE, COSTA MESA, CALIFORNIA
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A Division of The Earth Corporation, Inc.



WILLIAM E. LAWTON, P.E. 17775

DATE EXP. 03/01

INDEX OF SHEETS

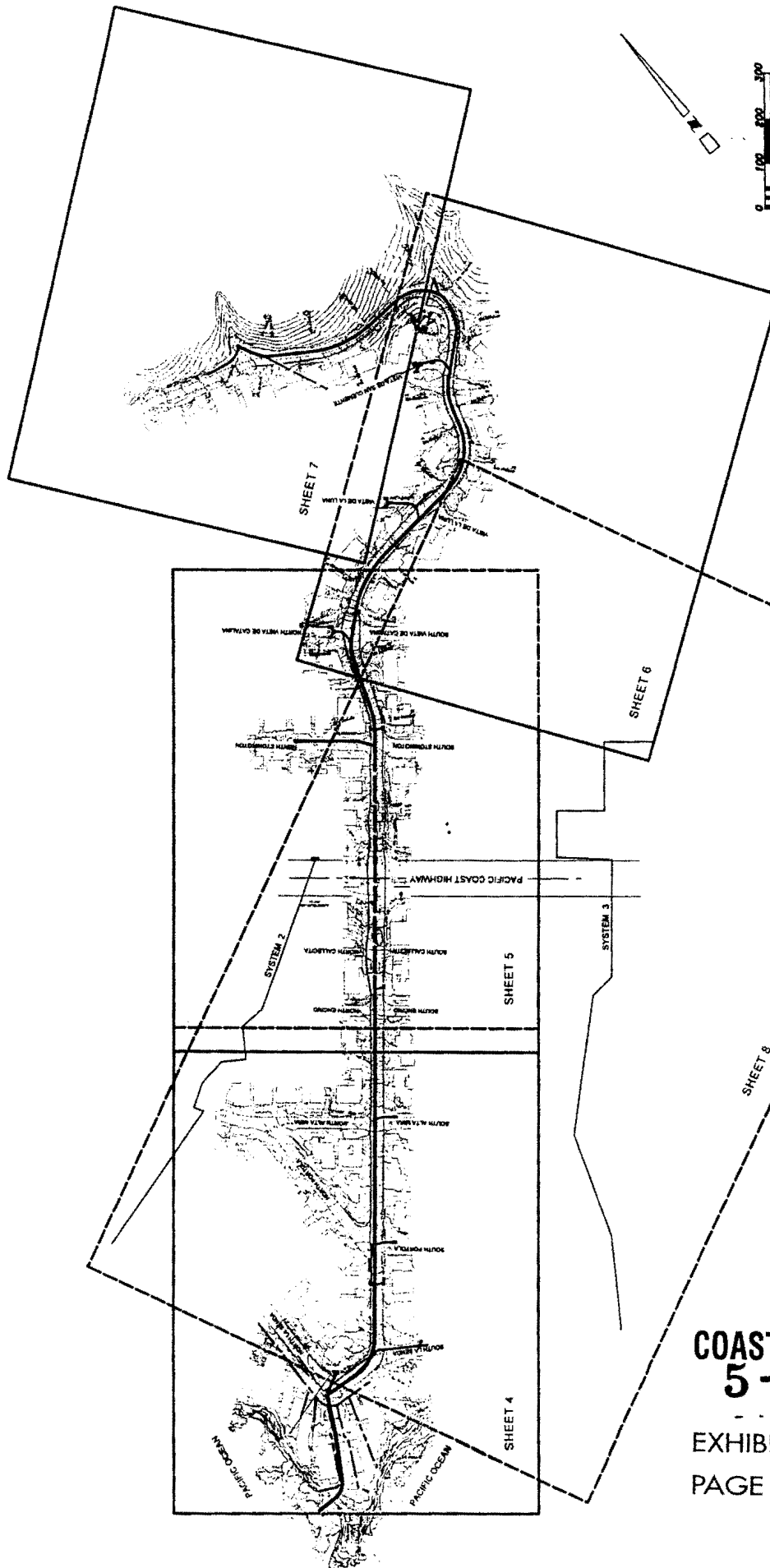
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1	TITLE SHEET
2	INDEX MAP
3	GENERAL NOTES AND CONSTRUCTION NOTES
4	PLAN AND PROFILE STA 10+00 TO STA 18+00
5	PLAN AND PROFILE STA 18+00 TO STA 28+00
6	PLAN AND PROFILE STA 28+00 TO STA 36+00
7	PLAN AND PROFILE STA 36+00 TO STA 40+52.03
8	EXISTING CATCH BASINS AND PIPE REPLACEMENT PLANS
9	INLET DETAILS (1)
10	INLET DETAILS & NOTES (2)
11	PLAN & PROFILE OF OCEAN OUTLET
12	XXXXXX
13	XXXXXX
14	XXXXXX
15	XXXXXX
16	XXXXXX
17	XXXXXX
18	XXXXXX
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REV	DESCRIPTION	APPR	DATE

COASTAL COMMISSION
5-00-011
EXHIBIT # 2
PAGE 1 OF 11

PROJECT NO. 110003.00

SHEET NO. 1 OF 11



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SCALE IN FEET

DATE 11/00
SHEET 2 OF 11
THREE ARCH BAY
STORM DRAIN FACILITIES
INDEX MAP

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A MEMBER OF THE TEDDER GROUP, INC.



NO.	DESCRIPTION	DATE
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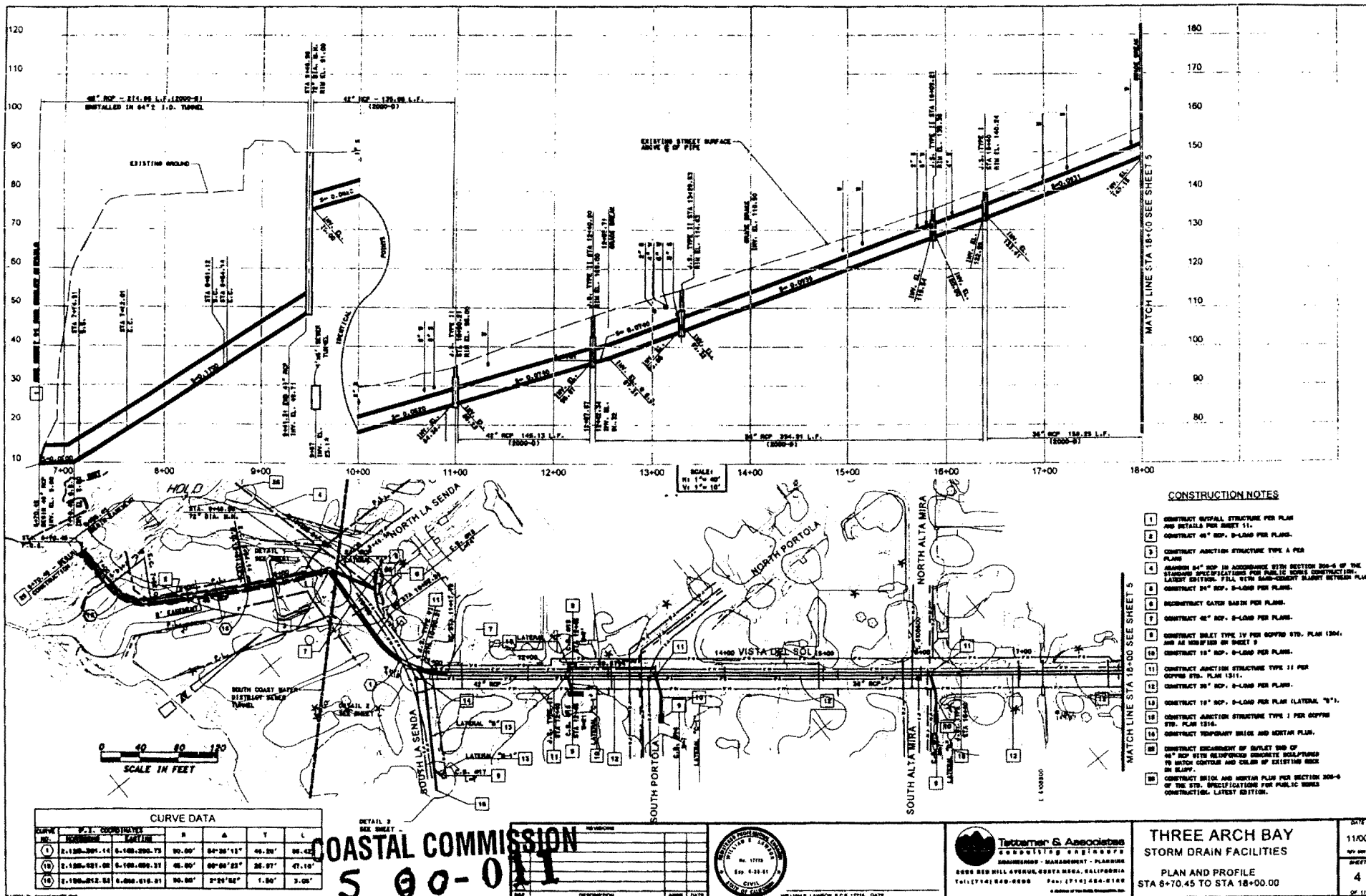
COASTAL COMMISSION
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EXHIBIT # 2
PAGE 2 OF 11

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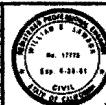
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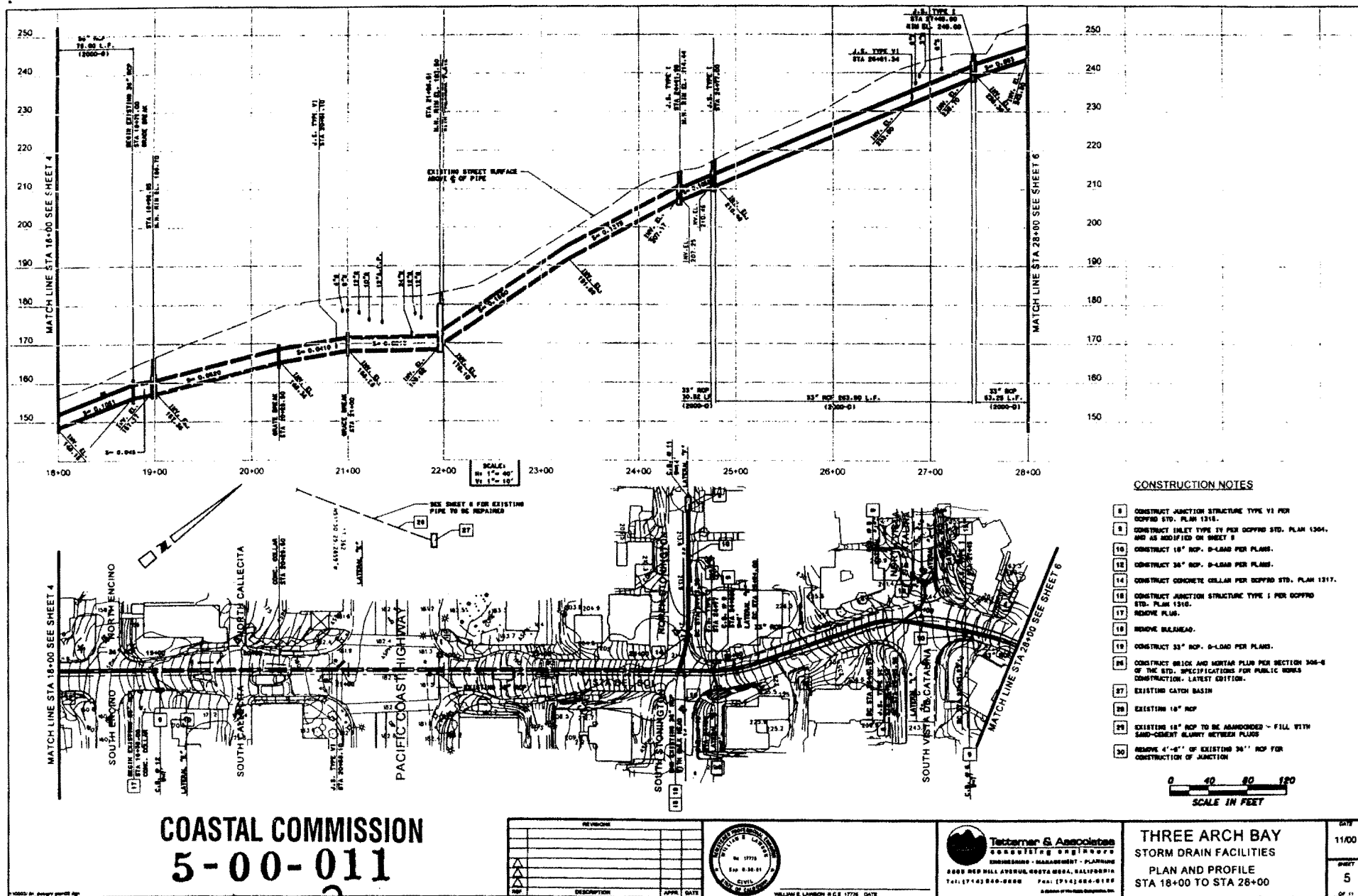


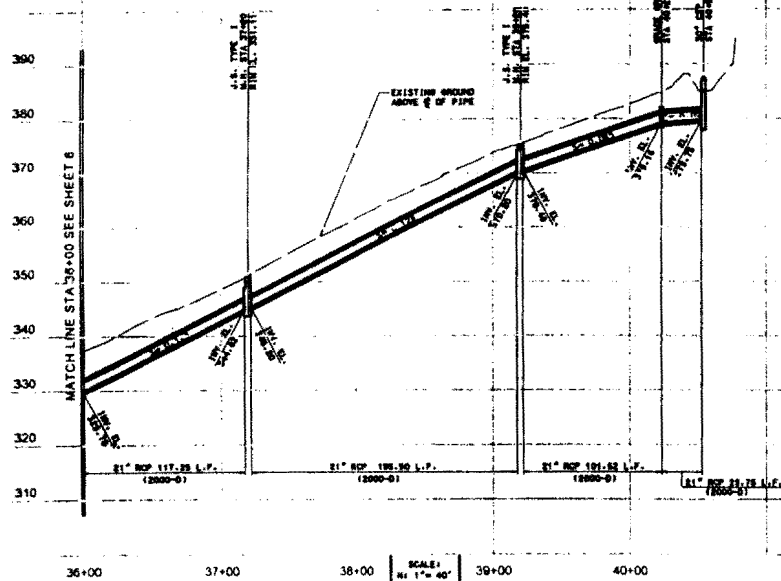
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THREE ARCH BAY
STORM DRAIN FACILITIES
PLAN AND PROFILE
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EXHIBIT # 2
PAGE 4 OF 11





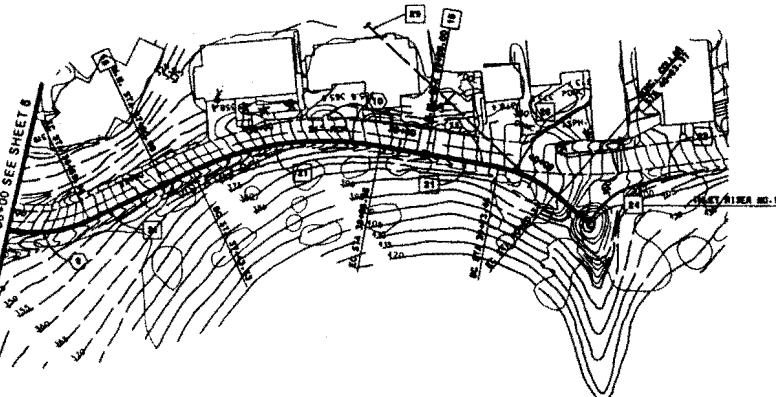
CONSTRUCTION NOTES

- 18. CONSTRUCT JUNCTION STRUCTURE TYPE I PER GOWNS STD. PLAN 1910.
- 21. CONSTRUCT 21" ROP, 0-LOAD PER PLANS.
- 22. CONSTRUCT REINFORCED CONCRETE MANHOLE WITH ECCENTRIC COKE PER GOWNS STD. PLAN 1902.
- 23. CONSTRUCT GRABITE CHANNEL PER PLANS.
- 24. CONSTRUCT 20" COP INLET RISER PER DETAILS ON SHEET
- 25. CONSTRUCT BRICK AND MORTAR PLUM PER SECTION 304-4 OF THE STD. SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.
- 29. EXISTING 18" ROP TO BE ABANDONED - FILL WITH SAND-CEMENT SLURRY BETWEEN PLUMS

COASTAL COMMISSION
5-00-011

EXHIBIT # 2

PAGE 7 OF 11



CURVE DATA						
CURVE NO.	P.T. COORDINATES	STATION	R	Δ	T	L
1	2+127.116.00	0+100.040.00	90.00'	90°10'00"	52.09'	84.74'
2	2+127.104.72	0+100.040.00	230.00'	30°30'11"	79.04'	143.18'
3	2+127.203.02	0+100.040.00	90.00'	90°00'30"	23.91'	45.00'

REVISION	DESCRIPTION	DATE

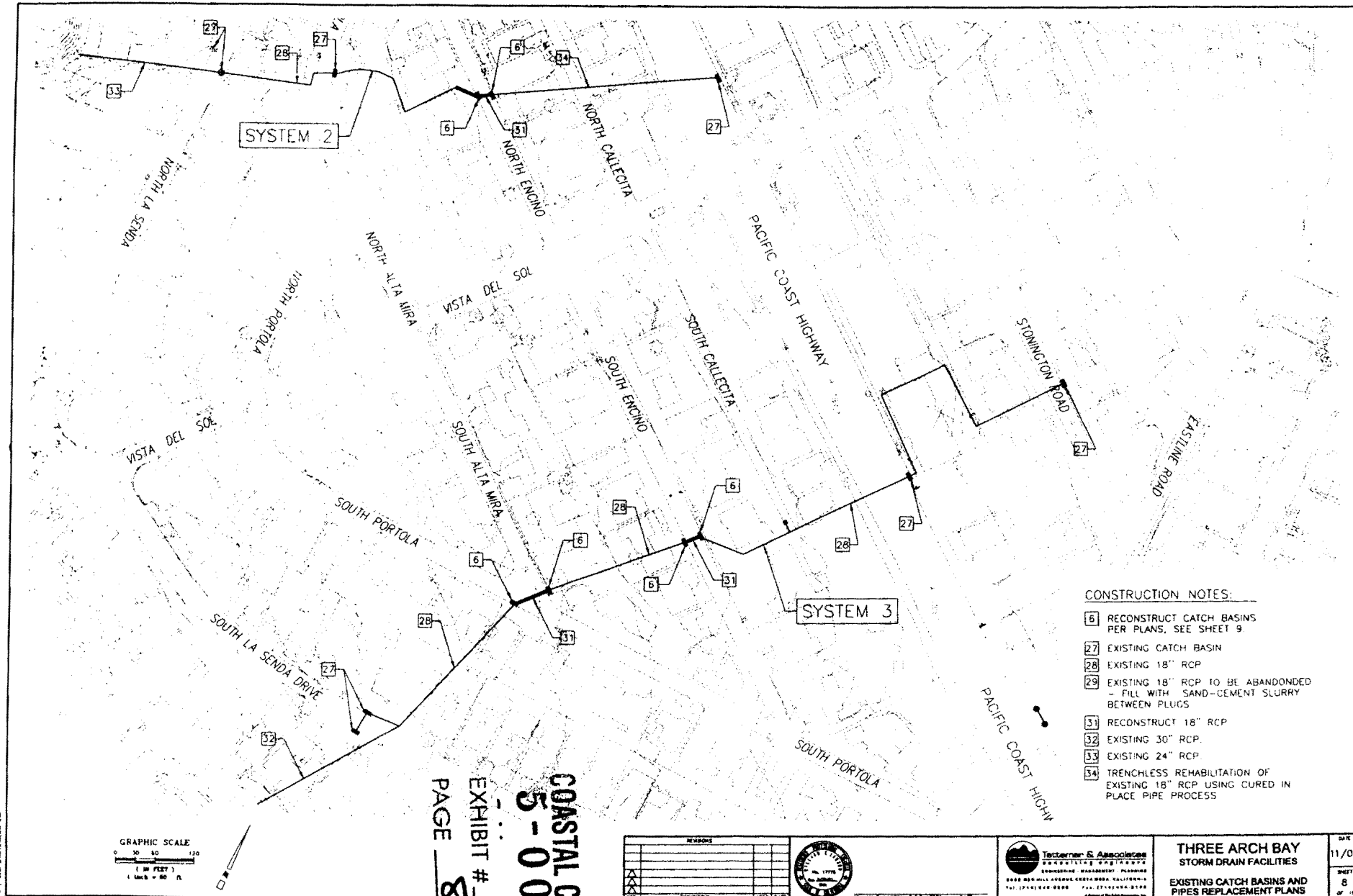


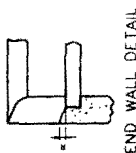
WILLIAM L. HANSON P.E. 17776 DATE



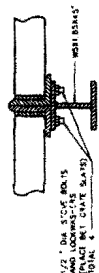
THREE ARCH BAY
STORM DRAIN FACILITIES
PLAN AND PROFILE
STA 36+00 TO 40+52.03

DATE
11/00
SHEET
7
OF 11





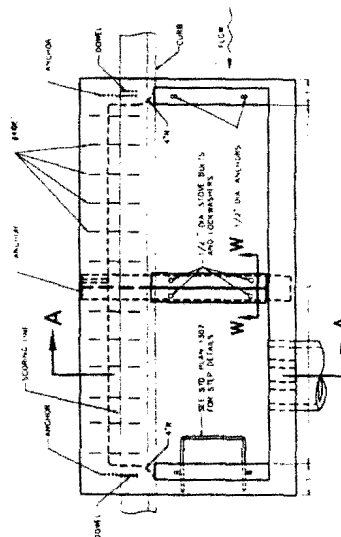
SECTION W-W



SECTION W-W

STEE LIST	SECTION 1				SECTION 2			
	QUANTITY	DESCRIPTION	UNIT	PRICE	QUANTITY	DESCRIPTION	UNIT	PRICE
	1	1" DIA			1	1" DIA		
	2	2" DIA			2	2" DIA		
	3	3" DIA			3	3" DIA		
	4	4" DIA			4	4" DIA		
	5	5" DIA			5	5" DIA		
	6	6" DIA			6	6" DIA		
	7	7" DIA			7	7" DIA		
	8	8" DIA			8	8" DIA		
	9	9" DIA			9	9" DIA		
	10	10" DIA			10	10" DIA		
	11	11" DIA			11	11" DIA		
	12	12" DIA			12	12" DIA		
	13	13" DIA			13	13" DIA		
	14	14" DIA			14	14" DIA		
	15	15" DIA			15	15" DIA		
	16	16" DIA			16	16" DIA		
	17	17" DIA			17	17" DIA		
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	57	57" DIA			57	57" DIA		
	58	58" DIA			58	58" DIA		
	59	59" DIA			59	59" DIA		

LENGTH OF CURB OPENING	NO. OF ANCHORS
3'-6" OR LESS	2
7'-0"	3
10'-0"	4
14'-0"	5
21'-0"	7

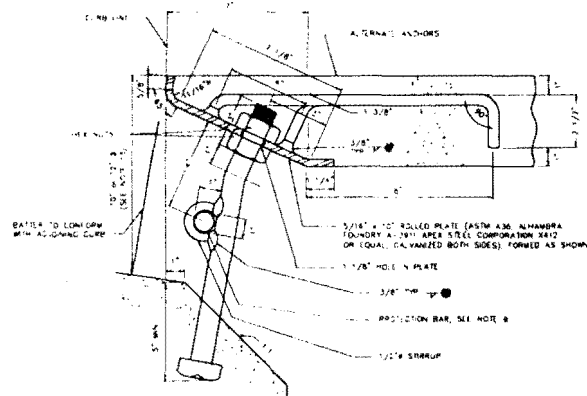


INVESTIGATING

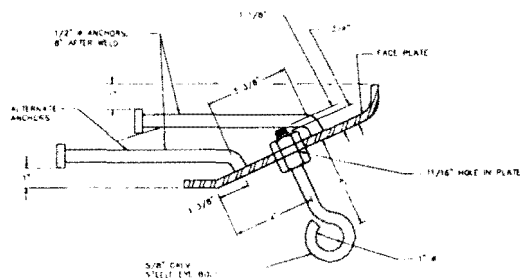
NOTES:

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COASTAL COMMISSION
5-00-011
EXHIBIT # 2
PAGE 9 OF 11

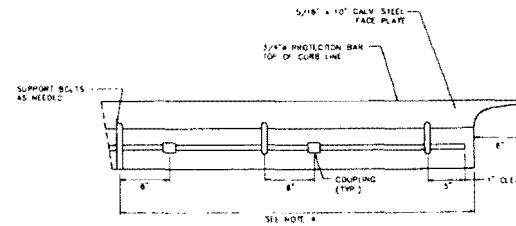


FACE PLATE ANCHORAGE
AND CURB SUPPORT DETAIL



EYE BOLT AND ALTERNATE
ANCHOR DETAIL FOR FACE PLATE

LENGTH OF CURB OPENING	NO. OF ANCHORS
3'-6" OR LESS	2
7'-0"	3
10'-0"	4
14'-0"	5
21'-0"	7



PROTECTION BAR DETAIL

NOTES:

- ONE EYE BOLT SHALL BE PLACED 12" FROM EACH END OF THE FACE PLATE.
- EYE BOLTS SHALL BE SYMMETRICALLY SPACED IN THE CURB OPENING SO THAT THE UNSUPPORTED SPAN IS NOT MORE THAN 4'. SUPPORT BOLTS WHEN USED, SHOULD BE CONSIDERED AS EYE BOLTS IN THE SPACING.
- ONE COUPLING SHALL BE PLACED 8" TO THE RIGHT OR LEFT OF EACH EYE BOLT WITH THE EXCEPTION OF THE LAST EYE BOLT. COUPLINGS SHALL BE THREADED TO FACILITATE REMOVAL OF PROTECTION BAR.
- CALVANEED STEEL SUPPORT BOLTS SHALL BE INSTALLED WHEN LENGTH OF CURB OPENING EXCEEDS 7'-0" AND SHALL BE SPACED AT NOT MORE THAN 7'-0" O.C. AND NOT LESS THAN 5'-0" O.C.
- FACE PLATE ANCHORS SHALL BE UNIFORMLY SPACED NOT TO EXCEED 4' BETWEEN CENTERS AND SHALL BE PLACED 4 1/2" FROM EACH END OF THE FACE PLATE. AN ANCHOR SHALL BE PLACED OVER EACH W-BEAM IN A CREATING BEAM.
- A COUPLING MAY BE OMITTED PROVIDED THE PROTECTION BAR IS REMOVABLE AFTER INSTALLATION.
- ALL METAL SHALL BE GALVANIZED AFTER FABRICATION.
- SUPPORT BOLTS, EYE BOLTS, AND ANCHORS MAY BE ATTACHED BY A FULL PENETRATION BUTT WELD AS AN ALTERNATE.
- PLACE A 3/4" DIA. PROTECTION BAR HORIZONTALLY ACROSS THE ENTIRE LENGTH OF THE CURB OPENING.
- SEE STD. PLAN 1307 FOR ADDITIONAL MISCELLANEOUS INLET DETAILS AND NOTES.
- CURB SECTION SHALL MATCH ADJACENT CURB TYPE.
- CURB OPENING SHALL CONFORM TO CURB ALIGNMENT.
- HEIGHT OF CURB OPENING WILL VARY WITH THE TYPE OF CURB AND THE DEPTH OF THE LOCAL DEPRESSION (STD. PLAN 1308).
- THE ANGLE AS SHOWN ON DETAIL A SHALL BE ALLOWED ONLY WHEN ON APPROVED PLANS.

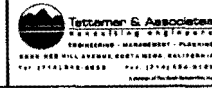
NOTE:
THE 1/2" & 3/8" STUD SHALL
BE FULL PENETRATION WELDED TO WELLS IN
THE CURB OR CONCRETE OR EQUAL
SHALL BE USED.

SCALE 1"=1'

NO.	REVISIONS	DATE
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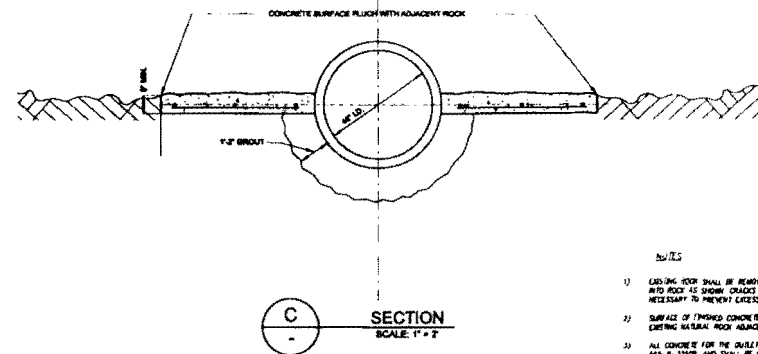
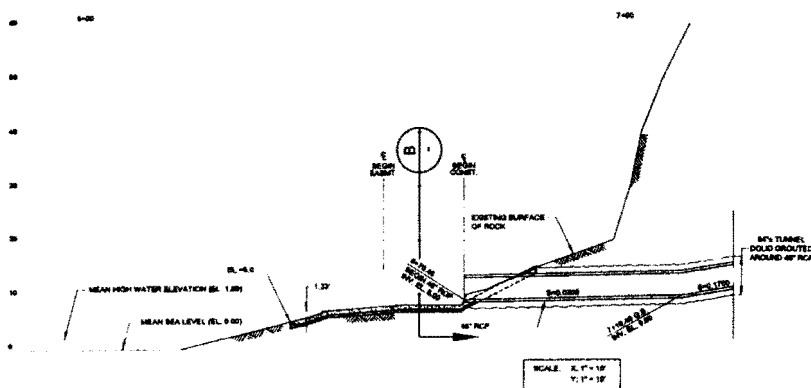
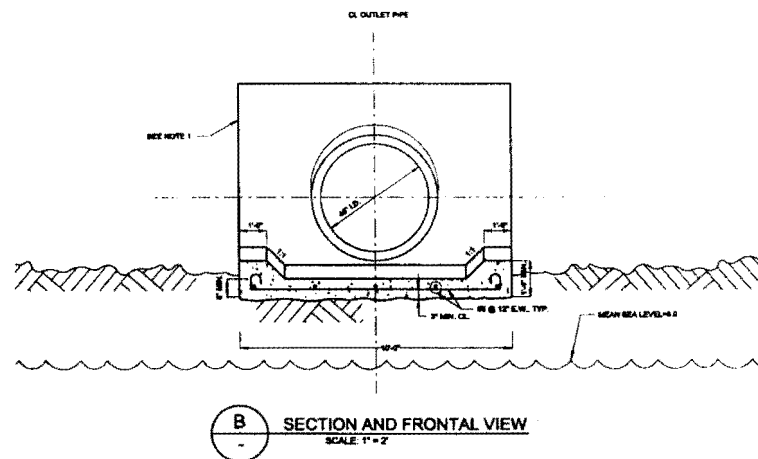
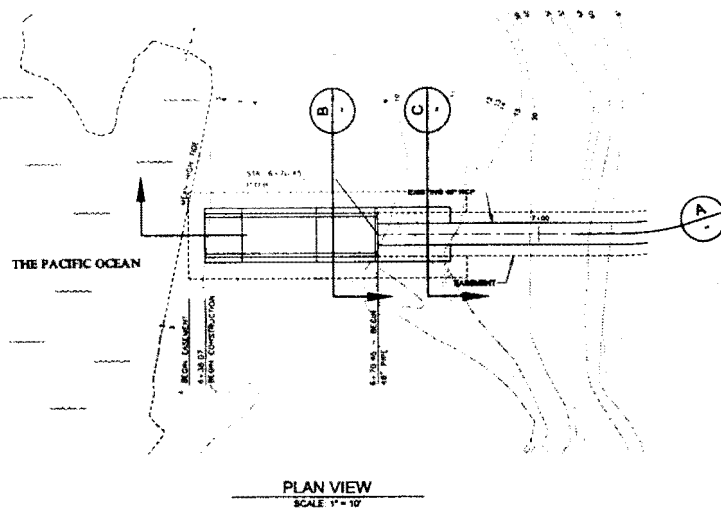
DELETED E. L. L. 17799 DATE



THREE ARCH BAY
STORM DRAIN FACILITIES
INLET DETAILS & NOTES (2)

DATE 11/00
SHEET 10
OF 11

COASTAL COMMISSION
5-00-011
EXHIBIT # 2
PAGE 10 OF 11



- NOTES
- 1) EXISTING ROCK SHALL BE REMOVED AS NECESSARY TO RECESS CONCRETE INTO ROCK AS SHOWN. CRACKS IN EXISTING ROCK SHALL BE REPAIRED AS NECESSARY TO PREVENT EXCESSIVE AMOUNTS OF CONCRETE CRACKS.
 - 2) SURFACE OF FINISHED CONCRETE SHALL BE REPAIRED TO RESEMBLE THE EXISTING NATURAL ROCK ADJACENT TO THE STRUCTURE.
 - 3) ALL CONCRETE FOR THE OUTLET STRUCTURE SHALL BE CLASS 5000-5500 PSI AND SHALL BE CAST IN PLACE THROUGHOUT THE ENTIRE CONCRETE STRUCTURE TO MATCH THE ADJACENT NATURAL ROCK.
 - 4) REINFORCING STEEL SHALL BE GRADE 60 (60) CONFORMING TO ASTM A615/ASTM REINFORCEMENT STEEL SHALL BE GALVANIZED PER SECTION 210-2 OF THE STD. SPEC. FOR PUBLIC WORKS CONSTRUCTION.

A

PROFILE
SCALE: 1" = 10'

COASTAL COMMISSION

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EXHIBIT # 2

PAGE 11 OF 11

DESCRIPTION	APPROVAL	DATE

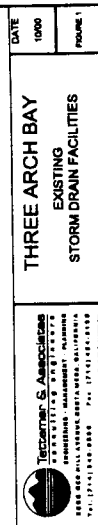


WILLIAM S. CARSON, P.E. 11778 STATE OF CALIFORNIA

Tetrum & Associates
ENGINEERING, ARCHITECTURE, PLANNING
4000 RED HILL AVENUE, SUITE 100, SAN DIEGO, CALIFORNIA 92121
TEL: (619) 444-8800 FAX: (619) 444-8800

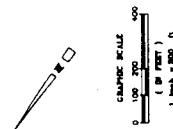
**THREE ARCH BAY
STORM DRAIN FACILITIES**
PLAN AND PROFILE
OF OCEAN OUTLET

DATE
11/00
SHEET
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OF 11



PACIFIC OCEAN
COASTAL COMMISSION
3-00-011

EXHIBIT # 3
PAGE 1 OF 1



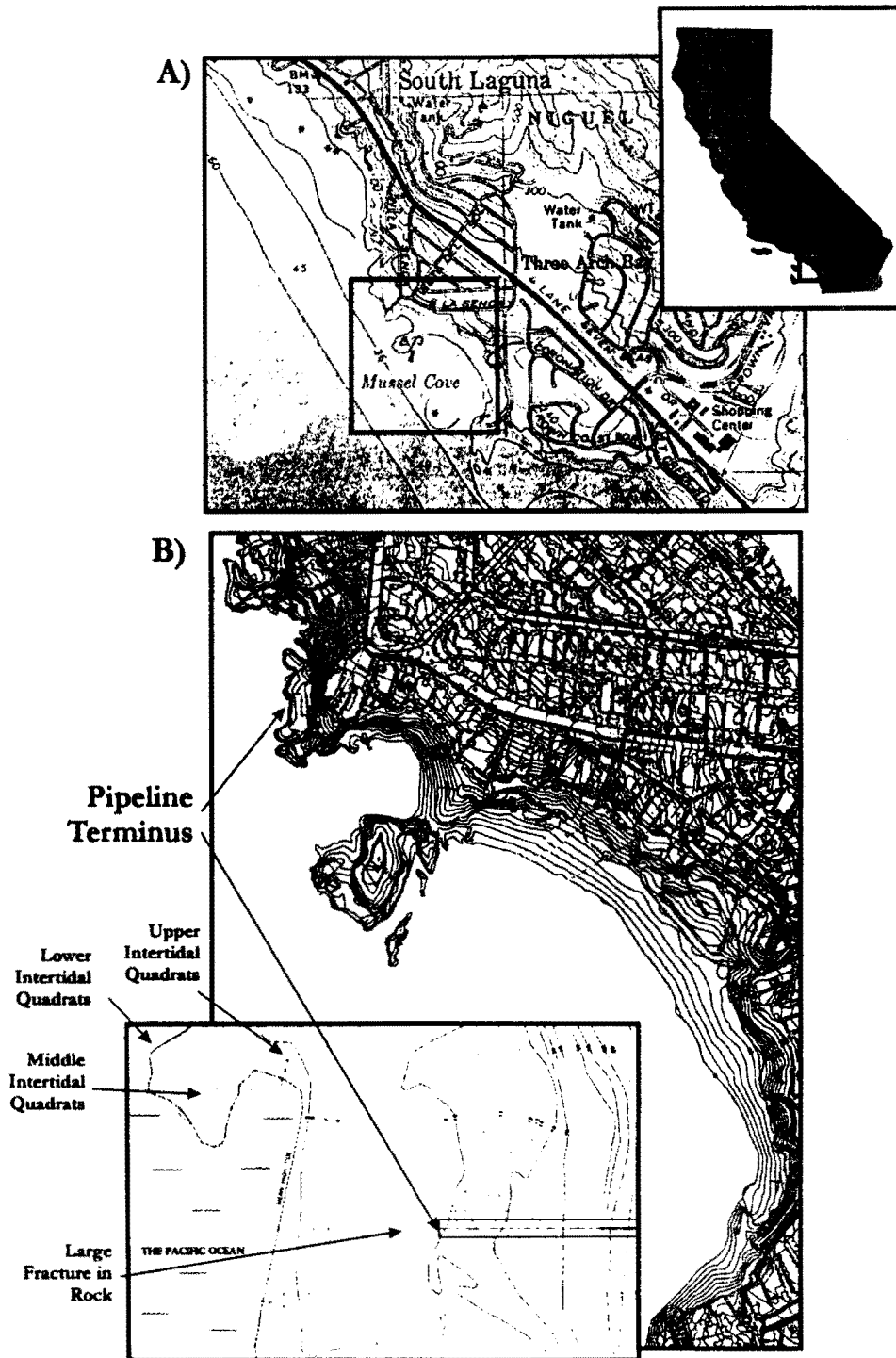


Figure 1. A) Location of Three-Arch Bay and Mussel Cove. B) Location of the Drainage-Pipe Terminus and Intertidal Sampling Locations.

COASTAL COMMISSION
5-00-011

Marine Research Specialists

EXHIBIT # 4
PAGE 1 OF 2

5-00-011
Three Arch Bay Community Services District

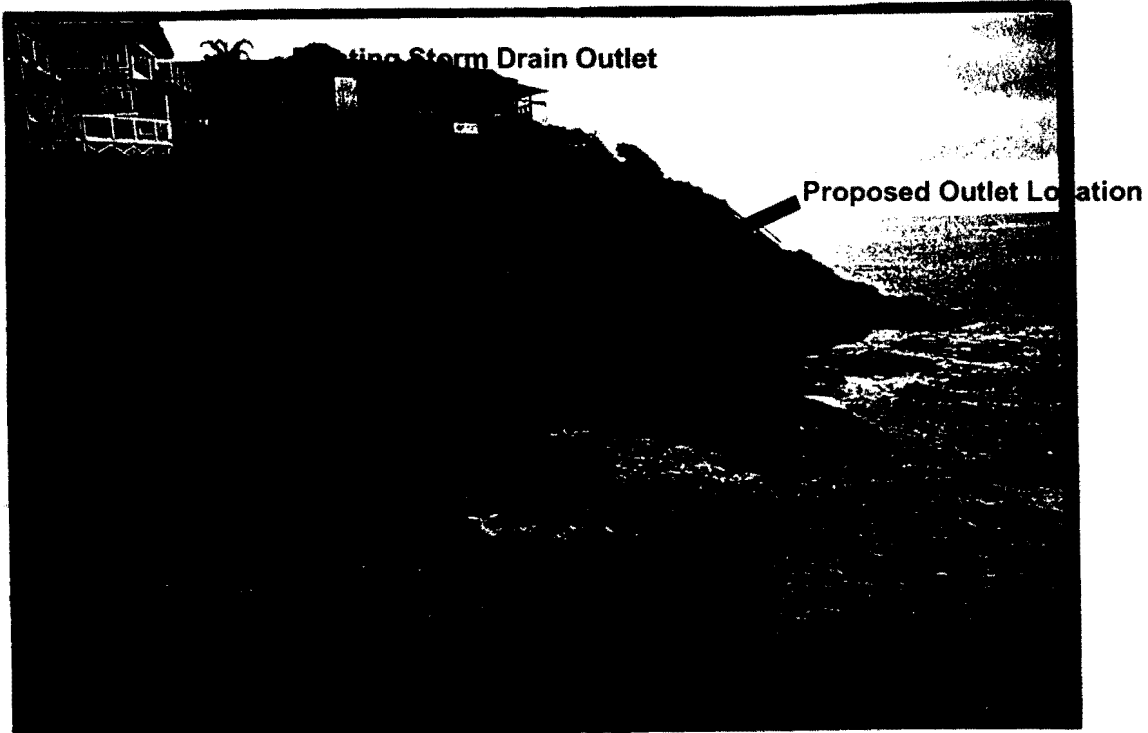
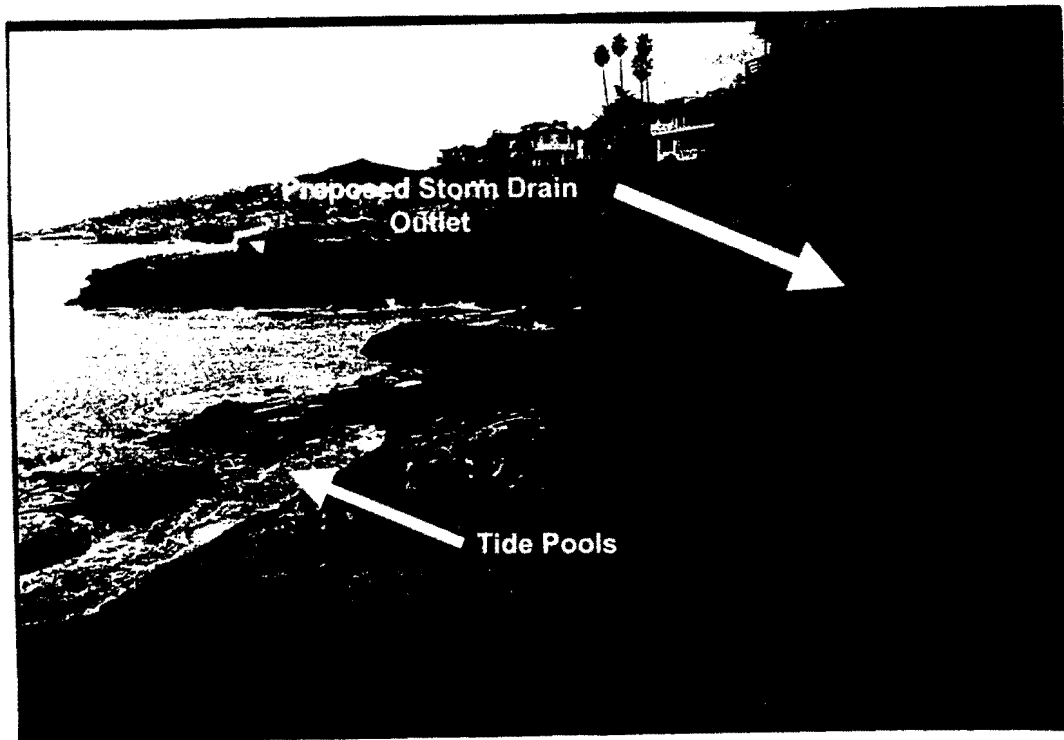



EXHIBIT No. 4	
Application Number:	
5-00-011	
	California Coastal Commission

**THREE ARCH BAY COMMUNITY SERVICES DISTRICT
INITIAL STUDY**

portions of Three Arch Bay. These conditions represent a health and safety factor for the residents of Three Arch Bay, and the traffic on Pacific Coast Highway, therefore this alternative was eliminated.

Storm Drain Alternatives Upstream of the Ocean Outlet

Alternative Two – Insituform Lining Repair

This alternative provides for lining within the existing reinforced concrete pipe (RCP) system, and construction of Vista del Sol storm drain pipe to convey the additional flow that cannot be conveyed by the existing pipes. These two systems would then converge at Vista del Sol and La Luna where the total flow would be captured and conveyed to a new 30-inch RCP in Vista del Sol. New storm drain pipe ranging from 33-inch to 42-inch in diameter would be installed from La Luna to 1 North La Senda and would be installed with the exception of the reach from South Stonington Road to South Encino. In this reach the existing 36-inch pipe will be connected to the new pipe. This alternative would cause temporary inconvenience to the residents and services provider traffic using Vista del Sol. This alternative costs approximately one third more than the preferred upstream alternative (JMTA 1997). Therefore this alternative was eliminated.

Alternative Three – Replace and Enlarge Existing Facility (Preferred Upstream Alternative)

This alternative would abandon certain existing storm drain pipes, connect the catch basin in Vista de San Clemente to a new 18-inch RCP, line certain existing pipes, and install a new storm drain pipe ranging from 21-inch to 42-inch diameter, from the extreme northerly limits of the project to 1 North La Senda but utilizing the existing 36-inch pipe between South Stonington Road and South Encino. This alternative can be constructed within the District's existing right-of-way for Vista del Sol. This alternative may cause disturbances during construction since a greater length of pipe would be constructed in a narrow street section. This alternative would also avoid passing under existing houses. Traffic within the District could be halted for short periods of time. This alternative costs one third less than upstream Alternative Two. This upstream alternative was selected for the above reasons.

Alternative Outlet Alignments

Alternative 1 (F1)

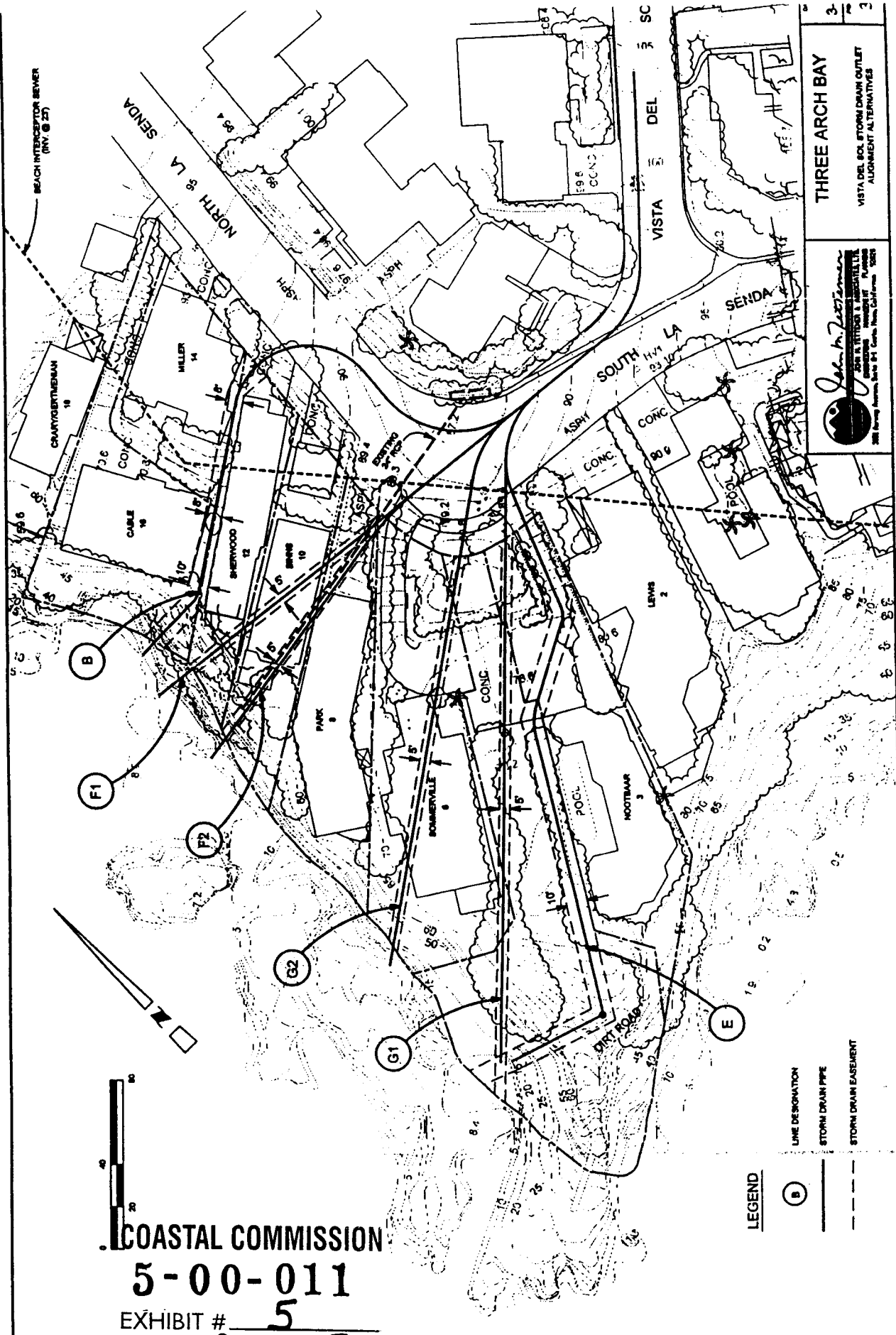
As depicted on Figure 3, this alternative alignment would come directly down North La Senda and proceed straight across 10 North La Senda in a northwesterly direction. This alternative alignment would be constructed by tunneling and would require a permanent easement from four property owners and one construction easement (JMTA 1997). The existing 24-inch storm pipe at the top of the bluff would be abandoned in this alternative. Additionally, as discussed in the JMTA 1997 report, the geotechnical features under this alignment would require remedial work in order for it to be a viable option. This alternative was eliminated due to the required remedial work and the number of easements required.

Alternative 2 (F2)

As depicted on Figure 3, this alternative alignment would come directly down North La Senda and make a westerly turn at 8 North La Senda and out to the bluff area. This alternative alignment would be constructed by tunneling and would require a permanent easement from three property owners and one construction easement (JMTA 1997). Additionally, the same geotechnical features occur under this alignment as in Alternative 1 (F1) requiring remedial work in order to make it a viable option, and there is a cave extending into the bluff below this property. The cave has two entrances in the bluff face and has been created by water action in the zone of weakness in the rock formed by the intersection of at least two inactive geologic faults. This alternative would also allow for the abandonment of the existing 24-inch storm drain at the top of the bluff. This alternative was eliminated for the geotechnical reasons and due to the number of easements required.

Alternative 3 (G1)

As depicted on Figure 3, this alternative alignment would come directly down North La Senda and makes a southwesterly turn in front of 6 South La Senda. This alternative would be constructed by tunneling and would require a permanent easement from two property owners and one construction easement (JMTA 1997). This alternative would also eliminate the 24-inch storm drain located at the top



**THREE ARCH BAY COMMUNITY SERVICES DISTRICT
INITIAL STUDY**

of the bluff. Additionally, the same geotechnical features occur under this alignment as in Alternative 1 (F1) requiring remedial work in order to make it a viable option. This alternative was eliminated because of the remedial work and the number of easements required.

Alternative 4 (G2) (Preferred Outlet Alternative)

As depicted on Figure 4, this alternative comes down North La Senda in a northwesterly direction and turns to the west between 6 North La Senda and the adjacent vacant lot. Due to public comments received, the original alignment of G2 as depicted on Figure 5 of Appendix B was moved from under the existing structure at 6 North La Senda a location southwest of the property line between 6 North La Senda and the adjacent vacant lot thus avoiding being under any existing or future structures. This alternative does not pass under properties that are occupied by houses. This alternative does, however, pass under a portion of an existing under-ground garage, which spans three residential lots. This alignment is located within a massive unfractured/unfaulted section of the bluff above a relatively wave-cut platform. This alignment would require the least amount of remedial work (JMTA 1997) and would require one permanent easement and one construction easement, and would allow the abandonment of the existing 24-inch storm drain at the top of the bluff. The outfall would flow into the ocean over existing rock within the tidal zone. This alternative was selected because it requires the least amount of remediation and easements.

Alternative 5 (B)

As depicted on Figure 3, this alternative alignment would come down South La Senda and turn north onto North La Senda and then turn west at 12 North La Senda. This alternative would require three permanent easements and three construction easements. This alternative would be constructed by trenching to the angle point. At the angle point a vertical shaft would be constructed to allow a tunnel outletting to the ocean at the bluff face. Trenched alternatives are considered to be more costly, more disruptive to properties for long-term maintenance or repair, and would require disturbance of properties. There is also concern with trenching due to the limited amount of space between buildings combined with the depth requirements of the storm drain pipe. This situation has the potential to undermine the foundations of the adjacent buildings during construction. This alternative will also eliminate the existing 24-inch storm drain at the top of the bluff. Alternative B is not feasible due to the adverse grade of the street and subsequent depth of the pipe, geologic constraints, construction methods, and accessibility (JMTA 1997). This alternative was eliminated for the above reasons.

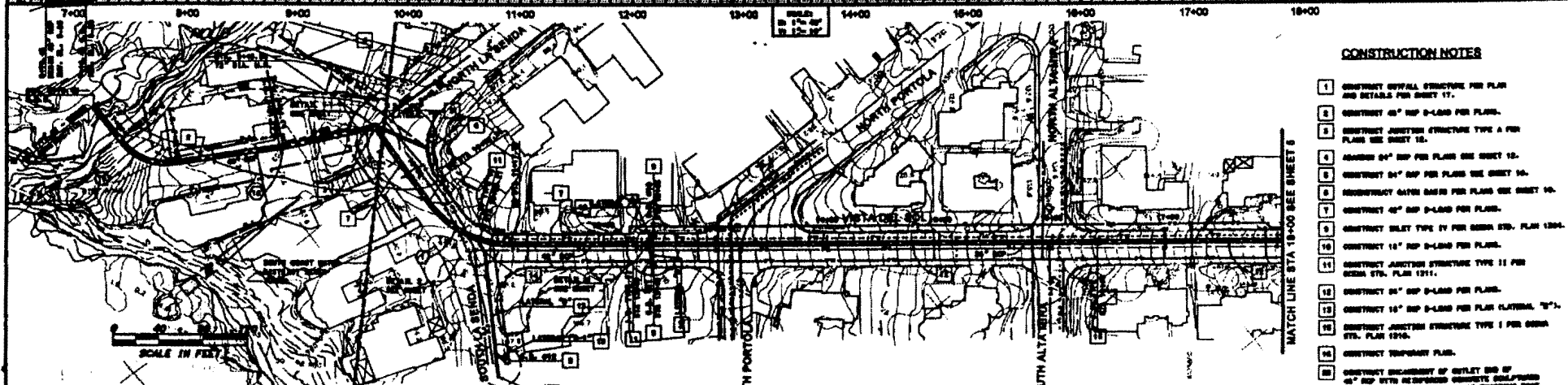
Alternative 6 (E)

As depicted on Figure 3, this alternative alignment would come down North La Senda make a turn to the south in front of 3 South La Senda, turn southwesterly and then south around the swimming pool at 3 North La Senda then make a 90 degree westerly turn at the vertical shaft and proceed through 50-foot of tunnel to the bluff face. This alternative would also be constructed by trenching to the vertical shaft. This alternative would require two permanent easements and one construction easement. Trenched alternatives are considered to be more costly, more disruptive to properties, and long-term maintenance or repair would require disturbance of properties. There is also concern with trenching due to the close proximity of the trench to the existing swimming pool. This situation has the potential to impact the structural stability of the adjacent pool during construction. This alternative will also eliminate the existing 24-inch storm drain at the top of the bluff (JMTA 1997). This alternative was eliminated for the above reasons.

Alternative 7 (H)

An additional alternative alignment for the storm drain outlet has been evaluated in response to public comment on the proposed Project. This alternative would discharge the storm water on the beach area approximately 550 feet southerly of the outlet of the preferred alternative at a location directly below the existing gazebo lookout point. This alternative was analyzed and the results were summarized in a letter report to the District by JMTA in June 1999 (JMTA 1999) and are attached as Appendix E.

The Preferred design alignment (Alternative 4) and this alternative alignment differ downstream of storm drain station 12+00 (See Figure 5). The alternative alignment is a total of 140 feet longer than the preferred alternative alignment and follows North La Senda from its intersection with the walkway to the existing gazebo lookout point. The alignment then makes a 90-degree turn toward the ocean and follows the walkway alignment to the point of discharge at the base of the cliff below the



CURVE DATA						
STATION	P.C. TO POINT OF TANGENCY		E	A	T	L
	STATION	FEET				
1	3+125.001.54	0.705-000.71	65.00'	0°32'10"	65.25'	65.45'
2	3+125.121.01	0.705-000.37	61.00'	0°32'30"	59.97'	47.10'
3	3+125.015.01	0.000-010.01	65.00'	0°35'30"	1.00'	3.00'

DETAIL 3

COASTAL COMMISSION
5-00-011

EXHIBIT # 5
PAGE 4 OF 7

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**THREE ARCH BAY
STORM DRAIN FACILITIES
PLAN AND PROFILE
STA 10+00 TO STA 18+00**



COASTAL COMMISSION
3-00-011
EXHIBIT # 5
PAGE 5 OF 7

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THREE ARCH BAY COMMUNITY SERVICES DISTRICT INITIAL STUDY

gazebo. This alternative would require one permanent easement and no construction easements. Riprap would be needed on the beach to help dissipate the energy of the storm water at the outlet. Also, 65± feet of non-structural channelization from the end of the riprap to the water's edge would be needed. Additionally, this alternative represents an adverse visual impact, and a potential safety hazard to the individuals using the beach. The existing 24-inch storm drain at the top of the bluff at 10 North La Senda would have to remain in place and be repaired. This means that flood flows tributary to the existing pipe would continue to cascade over the bluff into the ocean at that location.

This alternative has the potential to cause a hazard to beach users and would create an attractive nuisance for children playing in the area. It will cut a deep channel across the beach from the pipe end to the shoreline and limit use of the beach on the northerly side of the outlet. It will require an energy dissipater that will limit beach use. The storm drain flow line for this alternative is not low enough to allow connection to the existing catch basin that connects to the existing 24-inch storm drain that flows over the bluff. The 24-inch pipe therefore would have to remain in place and be repaired. In order to connect with the catch basin mentioned above, the pipe depth would have to be increased from 25-feet below grade to 31 feet below grade. Finally, the tunnel gradient would be 8 percent steeper than the preferred outlet alternative. This alternative was eliminated for the above reasons.

Alternative Tunnel Construction Methods

Alternative 1 Microtunneling

Microtunneling consists of cutting the tunnel by a remotely controlled microtunnel machine called a "mole." The mole and jacking pipe are jacked from a temporary access pit. Cuttings are removed from the tunnel via a hydraulically controlled slurry system. Once the mole has reached the outfall location, the mole is removed and the outlet is constructed. A crane or helicopter would be used to remove the mole from the base of the bluff face (JMTA 1997). This alternative was eliminated because of the disturbance it would generate, possible ground vibration during construction, the difficulty of access for removal of machinery from the foot of the bluff, and potential impacts to the top of the bluff edge from the crane or other equipment.

Alternative 2 Auger Drilling

Auger drilling, sometimes referred to as "direct drilling," consists of a specialized auger bit attached to a drive shaft that cuts the tunnel. The tunnel casing pipe is jacked behind this equipment. Cuttings are removed from the tunnel via a hydraulically controlled slurry system. Once the auger bit has reached the outfall location, the bit head is collapsed and withdrawn through the pipe (JMTA 1997). It is not known whether or not the auger has the ability to cut through the existing materials. Additionally, the auger has the potential to be lost or displaced into the ocean once it cuts through the bluff face. This alternative also has the potential to cause disturbance and generate ground vibration during construction. This alternative was eliminated for the above reasons.

Alternative 3 Hand Tunneling (Preferred Tunneling Alternative)

Hand tunneling would begin by establishing an access pit in North La Senda and jacking pipe behind the cutting operation. Two methods of hand tunneling are available. One method involves the use of a jackhammer to cut the rock; the second is to drill small holes around the perimeter of the pilot hole and set off small explosive charges. In both methods, precision would be maintained with a laser, and neither method would be audible or felt by surrounding residents. The use of explosives is not expected for this project (JMTA 1997). This alternative was selected because it requires the least disturbance to the surrounding area and generates no vibration or noise at ground level.

9. PROJECT DESCRIPTION

The proposed Vista del Sol Storm Drain Project Alignment Project (Figure 6) is centrally located, essentially bisecting the community, and will be capable of receiving storm water from the entire central portion of the area as well as from the hillside area above the community. This alignment will be located within street right-of-way except at the most downstream end where the ocean outlet will be constructed. It is not possible to construct the ocean outlet portion of the proposed Project without passing through or under private property. The proposed Project consists of the Upstream Alternative Number Three, Outfall Alternative Number 4, and the Tunneling Alternative Number 3.



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California Coastal
Commission

INTRODUCTION

The purpose of this report is to explore alternate methods and locations of discharging storm water into the coastal waters of the Pacific Ocean. The storm water is currently collected within the community of The Three Arch Bay, then transported to a point near the intersection of Vista Del Sol and La Senda Drive. The water subsequently travels through a 24-inch pipe to the beach below. The existing discharge is approximately 35 cubic feet per second (CFS) during a 100-year storm event. This system currently drains approximately 12 acres.

On September 14, 1999, the Board of Directors of the Three Arch Bay District adopted a plan and alignment requiring a tunnel from La Senda Drive, under an occupied private residence, and into an area of the Pacific Ocean shoreline that is rich in marine habitat. The area of exit for the storm drain contains a faulted inlet and a series of blowholes and is not readily accessible for maintenance and emergency spill response.

The proposed tunnel would contain a 48-inch Reinforced Concrete Pipe (RCP) draining approximately 90 acres and discharging approximately 310-320 cubic feet per second (CFS) in a 100 year storm event. The adopted alignment is approximately 160 feet southerly of the existing 24" RCP discharge location.

ALIGNMENTS H (see exhibits)

Alignment H

This alignment is identified in the Negative Declaration and discharges to the ocean in the vicinity of the Gazebo. It requires the continued use of existing 24-inch RCP. However, the area being drained by the 24-inch RCP would be reduced from 12 acres to 3 acres.

H₁ - BLUE ALTERNATE (3 ARCH BAY)

H₂ - GREEN ALTERNATE (ROCKY COVE)

H₃ - YELLOW ALTERNATE (3 ARCH BAY)

Gazebo Alternate H₁

This alternate would discharge storm waters across a coastal beach environment. The discharge location is composed of the massive San Onofre Breccia bedrock formation with portions overlaid with shallow sand and cobbles.

Because this area is readily accessible, the energy dissipation mechanism will be located within the tunnel outlet structure and low flow discharge pipes would be installed to the ocean. These pipes will convey approximately 1/3 of the 100 year discharges. The remainder of the high flow events would sheet-flow to the ocean. The exit velocity to the beach from the outlet structure will be approximately 7 feet per second (FPS) over the Weir outlet. The flows would then spread and sheet-flow to the ocean.

With the low-flow pipes in place, sheet flow will only occur when the rainfall rate exceeds approximately 1.25 inches per hour. The following is a summary of the outlet hydraulics:

- 48 inch outlet velocity = 30 FPS
- Flow enters a friction dissipation and expansion chamber
- The end head wall of the 18 inch pipes create tailwater and forces a hydraulic jump to occur in the tunnel transition structure.
- The hydraulic jump primarily stabilizes in the enlarged tunnel outlet. Flow existing the tunnel outlet will be less than 6 FPS. The hydraulic jump finishes stabilizing in the beach outlet structure.

COASTAL COMMISSION
5-00-011

EXHIBIT # 6

PAGE 1 OF 4

Gazebo Alternate H₂

This alternate is similar to H₁ except the discharges will be to the southerly side of the Rocky Cove.

Gazebo Alternate H₃

This alternate could be a third location for the low flow pipes or the entire system could be underground to the ocean. The underground option would eliminate all flows across the beach. A decorative outlet structure similar to that of Main Street in Laguna Beach could be constructed (see exhibits). It is estimated that velocities exiting the decorative outlet structure could be kept around 8 FPS.

This alternate could utilize either four 36' High Density Polyethylene (HDPE) pipes or a multi-plate box culvert measuring approximately 13' X 3'. These alternates should be further evaluated when more detailed surface and subsurface topography becomes available.

Alignment X

This alignment extends the Vista Del Sol storm drain system directly to the Pacific Ocean and was investigated for two different outlet locations in the Rocky Cove. Utilizing the exhibits, these outlets are shown as follows:

X₁ - WHITE ALTERNATE

X₂ - BLACK AND WHITE ALTERNATE

Use of this alignment eliminates discharge to the ocean from the existing 24-inch RCP.

Northerly Rocky Cove Alternate X₁, and X₂

This alternate is similar to the Gazebo alternate except that there are no low flow pipes. The location at the north end of the Rocky Cove is such that there is no access from the north and fencing can be provided to restrict access from the south. There is little or no beach at this location and the native materials are solid rock (San Onofre Breccia). The velocities existing the tunnel outlet structure will be approximately 15-16 FPS.

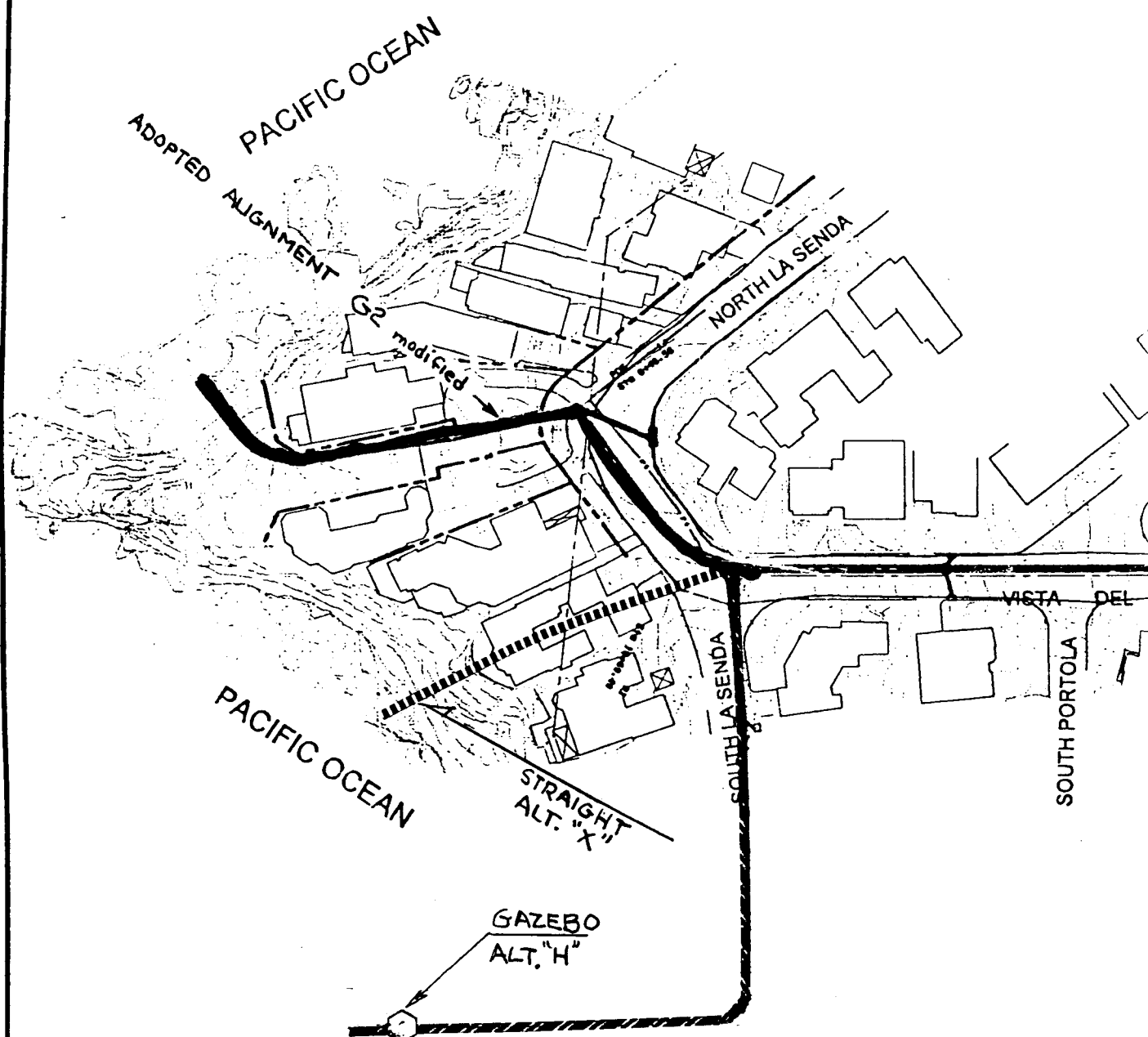
COMMENTS

The aforementioned alternates are conceptual and were based upon limited beach topography and subsurface soils information. These alternates should be re-evaluated when more detailed topography becomes available. All alternates are accessible for maintenance and emergency spill response.

CONCLUSIONS

The Board of Directors of Three Arch Bay District would be well-served in exploring the various alternates discussed in this report. Best Management Practices (BMP) with regard to water quality control is a mandate of the Clean Water Act and requires each project to mitigate to the Maximum Extent Practicable (MEP) the effects of discharge into the coastal waters.

COASTAL COMMISSION
5-00-011
EXHIBIT # 6
PAGE 2 OF 4



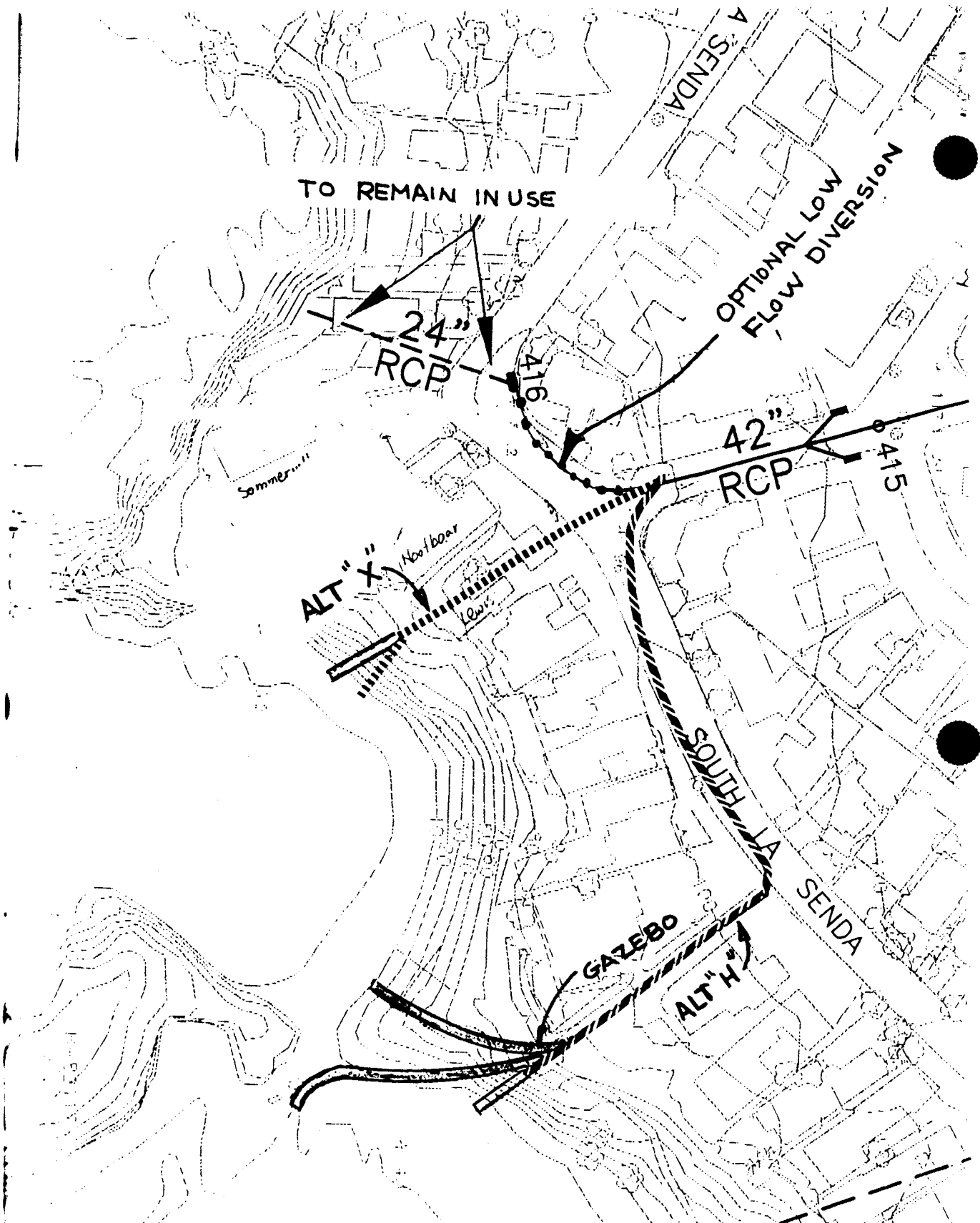
COASTAL COMMISSION

5-00-011

EXHIBIT # 6

PAGE 3 OF 4

G2/1



COASTAL COMMISSION
5-00-011

EXHIBIT # 6
PAGE 4 OF 4

HX/1