

**CALIFORNIA COASTAL COMMISSION**

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**PERMIT AMENDMENT**

**Application number ..... 3-83-119-A3, Aptos Beach Sewer Line Repair**

**Applicant ..... Santa Cruz County Sanitation District**

**Project location ..... New Brighton State Beach and Potbelly Beach (between the pump station at New Brighton State Beach and Las Olas Drive), Aptos, Santa Cruz County (APNs 036-201-01, 038-091-01, 038-231-5, and 038-231-19 through 35).**

**Project description ..... Construct a 2,300 linear foot, 30-inch sewer line below the beach (next to existing sewer line under beach); existing line would be kept in place as an emergency relief line.**

**File documents ..... Coastal Development Permit (CDP) files P-1984 (renumbered to 3-83-119), 3-83-119-A1, 3-83-119-A2, 3-82-206, 3-82-206-A1, 3-82-206-A2 and 3-94-030-G; Santa Cruz County certified Local Coastal Program; City of Capitola certified Local Coastal Program.**

**Staff recommendation... Approval with Conditions**

**Staff Note: Due to Permit Streamlining Act constraints, the Commission must take action at the May 9-12, 2000 hearing unless a 90-day extension is requested by the Applicant.**

**Summary:** The Applicant proposes to repair an existing sewer line located on the under the beach in the New Brighton State Beach-Potbelly Beach area of south Santa Cruz County. The subject sewer line was approved by the Commission in 1976 and has had a problematic history since it was installed in the late 1970s. In fact, despite multiple "fixes", raw sewage has flowed onto the beach and bay due to problems with this line at least four times to the detriment of the public access and marine resources here. Staff anecdotal evidence suggests that this is a conservative estimate of discharge episodes.

Currently, the existing line has been flattened and is deformed in multiple locations, and it could completely rupture at any given time. Although monitoring data with which to confirm or deny it is lacking, the fact that the existing line is flat and must be "pumped up" by forcing sewage through it, implies that ongoing resource damage is likely here. The Applicant proposes to fix this problematic pipeline by installing a new concrete-encased 2,300-foot section of pipeline seaward of the existing pipeline and diverting flows into this new segment of the line; the existing line would be maintained as a emergency line.



**California Coastal Commission**

**May 2000 Meeting in Santa Rosa**

Staff: D.Carl/K.Colin Approved by: C.F.L. 4/14/00

3-83-119-A3 Aptos Beach Sewer Line Repair strfpt.doc

**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 2

The proposed project conflicts with the Chapter 3 resource and access policies. There is no guarantee that the proposed fix will eliminate problems with the subject line. Such problems have historically negatively impacted on and offshore marine resources (including the Monterey Bay National Marine Sanctuary offshore); coastal water quality; beach and water-oriented recreational use; State Park use; and the public beach area viewshed. Lacking irrefutable evidence that there would be no additional sewage spills and/or leaks, the past history, and the problematic nature of having a sewer line on a recreational beach adjacent to a Federal Sanctuary, indicates that such episodes could be expected to continue here. Such impacts are inconsistent with the Coastal Act protection offered this area.

Because of the resources at stake, the most cautious approach is warranted here. In order to protect, enhance, and restore resources and access consistent with the Coastal Act, Staff recommends that the beach sewer line be removed from the beach, and equivalent sewer connection be provided inland where it will not adversely impact coastal resources. Although a fix of the line on the beach, as proposed by the Applicant, would be expected to reduce negative resource impacts, such impacts are not reduced to the greatest degree possible. The greatest protection of the significant marine and beach resources present here is accomplished by removing the sewer line from the beach. The Applicant has indicated that this is a feasible option in their alternatives analysis.

Because such a relocation will take time to successfully plan and implement, Staff recommends allowing the Applicant until January 2007 to remove the portions of the sewer facilities on the beach. In the interim, Staff recommends that the Commission authorize a temporary fix of the subject sewer line given its potential for short-term failure. To mitigate for the loss of public access during such repair, Staff recommends that the currently dilapidated New Brighton State Beach restroom be restored to State Parks standards. Construction best management practices would be required, and, to address ongoing foul odor problems, an updated odor control plan would be implemented. No future shoreline armoring would be allowed and the Applicant would be required to assume all risks for developing at this precarious beach location.

As conditioned, the project will ensure that sensitive marine resources are protected, that public access is maximized and protected, that visual resources are enhanced, and that the beach area is returned to its highest priority recreational beach use.

Staff recommends approval with conditions.



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 3

## Staff Report Contents

1. Staff Recommendation on CDP Amendment.....	3
2. Conditions of Approval .....	4
A. Standard Conditions .....	4
B. Special Conditions.....	5
3. Recommended Findings and Declarations.....	10
A. Project Location .....	10
B. Project History.....	10
C. Proposed Amendment .....	13
D. Local Review.....	14
E. Standard of Review .....	14
F. Coastal Development Permit Amendment Determination .....	14
1. Marine Resources and Sensitive Habitat .....	14
2. Public Access and Recreation.....	18
3. Visual Resources.....	22
4. Land Use Priorities .....	24
5. Coastal Hazards .....	25
6. Public Services.....	28
7. LCP Consistency.....	28
8. California Environmental Quality Act (CEQA) .....	29
4. Exhibits	
A. Project Location	
B. Project Site Beach Area Photos	
C. Applicant's Repair Options Analysis	
D. Applicant's Repair Options (Site Plans)	
E. Photos of 1980 Repair Activities	

## 1. Staff Recommendation on CDP Amendment

The staff recommends that the Commission, after public hearing, **approve** the proposed amendment to Coastal Development Permit 3-83-119 subject to the standard and special conditions below.

**Motion.** I move that the Commission approve the proposed amendment to Coastal Development Permit Number 3-83-119 pursuant to the staff recommendation.

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



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 4

**Resolution to Approve a Coastal Development Permit Amendment.** The Commission hereby approves the coastal development permit amendment on the ground that the development as amended and subject to conditions, will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit amendment complies with the California Environmental Quality Act because either: (1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the amended development on the environment; or (2) there are no feasible mitigation measures or alternatives that would substantially lessen any significant adverse effects of the amended development on the environment.

## **2. Conditions of Approval**

### **A. Standard Conditions**

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



## **B. Special Conditions**

- 1. Approved Project.** As shown on the approved plan for the project and subject to all standard and special conditions herein, this coastal development permit amendment authorizes only Option 2 or Option 3 as described in *Aptos Sewer Transmission Line, Review of Earlier Studies and Recommended Repairs* (by Harris & Associates, Inc., dated September 29, 1999). Option 2 provides for the repair of the existing line in its existing location and Option 3 provides for inserting a new line within the existing line (slipline method). A new parallel line is prohibited. Any such repair shall insure that the repaired line shall remain structurally intact without reliance on any hard protective structures until it is eventually removed pursuant to Special Condition 11. The Permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit amendment unless the Executive Director determines that no amendment is required. Any other development will require a separate Coastal Commission-approved coastal development permit or a separate Coastal Commission-approved amendment to Coastal Development Permit 3-83-119 (also known as P-1984).
- 2. Future Shoreline Erosion Response.** The Permittee shall not construct, now or in the future, any shoreline protective device(s) for the purpose of protecting the sewer line repair approved pursuant to coastal development permit amendment 3-83-119-A3 including, but not limited to, the sewer line, manholes, or pump station modifications in the event that these structures are threatened with imminent damage or destruction from waves, erosion, storm conditions, or other natural hazards in the future and by acceptance of this permit, the Permittee hereby waives any rights to construct such devices that may exist under Public Resources Code Section 30235.

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

- 3. Assumption of Risk, Waiver of Liability and Indemnity Agreement.** By acceptance of this permit, the Permittee acknowledges and agrees: (a) that the site is subject to hazards from episodic and long-term bluff retreat, waves, flooding, liquefaction and erosion; (b) to assume the risks to the Permittee and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (c) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; (d) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards; and (e) that any adverse effects to property caused by the permitted project shall be fully the responsibility of the landowner.



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 6

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

4. **Construction Drainage and Erosion Control Plan.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT AMENDMENT, the Permittee shall submit a construction drainage and erosion control plan to the Executive Director for review and approval. Such plan shall clearly identify all best management practices to be implemented during construction and their location. Such plans shall contain provisions for specifically identifying and protecting all nearby drainage features (with sand bag barriers, filter fabric fences, straw bale filters, etc.) to prevent construction-related runoff and sediment from entering into these drainage features which ultimately deposit runoff into the Monterey Bay. Silt fences, or equivalent apparatus, shall be installed at the perimeter of the construction site. At a minimum, such plans shall also include provisions for stockpiling and covering of graded materials, temporary stormwater detention facilities, revegetation as necessary, and restricting grading and earthmoving during the rainy season from October 15<sup>th</sup> through April 15<sup>th</sup>.

The construction drainage and erosion control plans should make it clear that: (a) dry cleanup methods are preferred whenever possible and that if water cleanup is necessary, all runoff shall be collected to settle out sediments prior to discharge from the site; all de-watering operations shall require filtration mechanisms; (b) off-site equipment wash areas are required; the use of soaps, solvents, degreasers, or steam cleaning equipment is prohibited on the beach; (c) concrete rinsates shall be collected and shall not be allowed into storm drains or natural drainage areas; (d) good construction housekeeping shall be required (e.g., clean up all leaks, drips, and other spills immediately; refuel vehicles and heavy equipment off-site and/or in one designated location; keep materials covered and out of the rain (including covering exposed piles of soil and wastes); dispose of all wastes properly, place trash receptacles on site for that purpose, and cover open trash receptacles during wet weather); and finally (e) all erosion and sediment controls shall be in place prior to the commencement of grading and/or construction as well as at the end of each day.

5. **Construction Responsibilities and Debris Removal.** The Permittee shall comply with the following requirements:
- (a) No construction materials, debris, or waste shall be placed or stored where it may be subject to wave erosion and dispersion;
  - (b) Any and all debris resulting from construction activities shall be removed from the beach at the end of each day of construction;
  - (c) No machinery shall be allowed at any time on the intertidal zone;
  - (d) All excavated beach sand shall be redeposited on the beach;
  - (e) Sand from the beach, cobbles, or shoreline rocks shall not be used for construction material;
  - (f) Concrete trucks and tools used for construction of the approved development shall not be rinsed



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 7

on the beach. Off-site area(s) shall be provided for such activities;

- (g) Staging and storage of construction machinery and storage of debris shall not take place on the beach;
- (h) Within 7 days of completion of the sewer line repair authorized by this coastal development permit amendment, the beach area shall be restored to its pre-construction condition; and
- (i) The Permittee shall be responsible for the removal of all debris resulting from failure or damage of any portion of the sewer line in the future.

**6. Construction Staging and Public Access Plan.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT AMENDMENT, the Permittee shall submit to the Executive Director for review and approval a plan that indicates that the construction staging area(s) and construction corridor(s) will avoid impacts to public access and marine resources.

(a) At a minimum, the plan shall demonstrate that:

- (1) construction equipment or activity shall not occur outside the staging area and construction corridor identified on the site plan required by this condition;
- (2) access to New Brighton State Beach from New Brighton State Park shall not be blocked;
- (3) through public access along the beach fronting the project site shall not be blocked;
- (3) no public parking areas shall be used as staging areas.

(b) The plan shall include a site plan that, at a minimum, depicts:

- (1) limits of the staging area(s);
- (2) construction corridor(s);
- (3) construction site(s);
- (4) location of construction fencing and temporary job trailers;

(c) The plan shall include a restoration plan that, at a minimum, includes:

- (1) site plan showing restored contours;
- (2) schedule for restoration work;
- (3) time limit for completion of restoration for construction impacts;

The Permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a separate Coastal Commission-approved coastal development permit or a separate Coastal Commission-approved amendment to Coastal



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 8

Development Permit 3-83-119 (also known as P-1984), unless the Executive Director determines that no amendment is required.

7. **State Parks Approval.** PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT AMENDMENT, the Permittee shall submit to the Executive Director for review and approval a copy of a permit, letter of permission, or evidence that no permit or permission is required, from the California Department of Parks and Recreation that allows for the sewer line repair authorized under coastal development permit amendment number 3-83-119-A3 to take place on California Department of Parks and Recreation property. The Permittee shall inform the Executive Director of any changes to the project required by the California Department of Parks and Recreation. Such changes shall not be incorporated into the project until the Permittee obtains a Coastal Commission-approved coastal development permit or a separate Coastal Commission-approved amendment to Coastal Development Permit 3-83-119 (also known as P-1984), unless the Executive Director determines that no amendment is required.
8. **Other Beach Area Consent.** PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT AMENDMENT, the Permittee shall submit to the Executive Director for review and approval evidence that all owners of property where the sewer line repair shall take place and/or where construction access and staging shall take place as authorized under coastal development permit amendment number 3-83-119-A3 consent to such activities.
9. **Odor Control Plan.** PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT AMENDMENT, the Permittee shall submit to the Executive Director for review and approval an odor control plan prepared by an odor control specialist designed to eliminate foul odors associated with the beach area sewer line and facilities. At a minimum, such plan shall describe the nature of the odor problem and shall provide specific directive recommendations on how to eliminate the odor problems. Such plan shall be submitted with evidence of California Department of Parks and Recreation review and approval. The Permittee shall undertake development in accordance with the approved final Plan. Any proposed changes to the approved final Plan shall be reported to the Executive Director. No changes to the approved final Plan shall occur without a Commission amendment to this coastal development permit amendment unless the Executive Director determines that no amendment is required. Any other development will require a separate Coastal Commission-approved coastal development permit or a separate Coastal Commission-approved amendment to Coastal Development Permit 3-83-119 (also known as P-1984), unless the Executive Director determines that no amendment is required.
10. **New Brighton State Beach Restroom.** PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT AMENDMENT, the Permittee shall submit to the Executive Director for review and approval a Restroom Enhancement Plan for restoring the New Brighton State Beach Restroom back to California Department of Parks and Recreation beach-area restroom standards. Such plan shall be submitted with evidence of California Department of Parks and Recreation review and approval. The Permittee shall subsequently restore the New Brighton State Beach Restroom to State Parks standards in accordance with the approved final Plan within six (6) months of the





**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 9

Executive Director's written approval of the Plan. The Permittee shall undertake development in accordance with the approved final Plan. Any proposed changes to the approved final Plan shall be reported to the Executive Director. No changes to the approved final Plan shall occur without a Commission amendment to this coastal development permit amendment unless the Executive Director determines that no amendment is required. Any other development will require a separate Coastal Commission-approved coastal development permit or a separate Coastal Commission-approved amendment to Coastal Development Permit 3-83-119 (also known as P-1984), unless the Executive Director determines that no amendment is required.

**11. Relocation of Sewer Line and Restoration of Beach.**

(a) For the purposes of this Special Condition, the Permittee's sewer transmission lines and associated sewer facilities (including but not limited to pump stations, manholes, etc.) located between Park Avenue in the City of Capitola and Via Gaviota in the unincorporated Seascape area of Santa Cruz County shall be distinguished as either:

(1) Beach Area Facilities means those facilities located: (1) on the beach; (2) on State Park beach area access roads not open to the vehicles driven by the general public; and (3) all structures protecting same (including but not limited to rip-rap, concrete block, concrete barriers, etc.);

(2) Residential Area Facilities means those facilities located in the roadway prism of those sections of Beach Drive, Potbelly Beach Road, or Las Olas Drive that are (a) inland of existing residential development, or (b) seaward of existing residential development and currently armored with rip-rap or concrete seawall; and

(3) State Parks Area Facilities means those facilities located under paved and armored sections of Seacliff State Park that are open to the vehicles driven by the general public.

(b) BY JANUARY 1, 2007, the Permittee shall:

(1) Cease transmission of sewage through Beach Area Facilities;

(2) Remove all Beach Area Facilities in their entirety; and

(3) Restore all areas where Beach Area Facilities have been removed to their pre-sewer line installation condition.

(c) BY JANUARY 1, 2005, the Permittee shall submit a complete application for a coastal development permit to the California Coastal Commission to achieve compliance with subsection (b) above and provide for relocation of existing Beach Area Facilities to a stable non-beach location. Such application shall include all necessary supporting documentation and environmental review including, but not limited to, all other necessary approvals from Santa Cruz County, City of Capitola, and California Department of Parks and Recreation.



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 10

(d) PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT AMENDMENT, the Permittee shall submit to the Executive Director for review and approval a work plan describing the process the Permittee shall undertake in order to accomplish subsection (b) above.

**12. Public Rights.** The Coastal Commission's approval of this coastal development permit amendment shall not constitute a waiver of any public rights that may exist on the property involved. This coastal development permit amendment shall not be used as evidence of a waiver of any public rights that may exist on the property.

**13. Previous Conditions.** Unless specifically altered by this amendment, all previous conditions of approval attached to the previously approved Aptos Sewer Line permits (Coastal Development Permit P-1984; also numbered 3-83-119) and subsequent amendments (Coastal Development Permit Amendments (3-83-119-A1 and 3-83-119-A2) remain in effect.

### **3. Recommended Findings and Declarations**

The Commission finds and declares as follows:

#### **A. Project Location**

The proposed project is located on the beach in the Aptos area (just downcoast of Capitola) of south Santa Cruz County. Approximately half of the beach involved is part of the New Brighton Unit of the California State Park system. The other half is roughly divided between a publicly used stretch of sand in private ownership that fronts a series of homes constructed on the beach, and a separate State-owned parcel. This beach area where the project would take place is part of a roughly 15 mile unbroken stretch of beach extending from New Brighton State Beach to the Pajaro River. The Monterey Bay National Marine Sanctuary, the largest of twelve such federally protected sanctuaries nationwide, is directly offshore. See Exhibit A.

#### **B. Project History**

On November 8, 1976, the Commission approved coastal development permit P-1984 (also renumbered 3-83-119) authorizing the construction of the Aptos Transmission Facility consisting of four pumping stations (Rio Del Mar, Aptos, Esplanade, and Soquel Creek) and a transmission line from the Aptos Treatment Plant to the East Cliff Pumping Station. The Aptos Transmission Facility was designed to redirect wastewater flows from the former Aptos Wastewater Treatment Plant to the City of Santa Cruz Wastewater Treatment Plant at Neary Lagoon. This was necessary, in part, because the Regional Water Quality Control Board (RWQCB) had by this time prohibited further discharge from the outfall used by the Aptos Wastewater Treatment Plant (order number 74-36 issued on April 19, 1974). In fact, the



## Amendment 3-83-119-A3 Staff Report

Aptos Beach Sewer Line Repair

Page 11

subject Aptos Transmission Facility was one part of the overall effort to provide regional wastewater treatment facilities within Santa Cruz County pursuant to the recommendations of the RWQCB's Central Coast Basin Plan. Santa Cruz County wastewater flows are currently directed to Santa Cruz Wastewater Treatment Plant for secondary treatment prior to discharge approximately one mile offshore.

The transmission line authorized by CDP P-1984 in 1976 included the placement of a buried, 30-inch diameter, sewer transmission line on the beach and back beach area (some of it developed with streets) extending from New Brighton State Beach to Hidden Beach encompassing portions of both New Brighton and Seacliff State Beaches (see Exhibit A). Since that time, the beach area portion of the sewer line has been subject to continuous problems with spills, ruptures, and other engineering difficulties due to its placement within the nearshore beach environment. Maintenance of the line in this perilous location has required numerous repairs and other efforts (including nearly 10,000 tons of rip-rap armoring).

Indeed, almost immediately after the sewer line was first installed in February 1980, the portion of sewer line seaward of Potbelly Beach residences surfaced and ruptured due to heavy wave activity. A manhole and several hundred feet of the sewer line were damaged; raw sewage was pumped onto the beach and into Monterey Bay. The Commission at that time authorized the emergency installation of a temporary aluminum bypass line to contain the spill and prevent further damage to the beach and marine resources. This repair was supplemented by an additional repair of a separate 50 foot segment in 1982. In any case, the temporary fix was eventually permanently approved by the Commission through CDP amendment 3-83-119-A1 in 1984. At that time, the Commission found:

*One of the many issues raised by the [originally approved] project was the placing of sewer lines under sandy beaches and whether or not these lines would be subject to damage during ocean storms. The Commission found that, as designed, the line would be adequately protected for the life of the project.*

Unfortunately, as evidenced by the catastrophic failure, this original finding proved inaccurate. Nonetheless, the Commission authorized the repair, noting that, as repaired, "no shoreline protective devices are proposed or needed" and "the line should not be damaged" in the future. Notwithstanding these assertions, because of the fact that the line had already proven incapable of withstanding storm attack in its beach location, the Commission found in 3-83-119-A1 that:

*It should be recognized that, should the line be damaged/exposed a second time, the line is located in an area that is continually subject to wave attack. In order to avoid the adverse impact which would result, raw sewage on the beach and in Monterey Bay, it would be appropriate to re-route the line. The County has previously considered re-routing the line behind Potbelly Beach Club homes; should the line be damaged a second time, re-routing in that location or other locations, should be strongly considered.*

The Commission required, as a condition of approval of 3-83-119-A1, that the Applicant submit an analysis detailing alternatives for alleviating problems with the beach area sewer line should further



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 12

damage occur. Special Condition 3 of 3-83-119-A1 states:

*If, in the event the line is damaged by wave attack, prior to filing of an application for line replacement, the county shall submit a report detailing all alternative line locations and impacts resulting from installation in those locations.*

Subsequently, on September 24, 1985 the Commission authorized CDP amendment 3-83-119-A2 for the installation of 17 concrete anchor blocks along a 358 foot section of the sewer line seaward of the Potbelly Beach homes. The concrete anchors were designed to stabilize this section of pipeline and prevent damage of this section during future storms. Again, the Commission found that

*The project is consistent with Section 30253...and Section 30231 of the Coastal Act...[because] as modified, the line should not be damaged.*

In 1994, the subject beach area sewer line again ruptured and sent untold gallons of raw sewage onto the beach and into the Monterey Bay Sanctuary. The Commission subsequently issued an emergency permit in July 1994 for the excavation and repair of three/fifty foot sections of the sewer line (Emergency Permit 3-94-030-G). This time, the repair consisted of excavation of the sand surrounding the sewer pipe, returning the pipe to its full cross section, and encasing the exposed pipe section in concrete. During this work, a temporary bypass was installed along the surface of the beach. A second sewage spill occurred during construction of the project, again discharging raw sewage on the beach and into the Bay. Commission staff can find no record of a follow-up regular coastal permit for this emergency episode.

Research into the Commission's files show evidence of at least 5 emergency and/or regular permits authorizing repairs of the subject line. California Department of Parks and Recreation (DPR) staff indicate that the Applicant has received State Parks permission for 5 to 8 repairs in the past ten years. DPR and Commission staff anecdotal evidence suggests that there have been additional repair episodes since the line was installed. However, due to incomplete Commission and State Park files, a detailed historical record of all such repair is not possible at this time.

Notwithstanding this incomplete permit history, the file evidence that is available indicates that on at least four occasions the sewer line has ruptured, spilling raw sewage onto the beach and into the Monterey Bay. In addition, the Applicant indicates that the sewer line is currently flattened under portions of the sandy beach. DPR staff observes that there has in the past been a continual foul odor emanating from the New Brighton pump station and beach area. The Applicant concludes:

*The Aptos Transmission Sewer has had a troublesome history since its construction in 1979. ...Since its installation in 1979, approximately 2,300 feet of 30-inch diameter Aptos Sewer Transmission Line, has experienced numerous problems. This sewer is buried in approximately 12 feet of sand and rock along Potbelly Beach near New Brighton State Park. Problems with the pipe include washout (due to storm wave action), sagging of the line (due to settlement), floatation, odors and structural collapse (flattening).*



## **C. Proposed Amendment**

Because of the serious problems to date with the pipeline in this area, the Applicant has reviewed a number of options, ranging from re-routing of the line to spot repairs, to eliminate beach area problems.<sup>1</sup>

Ultimately, the Applicant narrowed the alternatives to five viable options as follows:

Applicant's Option 1: Construct a new line parallel to problem section by trenching

Applicant's Option 2: Repair existing line in place

Applicant's Option 3: Insert a new line within the old line (i.e., slipline)

Applicant's Option 4: Construct a new line parallel to problem section by directional drilling

Applicant's Option 5: Move sewer line from beach to inland roads.

After review of these options, the Applicant has chosen to pursue the parallel line installation route (Option 1 above; see Exhibit C for Applicant's alternatives analysis and Exhibit D for site plans and sections of each of the five options).

Thus, the Applicant is proposing to install a parallel, 30 inch diameter, concrete-encased, high density polyethylene (HDPE) or Poly-Vinyl-Chloride (PVC) pipe 10 to 20 feet seaward of the existing pipeline on the beach. The new section of pipeline would be placed approximately 12 feet below beach grade with manhole structures placed at 600 foot intervals. About 1,900 feet of the proposed pipeline would be excavated into bedrock, and approximately 400 feet of the pipeline would be placed on unconsolidated beach material supported by driven concrete piles to protect against potential liquefaction problems. The existing pipeline would be left in place as an emergency relief line. See Page 1 of Exhibit D for site plans and cross-sections of the proposed project.

The proposed parallel pipeline would be installed in 100 to 200 foot intervals so that the pipe could be quickly installed, inspected, tested, and backfilled, in order to minimize beach area disruption. The Applicant estimates that the proposed Option 1 pipeline would require approximately 6 to 8 weeks of construction time. Because fee title to the beach area involved is held by the State (New Brighton State Beach) and several private homeowners downcoast of the State Park, construction of a parallel line would require new easements over these beach properties. These easements have not yet been negotiated.

In any case, because of the lead time involved in planning, contracting, negotiating easements, and securing approvals from responsible agencies, and the fact that State Parks generally does not allow such construction activities on the beach between Memorial Day and Labor Day, the Applicant has indicated that the proposed pipeline would most likely be installed sometime after Labor Day 2000.

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<sup>1</sup> Such an alternatives analysis was required by the Commission by Special Condition 3 of 3-83-119-A1 (in 1984) and Special Condition 5 of 3-83-119-A2 (in 1985); these special conditions were identical.



## **D. Local Review**

The project would take place on the beaches of south Santa Cruz County. A portion of the project is within the City of Capitola city limits and the remainder is located within unincorporated Santa Cruz County. For the portion of the proposed project in their jurisdiction, Santa Cruz County determined that the proposed pipeline meets all Santa Cruz County zoning requirements and that no County permits were necessary for the pipeline. The County did not require any type of CEQA document for the proposed pipeline. For the portion in the city, the City of Capitola likewise determined that the proposed project did not require permits and did not require CEQA review.

## **E. Standard of Review**

The proposed development would take place on the beach within the Coastal Commission's retained coastal permitting jurisdiction. Because of this, both the City and County certified Local Coastal Programs can provide non-binding guidance, but the standard of review for the proposed coastal development permit amendment is the Coastal Act.

## **F. Coastal Development Permit Amendment Determination**

### **1. Marine Resources and Sensitive Habitat**

Coastal Act Sections 30230 and 30231 provide:

*Section 30230. Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

*Section 30231. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Coastal Act Section 30232 states:



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 15

*Section 30232. Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

Coastal Act Section 30240 states:

*Section 30240(a). Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

*Section 30240(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 proposed sewer line would be located on New Brighton State Beach and Potbelly Beach along the shores of Monterey Bay. The Bay has long been well-known for the quality of marine resources present here, and has long been a focal point for area residents and visitors alike providing opportunities for surfers, fishermen, divers, marine researchers, kayakers, and boaters, among others. The unique grandeur of the region and its national significance was formally recognized in 1992 when the area offshore became part of the largest federally protected marine sanctuary in the nation (the Monterey Bay National Marine Sanctuary). The Sanctuary is home to some 26 Federal and State Endangered and Threatened species and a vast diversity of other marine organisms. As such, the marine resources involved with the proposed project are sensitive coastal resources of the utmost state and federal importance.

As described above, almost since its installation in 1979, the beach area sewer line has had serious problems with leaks and ruptures due to its beach placement. In fact, despite multiple "fixes", raw sewage has flowed onto the beach and bay due to problems with this line at least four times to the detriment of the marine resources here. Absent some form of intervention, a continuation of these problems is expected with the beach sewer line. In fact, the existing line has been flattened and is deformed in multiple locations, and it could completely rupture at any given time. Although monitoring data is lacking, the fact that the existing line is flat and must be "pumped up" by forcing sewage through it, suggests that ongoing resource damage is likely here. Continuing foul odors lend some credence to this hypothesis.

In any case, the Applicant now proposes to fix this problematic pipeline once again by installing a new section of pipeline seaward of the existing pipeline and diverting flows into this new segment of the line. The Applicant indicates that this fix would have a design lifetime of greater than 50 years.

The Commission is concerned that this fix will fare no better than past fixes and that marine resources here will continue to suffer from raw sewage leaks, and catastrophic spill events. Lacking irrefutable evidence that there would be no additional sewage spills and/or leaks, the Commission must find that past history, and the problematic nature of having a sewer line on a recreational beach adjacent to a



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 16

Federal Sanctuary, indicates that such episodes could be expected to continue here. Such impacts would be at the expense of one of the State and nation's great treasures, the Monterey Bay. Such impacts are inconsistent with Coastal Act Sections 30230 and 30231 that require maintaining and enhancing the long-term health of the special Bay resource. The project also does not protect marine organisms and human health because it does not minimize the effects of waste water discharge and does not adequately protect against the spillage of a hazardous sewage substance as further required by Section 30231 and Section 30232.

In fact, given the resources at stake, the Commission finds that the most cautious approach is warranted here. Such a cautious approach was clearly envisioned by the State Regional Water Quality Control Board when the Board issued the current National Pollutant Discharge Elimination System (NPDES) permit to the Applicant for the Applicant's sewer collection system, including the subject line.<sup>2</sup> The Board's order and NPDES permit states:

*It is incumbent upon [the Applicant] to protect the environment to the greatest degree possible and insure its local collection system, as well as the receiving sewerage system, are protected and utilized properly.*

The subject Aptos transmission line transports raw sewage to the Santa Cruz Wastewater Treatment Plant for disposal off of Monterey Bay. In 1987 the Commission effectively required that the wastewater discharge be treated to at least secondary standards (which it now is) by denying only proposed advanced treatment (A-3-STC-86-121). It would be inconsistent with that history to now continue to allow the possibility of discharging totally untreated wastewater into the Bay from a pipeline so close to the Bay that is prone to future ruptures no matter how good the repair.

In order to protect Monterey Bay marine resources consistent with the Coastal Act, the Commission finds that the beach sewer line must be removed from the beach, and equivalent sewer connection be provided inland where it will not adversely impact marine resources. Such a finding is entirely consistent with the Regional Board's NPDES requirement that the Applicant "protect the environment to the greatest degree possible." Although a fix of the line on the beach, as proposed by the Applicant, would be expected to reduce negative resource impacts, such impacts are not reduced to the greatest degree possible. The maximum resource protection here would be accomplished by removing the sewer line from the beach. One of the 5 viable options considered by the Applicant includes relocating the line from the beach to the inland road fronting Highway One in this area.<sup>3</sup> This option had the highest estimated construction costs, and would take the longest time to be achieved. It would also, however, result in the greatest protection of the significant marine and beach resources present here. See Page 5 of Exhibit D for a graphic of the Applicant's line relocation alternative.

<sup>2</sup> Waste Discharge Requirements Order Number 94-10, NPDES Permit Number CA 0048194, adopted by the Central Coast Regional Water Quality Control Board on February 11, 1994. This current Regional Board order is due to be replaced by order number 00-044 on March 31, 2000. The draft language for order number 00-044 contains this same proviso in nearly identical verbiage.

<sup>3</sup> McGregor Drive.





**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 17

It should be noted that not all of the subject sewer line extending from New Brighton to Hidden Beach is located on the beach. Portions of this line are located inland of houses that have been constructed on the backbeach and under Las Olas and Beach Drives; the majority of these beach houses, as well as Las Olas and Beach Drives themselves in spots, have been armored. As a result, the portions of sewer line in Las Olas and Beach Drives fronting single-family residences do not have the same set of issues as do the portions of sewer line that are located on the beach apart from these existing residential subdivisions. In fact, the Commission distinguishes between the two because those portions of sewer line already inland of residential development are protected from coastal processes by this siting; those portions not so protected, such as the 2,300 foot segment proposed for repair, are those segments most likely to negatively impact the marine environment.

Thus, to adequately protect marine resources as required by Chapter 3 of the Coastal Act, the Commission finds that: (1) the Applicant's sewer transmission lines must be relocated from the beach to inland roads; (2) all segments of the Applicant's sewer line that are located on the beach or located on dedicated access roads not fronting existing residential development must be removed in their entirety once sewer flows have been diverted to inland roads; (3) all areas where sewer facilities have been so removed must be restored to their pre-sewer line installation condition; and (4) because such a relocation and restoration will take time to successfully plan and implement, it must be accomplished by January 2007. See Special Condition 11.

The Commission recognizes that segments of the beach area sewer line may require temporary repair until such time as the required relocation is realized. Because any such repairs are only temporary, meant to stabilize the line until it is eventually removed (by 2007), the Applicant shall plan any such repairs accordingly. Specifically, it is unwise to install whole new sections of sewer line (at great financial and resource expense) that will eventually need to be removed (at further expense) in addition to existing lines already in place that will likewise need to be removed. In this case, the Applicant has indicated that the subject 2,300 foot line segment can be repaired in two ways that do not necessitate installing a parallel line: (1) by 'sliplining' a new pipe within the existing pipeline; or (2) repairing the existing pipe in place (see Exhibits C and D). These 2 methods also avoid the need for the Applicant to acquire new sewer easements along the beach. Accordingly, this approval allows for such a temporary repair, consistent with the need for the Applicant to obtain all necessary State Park and other beach homeowner approvals as necessary, to the 2,300 linear foot section of sewer line roughly between the New Brighton Pump Station and Las Olas Drive (see Special Conditions 1, 7, and 8). This approval requires implementation of construction best management practices (during and after construction) to limit short-term impacts on coastal resources. See Special Conditions 4, 5, and 6.

As conditioned, the Commission finds that the proposed project will maintain and enhance marine resources and associated water quality; will maintain and enhance the biological productivity and quality of coastal waters for the protection of human health and marine organisms; will protect against the spillage of substances hazardous to human health and marine organisms; and, as such, is consistent with Coastal Act Sections 30230, 30231, and 30232.



## **2. Public Access and Recreation**

Coastal Act Section 30604(c) requires that every coastal development permit issued for any development between the nearest public road and the sea "shall include a specific finding that the development is in conformity with the public access and public recreation policies of [Coastal Act] Chapter 3." The proposed project is located seaward of the first through public road on the beach. Coastal Act Sections 30210 through 30214 and 30220 through 30224 specifically protect public access and recreation. In particular:

*30210: In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

*30211: Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

*30212(a): Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects...*

*30213: Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. ...*

*30220: Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

*30221: Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

*30223: Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

Coastal Act Section 30240(b) also protects parks and recreation areas. Section 30240(b) states:

*Section 30240(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 proposed sewer line would be located on New Brighton State Beach and Potbelly Beach along the shores of Monterey Bay. This beach area where the project would take place is part of a roughly 15 mile unbroken stretch of beach extending from New Brighton State Beach to the Pajaro River. The Monterey



## **Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 19

Bay National Marine Sanctuary is offshore.

The beach area involved is a heavily used stretch of recreational beach that has long been marred by the presence of the existing beach sewer line and its associated manholes since its installation in the late 1970s. As documented above, sewage has leaked onto the beach and into the Bay multiple times over its history. Multiple repairs have been undertaken over that same time. As a direct result, the public has been barred from using the beach and bay during these episodes to protect public health and safety.

In addition to episodic spill and repair events, an ongoing foul odor problem persists in the New Brighton State Beach area. Recreational users of the beach and bay offshore must endure this odor. DPR staff likewise indicate that the odor has caused visitors camping overnight, atop the overlying coastal bluffs, to vacate their campsites and leave the park during the night.

Even without the problems documented above with sewage spills, leaks, and odors, the line itself presents an obstacle to coastal recreational access. The sub-surface line can become exposed when the beach is scoured and the sand level is down. Year round, manholes located on the beach present a distinct safety hazard to recreational beach users, and limit public access as a result. The approximately 10,000 tons of rip-rap armoring for this section of line likewise present an obstacle to beach recreational use. See Exhibit B for photos of these beach area structures.

The Coastal Act specifically protects recreational beach and offshore public access here. The subject sewer line has continually degraded such public access since its installation over two decades ago. The public has been prohibited from using the area during both sewage spill/leak events and their corresponding repairs. The public recreational experience is continually marred by foul odors, exposed line sections, exposed manholes, and rip-rap. There may be other ongoing public health issues given that the current beach area line is flattened and deformed at present.

As detailed earlier, the Applicant now proposes to fix this problematic pipeline once again by installing a new section of pipeline seaward of the existing pipeline and diverting flows into this new segment of the line. The Applicant indicates that this fix would have a design lifetime of greater than 50 years.

The Commission is concerned that this fix will fare no better than past fixes and that public access here will continue to be negatively impacted by the sewer line – both the existing line and the parallel line segment proposed. Lacking irrefutable evidence that there would be no additional sewage spills and/or leaks, the Commission must find that past history, and the problematic nature of having a sewer line on a recreational beach adjacent to a Federal Sanctuary, indicates that such episodes could be expected to continue here. In addition, even if it could be guaranteed that impacts from sewage spills, leaks, and odors could be eliminated by the proposed project (which it cannot), there is still the issue of the physical structures on the beach (sewer lines, manholes, rip-rap, etc.). These physical structures directly impede public use of the beach and offshore environment.

The proposed project is inconsistent with the Coastal Act's public access and recreation policies; it:

- reduces public access and recreational opportunity contrary to the requirements of Coastal Act



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 20

Section 30210;

- interferes with the public's right of access to the beach and bay at this location contrary to the requirements of Coastal Act Section 30211;
- degrades the lower cost visitor recreational facilities represented by the New Brighton State Park and Beach and Potbelly Beach contrary to the requirements of Coastal Act Section 30213;
- degrades the offshore water-oriented recreational area contrary to the requirements of Coastal Act Section 30220;
- converts oceanfront recreational land to non-recreational (sewer pipeline) uses contrary to the requirements of Coastal Act Section 30221;
- prolongs continued backbeach use by non-recreational structures (i.e., pump stations, access roads, rip-rap, etc.) contrary to Coastal Act Section 30223; and
- significantly degrades New Brighton State Park, New Brighton State Beach, and ongoing uses of the beach recreational area contrary to Coastal Act Section 30240(b).

In light of the access and recreation Coastal Act inconsistencies, and in order to ensure that the public is not made to continually suffer from such impacts in the future, the Commission finds that the Applicant's proposed approach is not adequately protective of public access. As described in the above marine resources finding, the most cautious approach is warranted here and thus the Applicant needs to begin the process of removing the sewer line from the beach area (see Special Condition 11). This will ensure that maximum public access and public recreational opportunities are maintained at this location consistent with the Coastal Act.

As discussed in the earlier finding, temporary repair measures may be necessary until the sewer line facilities are eventually removed. Accordingly, this approval provides for such temporary repairs within the existing sewer line area so as to avoid additional adverse impacts to public access from a duplicative parallel line (see Special Condition 1). Any such repair will require from 2 to 3 months to complete. During this time, public access to the beach and bay area will be severely impacted – if not completely closed – by construction activities. This impact is significant. Good construction methods will be critical to help minimize impacts (see Special Conditions 4, 5, and 6). Although this impact cannot be eliminated, the Applicant can mitigate for these public access impacts by providing for some public access enhancements in the immediate area. State Parks staff have indicated that the New Brighton State Beach Restroom is an appropriate mitigation receiver facility since it has been run-down and degraded over time, adversely impacting the beach recreational experience here. It is appropriate, therefore, for the Applicant to restore this restroom to State park standards as mitigation for the lost access opportunities during the 2 to 3 months that temporary sewer line would require. See Special Condition 10.

The subject site is also a heavily used State Park beach area for which the Applicant will need to secure permission from DPR (see Special Condition 7).

In addition to construction impacts, there is the ongoing issue of foul odors. The Commission, in



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 21

approving the sewer line in 1976, required that:

*...All mechanisms technically and economically feasible shall be employed to control possible odors coming from any portion of the Aptos Transmission Facility. A monitoring program shall be designed in collaboration with the Monterey Bay Unified Pollution Control District to assess the effectiveness of the odor control mechanisms.*

Commission staff have been unable to locate evidence of any such program. In any case, it is clear that the subject line continues to suffer from odor problems that degrade public access and recreation both on the beach and in the State Park campground at this location. In order to eliminate the odor problem impacting public access here, the Applicant needs to consult with an odor control specialist to review plans and make directive recommendations towards the elimination of odor problems. Such a requirement is meant to bring the Applicant in compliance with the Commission's original decision as well as to address the ongoing nuisance. See Special Condition 9. DPR has indicated that such outside consultation is particularly appropriate in this instance, and indicated their concurrence with such an approach here.

Finally, it is important to note that the segment of line proposed for repair lies partially within publicly-owned beach lands (at New Brighton State Beach), partially on lands in fee title to private landowners (beach area from the State beach extending downcoast under Potbelly Beach), and partially on beach lands owned by the State (the undeveloped Porter-Sesnon property). A portion of the beach area fronting Potbelly Beach Road is subject to an unaccepted offer to dedicate lateral public access between the sewer easement and the mean high tide line. As a result, there is a checkerboard of publicly held (in fee title and/or beach access easement) beach areas here; with private (in fee-title) segments in between. These private segments include a myriad of private property signs on the beach. See Exhibit A.

In any case, the project area is part of a larger stretch of wide sandy beach extending from New Brighton State Beach through to the Pajaro River that has all been used by beach goers as if it were public for many years. The Commission has long recognized such longstanding public use over the years. Most recently, in approving a sewer line repair in this location in 1985, the Commission found that:

*The Commission recognizes that the public may have acquired a prescriptive right involving the project site which must be protected under Section 30211 of the Coastal Act. ... In order to protect the continued right of the public to pass along this beach, the Commission finds that approval of this amendment, as conditioned, shall not preclude lateral access including, but not be limited to, any access established by prescriptive rights.*

As described above, the proposed project will negatively impact beach access at this location – both in the short (construction) and long-term. Partial mitigation for such impacts could be achieved through ensuring the public's continued right of access to the beach area here through an outright easement or an OTD of an easement to a public entity. Coastal Act Section 30212(a) would require such provision of lateral access with the installation of a new pipeline, as the Applicant proposes. However, the repair being authorized by the Commission through this amendment is within the existing line area only (see



Special Condition 1). In any case, the Applicant in this case does not own any of the land where development is proposed. Rather, the Applicant has an existing sewer easement over this property that does not extend to public access. So while such recognition of public rights would be warranted and desirable in this case, it is not feasible to require the Applicant at this time to pursue such easements from the underlying fee-title property owners. However, to ensure that that the Commission's action here is not used as evidence of a waiver of public rights to the beach area in question, this approval is conditioned to protect any public rights that may exist on the properties involved. See Special Condition 12.

As conditioned, the Commission finds that the proposed project maximizes public access and recreation; does not interfere with the public's right of access to the sea; protects lower cost visitor recreational facilities; protects the offshore water-oriented recreational area; protects oceanfront recreational land for recreational use; and is compatible with the continuation of the beach park and recreation area; and, as such, is consistent with Coastal Act Sections 30210, 30211, 30213, 30220, 30221, 30223, and 30240(b). Therefore, the proposed project, as conditioned, is in conformity with the applicable public access and public recreation policies of Coastal Act Chapter 3.

### **3. Visual Resources**

Coastal Act Section 30251 states:

*Section 30251. 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.*

Visual access to and along the coast is also considered a form of public access. As such, the Coastal Act's access policies are also relevant. Applicable Coastal Act access policies include:

*Section 30210. In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

*Section 30211. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*



## **Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 23

As discussed in the access and recreation finding preceding, the subject sewer facilities include manholes, pump stations, rip-rap, and other above-ground structures in addition to the sewer line (usually) found below the beach sand. These non-recreational structures on the beach and along the back-beach area significantly degrade the public viewshed (see Exhibit B). They are unsightly and unattractive and look as if they do not belong in a beach park setting. The Applicant's proposal would not only maintain these visual impacts, but would increase these visual blight conditions by installing a parallel line segment with an additional 4 manholes seaward of the existing sewer line location. No effort has been made to reduce the visual impacts from such development. In fact, short of removal, it is not clear what could be done with such apparatus on the beach given its functional role in sewer line maintenance.

The proposed development does not protect the scenic and visual qualities of this sensitive coastal beach and bay area as directed by Coastal Act Section 30251. The development introduces a decidedly unnatural form into the beach environment which: (a) is not protective of views to and along the ocean and beach; (b) does not minimize the alteration of natural land forms; (c) is not visually compatible with the character of the surrounding area; and (c) is not subordinate to the character of its beach setting. The proposed development is inconsistent with Coastal Act Section 30251.

Moreover, the Coastal Act recognizes the public view at the site as a "resource of public importance" that must be protected from interference (Sections 30211 and 30251). This viewshed is already marred by the placement of manholes (as well as other apparatus) on the beach (see, for example, Page 6 of Exhibit B). The proposed project, and its attendant additional manholes on the beach, interferes with the public's ability to enjoy the beach viewshed and does not maximize such visual access. As such, the proposed development is inconsistent with Coastal Act Sections 30210 and 30211.

Fortunately, there are complementary Coastal Act policies at play here (i.e., marine resource and public access and recreation policies) that dictate that removal of the beach area line and its associated apparatus are necessary to otherwise achieve consistency with the Coastal Act (see previous findings and Special Condition 11). Removal of the beach area line also has the long-term effect of restoring and enhancing the visual quality of the beach and bay area at this location, which has been degraded over time by these structures. Such a project modification provides consistency with the requirements of Coastal Act Section 30251.

The beach area has been marred by the presence of the beach area line for two decades. Since that time, the beach viewshed has been subject to additional development (such as beachfront residential development) and its corresponding rearrangement of the natural landform to a more unnatural one. Because of this steady urbanizing pressure, it is even more critical to analyze development proposals for their contribution to this decline. Moreover, the area is subject to an important changed circumstance in that the area offshore has now become the Monterey Bay National Marine Sanctuary; partly in recognition of the beautiful Monterey Bay viewshed. It is incumbent upon beach area development to ensure that it is compatible with such a natural environment to the maximum extent feasible.

As conditioned, the Commission finds that the proposed project protects the scenic and visual qualities



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 24

of this sensitive coastal beach and bay area; protects views to and along the ocean and beach; minimizes the alteration of natural land forms; is visually compatible with the character of the surrounding area; is subordinate to the character of its beach setting; does not interfere with the public's ability to enjoy the beach viewshed; and maximizes visual access; and, as such, is consistent with Coastal Act Sections 30210, 30211, and 30251.

#### **4. Land Use Priorities**

Coastal-dependent and coastal-related development are among the highest priority Coastal Act uses. Section 30001.5 states in part:

*Section 30001.5. The Legislature further finds and declares that the basic goals of the state for the coastal zone are to: (a) Protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources. ... (c) Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners. (d) Assure priority for coastal-dependent and coastal-related development over other development on the coast. ...*

The Coastal Act requires that public recreational uses take precedence over private residential and general industrial or commercial development, but not at the expense of coastal-dependent industry:

*30220: Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

*30221: Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

*30222. The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.*

*30223: Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

Coastal Act Section 30255 also provides:

*Section 30255. Coastal-dependent developments shall have priority over other developments on or near the shoreline. ...*





## Amendment 3-83-119-A3 Staff Report

Aptos Beach Sewer Line Repair

Page 25

The Coastal Act defines coastal-dependent and coastal-related as follows:

*Section 30101. "Coastal-dependent development or use" means any development or use which requires a site on, or adjacent to, the sea to be able to function at all.*

*Section 30101.3. "Coastal-related development" means any use that is dependent on a coastal-dependent development or use.*

The subject sewer line, both the existing facilities and the proposed repair, are not coastal-dependent and are not coastal-related facilities and thus do not enjoy any sort of priority for siting on the beach. As evidenced by the Applicant's alternatives analysis, the beach area sewer line could feasibly be located on inland roads (see Exhibits C and D). Coastal Act Sections 30220 – 30223 establish recreational use as the priority for the subject beach area. Accordingly, the proposed sewer line development is inconsistent with the land use priorities of the Coastal Act.

Again there are complementary Coastal Act policies at play here (i.e., marine resource, public access and recreation, and visual policies) that dictate that removal of the beach area line and its associated apparatus are necessary to otherwise achieve consistency with the Coastal Act (see previous findings and Special Condition 11). Removal of the beach area line also has the long-term effect of restoring the beach area to priority beach recreational uses. Such a project modification also provides consistency with the land use priorities of the Coastal Act.

As conditioned, the Commission finds that the proposed project will result in the return of beach recreational uses to portions of the beach heretofore covered with non-recreational structures consistent with the Coastal Act land use priorities discussed in this finding.

## 5. Coastal Hazards

Coastal Act Section 30235 addresses the use of shoreline protective devices:

*Section 30235. 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.*

Coastal Act Section 30253 addresses the need to ensure long-term structural integrity, minimize future risk, and avoid additional, more substantial protective measures in the future. Section 30253 provides, in applicable part:

*Section 30253. New development shall:*

*(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 26

*(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.*

Coastal Act Section 30235 acknowledges that seawalls, revetments, cliff retaining walls, groins and other such structural or "hard" solutions alter natural shoreline processes. Accordingly, with the exception of new coastal-dependent uses, Section 30235 limits the construction of shoreline protective works to those required to protect existing structures or public beaches in danger from erosion. The Coastal Act does not require the Commission to approve shoreline altering devices to protect vacant land or in connection with construction of new development. The Coastal Act provides these limitations because shoreline structures have a variety of negative impacts on coastal resources including adverse effects 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.

The Commission found that the original development would be structurally stable without reliance on hard-protective structures to maintain its location; this finding was echoed by each previous amendment finding consistency with Coastal Act Section 30253. These findings were based upon the geotechnical reports submitted and reviewed by the Commission that have been proven by the project's history to be incorrect. The subject sewer line has ruptured and been repaired multiple times; rip-rap has been placed in several locations. Invasive trenching and rearranging of the beach area sands, cobbles, and rocks have over time substantially altered the natural beach landform.

It is reasonable to assume that even with the new proposed fix, the proposed project will not be immune from the need for some form of engineered armoring in the future. To presume otherwise is contrary to the history of this project and is not consistent with the Commission's experience with such beach area environments. With sea level rise, ongoing coastal bluff and beach retreat, cumulative impacts on shoreline sand supply dynamics from up and downcoast armoring, the potential for future problems due to the beach siting persist here. Since the proposed project would result in tremendous landform alteration, since the proposed project cannot guarantee that it will be structurally stable without reliance on landform altering engineering solutions, and since the proposed project does not minimize the risk to the sewer line in an area of high coastal hazard, it is inconsistent with Coastal Act Section 30253.

Again, there are complementary Coastal Act policies at play here (i.e., marine resource, public access and recreation, visual, and land use priority policies) that dictate that removal of the beach area line and its associated apparatus are necessary to otherwise achieve consistency with the Coastal Act (see previous findings and Special Condition 11). Removal of the beach area line also has the long-term effect of restoring the beach area to its natural landform configuration, and ensuring that future shoreline altering development will not be necessary to protect potentially threatened structures here consistent with Section 30253.

Until the beach area facilities are removed, however, natural shoreline processes may threaten the existing line as well as any repaired segments in the interim. The experience of the Commission in



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 27

evaluating the consistency of proposed developments with Coastal Act policies regarding development in areas subject to problems associated with geologic instability, flood, wave, or erosion hazard, has been that development has continued to occur despite periodic episodes of heavy storm damage, landslides, or other such occurrences. Beach area development such as this is susceptible to bluff retreat and erosion damage due to storm waves and storm surge conditions. Past occurrences statewide have resulted in public costs (through publicly funded projects such as this one as well as low interest loans and grants) in the millions of dollars. Past occurrence at this location have already resulted in armoring (nearly 10,000 tons of rip-rap) and multiple sewage spills, leaks, and repairs. As a means of allowing continued development in areas subject to these hazards while avoiding placing the economic burden on the people of the state for damages, the Commission has regularly required that Applicants acknowledge site geologic risks and agree to waive any claims of liability on the part of the Commission for allowing the development to proceed.

The risks of the interim sewer line use (until removed) is that such interim use may rupture, spill, leak, or otherwise be structurally compromised as a result of its placement in the beach area environment. Although the Commission has sought to minimize these risks, the risks cannot be eliminated entirely. Given that the Applicant has chosen to repair the sewer line despite these risks, the Applicant must assume these risks. Accordingly, this approval is conditioned for the Applicant to assume all risks for developing at this precarious beach location (see Special Condition 3). Specifically, Special Condition 3 requires the Applicant to acknowledge the risks at this location and indemnify the Commission against claims for damages that may be brought against the Commission as a result of its approval of this permit amendment.

Furthermore, since it is the intent of the Commission to have the beach area line removed, it is unwise to allow future armoring of the line when any such armoring will eventually need to be removed. In any case, since the existing sewer facility has already been found by the Commission to be consistent with Coastal Act Section 30253 (in 1984 and 1985), it shouldn't require shoreline armoring. To insure that shoreline armoring, and its attendant negative impacts on coastal shoreline resources and processes, does not occur here consistent with Section 30253 requirements, this approval is conditioned for the Applicant to agree to no future armoring (see Special Condition 2).

As conditioned, the Commission finds that the proposed project minimizes risks to life and property in areas of high coastal hazard; assures stability and structural integrity; does not create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area; and does not require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs; and, as such, is consistent with Coastal Act Section 30253.



## **6. Public Services**

Coastal Act Section 30254 states:

*Section 30254. 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; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.*

The proposed project would not expand the overall capacity of the existing sewer pipeline past what currently exists. The Applicant intends to supplement a small portion of the overall line (approximately 2,300 linear feet) with a parallel line segment. The Applicant proposes to keep the existing line for emergency purposes. However, as discussed above, the existing deformed section of line that precipitated the current application should not be kept in any case because of its potential for catastrophic failure and sever impacts to coastal resources (see Special Condition 11). In any case, since capacity is not being expanded with the project past what currently exists at this location, the Commission finds that the project is consistent with Coastal Act Section 30254.

## **7. LCP Consistency**

The project is located on the beach partially within the City of Capitola and partially within unincorporated Santa Cruz County. The City and the County determined that the project was located within the Commission's retained coastal permit jurisdiction. As such, the certified City and County LCPs provide guidance in this matter, but the standard of review is the Coastal Act (see Exhibit A for City/County boundary).

In any case, the project is consistent to the maximum extent feasible with City and County LCP policies for such beach-area development.

The County's LCP land use (Existing Parks and Recreation) and zoning (PR – Parks, Recreation and Open Space) designations for the beach area protect this beach and back-beach area for recreational and open space use. LCP Land Use Plan Policy 2.22.1 establishes a hierarchy of uses whereby coastal recreational use is a priority over the subject sewer line use; LUP Policy 2.22.2 prohibits the conversion of an existing priority use to a lesser priority use. Moreover, the LCP is extremely protective of coastal zone visual resources, requiring that public vistas be protected and the scenic integrity of beaches be maintained and restored (for example LUP Policies 5.10.2, 5.10.3, 5.10.6, 5.10.7, 5.10.9 and LCP



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

Page 29

Zoning Section 13.20.130). The LCP likewise strongly protects this beach area from the intrusion of non-recreational structures and protects existing public access (for example LUP Policies 7.7.4, 7.7.10, 7.7.11, 7.7.12 and LCP Zoning Section 13.20.130). Monterey Bay and coastal water quality are specifically protected by LUP Policies 5.4 et seq.

In addition, the County LCP has stringent siting requirements for development along the coast in light of the inherent risks associated with structures placed in geologic hazard areas. LUP Policy 6.2.12 and Zoning Section 16.10.070(h) require that the stability of a site ("in its pre-development application condition") be demonstrated for 100 years without reliance upon engineering measures or other shoreline armoring strategies. LUP Policy 6.2.12 states that "the 100-year stability of the building site shall not be dependent upon structural engineering measures (such as shoreline protection, retaining walls or deep piers)." Existing adjacent residential development (inland of the proposed line placement) is currently armored and it seems likely that some sort of structural engineering measures would be required to maintain the proposed sewer line at the proposed locations as well. Any such measures would be inconsistent with LCP policies pertaining to such new development because new development should be constructed in a manner that does not need such structures. Indeed, it appears that development of sewer lines at this location must contend with at least two known hazards: storm wave damage from the sea and liquefaction of the beach area materials. Development in the face of such hazards directly increases risks to life and property and would create health and safety risks relating to geologic and flood hazard at this location contrary to LUP Chapter 6 and LCP Zoning Chapter 16.10.

Likewise, City of Capitola LCP armoring policies mimic Coastal Act Sections 30235 and 30253 and require a minimum of 50 years of site stability (for example, LUP Policy VII-7, LCP Zoning Section 17.48.090 and 17.48.100). LUP Policies II-1 through II-18 protect the subject site for public access and recreation, LUP Policy IV-2 restricts the uses to recreational (and not sewer line) uses, and LUP chapter III specifically protects the public viewshed here. Monterey Bay and coastal water quality are specifically protected by LUP Chapter VI that require protection and enhancement of Monterey Bay marine resources.

The proposed project, as conditioned, promotes recreational rather than sewer line use of beaches; protects and improves water quality, marine resources, public access and recreation, and the public viewshed; ensures geologic stability of beach area development; and, as such, is consistent with the goals, policies, and objectives of both the City and County certified LCPs for this section of the coastline.

## **8. California Environmental Quality Act (CEQA)**

Section 13096 of the California Code of Regulations requires that a specific finding be made in conjunction with coastal development permit applications showing the application to be consistent with any applicable requirements of 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



**Amendment 3-83-119-A3 Staff Report**

Aptos Beach Sewer Line Repair

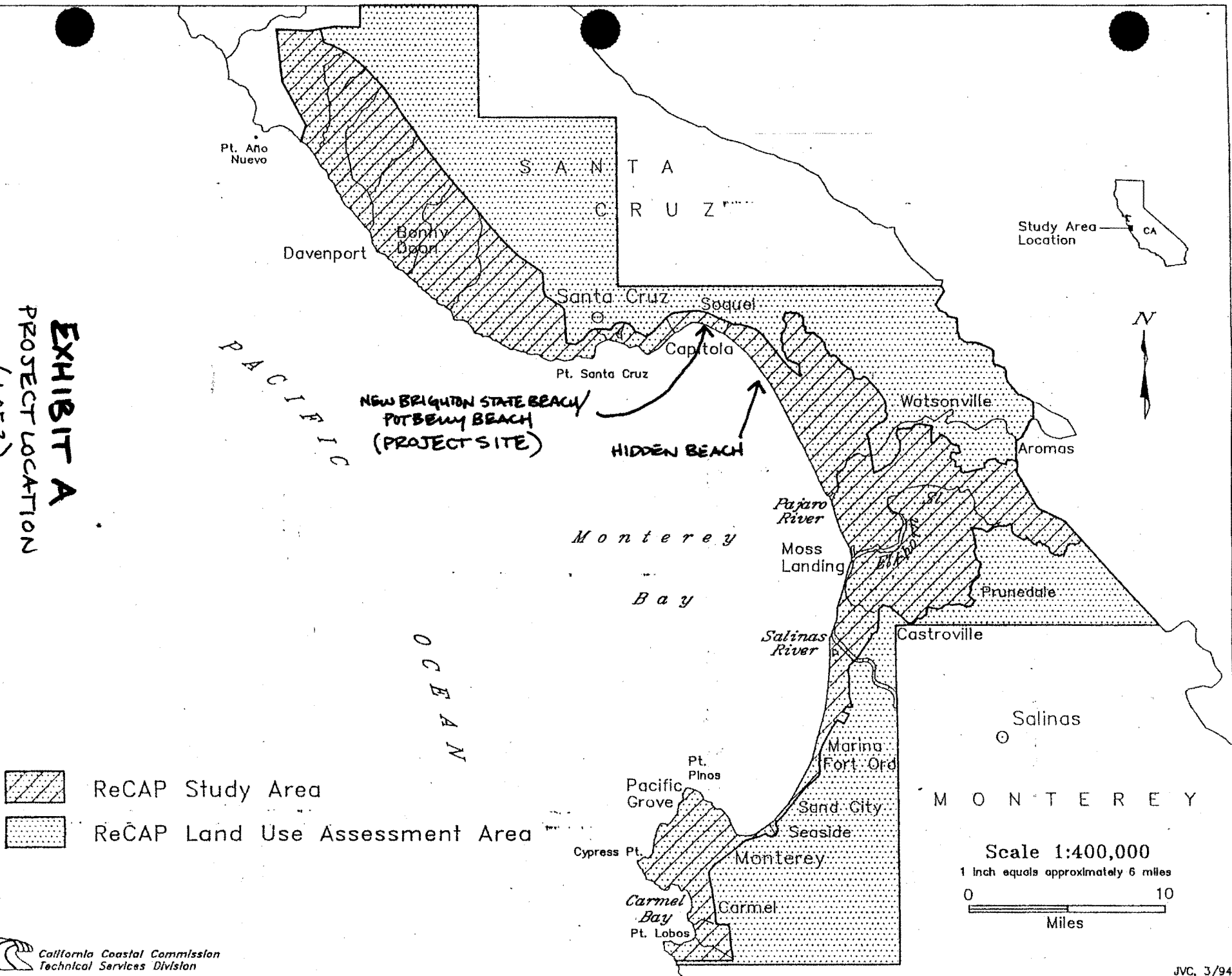
Page 30

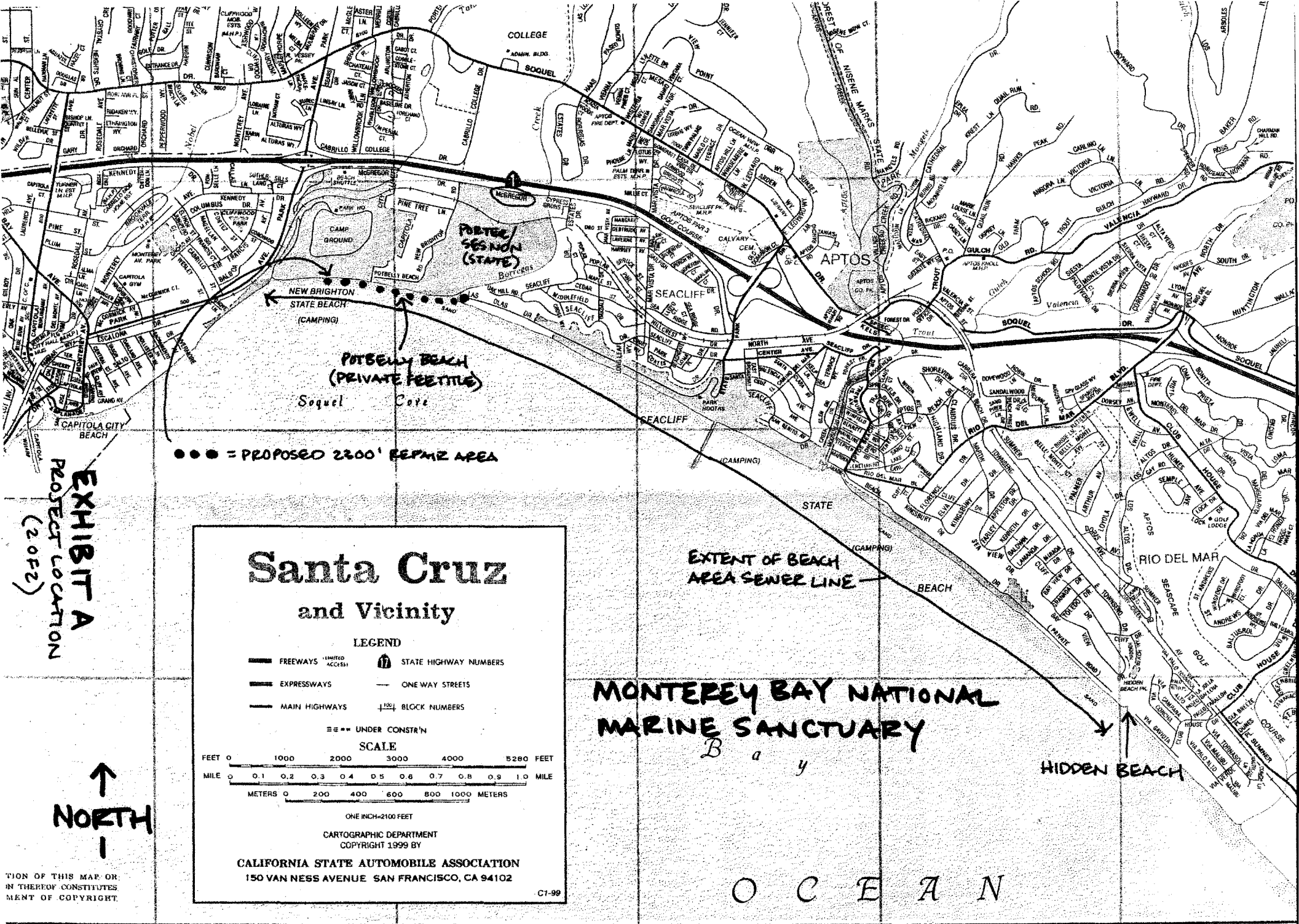
the environment.

Both the City and County determined that no discretionary reviews were required and did not require CEQA review of the proposed project. In any case, the Coastal Commission's review and analysis of land use proposals has been certified by the Secretary of Resources as being the functional equivalent of environmental review under CEQA. This staff report has discussed the relevant coastal resource issues with the proposal, and has recommended appropriate mitigations to address adverse impacts to said resources. Accordingly, the project is being approved subject to conditions which implement the mitigating actions required of the Applicant by the Commission (see Special Conditions). As such, the Commission finds that only as modified and conditioned by this permit will the proposed project not have any significant adverse effects on the environment within the meaning of CEQA.



**EXHIBIT A**  
PROJECT LOCATION  
(1 OF 2)





PORTION OF THIS MAP OR PART THEREOF CONSTITUTES A VIOLATION OF COPYRIGHT





1. Looking East from New Brighton Pump Station Parking Lot

PHOTOS RUN DOWNCOAST (EAST) IN SEQUENCE

**EXHIBIT B**  
PROJECT SITE BEACH  
AREA PHOTOS (1 OF 7)



2. Looking West toward New Brighton Pump Station



3. Looking East from New Brighton Pump Station

**EXHIBIT B**  
(2 OF 7)



4. Looking West toward New Brighton Pump Station from metering manhole.



5. Looking East from Metering Manhole.

**EXHIBIT B**  
(3 OF 7)



6. Looking West near start of beach homes.  
Approximately pipe alignment drawn in sand.



7. Looking East along Rip Rap  
near beach homes.

**EXHIBIT B**  
(4 OF 7)



8. Looking West from berm manhole L-3.



9. Looking East toward manhole L-3.

**EXHIBIT B**  
(5 of 7)

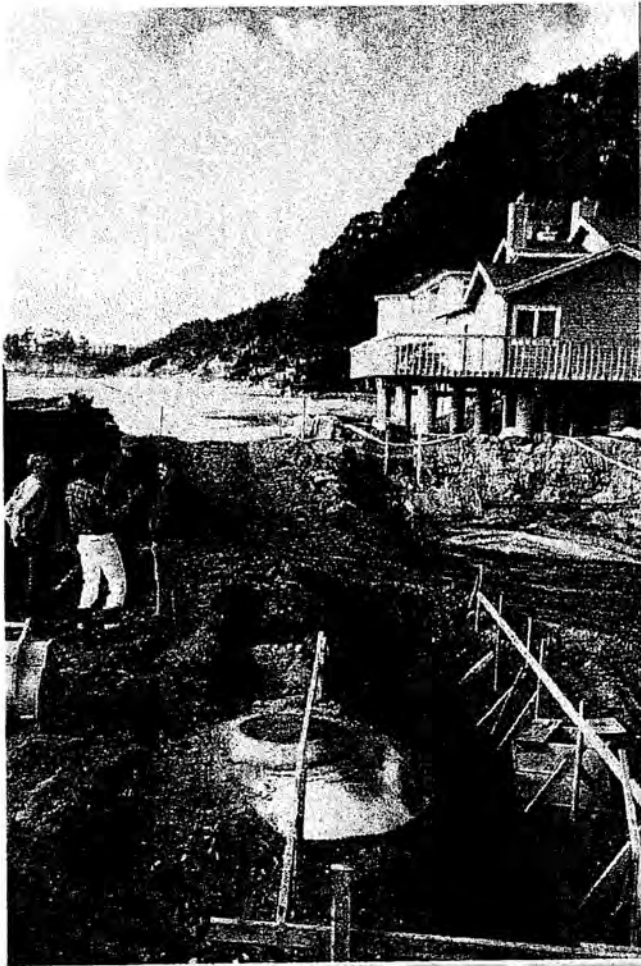


10. Looking West from  
manhole L-6.



11. Looking East toward manhole L-6.

**EXHIBIT B**  
(6057)



12. Looking west from manhole L-8.



13. Looking East toward manhole L-8 and Las Olas Drive.

**EXHIBIT B**  
(7 OF 7)



# SANTA CRUZ COUNTY SANITATION DISTRICT

## APTOS SEWER TRANSMISSION LINE

Review of Earlier Studies  
and Recommended Repairs

Presented by:



Harris & Associates, Inc.

September 29, 1999

**EXHIBIT C**

OPTIONS ANALYSIS  
(10/12)



**APTOS SEWER TRANSMISSION LINE  
REVIEW OF EARLIER STUDIES AND RECOMMENDED REPAIRS**

**TABLE OF CONTENTS**

1. Executive Summary
2. Introduction
3. Previous Studies and Investigations
4. Existing Conditions
5. Goals of Repair Project
6. Repair Options
7. Most Viable Repair Options
8. Recommended Repair
9. Supplemental Project Study Information
10. Appendices
  - A. Proposed Alignment and Section
  - B. Probable Construction Alignments and Costs
  - C. Geotechnical Information
  - D. Recent Pictures of Beach Alignment
  - E. Archive Pictures of 1980 Repairs
  - F. Site Map and Video Inspection Notes
  - G. Anchor Block Details, 1980
  - H. Anchor Block Details, 1985
  - I. Survey of Sand Levels, 1984
  - J. Sanitary Sewer Easement, 1984

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CALIFORNIA  
COASTAL COMMISSION  
CENTRAL COAST AREA

**EXHIBIT C**  
(2 OF 12)

# 1. EXECUTIVE SUMMARY

## Background

Since its installation in 1979, approximately 2,300 feet of 30-inch diameter Aptos Sewer Transmission Line, has experienced numerous problems. This sewer is buried in approximately 12 feet of sand and rock along Potbelly Beach near New Brighton State Park. Problems with the pipe include washout (due to storm wave action), sagging of the line (due to settlement), floatation, odors and structural collapse (flattening).

The objective of this report is to recommend corrective action to fix the problems and increase the reliability of the pipeline. To that end, Harris & Associates has reviewed earlier studies, investigations and analysis; met with knowledgeable County District staff; met with the construction contractor who did previous repairs to the pipeline; and evaluated all previous proposed repair alternatives. 21 different alternatives were assessed by Harris & Associates. The culmination of this work is presented herein with a focus on 5 corrective options and a recommendation of a single proposed repair alternative.

## The Five Options Evaluated in Depth are:

1. ***Construct parallel 30-inch concrete encased High Density Polyethylene (HDPE) or Poly-Vinyl-Chloride (PVC) pipe.***
2. ***Repair Existing 30-inch HDPE pipe in place.***
3. ***Slipline existing 30-inch HDPE with 14-inch force main.***
4. ***Directional Drill parallel 30-inch HDPE.***
5. ***Relocate sewer line off beach to McGregor Drive.***

Each option was analyzed from construction and public impact standpoints. Individual advantages, disadvantages, and costs were generated for each option and are summarized in Table 1.

## Recommendation

The recommended repair solution to cost effectively remedy all the above described problems is to construct Option 1. This option would install concrete encased, 30-inch segmented PVC pipe along a new alignment, parallel to the existing 30-inch HDPE. The key advantages of this repair strategy are as follows:

- Horizontal and vertical alignment will be exact. Any repairs to the existing 30-inch pipe will not correct the existing alignment deficiencies.
- The capacity of the new line will not be decreased. Any liner alternative proposed for the existing 30-inch pipe would greatly reduce the flow capacity of the pipe.

**EXHIBIT C**

(3 OF 12)

- No pump station work would be required. A new pump station would be required at Tannery Gulch if the line is sliplined with a 14-inch pipe. Numerous pump station improvements would be required if the pipe is relocated off the beach.
- No bypass pumping will be needed during construction. The existing 30-inch pipe can remain active during construction of the new line.
- The existing 30-inch line could be kept as an emergency relief line.

## 2. INTRODUCTION

The Aptos Transmission Sewer has had a troublesome history since its construction in 1979. Previous reports have chronicled the pipe failures and problems and have proposed a number of alternatives for corrective action. As part of the 1999 Sanitation Engineering and Consulting Services Contract, Santa Cruz County Sanitation District (SCCSD) commissioned Harris & Associates to study available information previously generated about the pipeline and recommend a design solution.

This report is written to be concise and consistent with all the earlier studies and recommendations, and build on their exhaustive research and analysis. It will not revisit these earlier studies in depth except to evaluate their potential as the best overall solution to the pipe problems. References in this report will direct the reader to these earlier reports as appropriate.

## 3. PREVIOUS STUDIES AND INVESTIGATIONS

For this report we reviewed the following information.

### A. Reports

1. August 1996 – Moffatt & Nichol Engineers
  - a. Repair pipe by encasement – 4 types
  - b. Trenchless repair methods – 7 types
  - c. Pipe replacement in same alignment
  - d. Pipe relocation – 2 routes
2. April 1997 – Nolte & Associates
  - a. Slipline with 24-inch gravity line
  - b. Pipe burst with 24-inch gravity line
  - c. Slipline with 14-inch force main

**EXHIBIT C**

(4 OF 12)

Page 2

3. September 3, 1998 – Nolte & Associates

- a. Microtunnel 30-inch pipe
- b. Directional drill 30-inch pipe
- c. Slipline with 18-inch force main.

Included in these studies and investigations were the following testing/analysis.

1. Gravity and pressure flow analysis for 30-inch, 24-inch and 14-inch diameter pipe by Nolte and Associates, April 1997.
2. Structural analysis for loading on sliplined pipe alternatives by Moffatt & Nichols, April 1997.
3. Structural Analysis for loadings on steel and concrete encased pipe by Manna Consultants, August 1996.
4. Electromagnetic location of existing pipes by JARSCO, January 1996.
5. Coastal analysis to determine;
  - a. Sea Level Rise
  - b. Beach Levels
  - c. Water levels and depths for breaking waves
  - d. Liquifaction Analysis
  - e. Wave loads

**B. Closed Circuit Television Inspection**

1. December 21, 1993 – Greenline Underground Video
2. February 2 and 4, 1994 – Granite Construction
3. June 6, 1994 - Greenline Underground Video
4. July 12, 1995 - Greenline Underground Video
5. September 11, 1997 - Greenline Underground Video
6. May 4, 1999 – Greenline Underground Video

**C. Geotechnical Investigation**

1. Kaldveer & Associates, 12/76
2. Kaldveer/Lowery, 11/72
3. Treadwell & Rollo, 8/96

**EXHIBIT C**

(5012)

#### D. Construction Drawings

1. Aptos Transmission Sewer, As-Builts, 1979
2. Aptos Transmission Sewer, Concrete Anchor Details, 4/80
3. Aptos Transmission Sewer, Record of Survey for Easement, 8/84
4. Aptos Transmission Sewer, Survey of Sand Level, 9/84
5. Aptos Transmission Sewer, Concrete Anchor Details, 3/85

#### 4. EXISTING CONDITIONS

A summary of the existing pipe condition follows below. This information is based on the earlier studies and from Harris & Associates field observations and measurements.

The existing 30-inch diameter HDPE pipeline in the beach area, has the following characteristics:

- a. Length is approximately 2,610 feet, (Manhole L-1 @ Sta. 0+00 to Manhole L-8 @ Sta. 26+10.42)
- b. Length requiring repair is approximately 2,270 feet, (Manhole L-1 @ Sta. 0+00 to Manhole L-7 @ Sta. 22+70).
- c. The depth to the bottom of the pipe at Manhole L-1 is approximately 21 feet and at Manhole L-7 is approximately 13 feet.
- d. There is about 5.5 feet of fall between Manhole L-1 and Manhole L-7. Slope of the pipe varies from 0.18% to 0.24%.

A zone of potential liquifaction exists for the alignment in sandy soil subject to wave forces. Liquifaction, sometimes referred to as "quicksand", is the loss of strength of sand due to the combination of vibrations, increased pore water pressure and the inability of the sand to drain.

The pipeline between manhole L-3 and manhole L-7A is located in this zone of potential liquifaction and will require stabilization. The remainder of the line is in gravelly, cobbles and bedrock and should not require special stabilization.

The pipeline between manhole L-7 and manhole L-8 is in good condition and seems to be stable. It is assumed that this is because this part of the line is fully encased in concrete.

### EXHIBIT C

Where the pipeline has anchor blocks located at 20 foot intervals between manhole L-7 and manhole L-3, the pipeline is deformed between the blocks.

The pipeline has been in service since 1979.

There are currently several locations where the pipeline has sags or adverse grades of at least 6 inches.

There are currently several sections of the pipeline that are flattened.

## 5. GOALS OF THE REPAIR PROJECT

Harris & Associates concur with the goals for the repair of the existing pipe as stated on page 9 of the Moffit & Nichols report dated August 1996 report. The goals are as follows:

- A. Sidewall support
- B. Air relief (protection against negative pressures)
- C. Shape repair
- D. Ballasting against uplift (buoyancy protection)
- E. Foundation support (lateral stability against movement and vertical stability against settlement)
- F. Armoring against washouts (wave action)
- G. Elimination of sags and repair of adverse grade
- H. Odor reduction
- I. No sewage overflows
- J. No back ups into existing side sewers

## 6. REPAIR OPTIONS

The reports described in Section 3.A., list numerous options as listed below. We have reviewed, discussed each option with the Sanitation District and attempted to eliminate those not suitable as a repair alternative. These options can be grouped as shown.

	<u>VIABILITY</u>
<b>I. NEW PIPE ROUTE</b>	
A. Move closer to the bluff – too many right of way and property owner issues.	ELIMINATE

**EXHIBIT C**

(7 OF 12)

**VIABILITY**

- B. Relocate to McGregor Drive – requires additional pumping and 14,500 LF of pipeline. Many right-of-way and utility issues will have to be addressed.

POTENTIAL

**II. NEW CONSTRUCTION WEST OF THE EXISTING ALIGNMENT**

- A. Microtunneling – difficult in wet sand conditions. Also difficult to maintain vertical alignment due to the parallel seam between the sand and the underlying bedrock.
- B. Directional Drilling – Trenchless construction of new 30-inch parallel pipe with inverted siphon alignment.
- C. New 30-inch steel pipe – install line parallel to the existing pipeline. Install concrete anchors at 20 feet on-center. Use of a steel pipe in marine environment is not recommended.
- D. New parallel 30-inch HDPE or PVC – fully encase pipe in concrete.
- E. New parallel 30-inch Reinforced Concrete Pipe (RCP) – unprotected RCP is not suitable for sewers.

ELIMINATE

POTENTIAL

ELIMINATE

POTENTIAL

ELIMINATE

**III. REHABILITATE EXISTING 30-INCH HDPE (keep as gravity flow)**

- A. External grout existing HDPE for anchorage – can not verify effectiveness of grouting.
- B. Insert 24-inch into 30-inch by pipe burst existing HDPE – not a suitable process for flexible pipe.
- C. Pile support/pipe anchors for existing HDPE – difficult and expensive to install anchors.
- D. Repair existing HDPE – reround pipe with clamps, relaxing, or mandrel methods. Repair sags. Continuously encase in concrete.
- E. Encasement Options – continuous steel jacket not suitable due to erosion and high cost. Flowable, lightweight concrete would be a good encasement material. Crushed rock not suitable as it would not give adequate protection against settlement into the sand. Intermittent encasement has not proved effective between manholes 6 and 7.

ELIMINATE

ELIMINATE

ELIMINATE

POTENTIAL

ELIMINATE

**IV. SLIPLINE EXISTING 30-Inch HDPE (flows under pressure)**

- Slipline with a 14-inch HDPE liner. This is the recommended option from the September 1998 report. There are several risks associated with this option. Pump station modifications would be required in the side sewers. There would be no additional

POTENTIAL

VIABILITY

protection from settlement nor lateral movement unless anchors are installed. The installation of anchors would require excavation which is what the sliplining option is supposed to primarily avoid. There is an additional risk of getting an 18-inch liner pipe stuck in the 30-inch HDPE pipe because there are so many flat portions of the line.

**V. POINT REPAIRS ONLY**

This option would only repair those areas of the pipeline that are currently out of round. Flat spots will probably continue to occur in the future.

ELIMINATE

**VI. REMOVE AND REPLACE EXISTING 30" WITH NEW 30" HDPE**

Would require extensive amount of bypass pumping. Would also require repairs at flat spots between anchors.

ELIMINATE

**7. MOST VIABLE REPAIR OPTIONS**

After reducing the list of options to those most viable, the following list results:

1. New Parallel 30-Inch Pipe –construct parallel to the existing pipeline. Concrete encase and anchor the entire alignment.
2. Repair Existing HDPE – reround pipe and correct sags. Concrete encase and anchor the entire alignment.
3. Slipline Existing HDPE - insert new 14-inch pipe to act as force main within the existing pipe, improvements at Esplanade Station would be required and a new pump station would be required at bottom of Tannery Gulch.
4. Directional Drill Parallel to Existing Line – Large construction impacts would be encountered on Pot Belly beach due to the use of specialized construction equipment, bentonite slurry and long pipe stringing operations.
5. Relocate Line to McGregor Drive – requires construction of 14,500 LF of new force main from Esplanade Pump Station. New pump stations and pump station upgrade at Esplanade would be required.

A summary of the 5 most viable options are presented in Table 1 along with their respective advantages, disadvantages and cost. Preliminary opinions of probable costs for each option along with schematics are included in Appendix B.

**EXHIBIT C**

(9 OF 12)



## 8. RECOMMENDED REPAIR

Constructability of the most viable options is an important consideration of the repair method recommended. These options were discussed with Harris construction management staff, County inspection staff who were involved in this project, as well as contractors experienced in marine environment construction. Discussions were held with Chuck Michaelis of Granite Construction, who supervised the pipeline repairs in 1980, and John Nutt, the County inspector on site.

Considering all the important factors affecting each option, and constructability one of the most important, it was determined that Option 1, constructing a new, parallel, 30-inch HDPE or PVC, fully encased pipe would be the most viable repair option.

The recap of the advantages and disadvantages of Option 1 are;

### Advantages

1. Sags and deformities eliminated.
2. Pipe anchored and protected in all areas.
3. No bypass pumping required.
4. Shortest construction period.
5. Longest design life (>50 years).
6. All new materials will be used instead of reuse or 20 year old HDPE.
7. Existing pipe could be used for emergencies.
8. Pile construction for anchorage would be easier in new alignment.
9. Difficult excavation around existing pipe anchor blocks eliminated.
10. No pump station construction or pump station modifications needed.
11. Lowest construction cost of any alternatives.

### Disadvantages

1. Open trench construction would be required on beach.
2. New alignment south of existing pipe is closer to shoreline and wave action.
3. New easement would be needed.

The proposed alignment for a new pipe would be 10 to 20 feet south of the existing pipe, to ensure no excessive equipment loads were placed on the old pipe. Excavation would start using a bulldozer to push the top 3 feet to 10 feet of sand away from the trench. An excavator would dig through the remaining bedrock, cobbles and gravel. Pipe saddles would be layed to support new pipe at correct grade.

Segmented plastic pipe would be preferred to minimize the amount of open trench. Previous work on the beach performed in 1980 was interrupted when water/ waves came into one long trench. Limiting the work trenches to lengths of 100 to 200 feet

**EXHIBIT C**

(10 OF 12)

would also allow the pipe to be quickly installed, inspected, tested and backfilled, reducing aesthetic impacts to the beach.

Geotechnical information suggests that a majority of the excavation will be in rock-like material. However, a portion of the pipe may be only supported by sand and pipe supports may be required in the area susceptible to liquefaction. Approximately 420 feet of pipe may need pile supports at roughly 10-feet on center. These piles would be concrete, driven to a maximum 12 foot depth.

Manhole structures would be constructed at approximate 600 feet intervals. Special 6 feet diameter manholes would be constructed over the existing, live, 30-inch pipe at the upstream and downstream limits of the repair. The new line will be constructed, tested, and backfilled before the existing pipe, tied at the 6 foot diameter manhole, is cut open and flow directed to the new alignment. This construction technique will eliminate the need for bypass pumping.

A proposed detailed alignment for Option I is sketched on a reduced copy of the as-built drawings in Appendix A.

## 9. SUPPLEMENTAL PROJECT STUDY INFORMATION

Additional information from the numerous previous studies has been assembled for quick reference purposes. The following information includes:

Appendix C shows the geotechnical information used to determine excavation quantities.

Appendix D includes recent pictures of the approximate alignment of the existing pipe on Pot Belly beach.

Appendix E includes archive photos of the 1994 repairs to the Aptos Transmission Line.

Appendix F contains a project site map and video inspection notes.

Appendix G shows anchor block repairs from 1980.

Appendix H shows anchor block repairs from 1985.

Appendix I shows survey data for the sand levels along Pot Belly beach.

Appendix J presents a map of the sanitary sewer easement for the Aptos Transmission line.

**EXHIBIT C**

(11 of 12)

Option	Description	Pros	Cons	(millions)
1	<b>Parallel 30-inch pipe</b>	Repair all pipe problems No bypass pumping required Shortest construction period (6 weeks +/-) Most conventional construction Longest design life (>50Years) Ex. pipe becomes emergency pipe Most confined work area (200 LF) No pump station required Lowest construction cost	Beach Trenching (2,200' in 200' Segments) New Easement Required	2.69
2	<b>Repair Existing Pipe</b>	New easement not needed Minimal bypass pumping required New pipe material not required No pump station required	Doesn't repair all problems (sags remain) Beach Trenching (2,200' in 200' Segments) 20 year old pipe remains Some bypass pumping required Longer construction period (10 weeks +/-) Higher construction costs	3.04
3	<b>Slipline Existing Pipe</b>	New easement not needed Least trenching required Minor amount of bypass pumping required	New pump station required at Tannery Gulch Excavation on beach required for anchorage Specialized equipment required Long pipe string assembled on beach Higher construction cost Point repairs req. at 3 loc. requiring trenching	2.88 *
4	<b>Directional Drilling</b>	Repairs most pipe problems No bypass pumping required Existing pipe becomes emergency pipe Trenching minimized on beach	Large layout areas required for large equip. Long pipe string assembled on beach Bentonite slurry concerns on beach Higher construction costs New easement required Drilling concerns in sandy/rocky soil Inverted siphon profile requires more maint.	3.40
5	<b>Relocate Sewer Off Beach Areas</b>	Minor construction on beach Sanitary sewer no longer on beach	Highest construction costs, 3-4 x expensive Requires environmental studies Major impacts to public and traffic New easement required Higher maintenance costs 14,500 LF of new force main required Requires construction of new pump stations One pump station near beach Longest construction period (>1 year) Longest design period (>9 months)	10.35

\* Adjusted 1997 Estimate

Table 1 – Summary of Viable Options

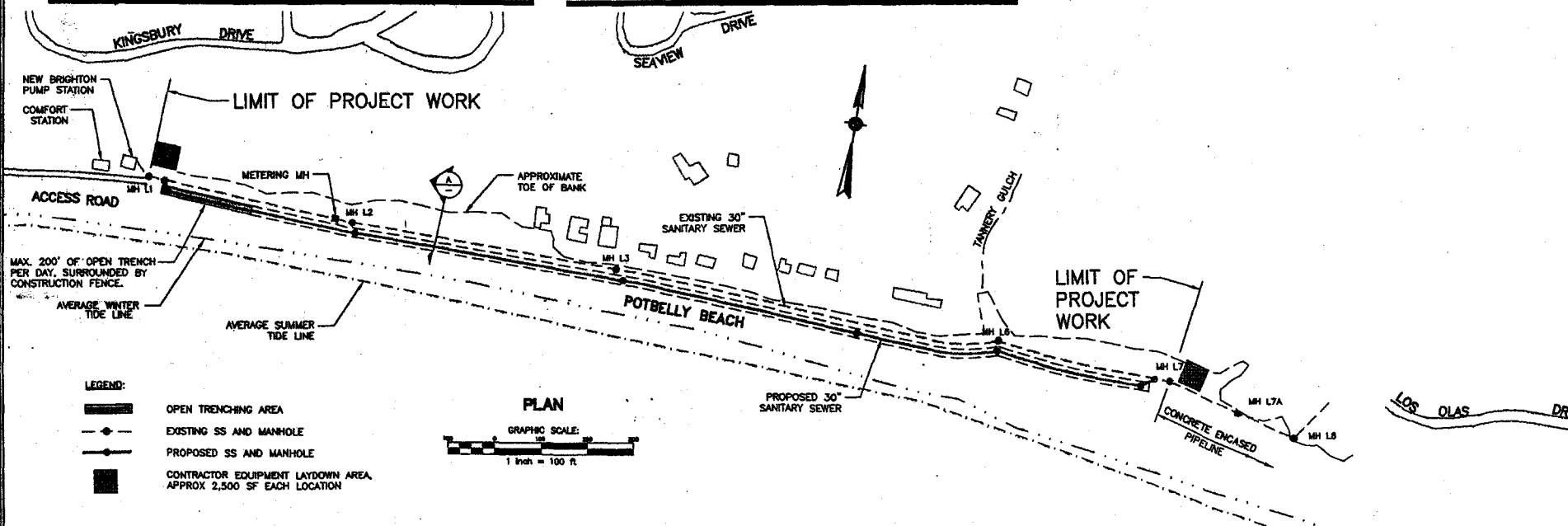
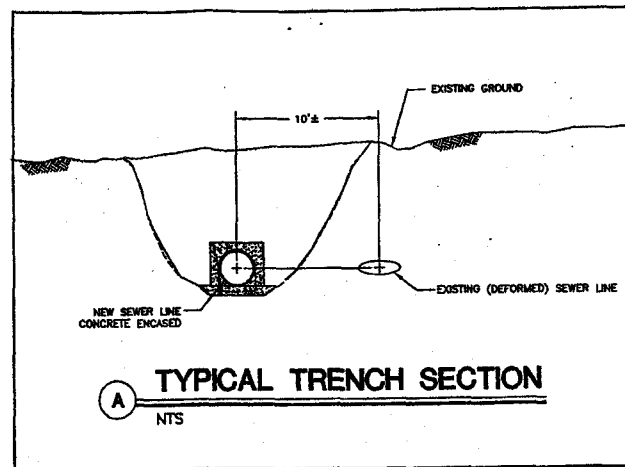
EXHIBIT C  
(12 of 12)

### ADVANTAGES:

1. Completely Repairs All Pipe Problems.
2. No By-Pass Pumping Required.
3. Shortest Construction Period, (6 Weeks±).
4. Most Conventional Construction, (No Specialized Equipment).
5. Longest Design Life (>50 Years).
6. Existing Pipe Becomes Emergency Overflow Pipe.
7. Most Confined Work Area, (200' Maximum Trench).
8. No Pump Station Required.
9. Lowest Construction Cost.
10. Lowest Maintenance and Operational Costs.

### DISADVANTAGES:

1. Trenching on Beach, (2,300' in 200' Segments).
2. New Easement Required.
3. Construction Equipment Access Through State Park.



**LEGEND:**

- OPEN TRENCHING AREA
- EXISTING SS AND MANHOLE
- PROPOSED SS AND MANHOLE
- CONTRACTOR EQUIPMENT LAYDOWN AREA, APPROX 2,500 SF EACH LOCATION

EXHIBIT D  
OPTIONS SITE PLANS (10FS)

DATE: 7/8/99  
DRAWN BY: SES  
CHECKED BY: SES  
APPROVED BY: VAP

<table border="1"> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>																	SES SES VAP	DATE: 7/8/99 98310	Harris & Associates	SANTA CRUZ CO. SANITATION DISTRICT APTOS SANITARY SEWER	<b>OPTION 1 CONSTRUCT PARALLEL 30" PIPE</b>

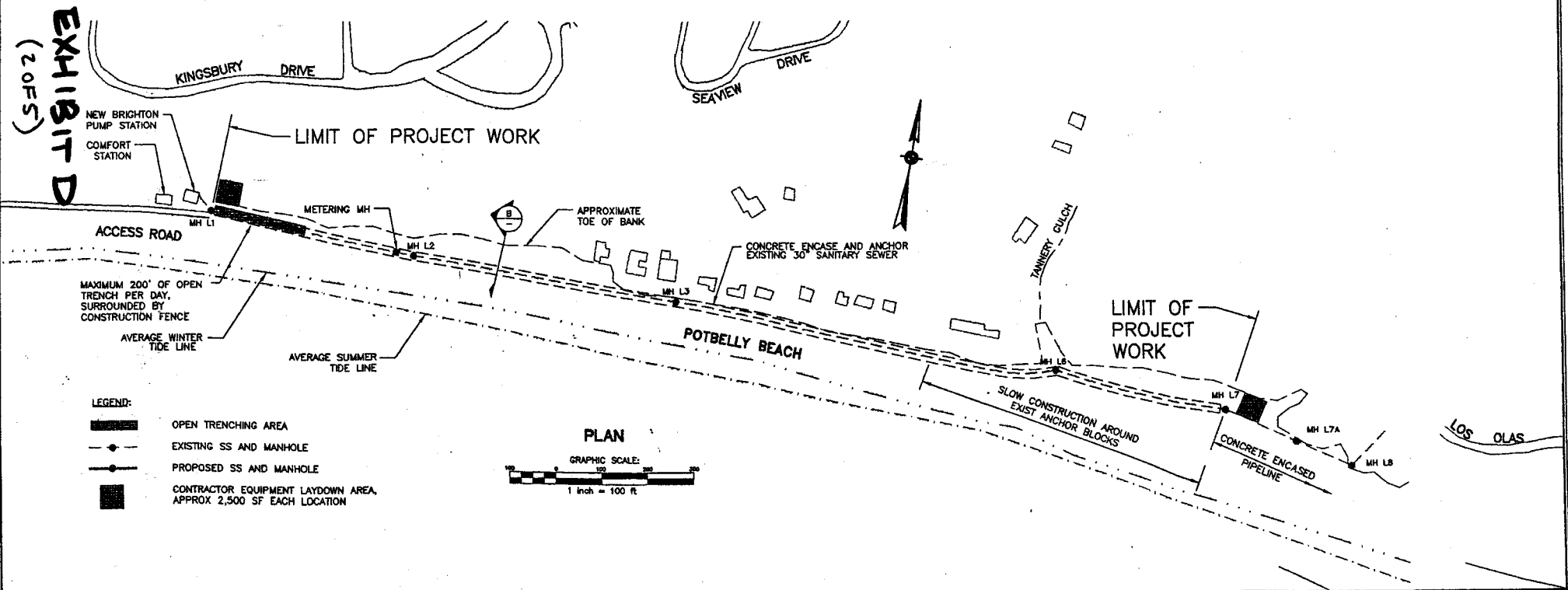
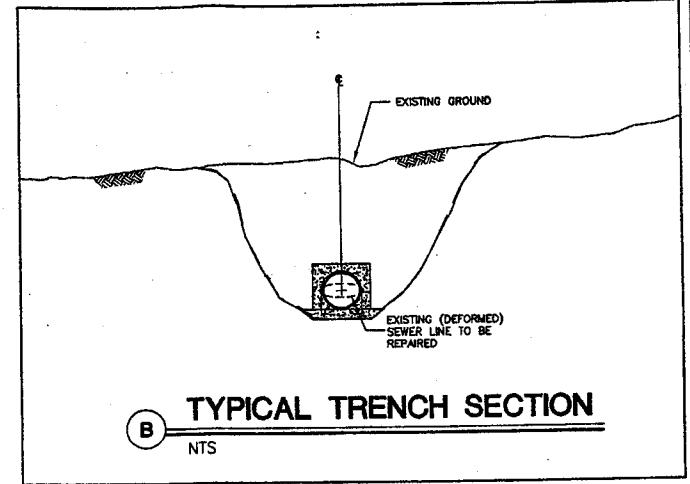
**PROPOSED PROJECT**

### ADVANTAGES:

1. New Easement Not Needed.
2. New Pipe Material Not Required.
3. No Pump Station Required.

### DISADVANTAGES:

1. Does Not Repair All Pipe Problems (Some Sags Remain).
2. Trenching on Beach (2,300' in 200' increments).
3. 20 Year Old Existing Pipe Remains.
4. Some By-Pass Pumping Will Be Required.
5. Construction Equipment Access Thru State Park.
6. Longer Construction Period, (10 Weeks±).
7. Higher Construction Costs.



NO.	DATE	BY	REVISION

DESIGNED BY	SES	CHECKED BY	SES	DATE	7/8/89
DRAWN BY	SES				
	VAP				98310

	<b>Harris &amp; Associates</b>
--	--------------------------------

SANTA CRUZ CO. SANITATION DISTRICT APTOS SANITARY SEWER
--

<b>OPTION 2</b> <b>REPAIR EXISTING 30" PIPE IN PLACE</b>
---

### ADVANTAGES:

1. New Easement Not Needed.
2. Least Trenching Required.

### DISADVANTAGES:

1. New Pump Station required at Tannery Gulch.
2. Excavation on Beach Required for Anchorage.
3. Specialized Equipment Required.
4. Long Pipe String assembled on Beach.
5. Higher Construction Cost.
6. Point repairs at three locations Requiring Open-Trenching.
7. Higher Operational Costs.
8. Larger Pumps required at Esplanade.
9. By-Pass Pumping Required.

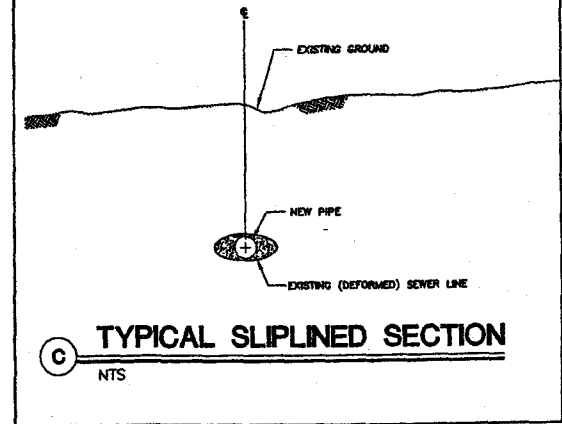
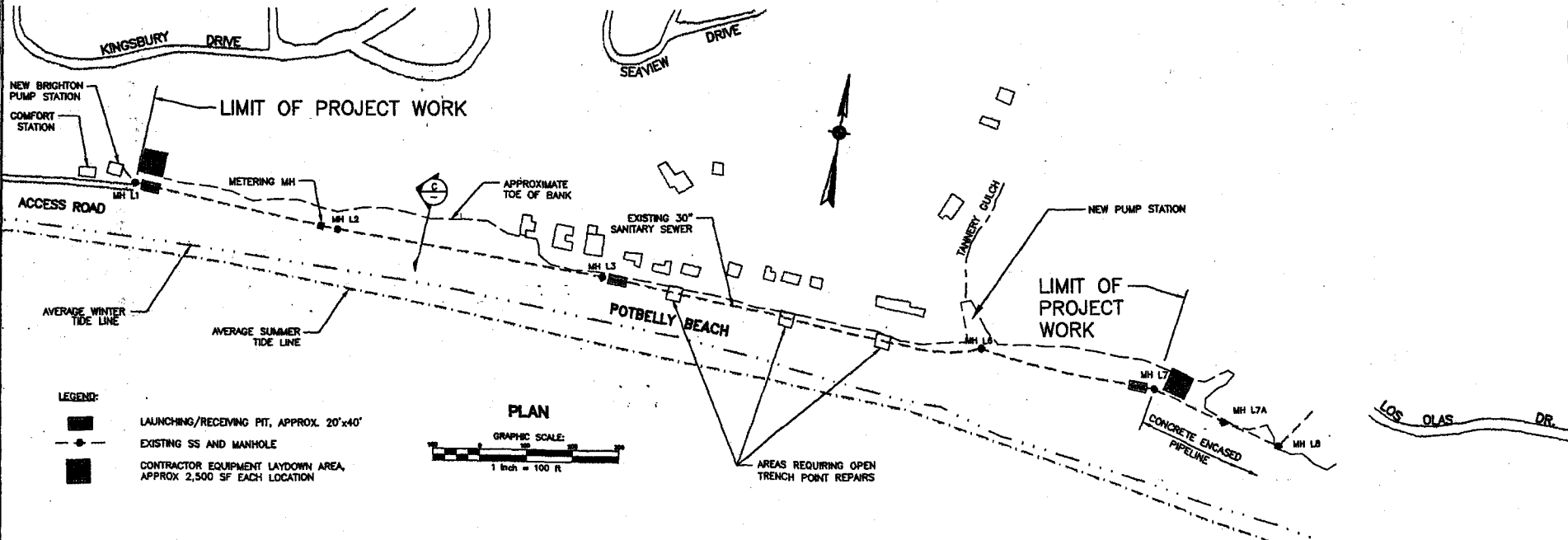


EXHIBIT D  
(3 OF 5)



**LEGEND:**

- LAUNCHING/RECEIVING PIT, APPROX. 20'x40'
- EXISTING SS AND MANHOLE
- CONTRACTOR EQUIPMENT LAYDOWN AREA, APPROX 2,500 SF EACH LOCATION

NOTES: 1. VERTICAL CURVATURE BASELINE IS OPTICALLY VERTICAL. 2. VERTICAL CURVATURE BASELINE IS VERTICAL. 3. VERTICAL CURVATURE BASELINE IS VERTICAL. 4. VERTICAL CURVATURE BASELINE IS VERTICAL. 5. VERTICAL CURVATURE BASELINE IS VERTICAL. 6. VERTICAL CURVATURE BASELINE IS VERTICAL. 7. VERTICAL CURVATURE BASELINE IS VERTICAL. 8. VERTICAL CURVATURE BASELINE IS VERTICAL. 9. VERTICAL CURVATURE BASELINE IS VERTICAL. 10. VERTICAL CURVATURE BASELINE IS VERTICAL.

DATE: 7/8/99	BY: SES	CHECKED: VAP	DESIGNED: SES	PROJECT: APTOS SANITARY SEWER	CLIENT: SANTA CRUZ CO. SANITATION DISTRICT	OPTION 3 SLIPLINE EXISTING PIPE
7/8/99	7/8/99	98310				

Harris & Associates

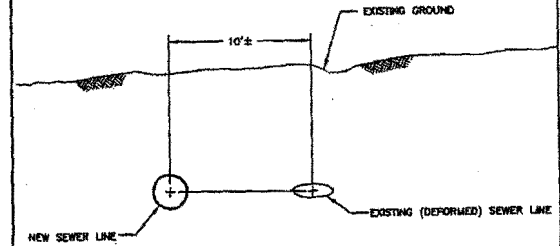
SANTA CRUZ CO. SANITATION DISTRICT  
APTOS SANITARY SEWER

**ADVANTAGES:**

1. Repairs Most Pipe Problems.
2. No By-Pass Pumping Required.
3. Existing Pipe Becomes Emergency Overflow Pipe.
4. Trenching Minimized on Beach.

**DISADVANTAGES:**

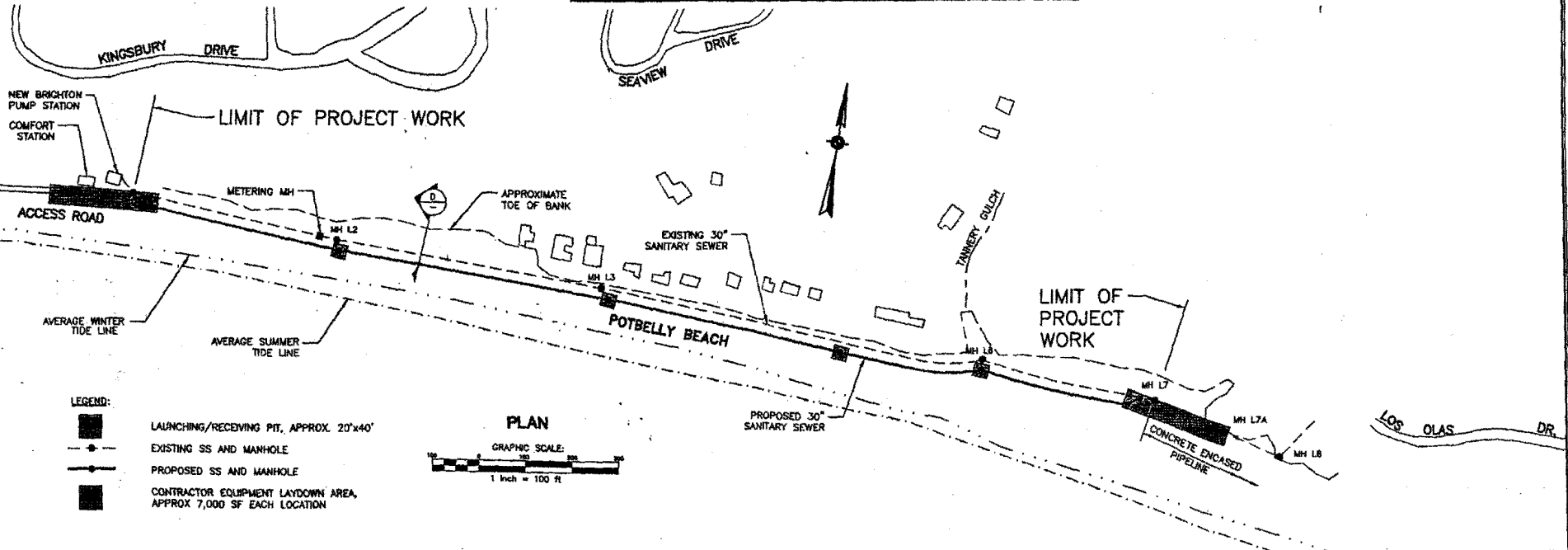
1. Large Layout Areas Required for Large Equipment.
2. Long Pipe String Assembled on Beach.
3. Bentonite Slurry Recovery Ponds Required.
4. Higher Construction Costs.
5. New Easement Required.
6. Drilling Concerns in Sandy/Rocky Soil.
7. Inverted Siphon Profile Requires More Maintenance.



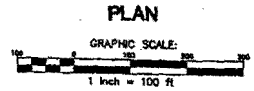
**TYPICAL PIPE SECTION**

(D)  
NTS

EXHIBIT D  
(4 of 5)



- LEGEND:**
- LAUNCHING/RECOVERING PIT, APPROX. 20'x40'
  - EXISTING SS AND MANHOLE
  - PROPOSED SS AND MANHOLE
  - CONTRACTOR EQUIPMENT LAYDOWN AREA, APPROX 7,000 SF EACH LOCATION



SCALE: 1" = 100 FEET. DESIGN: SANTA CRUZ COUNTY SANITATION DISTRICT. DATE: 1/7/99. DRAWN BY: SES. CHECKED BY: SES. APPROVED BY: VAP. PROJECT NO.: 98310. SHEET NO.: 1/7/99.

<p>DESIGNED BY: SES</p> <p>CHECKED BY: SES</p> <p>APPROVED BY: VAP</p>	<p>DATE: 1/7/99</p> <p>PROJECT NO.: 98310</p>	<p>Harris &amp; Associates</p>	<p>SANTA CRUZ CO. SANITATION DISTRICT</p> <p>APTOS SANITARY SEWER</p>	<p><b>OPTION 4</b></p> <p><b>DIRECTIONAL DRILLING</b></p>
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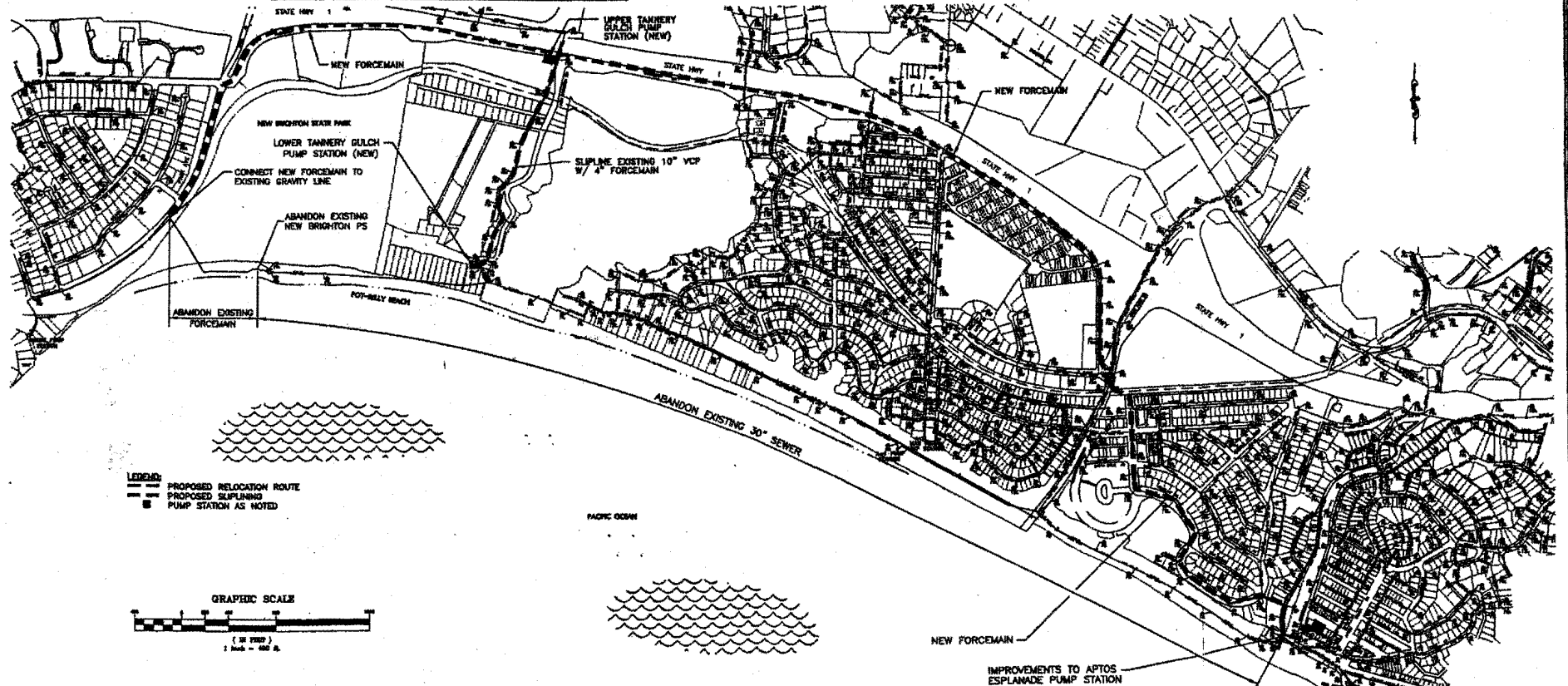
### ADVANTAGES:

1. Sanitary Sewer no longer on beach
2. Minor Construction on Beach

### DISADVANTAGES:

1. Highest Construction Costs (3 to 4 times as expensive).
2. Environmental Documents Required.
3. Major Impacts to Public and Traffic.
4. New Easement Required.
5. Higher Maintenance Costs.
6. 14,500 LF of new Force Main required.
7. Requires Construction of More Pump Stations, One Near the Beach.
8. Longest Construction Period (1 year).
9. Longest Design Period (9 months).
10. Highest Maintenance & Operational Costs.

EXHIBIT D  
(SOPS)



**LEGEND:**  
 - - - PROPOSED RELOCATION ROUTE  
 - - - PROPOSED SUMP LINE  
 ■ PUMP STATION AS NOTED

**GRAPHIC SCALE**  
 (IN FEET)  
 1" = 400'

THIS DRAWING IS A PART OF A PROJECT AND IS NOT TO BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF HARRIS & ASSOCIATES, INC.

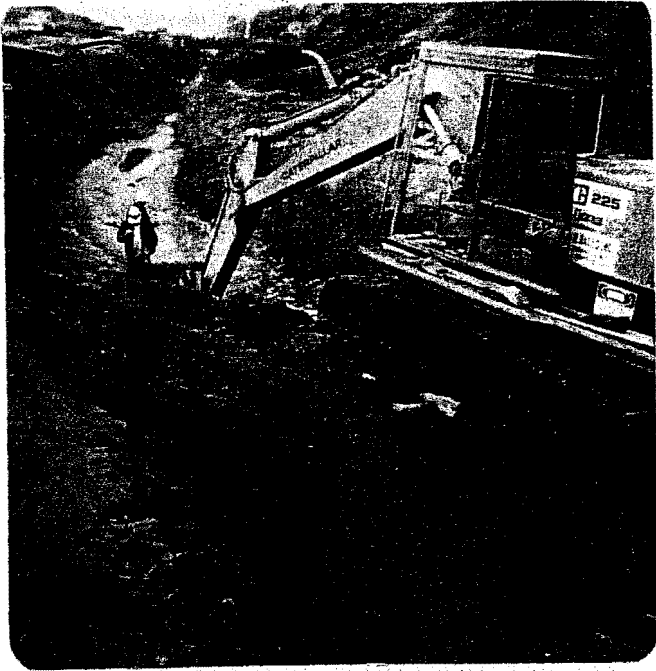
NO.	DATE	REVISION

DESIGNED BY  
 CHECKED BY  
 HARRIS & ASSOCIATES

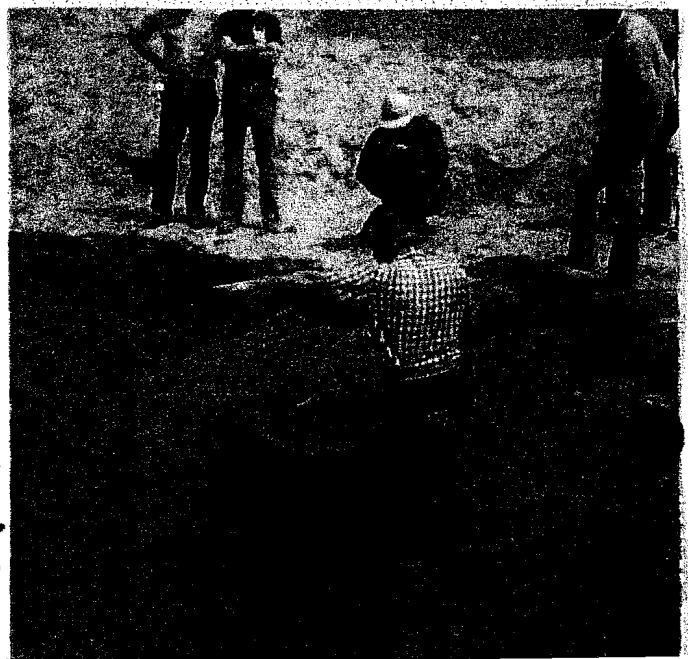
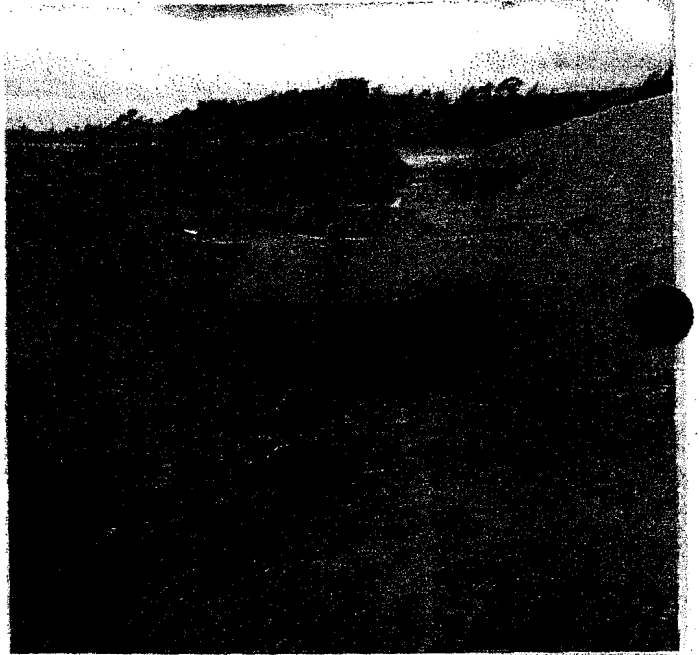
SANTA CRUZ CO. SANITATION DISTRICT  
 APTOS SANITARY SEWER

**OPTION 5**  
 RELOCATE APTOS TRANSMISSION SEWER  
 OUT OF BEACH AREAS





**EXHIBIT E**  
PHOTOS OF 1980 REPAIR  
ACTIVITIES (10F4)



EXH. E  
(2084)



EXH. E  
(30F4)

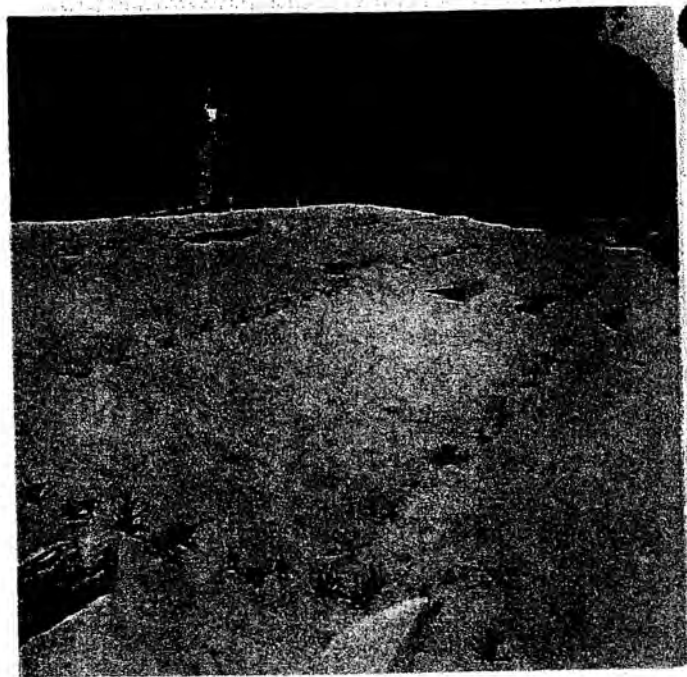


EXHIBIT E  
(40F4)