CALIFORNIA COASTAL COMMISSION
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W 12a

Prepared January 4, 2013 (for the January 9, 2013, hearing)

To: Coastal Commissioners and Interested Persons

From: Mark Delaplaine, Manager, Energy, Ocean Resources and Federal Consistency Division

Subject: STAFF REPORT ADDENDUM for Item W 12a Consistency Determination (CD-057-12, U.S. Army Corps of Engineers, Upper Bluff Vertical Wall, Pismo Beach, San Luis Obispo County

The staff is proposing the following changes to its staff recommendation

[Proposed new language is shown in underline text; language to be deleted is shown in ~~strikeout~~ text.]

Condition 1, page 4, make the following changes:

1. **Twenty-year Authorization.** ~~The Corps shall include a provision in its Project Partnership Agreement (PPA) with the City, or the Corps and the City[1] shall otherwise assure, that the following will occur: the City will return to the Commission in 20 years and provide an updated analysis of the continuing the need for the project. If it is no longer needed, the City will remove it. If, upon reviewing the analysis, the Commission's Executive Director determines the wall is still needed, the City will submit a coastal development permit application to enable it to retain the wall.~~

The Corps shall cooperate with the Commission in the manner described in 15 CFR section 930.45(a)[2] by returning to the Commission in 20 years with a re-assessment of the project based on the criteria spelled out in section 930.45(a) and (b)(1) (i.e., a determination of whether the project remains consistent to the maximum extent practicable with the enforceable policies of the management program, or whether it is

[1] ~~This could be accomplished, for example, by the City applying for a CDP for assumption and continued maintenance of the wall.~~

[2] 15 CFR § 930.45(a) statesFederal and State agencies shall cooperate in their efforts to monitor federally approved activities in order to make certain that such activities continue to be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the management program.

being conducted or having an effect substantially different than originally described and, as a result, is no longer consistent). If the Corps is no longer responsible for the project at that time, then the project sponsor at that time will submit an analysis to the Commission that includes an updated analysis of the continuing need for the project and the continued adequacy of the design, based on updated information and the then-current science regarding site geology, sea level rise, wave impacts and site erosion. If, upon reviewing the analysis, the Commission's Executive Director determines the wall is no longer needed, the project sponsor will remove it (pursuant to a valid CDP). If, upon reviewing the analysis, the Commission's Executive Director determines that some continued protection is needed but that a new application is needed to authorize it, the project sponsor will submit a coastal development permit application to enable it to retain and/or modify the wall.

Attachment

Add Exhibit 25 – Condition 3, from CCC CDP 6-11-010, (Oceanus Geologic Hazard Abatement District seawall (Oceanus GHAD)) – which spells out methodology for future seawall need analysis.

Condition 3, from CCC CDP 6-11-010, (Oceanus Geologic Hazard Abatement District seawall (Oceanus GHAD) – methodology for future seawall need analysis.

3. Extension of Seawall Authorization or Seawall Removal. Prior to the expiration of the twenty year authorization period for the permitted seawall, the property owners shall submit to the Commission an application for a coastal development permit amendment to either remove the seawall in its entirety, change or reduce its size or configuration, or extend the length of time the seawall is authorized. Provided a complete application is filed before the 20-year permit expiration, the expiration date shall be automatically extended until the time the Commission acts on the application. Any amendment application shall conform to the Commission's permit filing regulations at the time and shall also conform to the following requirements:

a) An analysis, based on the best available science and updated standards, of beach erosion, wave run-up, sea level rise, inundation and flood hazards prepared by a licensed civil engineer with expertise in coastal engineering and a slope stability analysis, prepared by a licensed Certified Engineering Geologist and/or Geotechnical Engineer or Registered Civil Engineer with expertise in soils;

b) An evaluation of alternatives that will increase stability of the existing principal structure(s) for its remaining life, or re-site new development to an inland location, such that further alteration of natural landforms and/or impact to adjacent City-owned bluffs and beach, tidelands or public trust lands is avoided;

c) An analysis of the condition of the existing seawall and any impacts it may be having on public access and recreation, scenic views, sand supply, and other coastal resources;

d) An evaluation of the opportunities to remove or modify the existing seawall in a manner that would eliminate or reduce the identified impacts, taking into consideration the requirements of the LCP and any applicable Chapter 3 policies of the Coastal Act;

e) For amendment applications to extend the authorization period, a proposed mitigation program to address unavoidable impacts identified in subsection (C) above;

f) A legal description and graphic depiction of all subject property lines and the mean high tide line surveyed by a licensed surveyor as of a recent date along with written evidence of full consent/approval of any underlying land owner, including, but not limited to the City or State Lands Commission, or any other entity of the proposed amendment application. If application materials indicate that development may impact or encroach on tidelands or public trust lands, written authorization from the underlying public trust lands trustee (City of San Diego or the State Lands Commission, if applicable) of the proposed amendment shall be required prior to issuance of the permit amendment to extend the authorization period.

Exhibit 25
CD-057-12

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W12a

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Staff:	MPD-SF
Staff Report:	12/20 12
Hearing Date:	1/9/13

STAFF REPORT: REGULAR CALENDAR

Consistency Determination No.: **CD-057-12**

Federal Agency: **U.S. Army Corps of Engineers**

Location: St. Andrews Lift Station, seaward of Seacliff Dr. and Baker Ave., Shell Beach area, Pismo Beach, San Luis Obispo Co. (Exhibits 1-2)

Project Description: Construction of upper bluff vertical shotcrete tie-back wall (Exhibits 3-9)

Staff Recommendation: Conditional Concurrence

SUMMARY OF STAFF RECOMMENDATION

On March 9, 2011, the Commission objected to a consistency determination submitted by the U.S. Army Corps of Engineers (Corps) for two rock revetments (later revised to be vertical walls) to protect the existing St. Andrews and Vista del Mar lift stations, in the Shell Beach area of the City of Pismo Beach (CD-061-10). Based on the information submitted at the time, the Commission had not been convinced that the lift stations were threatened within a short time frame (i.e., within the "near-term"), that relocation of the lift stations was not a feasible alternative to shoreline armoring, and that, if armoring was needed, that less extensive armoring (focusing on upper bluff protection) could not provide adequate protection, without needing to extend the walls down to cover sandy beaches. The Commission also noted that an existing wall already provided some degree of protection at the St. Andrews site. The Commission also

suggested that any wall(s) that may ultimately be authorized should include public access and sand loss impact mitigation in the form of a stairway and/or other onsite public access improvements.

After the Commission's objection, the Corps and the City of Pismo Beach (City) continued discussions with the Commission staff in an effort to address the above-raised concerns. As an outgrowth of these meetings and discussions, the Corps has now submitted a consistency determination for a modified wall at the St. Andrews site. (Since the City has since constructed a wall at the Vista del Mar site (the City's approval of which is the subject of pending appeal number A-3-PSB-12-043), the Corps is only continuing to pursue a wall at the St. Andrews site.)

The standard of review for federal consistency determinations is whether the project is consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program (i.e., with Chapter 3 of the Coastal Act).

The proposed modified wall at the St. Andrews site has been moved landward and higher in elevation, off the beach, behind rather than in front of the existing wall on the beach, and conforming to the bluff topography, and with visual treatment to mimic natural-looking conditions. It would also include a staircase to the beach and a rerouted storm drain (including an energy dissipater). The Corps also has provided additional analysis of alternatives, as well as technical analysis of risk of bluff failure.

With the revisions and additional information, the staff is now recommending that the Commission find the project is necessary to protect existing structures and is the least environmentally damaging feasible alternative. This revised recommendation considers the following factors: (1) the serious public health risk from failure of a sewer lift station and other sewer lines; (2) the fact that the wall has been removed from the lower bluff/terrace deposits and beach; (3) the determination that reliance on an average erosion rate is inappropriate; (4) the fact that waiting for an emergency to be imminent may negate the benefits of public access and water quality improvements; (5) that the Corps now proposes significant new public recreational access improvements to offset beach and recreational impacts associated with the proposed seawall; and (6) the case the Corps (and the City) have made concerning the wisdom and feasibility of replacing this particular lift station and associated utility lines, which would entail, in addition to its cost, adverse safety and public access effects.

With conditions to assure revising the project need in 20 years, continuing maintenance commitments, and clarifications and/or minor changes to the stairway, rail, drain, and landscaping components, the staff recommends the Commission find the project, if modified as conditioned, would be consistent with Sections 30235 and 30253 of the Coastal Act, as well as with the public access and recreation policies (Sections 30210-30223), and, finally, with the rerouting of a storm drain and other "BMPs," with the water quality, marine resource, and ESHA policies (Sections 30230, 30231, 30232, and 30240) of the Coastal Act.

The Staff therefore recommends the Commission conditionally concur with the Corps' consistency determination.

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APPENDICES

EXHIBITS

I. FEDERAL AGENCY'S CONSISTENCY DETERMINATION

The U.S. Army Corps of Engineers has determined the project consistent to the maximum extent practicable with the California Coastal Management Program (CCMP).

II. MOTION AND RESOLUTION

Motion:

> *I move that the Commission **conditionally concur** with consistency determination CD-057-12 by concluding that that the project would be fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP, provided the Corps agrees to modify the project consistent with the conditions specified below, as provided for in 15 CFR §930.4.*

Staff recommends a **YES** vote on the motion. Passage of this motion will result in an agreement with the determination and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

Resolution:

> *The Commission hereby **conditionally concurs** with consistency determination CD-057-12 by the U.S. Army Corps of Engineers on the grounds that the project would be fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP, provided the Corps agrees to modify the project consistent with the conditions specified below, as provided for in 15 CFR §930.4.*

III. CONDITIONS

1. **Twenty-year Authorization.** The Corps shall include a provision in its Project Partnership Agreement (PPA) with the City, or the Corps and the City[1] shall otherwise assure, that the following will occur: the City will return to the Commission in 20 years and provide an updated analysis of the continuing the need for the project. If it is no longer needed, the City will remove it. If, upon reviewing the analysis, the Commission's Executive Director determines the wall is still needed, the City will submit a coastal development permit application to enable it to retain the wall.

2. **Future Maintenance.** The Corps shall include a provision in its Project Partnership Agreement (PPA) with the City, or the Corps and the City shall otherwise assure, that the City will: (a) maintain the seawall and landscaping in a structurally sound manner and in its approved state; (b) maintain all faux bluff camouflaging elements in a structurally sound manner and in

[1] This could be accomplished, for example, by the City applying for a CDP for assumption and continued maintenance of the wall.

their approved state; and (c) remove all debris that may fall from the bluff top area onto the beach.

3. **Final Plans**. Prior to commencement of construction, the Corps shall submit final plans to the Executive Director, for his review, which provide:

a. **Stairway**. The stairway shall be colorized to match the bluff and integrate it into the bluff material to the maximum extent feasible. All exposed railings shall be designed to minimize non-natural appearance and visual impacts.

b. **Landscaping**. Non-native and invasive species in the immediate project vicinity (other than the grass lawn atop the bluff) should be removed and replaced with native, drought-resistant landscaping. If feasible, native plants cascading down the bluff should be included in any landscaping.

c. **Railings**. Any railing on the blufftop shall minimize visual impact (such as through use of wood split rail, or wood and cable rail).

d. **Drains**. Drainage relocations shall be designed to camouflage their outlets (such as through use of hooded cover), such that they would be hidden from view from the beach.

IV. APPLICABLE LEGAL AUTHORITIES

Standard of Review

The federal Coastal Zone Management Act ("CZMA"), 16 U.S.C. § 1451-1464, requires that federal agency activities affecting coastal resources be "carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs." Id. at § 1456(c)(1)(A). The implementing regulations for the CZMA ("federal consistency regulations"), at 15 C.F.R. § 930.32(a)(1), define the phrase "consistent to the maximum extent practicable" to mean:

> … *fully consistent with the enforceable policies of management programs unless full consistency is prohibited by existing law applicable to the Federal agency.*

This standard allows a federal activity that is not fully consistent with California's Coastal Management Program ("CCMP") to proceed, if full compliance with the CCMP would be "prohibited by existing law." In its consistency determination, the Corps did not argue that full consistency is prohibited by existing law or provide any documentation to support a maximum extent practicable argument. Therefore, there is no basis to conclude that existing law applicable to the Federal agency prohibits full consistency. Since the Corps has raised no issue of practicability, as so defined, the standard before the Commission is full consistency with the enforceable policies of the CCMP, which are the policies of Chapter 3 of the Coastal Act (Cal. Pub. Res. Code §§ 30200-30265.5).

Conditional Concurrences
The federal consistency regulations (15 CFR § 930.4) provide for conditional concurrences, as follows:

> *(a) Federal agencies, … should cooperate with State agencies to develop conditions that, if agreed to during the State agency's consistency review period and included in a Federal agency's final decision under Subpart C … would allow the State agency to concur with the federal action. If instead a State agency issues a conditional concurrence:*
>
> *(1) The State agency shall include in its concurrence letter the conditions which must be satisfied, an explanation of why the conditions are necessary to ensure consistency with specific enforceable policies of the management program, and an identification of the specific enforceable policies. The State agency's concurrence letter shall also inform the parties that if the requirements of paragraphs (a)(1) through (3) of the section are not met, then all parties shall treat the State agency's conditional concurrence letter as an objection pursuant to the applicable Subpart . . . ; and*
>
> *(2) The Federal agency (for Subpart C) … shall modify the applicable plan* [or] *project proposal, … pursuant to the State agency's conditions. The Federal agency … shall immediately notify the State agency if the State agency's conditions are not acceptable; and*
>
> *…*
>
> *(b) If the requirements of paragraphs (a)(1) through (3) of this section are not met, then all parties shall treat the State agency's conditional concurrence as an objection pursuant to the applicable Subpart.*

V. FINDINGS AND DECLARATIONS

A. PROJECT LOCATION AND DESCRIPTION

The Corps of Engineers proposes to construct a 2-ft. thick, tied-back shotcrete wall, placed against the bluff above the terrace deposits, and partially behind an existing seawall, to protect the St. Andrews Lift Station[2] and other existing utility infrastructure (Seacliff Dr., and sewer and water lines – Exhibit 10) that could be imperiled by coastal erosion during storm events. The Lift Station is immediately seaward of Seacliff Dr. and Baker Ave., in the Shell Beach area of Pismo Beach. The wall would be placed directly against the bluff, above the terrace deposits, and founded two feet into the terrace deposits for support and stability. The project also would include a stairway built into the design of the wall. The stairway would meet all state requirements for design specifications (tread width, step height, railing, etc.). Visual treatment for the wall would be applied to mimic natural-looking conditions (as shown in Exhibits 3-9, and in a manner similar to the recent City-constructed wall at Vista del Mar (Exhibit 11)). The major storm drain extending from the middle of the bluff would be rerouted to the base of the upper bluff, and an energy dissipater would be added to reduce flow velocities and minimize beach erosion caused by stormwater runoff.

[2] A sewer lift station houses a pump that raises sewage from a lower elevation sewer line to a higher elevation sewer line.

The proposed western edge of the structure is in essentially the same place as in the original proposal, but it has been designed with stronger tie-backs, to avoid flanking of the structure for several decades. The eastern edge of the structure has been lengthened behind the existing sea wall by approximately 30 feet. The total length of the proposed structure is 147 feet (versus 110 feet for the originally proposed and reviewed wall). The wall would be aligned closer to the bluff face and follow its contours more closely than in the original proposal, resulting in a slightly longer structure.

Additional project features and Corps commitments include the list of Environmental Commitments contained in Corps' Final EA (Exhibit 17), plus the following additional environmental commitments made during discussions between the Corps and Coastal Commission staff and incorporated into the Corps' consistency determination:

> *The City is amenable to providing an access stairway at the St. Andrews site that will be a part of the structure constructed at the site.*
>
> *Beach sand would not be used as back fill for the structure.*
>
> *The Corps further indicated a willingness to address Commission staff concerns related to the design of the curve at the top of the walls, the need to key the walls into bedrock, during final design states, and possibly, if feasible, moving the rocks at the toe of the wall further landward and considering a tie-back wall (which would move the vertical wall landward). The redesigned structure is a shotcrete, tie back wall which would be keyed into bedrock and would not require rocks at the toe as in the original design.*
>
> *Aesthetic treatment of the structure to make it similar to the existing bluff. The redesigned structure would have a similar treatment to that used in the Vista del Mar lift station structure already completed by the city of Pismo Beach.*

B. HISTORY

On March 9, 2011, the Commission objected to a Corps consistency determination for two rock revetments to protect two existing lift stations (St. Andrews and Vista del Mar lift stations) in Pismo Beach (CD-061-10). During the Commission's review but prior to the vote, the Corps modified its proposal to make the proposed walls vertical walls (i.e., with a reduced beach footprint) and to commit to some visual treatment of those walls. However even with these modifications the Commission found those designs were not the least amount of armoring needed to protect the lift stations, that additional alternatives should be considered, and that the Corps had not made a compelling case that lift stations would be threatened with failure in the near term. The Commission's action and findings in that case can be found at:

http://documents.coastal.ca.gov/reports/2011/3/W25a-3-2011.pdf

After the Commission's action the Commission staff continued discussions with the Corps and the City to see whether the project could be modified to address the concerns raised. In the meantime, the Corps ceased pursuing a wall at the Vista del Mar site, after the City issued itself

an emergency coastal development permit for, and then constructed, a vertical wall at the Vista del Mar site (P11-000089)[3] (Exhibit 11). The interagency discussions then focused solely on the St. Andrews site, and the Corps and City continued to respond to Commission staff requests concerning alternatives limiting protection to the upper bluff, the feasibility of relocating the lift station and other utility lines, narrowing the street to reduce acquisition costs for relocation, improving public access to the pocket beach, the disposition of drainage pipes, and the potential for removal of portions of the existing wall on the beach (which was built primarily to provide armoring for the single-family home immediately downcoast (east)).

As an outgrowth of these discussions the Corps has proposed the subject, primarily upper bluff, tie-back concrete wall, including a staircase and drainage improvements. The City has agreed to be responsible for construction and maintenance of the stairway; however the Corps has incorporated it into the design of the wall. Ultimately, the City intends to assume maintenance of the wall as well.

C. GEOLOGIC HAZARDS/SHORELINE PROTECTIVE DEVICES

Section 30235 of the Coastal Act states:

> *Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.*

Section 30253 states (in part):

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

Section 30235 of the Coastal Act acknowledges that seawalls, revetments, cliff retaining walls, groins and other such structural or "hard" methods designed to forestall erosion also alter natural shoreline processes. Accordingly, with the exception of new coastal-dependent uses, the Commission has consistently interpreted these policies of the Coastal Act (Sections 30235 and

[3] An appeal of the follow-up after-the-fact coastal development permit (issued by the City for these walls is now pending before the Commission for that wall (City permit Nos. P11-000088 (emergency) and P12-00069 (follow-up CDP), along with an accompanying appeal of a similar City CDP for a wall at Eldwayen Ocean Park along Ocean Boulevard (P11-000088 (emergency) and P12-00068 (follow-up CDP) Appeal Numbers A-3-PSB-12-043 and A-3-PSB-12-042, respectively).

30253), as well as others, as limiting the construction of shoreline protective structures to those required to protect existing structures or public beaches in danger from erosion. Section 30235 also requires that any protective structure approved pursuant to that section be designed to eliminate or mitigate its adverse impacts on shoreline sand supply. Section 30253 requires that new development avoid creating or contributing to erosion. Because shoreline structures can cause a number of adverse effects on coastal resources, including sand supply, public access, coastal views, natural landforms, and beach dynamics, Section 30235 only requires that such structures be approved (despite such impacts) if: (1) there is an existing structure (or public beach) that is in danger from erosion; (2) shoreline-altering construction is "required" (i.e., necessary) to protect the existing threatened structure (or beach); and (3) the required protection is designed to eliminate or mitigate its adverse impacts on shoreline sand supply.

In this case, the existing structures for which protective armoring is being considered are the St. Andrews Lift Station, (Exhibits 2-3), the existing roads adjacent to the blufftop, which serves public access (Seacliff Dr.), and other subsurface utilities (the sewer and water lines shown in Exhibit 10).

As noted earlier, the Commission previously objected to the Corps' initially proposed vertical wall) at the project site (CD-061-10). In that objection, based on the information before it at the time, the Commission had not been convinced that the lift stations were threatened within the near term, that relocation of the lift stations was not a feasible alternative to shoreline armoring, and that, if armoring was needed, that less extensive armoring (focusing on upper bluff protection) could not provide adequate protection, without needing to extend the walls down to cover sandy beaches. The Commission also noted that an existing wall already provided some degree of protection at the St. Andrews site. The Commission further suggested that any wall that may ultimately be authorized should include public access improvements or other sand loss impact mitigation, in the form of a stairway and/or other onsite public access improvements.

In that objection the Commission did not disagree that the lift stations were existing structures warranting protection. The Commission's disagreement was based on: (1) the degree of threat; (2) the design of the proposed solution, including the question of whether *both* lower and upper bluff walls were needed; (3) the need to examine non-armoring managed retreat-type solutions that would avoid the need for shoreline armoring; and (4) the lack of sand supply and/or public access impact mitigation. Among the concerns the Commission expressed was that while upper bluff erosion appeared to be ongoing, it was unclear why lower bluff/terrace deposit armoring was necessary.

Since the Commission's objection, the Corps and the City continued discussions with the Commission staff in an effort to look at potential alternatives that might address the above-stated Commission concerns. As an outgrowth of discussions, the Corps has now submitted a consistency determination for a modified wall at the St. Andrews site, and with additional analysis provided to respond to several issues raised by the Commission's previous findings. The Corps' revised consistency determination states:

> *We believe that changes to our design resolves any remaining differences and are requesting concurrence from the Coastal Commission that a project limited to the St. Andrews Lift Station site is consistent, to the maximum extent practicable, with the*

Coastal Zone Management Act of 1972 and with enforceable policies of the California Coastal Management Plan. Additional damage at the site supports the Corps' position that the lift station is in jeopardy of being damaged by loss of bluffs to wave and storm erosion.

Environmental commitments made during the previous Consistency Determination review process by the Corps (i.e. minimizing beach footprint, texturizing wall to match natural bluff, improving beach access, etc.) will be carried forward in the new design. The new design places all structural elements above the mean high tide and more closely follows the bluff face. It would still protect the same section of bluff, even though it is slightly longer as a result of following the natural curvature of the bluff face and overlapping the existing sea wall, which ties into a separate sea wall higher on the bluff face thus allowing construction above the beach (approximately 147 ft for the new design versus 110 ft for the preliminary design). The redesigned sea wall would protect the sewage lift station and the eroded notch, thus protecting the sewage line, the road, and a portion of Memory Park.

The modifications to the wall in this revised submittal consist of:

(1) Relocating wall further landward and off the beach; the wall would consist of a 2 ft. thick, tied-back shotcrete wall directly placed against the bluff above the terrace deposits, and embedded two feet into the terrace deposits (and well above the mean high tide level);

(2) Relocating the wall behind, rather than in front of, the existing wall partially on the site;

(3) Including a staircase into the design of the wall;

(4) Although the western end of the wall would be essentially in the same place, the eastern end would be extended by 30 ft. (but the new wall would now be behind (landward of) the existing wall), and the entire wall would conform more to existing bluff contours;

(5) Incorporating improved visual treatment of the wall to more closely mimic natural-looking conditions; and

(6) Rerouting the major storm drain now extending out from the bluff (and adding an energy dissipater).

The additional information provided includes:

(1) A more detailed analysis addressing the feasibility and other factors involved in relocating the lift station rather than armoring the bluff;

(2) An explanation as to why removing the existing wall (that would now be in front (seaward) of the proposed wall) would decrease geologic stability;

(3) Bringing to the Commission's attention the historic existence of a seacave landward of the existing wall at the site, which raises concerns over the concept of removal of the existing wall, and which is close enough to the lift station to increase concerns over bluff failure in front of the lift station;

(4) Noting cracks in the upper bluff that may indicate more rapid upper bluff erosion than previously estimated by the Corps; and

(5) Acceptance of the premise posed by the Commission staff that the existing wall[4] located seaward of the currently proposed Corps wall may be allowed to fail (in particular any portions of it farther west than needed to protect the single-family home on the bluff top, east of the lift station).

In its previous objection the Commission was concerned that the apparent relatively low average rate of erosion (compared to many stretches of the California coast) may not support the claim of imminent threat. Based on a long-term average erosion rate of approximately 0.5 ft./year, and the fact that the lift station currently is located approximately 12 feet from the bluff edge, the Commission found that the lift station would not likely be subject to threat or failure in the "near term."[5]

The Corps has continued to maintain that: (1) erosion occurs in hard-to-predict *episodic* events, not in average fashion; (2) cracks are occurring in the upper bluff, indicating continuing concerns for increased erosion and potential bluff failure in front of the lift station; (3) a certain amount of lead time is needed for the Corps to plan for and bring to fruition a shoreline protection project; and (4) it may make more sense to plan for needed protection rather than to wait for an actual emergency, and then hastily devise a plan for protection (which may not include such public benefits as a stairway or improved erosion controls).

[4] Note – to date evidence of a valid permit for this wall has not been discovered.

[5] For example, reviewing the Santa Cruz Pleasure Point seawall (Appeal No. A-3-SCO-07-015/CDP Application No. 3-07-019), the Commission found that:

> *While each case is evaluated based upon its own particular set of facts, the Commission has generally interpreted "in danger" to mean that an existing structure would be unsafe to use or otherwise occupy within the next two or three storm season cycles (generally, the next few years) if nothing were to be done (i.e., in the no project alternative).* [Emphasis added]

The Commission articulated a similar time frame regarding protection needs in the Pebble Beach Co. Beach Club Seawall (CDP 3-09-025) and the O'Neill Seawall (CDP 3-09-042).

In response to a request for an analysis as to whether the *episodic* erosion rate at this pocket beach and bluff could be estimated, the Corps states:

> *It is extremely difficult to accurately develop and [sic] episodic rate because it is episodic and the coast is so varied within Pismo Beach area. But Kevin Rice* [City Manager] *pointed out that the stanchions at Memory Park have been relocated twice within the last 8 years. Also, there is presently a crack seaward of the lift station that further indicates possible bluff failure in the near term.*

A geotechnical report prepared for the City by TerraCosta Consulting[6], dated June 21, 2012, elaborates:

> *The current calculated static factor of safety against slope instability at the St. Andrews site is 1.102, placing the lift station at significant risk, with any bluff-top failures potentially compromising the lift station. … Our site reconnaissance also revealed evidence of incipient bluff failures (Photos 2 through 4* [Exhibits 12-16]*).*
>
> *Moreover, considering the critical nature of this facility, we believe it is imperative to protect the lift station as this could be compromised in the next several storm cycles. In discussions with City Staff, any subsequent uncontrolled release of effluent would be considered environmentally unacceptable.*
>
> *Coastal erosion is episodic, with significant erosion events coinciding with large storms, the last 4 to 5 years being less severe than the devastating El Niño storm seasons of 1997 and 2005. Arguably, the California coastline is due for another El Niño storm season that would cause significant erosion and bluff failures and likely loss of the lift station and the storm drain system headwall discharging onto the beach.*

The Commission senior staff geologist, Dr. Mark Johnsson, has reviewed the geotechnical materials submitted, and has visited the site to assist in the Commission's evaluation of the risk assessment. Dr. Johnsson agrees with the point that reliance on an average erosion rate is not the ideal way to determine a realistic threat scenario in this situation, and that while the lift station may not be subject to *imminent* threat at this time, all it would take could be one large storm event to reach the point where the lift station would then be at risk, and if such a storm occurred, for example, this winter, then the station would be at risk "in the near term." Given this situation, combined with the significance of effects that could result from a failure/breach of the lift station (e.g., sewage released to the beach), it is reasonable to conclude that the lift station is in danger from erosion as that term is understood in a Coastal Act context. In an evaluation of alternatives to address this danger, an upper bluff wall is needed in the near term, unless relocation of the lift station and other infrastructure would be feasible and less environmentally damaging.

[6] Geotechnical Considerations in Support of the St. Andrews Lift Station Emergency Bluff Stabilization, Pismo Beach, CA, TerraCosta Consulting, June 21, 2012.

The Corps (with supporting analysis from the City) also has continued to maintain that lift station relocation is not a feasible alternative, would be more expensive than the proposed armoring, and may in fact not be less environmentally damaging, as it would itself result in adverse effects, including reductions in emergency services (i.e., reduced rescue and fire response capabilities), as well as loss of parking for beach users (i.e., reduced public access and recreation amenities).

With assistance from the City the Corps has provided a cost estimate for relocation of the lift station (Exhibit 22), which it states would necessitate building three new lift stations to replace the one existing station, 566 feet of sewage lines abandoned, and conversion of Seacliff Dr. to a one-way street. The City's Engineer states:

> *To clarify, the City could relocate the lift station but replacing it with three new lift stations and no additional land would be necessary. However, the increased maintenance cost of having to maintain three lift stations as opposed to one would make it financially infeasible for the City to maintain over the long run. In addition to this added cost, the road would have to be reduced to one way along the bluff face which would pose a grave danger to public health and safety. By having Seacliff be one way along the bluff face there is a HIGH probability that in an emergency situation that people living on Seacliff (the north/south section that is not on the bluff), Paddock Ave, Baker Ave and Naomi Ave are all left with only one route of egress. Further, should first responders have to park on the bluff portion of Seacliff eliminating that route of egress and there was a fire midblock on any of the above mentioned streets those living between the bluff and the fire would be "locked in" with no way out. Our fire chief Paul Lee has provided a letter to this affect.*

The Corps estimates the proposed project's cost to be approximately $2.6-2.7 million (construction cost of $2.58 million plus $158,000 for stairs and architectural treatment), compared with an estimated $3.5 million for relocation[7] (Exhibit 22). (Note: The City had previously asserted during the Commission review of CD-061-10 that relocation would cost in the tens of millions of dollars, much of it due to the cost of acquiring private lands for the relocation. The Commission staff requested a revised estimate that assumed no acquisition cost, but rather assumed relocation within the City-owned street right-of-way.)

The Corps and the City also maintain that converting Seacliff Dr. to a one way street would hinder emergency and fire rescue service capabilities (Exhibits 19, 20 & 23). The City Engineer has elaborated on the Corps' and City's point, stating:

> *So in addition to it costing more for relocation (even without land acquisition), we are arguing that relocation would require narrowing the road which would pose unacceptable life/safety risks. If private property were to be acquired for the relocation, the road would not need to be narrowed at least in the near term. However, it would be*

[7] Exhibit 22 provides a table showing relocation construction cost to be $2,705,700, plus an additional $806,800, representing "... annual maintenance costs for 50 years discounted back to Present Value (2013) dollars. The resulting total is $3,512,500."

> *infeasible for the Corps to do because the costs would be so great, that it would not be a justified federal project. We are also arguing that coastal public access would be further limited if relocation were selected and not protection of the bluff.*

When asked whether the City *is* pursuing "managed retreat" in other areas (and if so, where), the City responded with a managed retreat study and report it conducted, which indicates areas the City is planning for managed retreat, and which includes at least one relocated lift station (at the corner of Cypress and Harloe Sts.). When asked to compare that relocated lift station situation with the St. Andrews lift station, the City responded that the Harloe lift station was smaller and, being at the high end of a gravity line, served only few residences, and was able to be relocated in an existing City right-of-way without displacing actively used streets. Relocation cost was approximately $350,000.

The City's managed retreat report also notes:

> *The vast majority of the shoreline of Pismo Beach is not planned for shoreline protection. There are older private residential lots that have some shoreline protection; however, in areas subject to future development and the areas that are publicly owned, the vast majority of the shoreline is unprotected and subject to the natural forces that will continue to erode the cliffs and shoreline as historically has occurred.*

The Commission believes the Corps (with assistance from the City) has adequately responded to the concerns the Commission raised previously, has provided a reasonably compelling case that managed retreat is not necessary or feasible at this time, and has provided a revised project design that would minimize adverse effects on shoreline process. In reassessing its previous findings and coming to the conclusion that the project is warranted, the Commission is factoring into its conclusions: (1) the serious public health risk from failure of a sewer lift station and other sewer lines; (2) the fact that the proposed wall has been concentrated on the upper bluff where the erosion problem appears most acute (and relocated off and above the beach); (3) the episodic nature of erosion in this location; (4) the idea that waiting for an emergency to be imminent may negate the benefit of public access and water quality improvements built into this proposal; and (5) the case the Corps (and the City) have made concerning the wisdom and feasibility of replacing this particular lift station and associated utility lines at this time, which would entail, in addition to its cost, adverse safety and public access effects. Based on the information now provided, and with conditions to assure revisiting of the project need in 20 years and continuing maintenance commitments, which have become standard Commission policy in recent years, the Commission finds that the project is necessary to protect the lift station and, as currently designed, represents the least environmentally damaging feasible alternative available to do so. The Commission therefore concludes that, if modified as conditioned, the project would be consistent with the requirement of Section 30235 that limits construction altering natural shoreline processes to those necessary to protect an existing structure in danger from erosion.

Concerning the project's effects on sand supply, the Commission previously noted that the Corps' Engineering Appendix also examined sediment transport in the littoral cell (the Santa Maria Littoral cell), and concluded that most of the sand from the Santa Maria River travels

south (i.e., not towards Pismo Beach), that a complete barrier exists north of Pismo Beach preventing littoral drift from the north, and that the bluff composition is predominantly fines, lacking significant sand content. The Corps' Draft Final Environmental Assessment (EA) states:

> *Fugro (2002) estimated that the ongoing erosion of the seacliffs contributed approximately 10,000 to 15,000 cubic yards of sediment to the shoreline each year, of which less than half is likely sand sized or larger grain sizes that will actually deposit on the beaches. Another perspective is to look at the possible sediment contribution based on the total bluff face surface area being impacted by the proposed project. Using the St. Andrews location as an example, the impacted bluff area is 0.09 acres. If it is assumed that the bluff top retreat rate is on the order of 1 foot per year (conservative estimate), this equates to approximately 150 cubic yards of sediment that would be contributed annually to the beach by bluff erosion. Even if all of this sediment was beach quality sand, this would be a very small percentage of the total sand volume on the St. Andrews beach area.*

The Commission finds that, despite the relatively low contribution percentage of the bluff material compared to the amount from longer littoral transport, and the relatively low erosion rate in this location, the project will nevertheless result in some degree of adverse effect on sand supply, because it would hinder natural beach retreat and stop the contribution of what sand size grains could add to the beach sand supply. However, the Commission further finds that providing access improvements in the form of a formal stairway would at least mitigate, in a roughly proportional manner, the project's adverse effects on sand supply. Therefore, the Commission finds that, with the redesign to remove the wall from the sandy beach, the predominance of fines in the bluff material, and most importantly, the added commitment to incorporate a stairway into the wall, which would significantly benefit public access to this beach by replacing a difficult-to-navigate informal trail down the bluff with a formal, easily accessed stairway, the project's impacts on sand supply would be adequately mitigated. The Commission has historically expressed a preference to implementing direct public access improvements over mitigation fees (which may or may not result in improvements to recreation), in particular in situations where no program is in place to accept such funds. Finally, the Commission is adopting conditions similar to those regularly imposed on permit applicants for shoreline structures, to assure the project remains needed, and to assure proper maintenance is conducted. The Commission concludes that, if modified as conditioned, the project: (1) would be designed to eliminate or mitigate adverse impacts on local shoreline sand supply; (2) would avoid creating or significantly contributing to erosion or geologic instability; and (3) would thus be consistent with all the requirements of Sections 30235 and 30253 of the Coastal Act.

D. PUBLIC ACCESS AND RECREATION

Coastal Act Sections 30210-30223 state (in part):

> *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.

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

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

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

Section 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.

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

Atop the bluff and immediately west of the St. Andrews Lift Station site is a popular public picnic and viewing area (with a lawn and benches) called Memory Park. Informal access is available down to the pocket beach below the site to those willing to scramble down the rubble-strewn bluff. However this access is difficult to navigate safely. In its previous objection the Commission's primary access concerns were the footprint of the wall on the sandy beach, and the need for improved access to the pocket beach (and/or beach nourishment). The Corps has addressed both concerns, the first by removing the wall's footprint from the sandy beach, and the second by redesigning the project to incorporate a formal stairway into the wall, which it states "will meet all state requirements for design specifications (tread width, step height, railing, etc.)."

The Commission finds that, with the removal of the previously-proposed wall from the sandy beach, the predominance of fines in the bluff material (as discussed on the previous page of this report), and most importantly, the added commitment to incorporate a stairway into the wall (which significantly improve public access to this beach), the project's impacts on public access and sand supply would be minimal, and in any event adequately mitigated. The Commission has historically expressed a preference to implementing direct public access improvements over sand mitigation funds (which may or may not result in improvements to recreation), especially in situations where no program is in place to accept such funds.

Concerning construction effects on access and recreation, the Corps further states that:

> *Restrictions will be placed so that construction activities will not occur on weekends and holidays. Staging areas do not include existing parking areas and consist primarily of portions of nearby streets. Traffic impacts from these are clearly addressed in the EA. Construction is not expected to result in the loss of any parking spaces for the general public.*

With the above commitments and project redesign, the Commission concludes that the project would be consistent with the public access and recreation policies (Sections 30210-30223) of the Coastal Act.

E. VISUAL RESOURCES

Coastal Act Section 30251 states:

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

Despite the existing wall below and east of the site, the pipes extending from the bluff face, and the rubble and other debris on the bluff face to the west of the lift station, the project site nevertheless provides scenic coastal public views. In its previous objection the Commission expressed concerns over the Corps' failure to incorporate sufficient visual treatment into the design of the proposed wall. The design currently submitted includes extensive visual treatment, including texturizing the wall to match the natural bluff to the degree possible (Exhibits 4-9), and it would be similar to the wall recently the City has constructed at the Vista del Mar site (Exhibit 11). It also would result in the removal of unnatural-looking rubble on the bluff, as well as a large unsightly drain pipe that extends out from the bluff. The Corps has also committed to addressing the smaller 6 inch pipes extending from the bluff, involving either removing them if they are no longer needed, or rerouting them similarly to the larger drain pipe. With these modifications, and with conditions to assure that the stairway, railings, drains and landscaping impacts would be minimized to the maximum extent feasible, the Commission finds that, if modified as conditioned, the project would include adequate "naturalize" visual treatment, protect scenic coastal views, minimize landform alteration, be consistent with the visual character of the surrounding area, and, therefore, be consistent with the requirements of Section 30251 of the Coastal Act.

F. MARINE RESOURCES, WATER QUALITY, AND ESHA

Coastal Act Section 30230 states:

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

Section 30231 states:

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

Section 30232 states:

> *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.*

Section 30240 states:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Concerning potential marine resource and water quality impacts, the Corps' Draft Final EA states:

Alternative 2: Vertical Sea Wall

… During construction of the vertical sea wall, potential would be present for degradation of water quality and ocean beneficial uses due to leaks and spills from construction equipment, debris, and erosion. These impacts could be reduced to insignificant through implementation of mitigation measures identified for the rock revetment alternative for this site.

Once the sea wall is constructed, it will slow or prevent bluff erosion at the St. Andrews Lift Station site. Vertical sea wall construction at the St. Andrews Lift Station site would not result in measurable loss of sediment at Project area beaches. Bluff toe protection at this site would result in a minor beneficial effect of slightly reducing the introduction of silt from bluff erosion into ocean waters.

Alternative 3: Sculpted Concrete/Shotcrete Wall

The impacts to oceanography and water quality at the St. Andrews Lift Station site would be the same as for the rock revetment and the vertical sea wall. These impacts could be reduced to insignificant through implementation of mitigation measures identified for the rock revetment alternative for this site. Bluff protection would result in a minor beneficial effect of slightly reducing the introduction of silt from bluff erosion into ocean waters.

The Corps' water quality commitments include:

The Contractor shall be responsible for the preparation and adherence to a Spill Prevention, Containment, and Countermeasures Plan that specifies fueling procedures, equipment maintenance procedures, and containment and cleanup measures to be followed in the event of a spill.

- *Construction and maintenance fluids (oils, antifreeze, fuels) shall be stored in closed containers and disposed of promptly away from the ocean.*

- *Fluids released because of spills, equipment failure (broken hose, punctured tank), accident due to waves or refueling should be immediately controlled, contained, and cleaned-up. All contaminated materials should be disposed of promptly away from the ocean. Refueling of equipment shall not occur close to the ocean. If that is not possible, barriers shall be placed around the site.*

The Contractor shall be responsible for the preparation and adherence to a Storm Water Pollution Prevention Plan. This plan shall specify Best Management Practices (BMPs), including collection and storage of all debris away from the ocean and erosion control measures to prevent dirt or construction materials from entering the ocean.

Concerning sensitive habitat, the Corps' Draft Final EA states:

> *Alternative 3: Sculpted Concrete/Shotcrete Wall*
>
> *The construction impacts of the sculpted concrete/shotcrete wall at the St. Andrews Lift Station site would be similar to those of the vertical sea wall and the revetment with the exception that the duration of construction would be five months for the sculpted concrete/shotcrete wall compared to four months for the vertical sea wall and three months for the rock revetment. The potential to disturb harbor seals, which may be hauled out on the beach, or snowy plovers that may be foraging or resting on the upper beach, would be reduced to insignificant by implementing the same measures described in the rock revetment alternative.*
>
> *As discussed above in Section 4.2.2., there is a slight chance that a leak or spill from construction equipment during construction could result in contamination of ocean waters. This impact would be reduced to insignificant through preparation of and adherence to a Spill Prevention, Containment, and Countermeasures Plan.*

The Corps' commitments (Exhibit 17) include providing biological monitors to assure that activities would not affect any harbor seals or snowy plovers that may be present during construction. With the redesign to include rerouting of the drainpipes in the bluff, and to include energy dissipaters, which would reduce erosion caused by storm drain runoff, and the other above-mentioned commitments, and with conditions to provide for removal of invasive and non-native species, the Commission finds that, if modified as conditioned, the project would avoid adverse effects to marine resources, water quality, and environmentally sensitive habitat, and be consistent with Sections 30230, 30231, 30232, and 30240 of the Coastal Act.

APPENDIX A: SUBSTANTIVE FILE DOCUMENTS

1. Consistency Determination CD-057-12 (Army Corps, St. Andrews vertical wall)

2. Consistency Determination CD-061-10 (Army Corps, St. Andrews and Vista del Mar shoreline armoring).

3. Draft Final Pismo Beach Shoreline Protection Project Environmental Assessment/Mitigated Negative Declaration, U.S. Army Corps of Engineers, Los Angeles District, November 2011.

4. Draft Pismo Beach Shoreline Protection Project Environmental Assessment/Mitigated Negative Declaration, U.S. Army Corps of Engineers, Los Angeles District, November 2010.

5. Coastal Engineering Appendix To Pismo Beach Storm Damage and Shoreline Protection, CAP 103 Plan Formulation (Moffatt & Nichol, June 2010).

6. Geotechnical Appendix of Pismo Beach Bluff Erosion (Including TRACES MII version 2.2 Cost Estimate, U.S. Army Corps of Engineers, Los Angeles District, November 2010.

7. Geotechnical Considerations in Support of the St. Andrews Lift Station Emergency Bluff Stabilization, Pismo Beach, CA, TerraCosta Consulting, June 21, 2012.

8. Coastal Commission Coastal Development Permits for Seawalls: CDP 3-09-025 (Pebble Beach Club Seawall), 3-09-029, Rusconi Seawall, CDP 3-09-042 (O'Neill Seawall), CDP 3-09-025 (Pebble Beach Co. Beach Club Seawall), Appeal No. A-3-PSB-02-016 (Grossman-Cavanagh seawall), CDP 6-06-153 (City of San Diego La Jolla seawall), CDP 6-09-033 (O'Neal Family Trust, Garber, et al., Solana Beach seawall), City of Santa Cruz Pleasure Point seawall (Appeal No. A-3-SCO-07-015 and CDP Application No. 3-07-019, Appeal No A-4-PSB-91-49 (Loughead, Pismo Beach), and CDP 4-11-026 (Caltrans, Solimar, Ventura Co.).

9. Pismo Beach Coastal Storm Damage Analysis Report, With-Project Economic Analysis, Draft, U.S. Army Corps of Engineers, February 2011.

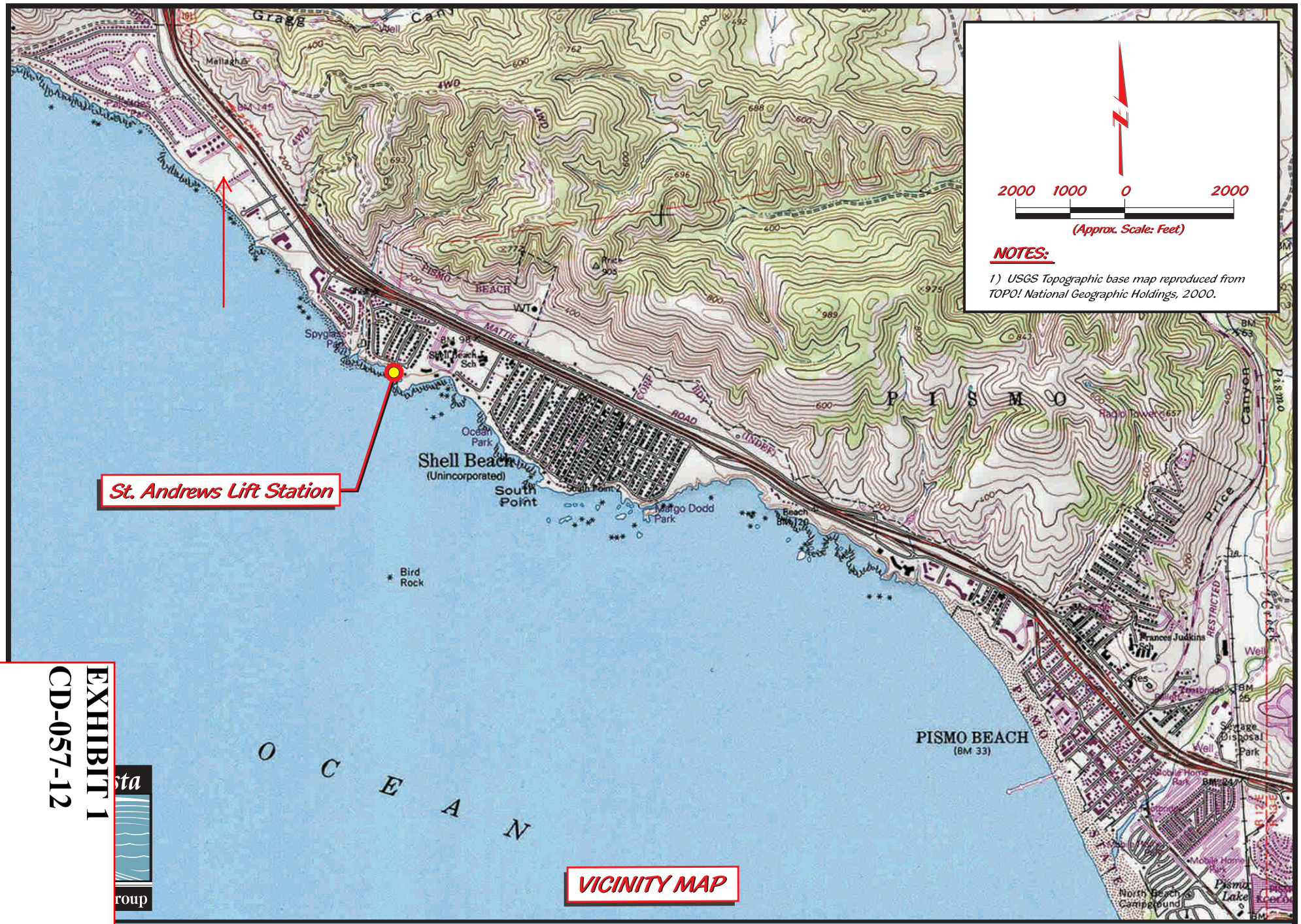
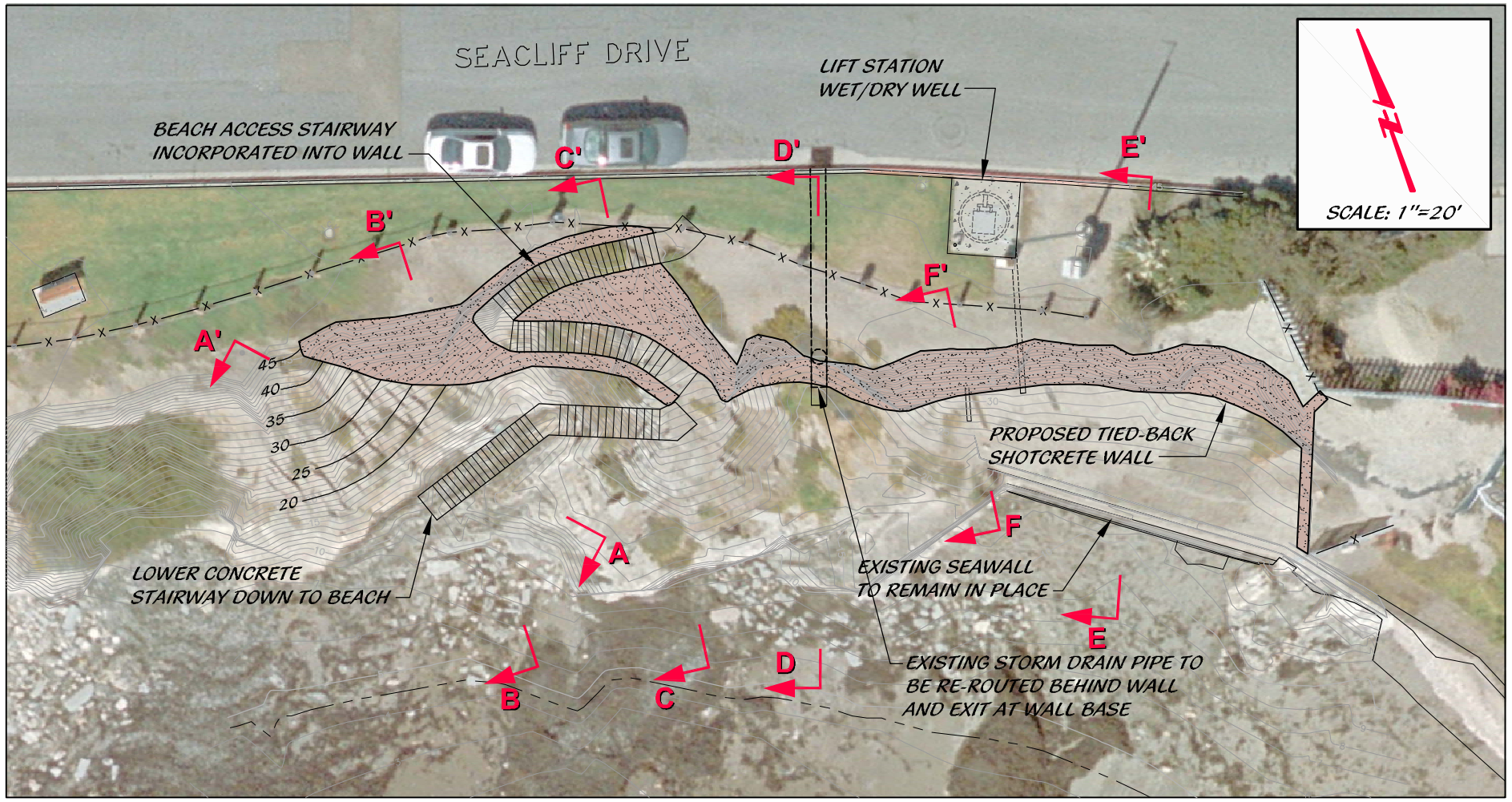


EXHIBIT 1
CD-057-12

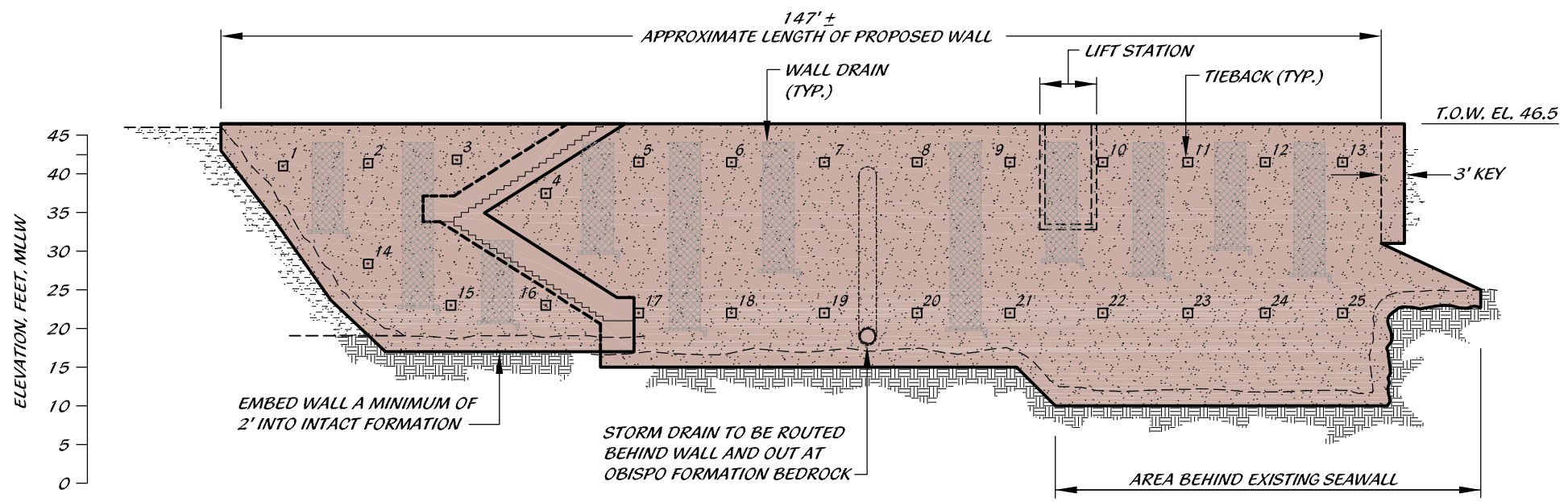
St. Andrews Lift Station - Seacliff Dr. & Baker Ave. Project: 2683A-02 Figure 1

EXHIBIT 2
CD-057-12



SITE PLAN

SCALE: 1"=20'



WALL PROFILE

SCALE: 1"=20'

APPROXIMATE WALL AREA: 4,800 SQ. FT.

TIEBACK ANCHOR SCHEDULE

ANCHOR ROW	BOND LENGTH (FT.)	TOTAL LENGTH (FT)	NO. OF 0.6" DIA. STRANDS
UPPER	25	40.0	4
LOWER	25	40.0	4

EXHIBIT 3
CD-057-12

FIGURE 1

PROJECT NAME
ST. ANDREWS LIFT STATION
PISMO BEACH, CA

PLAN & PROFILE

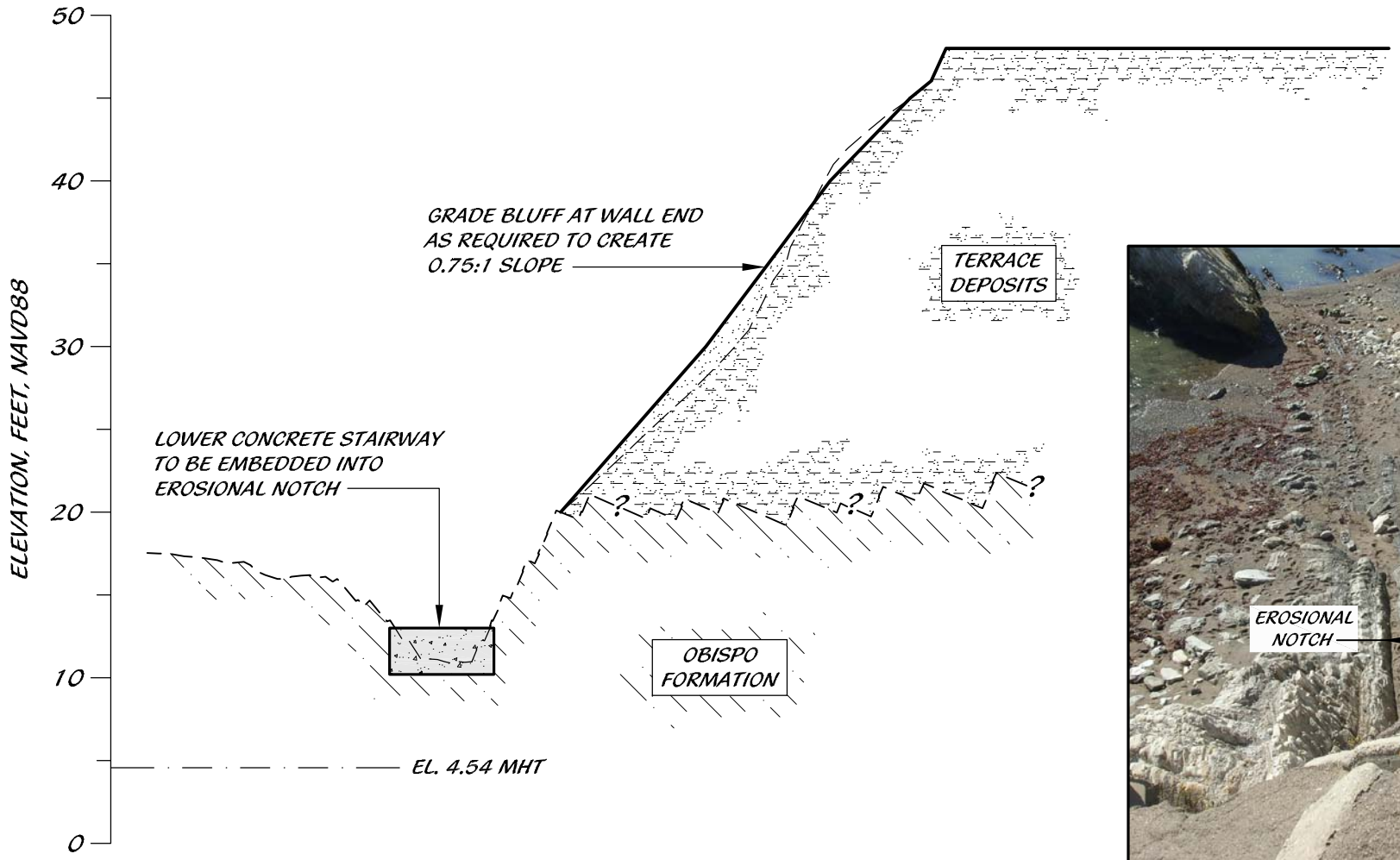


PHOTO LOOKING WEST

FIGURE 2

CROSS SECTION A

SCALE: 1"=10'

NOTE:

LOWER CONCRETE STAIRWAY NOT ANTICIPATED TO INCLUDE HANDRAIL WHERE VERTICAL DROP IS LESS THAN 30 INCHES.

EXHIBIT 4
CD-057-12

PROJECT NAME
ST. ANDREWS LIFT STATION
PISMO BEACH, CA

PLAN & PROFILE

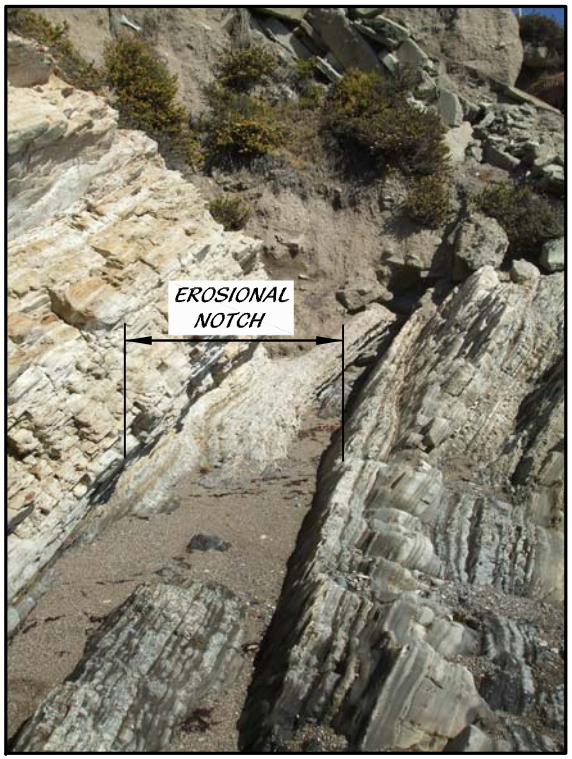
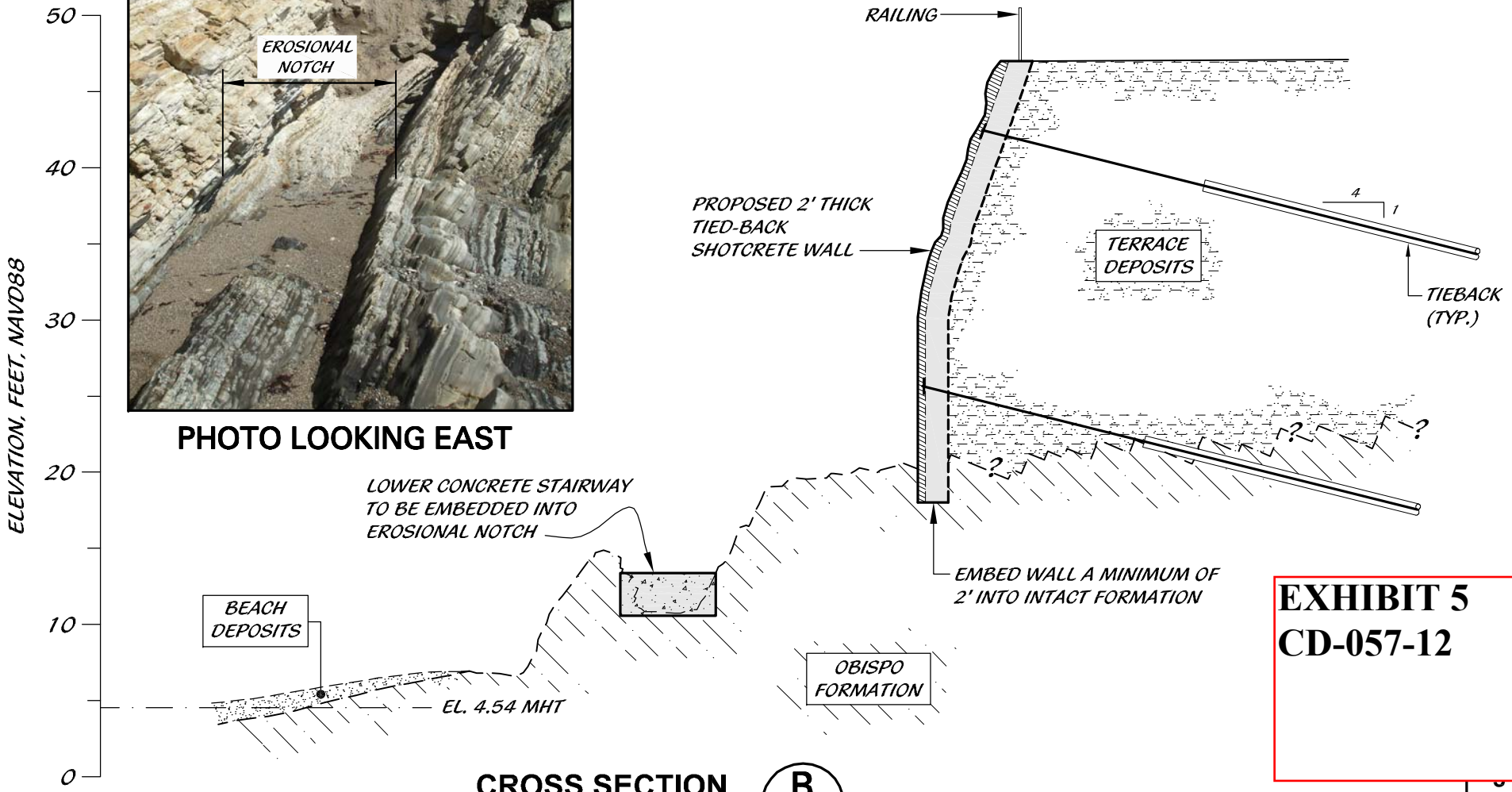


PHOTO LOOKING EAST



CROSS SECTION B

SCALE: 1"=10'

EXHIBIT 5
CD-057-12

NOTE:

LOWER CONCRETE STAIRWAY NOT ANTICIPATED TO INCLUDE HANDRAIL WHERE VERTICAL DROP IS LESS THAN 30 INCHES.

PROJECT NAME
ST. ANDREWS LIFT STATION
PISMO BEACH, CA

PLAN & PROFILE

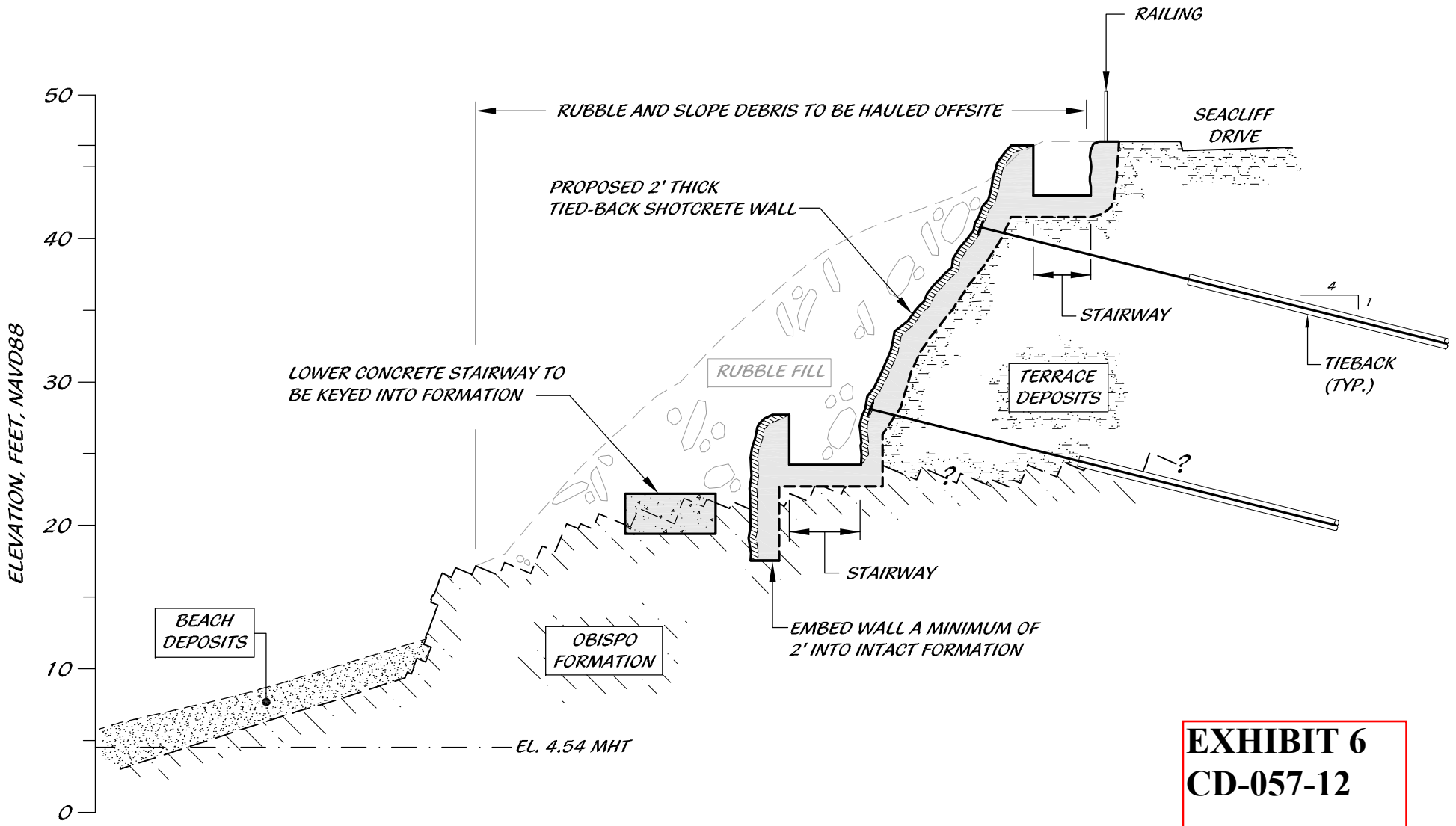


EXHIBIT 6
CD-057-12

FIGURE 4

CROSS SECTION C

SCALE: 1"=10'

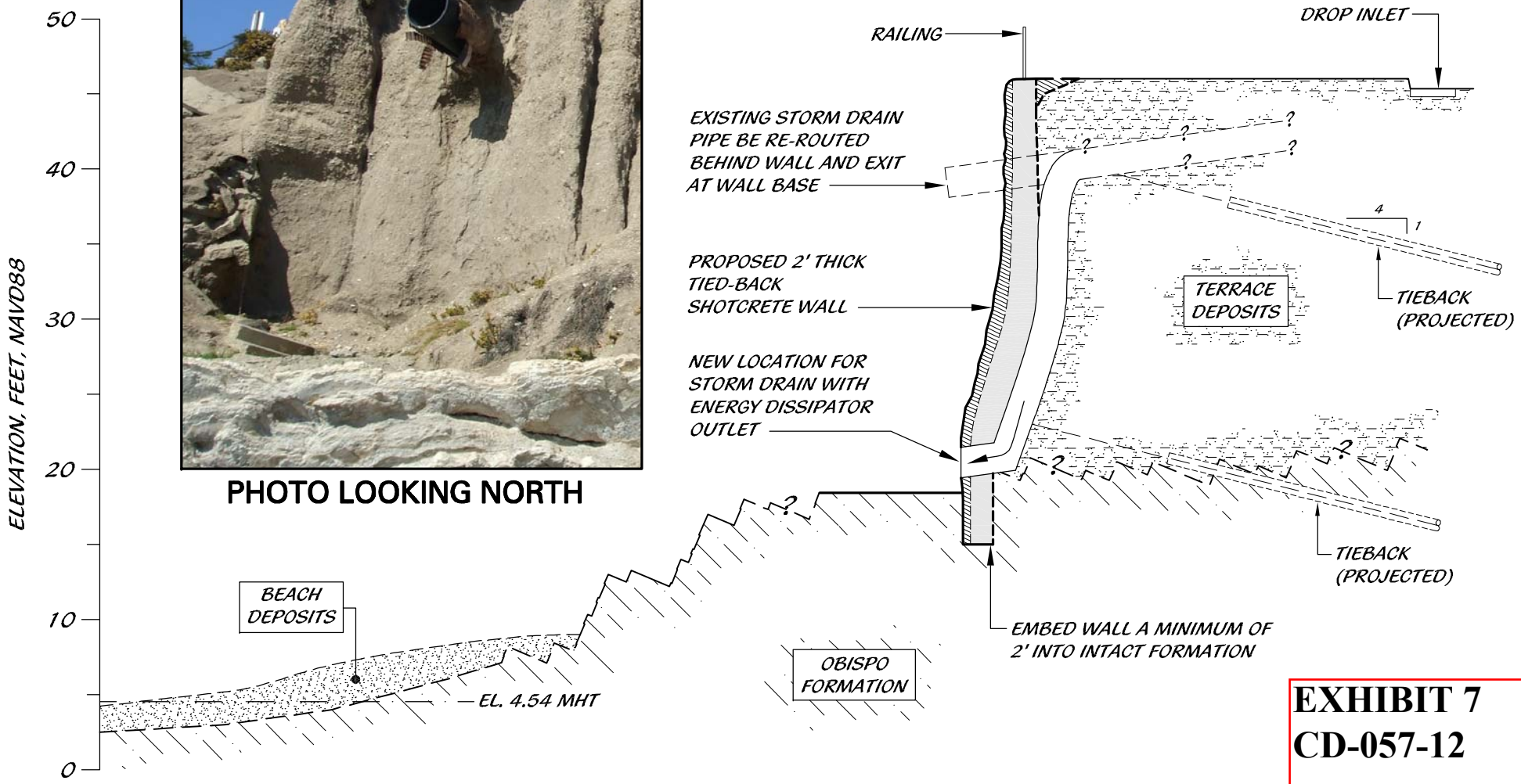
NOTE:

LOWER CONCRETE STAIRWAY NOT ANTICIPATED TO INCLUDE HANDRAIL WHERE VERTICAL DROP IS LESS THAN 30 INCHES.

PROJECT NAME
ST. ANDREWS LIFT STATION
PISMO BEACH, CA

PLAN & PROFILE

PHOTO LOOKING NORTH



CROSS SECTION D

SCALE: 1"=10'

EXHIBIT 7
CD-057-12

PROJECT NAME
ST. ANDREWS LIFT STATION
PISMO BEACH, CA

PLAN & PROFILE

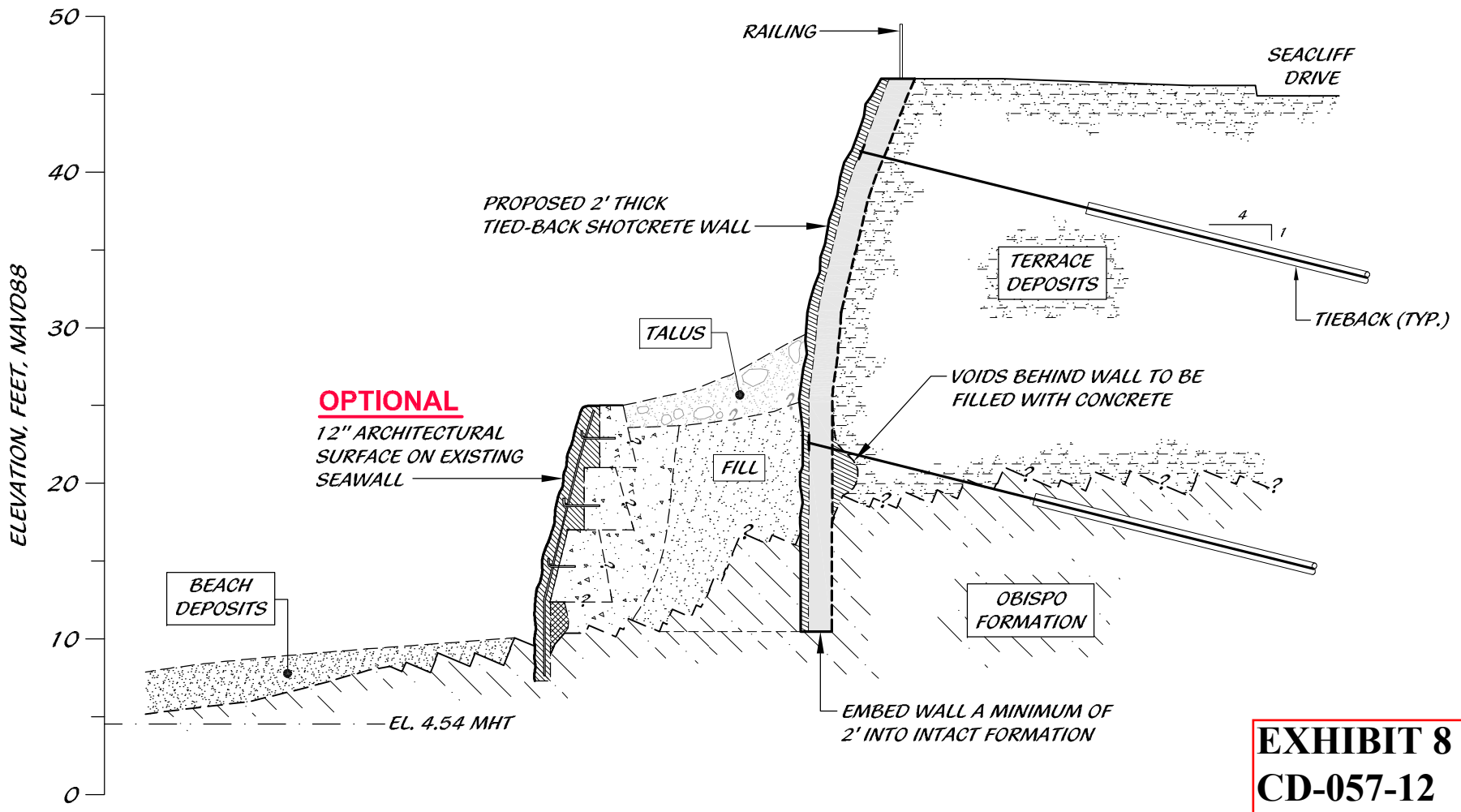


EXHIBIT 8
CD-057-12

FIGURE 6

CROSS SECTION E

SCALE: 1"=10'

PROJECT NAME
ST. ANDREWS LIFT STATION
PISMO BEACH, CA

PLAN & PROFILE

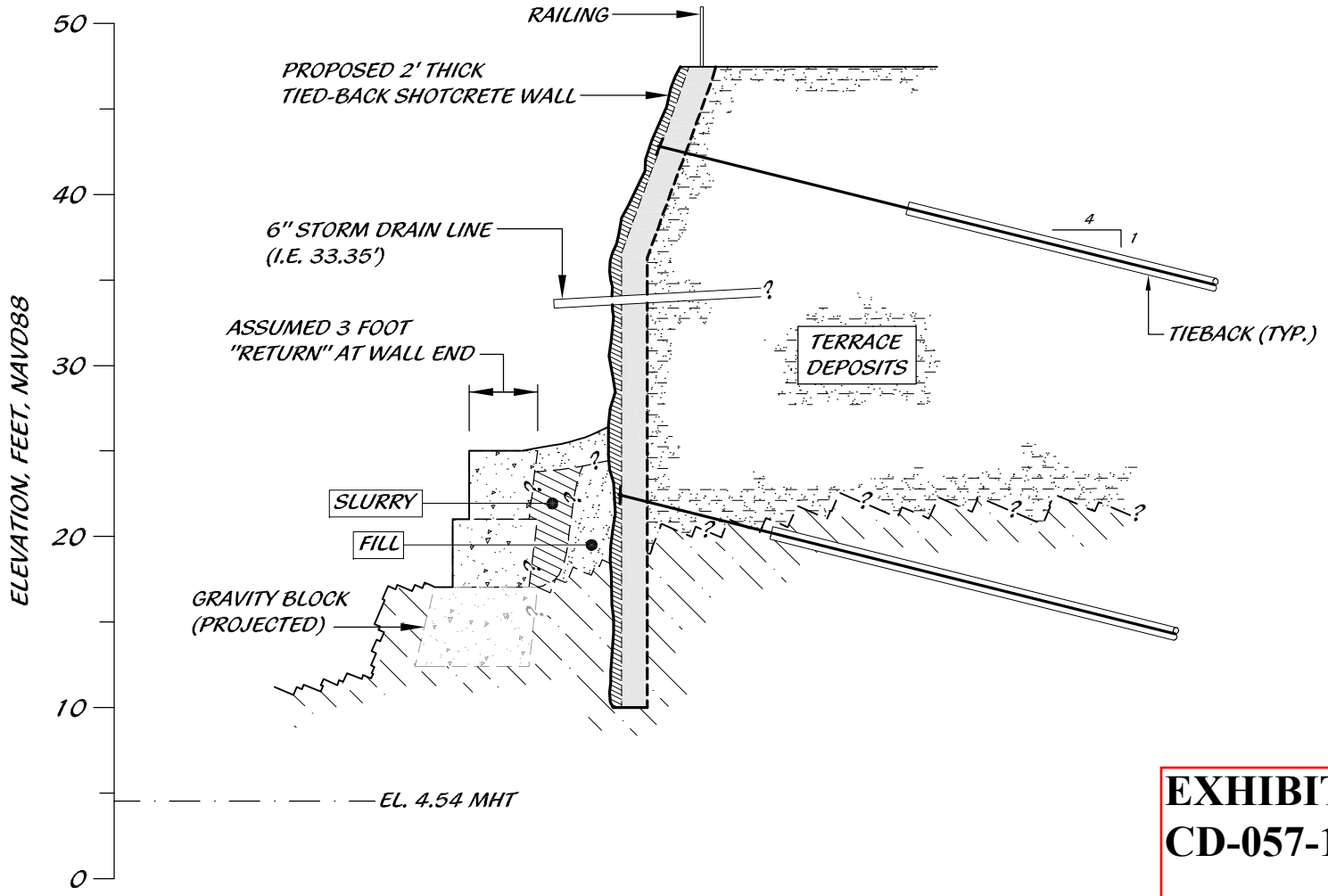


EXHIBIT 9
CD-057-12

CROSS SECTION F

SCALE: 1"=10'

FIGURE 7

PROJECT NAME
ST. ANDREWS LIFT STATION
PISMO BEACH, CA

PLAN & PROFILE

5758785

5759285

5759785

2254898

Legend

144983PismoC-SPStAndrews.dgn Polyline

Layer

- C-ANNO-SYMB
- C-DOMW-MAIN-PIPE
- 10-Year Retreat
- 25-Year Retreat
- 50-Year Retreat
- 100-Year Retreat
- C-SSWR-MAIN-PIPE

pismo-bluff-2009.dgn Polyline

Layer

- V-BECH-BANK-TOP
- V-BECH-TOE

N

0 100 200 Feet

EXHIBIT 10
CD-057-12

5758785

5759285

5759785

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

PISMO BEACH SHORE PROTECTION CAP 103 STUDY

FIGURE X-X

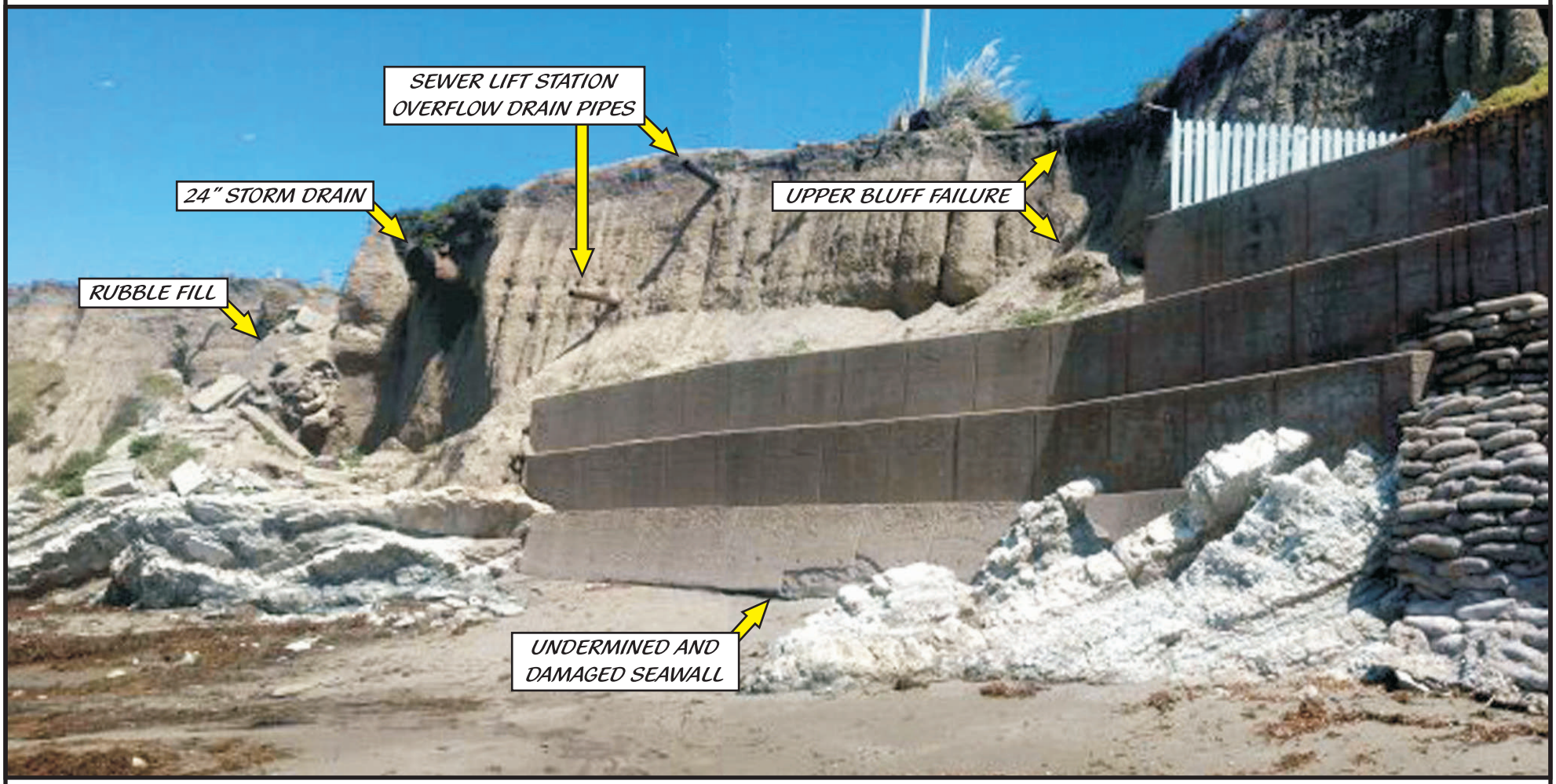
SITE 1 - ST. ANDREWS LIFT STATION
FUTURE EROSION

US Army Corps of Engineers
Los Angeles District

DATE: 28-Oct-2010
FILE NAME: SI-StAndrews_utility

CONSTRUCTED VISTA DEL MAR WALL

EXHIBIT 11
CD-057-12



TerraCosta Consulting Group

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PROJECT NO.:
2683A-02

ST. ANDREWS LIFT STATION, PISMO BEACH

EXHIBIT 12
CD-057-12

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PROJECT NO.:
2683A-02

ST. ANDREWS LIFT STATION, PISMO BEACH

EXHIBIT 13
CD-057-12

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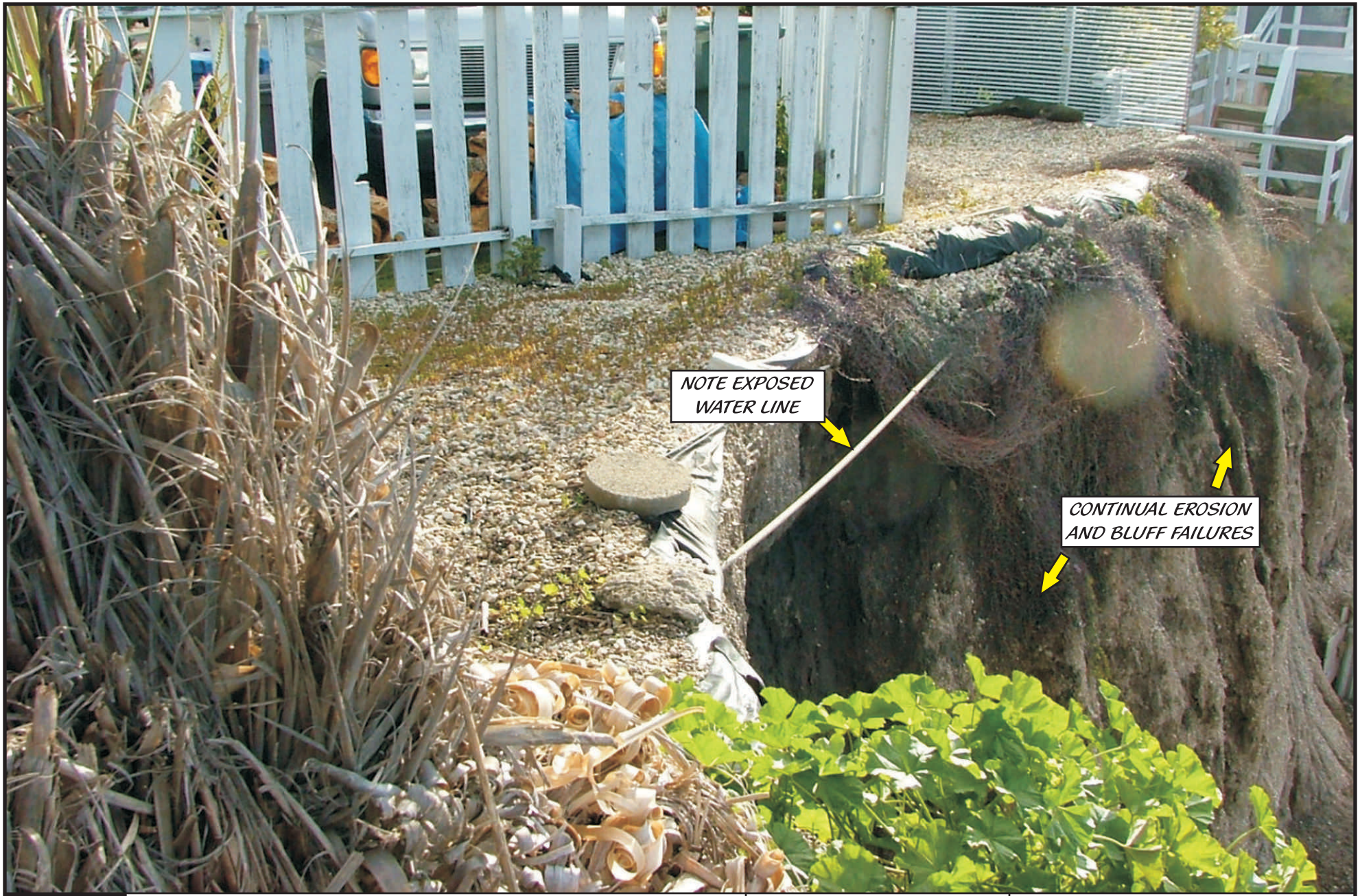
PROJECT NO.:
2683A-02

ST. ANDREWS LIFT STATION, PISMO BEACH

EXHIBIT 14
CD-057-12



TerraCosta Consulting Group

TERRACOSTA CONSULTING GROUP
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123 (858) 573-6900

PROJECT NO.:
2683A-02

ST. ANDREWS LIFT STATION, PISMO BEACH

EXHIBIT 15
CD-057-12

TerraCosta Consulting Group

TERRACOSTA CONSULTING GROUP
3890 Murphy Canyon Road, Suite 200
San Diego, California 92123 (858) 573-6900

PROJECT NO.:
2683A-02

ST. ANDREWS LIFT STATION, PISMO BEACH

EXHIBIT 16
CD-057-12

St. Andrews Lift Station Environmental Commitments

The Draft Environmental Assessment (EA) contained a list of Environmental Commitments that are carried forward into the redesigned St. Andrews Lift Station. Those commitments are contained in the Final EA. A list of which is attached.

Additional environmental commitments were made as part of the original Coastal Consistency Determination between Corps and Coastal Commission staff. Those commitments remain in place. Stated briefly, those commitments are:

The City is amenable to providing an access stairway at the St. Andrews site that will be a part of the structure constructed at the site.

Beach sand would not be used as back fill for the structure.

The Corps further indicated a willingness to address Commission staff concerns related to the design of the curve at the top of the walls, the need to key the walls into bedrock, during final design states, and possibly, if feasible, moving the rocks at the toe of the wall further landward and considering a tie-back wall (which would move the vertical wall landward). The redesigned structure is a shotcrete, tie back wall which would be keyed into bedrock and would not require rocks at the toe as in the original design.

Aesthetic treatment of the structure to make it similar to the existing bluff. The redesigned structure would have a similar treatment to that used in the Vista del Mar lift station structure already completed by the city of Pismo Beach.

EXHIBIT 17
CD-057-12

6.1 GENERAL

- The USACE will continue to coordinate all aspects of the proposed action with concerned agencies and document that coordination, as appropriate.

- The Contractor shall place warning signs, and temporary fencing around construction areas to keep the public from entering dangerous construction areas.

6.2 WATER QUALITY

- The Contractor shall be responsible for the preparation and adherence to a Spill Prevention, Containment, and Countermeasures Plan that specifies fueling procedures, equipment maintenance procedures, and containment and cleanup measures to be followed in the event of a spill.

    - Construction and maintenance fluids (oils, antifreeze, fuels) shall be stored in closed containers and disposed of promptly away from the ocean.

    - Fluids released because of spills, equipment failure (broken hose, punctured tank), accident due to waves or refueling should be immediately controlled, contained, and cleaned-up. All contaminated materials should be disposed of promptly away from the ocean. Refueling of equipment shall not occur close to the ocean. If that is not possible, barriers shall be placed around the site.

- The Contractor shall be responsible for the preparation and adherence to a Storm Water Pollution Prevention Plan. This plan shall specify Best Management Practices (BMPs), including collection and storage of all debris away from the ocean and erosion control measures to prevent dirt or construction materials from entering the ocean.

6.3 AIR QUALITY

- All off-road construction equipment shall:

    - be maintained in proper tune, according to manufacturer's specification;

    - fueled with CARB-certified motor vehicle diesel fuel (non-taxed version suitable for use off-road);

    - Meet CARB's Tier 2 certified engine level or cleaner and comply with State Off-Road Regulations.

- All on-road heavy-duty trucks servicing the Project site shall:

    - Meet CARB's 2007 or cleaner certification standard for heavy-duty diesel engines, and comply with the State On-Road Regulations;

- Construction or trucking companies with fleets that that do not have engines in their fleet that meet the engine standards identified in the above two measures (e.g., captive or NO_X exempt area fleets) may be eligible by proving alternative compliance.

6.4 BIOLOGICAL RESOURCES

- At all sites (except Cypress Street Lift Station), before beginning any construction activities on the site, it shall be determined whether any harbor seals are hauled out on the beach. If harbor seals are observed on the beach, no construction activities shall occur until the seals leave the beach.

- A biological monitor shall be present during any construction activities on the site during the first week. If snowy plovers are observed near the construction area, the monitor will advise the work crews on how to avoid or minimize impacts to plover, which may include temporarily halting activities, until the plovers have left the site. Minimization measures shall continue throughout the site construction.

- Revetment alternative for the Cypress Street Lift Station only: After construction of the revetment, the buried portion of the revetment and the additional area disturbed by construction equipment, as well as adjacent areas if necessary, shall be revegetated with native dune vegetation.

- At the Price Street - South site, prior to construction of the revetment or sea wall, a survey for La Graciosa thistle should be conducted in central coastal scrub habitat within the footprint of the structure. If the plant is observed, seeds should be planted in central coastal scrub habitat that will not be disturbed by the construction.

6.5 CULTURAL RESOURCES

- If cultural resources are discovered prior to or during work and cannot be avoided, work will be suspended in that area until resources are evaluated for eligibility for listing in the NRHP after consultation with the SHPO. If resources are deemed eligible for the NRHP, the effects of the Project will be taken into consideration in consultation with the SHPO. The Advisory Council on Historic Preservation (ACHP) will be provided an opportunity to comment in accordance with 36 CFR 800.13.

6.6 NOISE

- The contractor shall implement measures to reduce construction noise at the St. Andrews Lift Station, Vista del Mar Lift Station, Ocean Park, and Cypress Street Lift Station sites. Noise reduction measures shall limit noise increases at the nearest sensitive receptor to a maximum increase of 10 dBA over ambient noise levels. The Contractor shall monitor noise levels on a daily basis and in response to complaints during construction.

- The City shall notify all residents and businesses within 100 feet of the construction staging site for each site of the construction schedule.

- The City shall set up a hotline for noise complaints associated with the proposed Project. All noise complaints shall be investigated, construction noise shall be measured at the site, and the effectiveness of the noise reduction measures shall be re-evaluated.

6.7 VEHICULAR TRAFFIC

- At the St. Andrews Lift Station site, signs and persons to direct traffic shall be placed on Seacliff Drive at each end of the staging area. Traffic flow shall be controlled so that vehicles in each direction can safely pass through the remaining lane(s)

- At the Vista del Mar Lift Station and Ocean Park sites, signs and persons to direct traffic shall be placed on Ocean Boulevard at each end of the staging area. Traffic flow shall be controlled so that vehicles in each direction can safely pass through the remaining lane(s)

- At the Price Street - North and Price Street - South sites, signs and notices shall be posted warning of the dates and times that Price Street will be closed. The notices shall include identification of alternate routes.

- At the Price Street - North and Price Street - South sites, signs and persons to direct traffic shall be placed on Price Street at each end of the staging area. Traffic flow shall be controlled so that vehicles in each direction can safely pass through the remaining lane(s) or safely turn around and proceed to the detour.

6.8 UTILITIES

At the Price Street - North, Price Street - South, and Cypress Street Lift Station sites, the construction contractor shall inform all parties that would be affected by the interruption in electrical service of the date and time that electrical service would be interrupted. The contractor shall work with affected parties to minimize duration of the interruption and any problems that may be caused by the interruption.

St. Andrews Lift Station Existing Conditions

The pages that follow contain recent pictures taken at the St. Andrews site showing varying distances between facilities and the bluff edge. The distance between the lift station and bluff edge was estimated at approximately12 feet in 2009.

The last photo shows the distance that the posts supporting a safety chain have been moved to avoid loss of the post due to erosion. The posts have been moved once.

EXHIBIT 18
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Bluff to lift station electrical panel – 8’ 11”

Bluff to lift station – 9’-11”

Bluff to post – 3’-2”

Distance posts have been moved back – varies from 1’6” – approximately 4’

- The City shall set up a hotline for noise complaints associated with the proposed Project. All noise complaints shall be investigated, construction noise shall be measured at the site, and the effectiveness of the noise reduction measures shall be re-evaluated.

6.7 VEHICULAR TRAFFIC

- At the St. Andrews Lift Station site, signs and persons to direct traffic shall be placed on Seacliff Drive at each end of the staging area. Traffic flow shall be controlled so that vehicles in each direction can safely pass through the remaining lane(s)

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- At the Price Street - North and Price Street - South sites, signs and notices shall be posted warning of the dates and times that Price Street will be closed. The notices shall include identification of alternate routes.

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6.8 UTILITIES

At the Price Street - North, Price Street - South, and Cypress Street Lift Station sites, the construction contractor shall inform all parties that would be affected by the interruption in electrical service of the date and time that electrical service would be interrupted. The contractor shall work with affected parties to minimize duration of the interruption and any problems that may be caused by the interruption.

CAL FIRE
Pismo Beach Fire Department

760 Mattie Road • Pismo Beach, CA 93449
Phone: 805.773.7031 • Fax: 805.773.7035
www.cdfslo.org

Robert Lewin, Fire Chief

Jon Biggs
City of Pismo Beach
760 Mattie Rd
Pismo Beach CA, 93449

11-1-12

Dear Mr. Biggs

Thank you for providing information on the potential of Seacliff Dr. being left unprotected from ocean erosion near Memory Park. This department has a few concerns if Seacliff Dr. becomes a one-way road or was lost completely into the ocean. The Fire Department's concerns relate to code compliance, evacuation and rescue operations of individuals in or near the ocean off Memory Park.

The City has adopted the 2010 California Fire Code (CFC) Section 503.1.2 provides for fire department access. Section 503.1.2.1 of the City adopted fire code provides "*The maximum length of dead-end road, including all dead-end roads accessed from that dead-end road, shall not exceed 500 feet (152 m)*" Title 14 section 1273.09 of the California Code or Regulations requires any parcels less than 1 acre to have a dead-end road length of 800 feet or less. If Seacliff Dr. is lost there will be dead-end road lengths over 800 feet that do not currently exist.

The City of Pismo Beach is prone to Earthquakes, Tsunamis, Wildland fires and has large influxes of tourists. Evacuations of areas that have long dead-end roads are problematic for the Fire Department. As large fire apparatus attempt to respond to an incident many people may try to evacuate on the same road. Collisions and road blockage can occur from evacuees and causing a delay of emergency services can have a tremendous cost to life, environment and property. With only one way in and out of a subdivision an incident itself can trap people from evacuating and seeking shelter. It should also be noted that the Shell Beach Fire Station is located on Coburn Ln. and could be impacted by the loss of Seacliff Dr.

Access to the Memory Park area is not only used for providing emergency service to land based incidents but is also used for surf and off-shore rescues.

EXHIBIT 19
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Delays in providing rescue in the surf or ocean can be costly to the victim when minutes count. The Fire Department can also be over taxed if the land base location where the rescue begins is too far from the victim.

This Department would not want to see the loss of Seacliff Dr. as it will impact code compliance, evacuation and rescue operations. Any reduction in access from what exists today could result in loss to life, property and the environment.

Thank you for the opportunity to comment on this issue,

Paul Lee

Paul Lee
Battalion Chief

City of Pismo Beach
Department of Public Works
760 Mattie Road, Pismo Beach, CA 93449
p|805.773.4656 f|805.773.4684
www.pismobeach.org

November 2, 2012

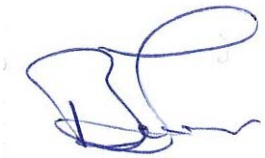
Army Corps of Engineers
Monica Eichler

Ms. Eichler:

I'm writing in regards to a planned retreat approach to the bluff near the St. Andrews lift station in Pismo Beach. Planned retreat would require the removing the current lift station and replacing it with three new lift stations. In addition to the expenses associated with removing the current lift station and building three new ones, the City of Pismo Beach would be faced with increased operation and maintenance costs associated with operating and maintaining three lift stations rather than one. It is hard to put an exact dollar amount on the increased maintenance and operations costs; however this figure could very easily approach as much as $40,000 a year for the life of the lift stations.

If you have any questions please do not hesitate to call me.

Thank you,



Benjamin A. Fine, PE
Interim Director of Public Works/City Engineer

EXHIBIT 20
CD-057-12

St. Andrews Lift Station Redesign

The design proposed for the protection of the sewer lift station at St. Andrews has been modified from that originally proposed (see attached drawings). The lateral extent of the proposed protection is essentially the same. The western edge of the structure is in essentially the same place as in the original, but has a stronger tie back that should avoid flanking of the structure for several decades. The eastern edge of the structure has been lengthened behind the existing sea wall by approximately 30 feet. Total length of the proposed structure is 147 feet versus 110 feet for the original. The proposed structure is closer to the bluff face and follows it more closely than in the original resulting in a slightly longer structure.

The design is a single wall keyed into bedrock that utilizes existing bluff and beach features to produce a more natural-looking structure. A stairway to the beach will be built into the structure, allowing easier beach access. The stairway will meet all state requirements for design specifications (tread width, step height, railing, etc.).

Coastal Commission staff, during a conference call on October 16, 2012, expressed concern over the proposed design in the vicinity of the existing sea wall. Staff requested the Corps to consider lengthening the proposed upper structure to bedrock, removing the existing sea wall and the fill behind it. The Corps, in consultation with the city of Pismo Beach, has evaluated this design modification. We have determined that it will not be feasible to make this design modification for the following reasons. First, work at the site involves working from above on the bluff top removing any materials by crane. This includes removal of any structure such as a sea wall and removal of fill material. This results in substantial additional cost of several hundred thousand dollars. The wall would need to be extended to tie in to the remaining existing wall adding additional cost (see attached Figure 1 Revised). This would increase the size of the wall by approximately 200 square feet. The project would no longer be cost effective and thus would not be a project that the Corps can authorize and construct. Second, the wall and fill may be on private property. The Corps does not have the authority to work on private property as it would benefit a single home owner, which is against Corps' policy. Third, removal of the fill introduces the risk of bluff collapse in the interim resulting in substantial loss of private property that is currently protected by the existing sea wall. This risk has been determined to be unnecessary to the Corps. Fourth, this would result in a relatively minor gain of approximately 16 feet in width to the pocket beach at the base of the bluff in the area of the existing sea wall where it overlaps with the proposed structure; a distance of approximately 40 feet. The added costs and risks are not justified by the small incremental gain of beach.

Coastal Commission staff, in an email on November 6, 2012, expressed additional concerns.
1) It isn't fully clear to us why the Corps states removal of the portion of the wall in front is infeasible (and/or would destabilize the bluff) - we will want that spelled out in greater detail.
From the Corps' perspective, removal of the wall is infeasible for two reasons. Namely, bluff stability and for contracting/constructability issues. What we do know is that a large sea cave exists immediately below or just southeasterly of the existing lift station, as evidenced by the May 4, 1979, Coastal Records web site photo, Image No. 7939030 (see attached and http://www.californiacoastline.org/cgi-bin/captionlist.cgi?searchstr=7939030). Eight years later, in June 1987, the subsequent Coastal Records photo, Image No. 8708077 (see attached and

EXHIBIT 21
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http://www.californiacoastline.org/cgi-bin/captionlist.cgi?searchstr=8708077), shows that the subject wall was constructed. However, at this point, the roof of the sea cave still appears to be at least partially exposed, and although we anticipate that some remedial infill may have occurred associated with the construction of the wall in the early to mid 1980s. The Corps is very concerned that the cave, which now may be substantially larger, could be further destabilized during the demolition of the wall, causing collapse of the upper bluff and worst-case, the loss of the lift station. The Corps is unwilling to accept responsibility for this scenario. The contract/constructability issues revolve about the unknown as-built condition of the wall and the Corps' inability to effectively craft a fixed fee contract for the removal of what may be a very large and likely heavily reinforced monolithic concrete structure that may require significant demolition effort with concrete breakers and other demolition equipment, the actions of which may also further destabilize the bluff and damage the lift station.

2) If we were to agree to let it remain (and no commitment is being made that we would - we still need to think about this) - we would want some sort of understanding/agreement that that existing wall (that would remain in front of the Corps-proposed wall) would not be protected by further armoring, but would be allowed to fail (with the new wall becoming the bluff's primary protection). In discussions with City Staff, both the Corps and the City of Pismo Beach are provisionally agreeable to stipulating that the existing wall will not be protected by further armoring and would be allowed to fail, with the new wall becoming the bluff's primary protection. The provisional stipulation also results from the concerns expressed in our response to Question 1, above, namely, the lack of a full understanding of the as-built conditions of the existing wall. As indicated in our previous submittal, we assume that the wall was previously undermined and backfilled with a concrete slurry that is visible today under much of the wall, as evidenced from photographs previously submitted to the Coastal Commission. Admittedly, it is also possible (although not logical) that some type of a footing keyway was excavated beneath the bottom of the wall and backfilled with a concrete slurry to create a leveling pad on top of which the existing gravity/monolithic wall was constructed. Regardless of the explanation, we see a massive concrete slurry beneath the bottom of the three stepped walls, which we believe to post-date the construction of the stepped walls. Given the preceding discussion on the as-built construction of the existing wall, we have assumed that a sufficient construction space exists between the back of the existing wall and the construction cut for the new proposed wall to facilitate the construction of the new wall, as indicated in the Corps' Proposed Plan and Profile (Figure 1) and accompanying cross sections depicted in Figures 2 through 7. Notably, and as requested in Question 3 below, we have prepared an additional cross section (Cross Section F) depicting what may be representative of the upcoast end of the existing wall. Section F is illustrative of the problem, with lack of as-built information, recognizing that the existing wall may have the appearance as illustrated in Section E, however it may also be constructed more along the lines of that illustrated in Section F. Notably, the as-built condition may also be a considerably more massive monolithic structure having a reinforced concrete gravity mass filling the entirety of what we have listed as "fill" on Sections E and F. In other words, assuming the Corps can construct the wall section depicted in Sections E and F, which requires that the contractor be able to excavate behind the existing wall, then the existing wall could be allowed to fail at some later date, fully exposing the new wall, albeit likely necessitating at least some end condition keyway improvements after removal of the since-failed existing wall.

3) It's not clear what happens at the upcoast (west) end of the existing wall (say, half way between cross sections D and E). With the new wall further behind - would the two be joined? I'm not sure how far back the existing wall's endwall goes (as its covered by eroded bluff material) - would it intersect the new wall? Can you provide a cross section for that? (We've never seen any plans for it and it's not clear it ever got any coastal permits.) As suggested in our responses to Questions 1 and 2, above, the Corps has always assumed that the new proposed wall would be a standalone structure constructed well landward of the existing seawall and well landward of the upcoast (west) end of the seawall. The new wall has been designed with no reliance on the existing wall and, as importantly, to continue to fully function and maintain its aesthetic character even if the existing wall were to fail and eventually be removed. Under no circumstances would the new wall be incorporated into the existing wall. While the Corps also is unsure of how far back the existing wall's upcoast return goes, the new wall has been designed as if the existing wall does not exist, and in fact its' construction is predicated on the new construction-period bluff face graded back to that shown on the Corps' Plan and Profile, assumed to be sufficiently landward of the existing wall to facilitate the safe construction of the new wall along its entire alignment, including that area behind the existing wall.

4) The January meeting will be in Pismo Beach. It would seem most logical to schedule this for that meeting. Both the Corps and City are agreeable to scheduling this project for the Coastal Commission's January meeting in Pismo Beach.

Cost Estimate to Relocate St. Andrews Lift Station

The St. Andrews Lift Station currently handles gravity flows from Seacliff Drive, Paddock Avenue, Baker Avenue, and Naomi Avenue. Gravity flows from houses serviced flows into the lift station, which pumps it up into a sewer main. Relocation of the lift station would lose the benefits of gravity flow and would require the installation of three new lift stations; one near the intersection of Seacliff and Paddock, a second on Baker near Seacliff, and a third at the cul de sac at Seacliff and Naomi. Approximately 566 lineal feet of existing sewage lines would have to be abandoned in place. Abandoned sewage lines would be removed as erosion of the bluff exposes the abandoned lines. Seacliff Drive, between Paddock and Naomi, would be converted into a one-way street. Please note that this cost estimate is almost identical to that provided in the original CCD ($2.7 million current, $2.5 million original). Both cost estimates reflect the need to construct three new lift stations in place of the single lift station currently serving this area.

Relocation Costs	Quantity	Unit	Unit Price	Cost	Contingency	Cost w/Contingency	Contingency Percent
Demolish Existing Lift Station	1	EA	$350,000	$350,000	$87,500	$437,500	0.25
New Lift Station (200,000 GPD)	3	EA	$370,000	$1,110,000	$277,500	$1,387,500	0.25
6" CIP Pressure Sewer	700	LF	$100	$70,000	$17,500	$87,500	0.25
6" PVC Sewer Line	65	LF	$50	$3,250	$813	$4,063	0.25
Man Hole	1	EA	$5,000	$5,000	$1,250	$6,250	0.25
Road Shoulder Barrier	410	LF	$125	$51,250	$12,813	$64,063	0.25
Tie in to Remaining Man Hole	3	EA	$1,200	$3,600	$900	$4,500	0.25
Remove Existing Sewer Line	510	LF	$50	$25,500	$6,375	$31,875	0.25
Abandon Existing Sewer Line	1	LS	$5,500	$5,500	$1,375	$6,875	0.25
Asphalt Road Repair	2,400.00	SF	$5	$12,000	$3,000	$15,000	0.25
Subtotal				$1,636,100	$409,025	$2,045,125	
City Planning/Engr/Design	1	JOB	$511,281	$511,281	$0	$511,281	0
Construction Management	1	JOB	$149,294	$149,294	$0	$149,294	0
Total				$2,296,675	$409,025	$2,705,700	

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The following Tables show the cost if Relocation of the St Andrews lift station takes place now (2013). A discount rate of 4.375% was used and the 50 year period of analysis as was done in the Study Report for Pismo Beach. The base year is assumed to be 2013 with the 50 year analysis ending in 2063. The revised tables assume the relocation costs as provided by the city of Pismo Beach and includes an increase in annual O&M costs after the construction of $40,000 per year. All the costs are discounted back to the base year (2013) as a Present Value (PV) number. The annualized cost takes the PV numbers and re-spreads it as a constant amount over the entire 50 year period of analysis (2013-2063).

Lift Station Move Costs	
St. Andrews Lift Station at Site 1	**Bluff Retreat Rate of 0.475 Feet/Year**
Expected Year of Relocation	2013
Net Present Value	
Relocation Costs	$2,705,700
O&M Costs	$806,800
Total	$3,512,500
Expected Value in	
Annual Terms	
Relocation Costs	$134,100
O&M Cost	$40,000
Total	$174,100
Calculation for annualized values based upon a discount rate	
of 4.375 percent and a 50 year period of analysis.	

Summary of Expected Annual Costs for Site 1 estimated	
Recreation Annual Costs	$63,000
Traffic Delay Annual Costs	$2,700
Lift Station Relocation Costs and O&M	$174,100
Revised Total	$239,800

Other Relocation Impacts

Relocation of the lift station would require, at a minimum, conversion of Seacliff Drive, between Paddock and Naomi, into a one-way street. This conversion would greatly hinder access by residents. It would also hinder access by emergency units, including fire engines and rescue vehicles. The beach below Memory Park requires periodic emergency rescue by city staff. Conversion of Seacliff Drive to a one-way street at the point where these rescues take place would hinder access by rescue vehicles. Additionally, during rescue operations, rescue vehicles would block the one-way street where current operations on a two-way street do not.

Please see attached letter from Pismo Beach Fire Department addressing safety and fire access issues.

The proposed project includes construction of an access stairway as part of the sea wall. If this project is abandoned in favor of relocation, this stairway would not be constructed. Recreational access would remain limited to the unofficial "goat path" limiting access to those willing to negotiate a difficult and dangerous path.

In addition to the expenses associated with removing the current lift station and building three new ones, the City of Pismo Beach would be faced with increased operation and maintenance costs associated with operating and maintaining three lift stations rather than one. It is hard to put an exact dollar amount on the increased maintenance and operations costs; however this figure could very easily approach as much as $40,000 a year for the life of the lift stations.

EXHIBIT 23
CD-057-12

Pismo Beach Bluff Protection/Storm Damage and Shoreline Protection, CAP 103 Plan Formulation					
San Luis Obispo County					
Conceptual Design Cost Estimate					
Construction of Seawall at St. Andrew Lift Station from across Seacliff Drive, a distance of about 25'.					
					11/15/2012
Item No.	Description	Quantity	UOM	Unit Costs	Extensions
	BASE BID				
1	Mob/Demob	1	LS	62000	$62,000.00
2	Rough Grade Bluff Surface	1	LS	23000	$23,000.00
3	Removal/Haul-off of Slope Debris	1	LS	18000	$18,000.00
4	Excavate Behind the Wall (Cross Section E)	1	LS	30000	$30,000.00
5	Stockpiling and Compaction Backfill of Wall	1	LS	15000	$15,000.00
6	Excavate Keyway	1	LS	15000	$15,000.00
7	Re-route Storm Drains	1	LS	15000	$15,000.00
8	Shotcrete placement at the Wall	4800	SF	220	$1,056,000.00
9	Earth (Tieback) Anchors	25	EA	5300	$132,500.00
10	Architectural Treatment of the New Seawall	4800	SF	39	$187,200.00
	SUB-TOTAL (Base Bid)				$1,553,700.00
	Project Owner Markups				
	- Planning, Engineering & Design (15.0%)				$233,055.00
	- Supervision & Administration (6.5%)				$116,139.08
	- Contingency (35.0%)				$666,012.93
	SUB-TOTAL (Project Owner Markups)				$1,015,207.00
	TOTAL (PROJECT COST)				$2,568,907.00
	OPTION ITEMS				
1	Architectural Treatment on the existing seawall	600	SF	30	$18,000.00
2	Upper Stairway	1	LS	100000	$100,000.00
3	Lower Stairway	1	LS	40000	$40,000.00
	TOTAL (Option Items)				$158,000.00
NOTES					
1	Unit costs in the BASE BID are comprised of the following markups (29.67%):				
	- Field Office Overhead (FOOH) = 8.00%				
	- Home Office Overhead (HOOH) = 6.00%				
	- Profit = 12.00%				
	- Bond = 1.13%				
2	Unit costs are developed from MII Cost Estimate with support from A/E cost information.				
3	Bases of cost estimate are design inputs from Geology & Investigations Section, Coastal				
	Engineering Section, and Project Manager				
4	Costs in OPTION ITEMS are directly quoted from the A/E cost estimate, which is not				
	included in this feasibility study estimate as these items are to be paid				
	by the local sponsor.				

EXHIBIT 24
CD-057-12