CALIFORNIA COASTAL COMMISSION
SAN DIEGO DISTRICT OFFICE
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4402
VOICE (619) 767-2370
FAX (619) 767-2384

W17a

A-6-COR-19-0027 (ARENDSEE)

December 9, 2020

EXHIBITS

Table of Contents

CALIFORNIA COASTAL COMMISSION
SAN DIEGO AREA
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4402
(619) 767-2370

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT

Please Review Attached Appeal Information Sheet Prior To Completing This Form.

SECTION I. Appellant(s)

Name: Commissioner Steve Padilla
Mailing Address: 276 Fourth Ave
Chula Vista, CA 91910

Phone Number: _____

SECTION II. Decision Being Appealed

1. Name of local/port government: City of Coronado
2. Brief description of development being appealed:demolition of an existing retaining wall aconstruction of new 85 ft. retaining wall
3. Development's location (street address, assessor's parcel no., cross street, etc:) 409 First Street, Coronado
4. Description of decision being appealed:
   a. Approval; no special conditions: ☒ b. Approval with special conditions: ☐
   c. Denial: ☐ d. Other : ☐ _____
   Note: For jurisdictions with a total LCP, denial decisions by a local government cannot be appealed unless the development is a major energy or public works project. Denial decisions by port governments are not appealable.

TO BE COMPLETED BY COMMISSION:

APPEAL NO: A-6-COR-19-0027

DATE FILED:April 25, 2019

DISTRICT: San Diego

EXHIBIT NO. 1
APPLICATION NO.
A-6-COR-19-0027
Commissioner
Appeals (1 of 18)
California Coastal Commission

5. Decision being appealed was made by (check one):

a. ☐ Planning Director/Zoning Administrator

c. ☒ Planning Commission

b. ☐ City Council/Board of Supervisors

d. ☐ Other

Date of local government's decision: April 9, 2019

Local government's file number (if any): CP 2019-02

SECTION III. Identification of Other Interested Persons

Give the names and addresses of the following parties. (Use additional paper as necessary.)

Name and mailing address of permit applicant:

Christian Rice
1127 Loma Ave.
Coronado, CA 92118

Names and mailing addresses as available of those who testified (either verbally or in writing) at the city/county/port hearing(s). Include other parties which you know to be interested and should receive notice of this appeal.

Allan Arendsee
409 First Street
Coronado, CA 92118

David Skelly
5741 Palmer Way
Carlsbad, CA 92010

Douglas and Karen Hatter
410 First Street
Coronado, CA 92118

SECTION IV. Reasons Supporting This Appeal

Note: Appeals of local government coastal permit decisions are limited by a variety of factors and requirements of the Coastal Act. Please review the appeal information sheet for assistance in completing this section, which continues on the next page.

State briefly your reasons for this appeal. Include a summary description of Local Coastal Program, Land Use Plan, or Port Master Plan policies and requirements in which you believe the project is inconsistent and the reasons the decision warrants a new hearing. (Use additional paper as necessary.)

See Attachment "A" dated 4/25/19

Note: The above description need not be a complete or exhaustive statement of your reasons of appeal; however, there must be sufficient discussion for staff to determine that the appeal is allowed by law. The appellant, subsequent to filing the appeal, may submit additional information to the staff and/or Commission to support the appeal request.

SECTION V. Certification

The information and facts stated above are correct to the best of my/our knowledge.

Signed: _____
Appellant ~~or Agent~~

Dated: 4/25/19

Agent Authorization: I designate the above identified person(s) to act as my agent in all matters pertaining to this appeal.

Signed: NA

Dated: NA

Attachment A
Arendsee Retaining Wall Appeal – 409 First Street, Coronado
April 25, 2019

Project Description and History

On April 10, 2019, the City of Coronado (City) approved Coastal Development Permit (CDP) Application No. CP 2019-02 for the demolition of an existing curvilinear retaining wall and construction of a new 85 ft. long straight retaining wall, seaward of the existing wall on a Bayfront lot.

Concurrently, the City is reviewing building plans to demolish the existing residence onsite and construct a new residence and patio However, Section 86.70.052 of the City's Local Coastal Program (LCP) Implementation Plan (IP) exempts the construction of single-family homes from CDP requirements so only the retaining wall was approved under CDP 2019-02.

Consistency with the LCP

The City's decision to issue this coastal development permit raises the following concerns:

Hazards

IP Section 86.74.030 states:

A. Development setbacks shall be calculated from the parcel's property line subject to the provisions of subsections B and C of this section, which may require a greater setback.

B. New development shall assure coastal stability and structural integrity, and neither create nor contribute significantly to erosion or geologic instability.

C. Permanent buildings, or other structures proposed for construction (excluding refurbishment, renovation or addition to existing structures that do not extend the structures seaward or bayward) shall be set back from an eroding beach or coastline a distance sufficient to assure that the development will not require mitigation measures to protect the development from the natural erosion process during the economic lifetime of the structures. The builder, at the request of the City Coastal Permit Administrator, shall provide a certification by a civil engineer acceptable to the City that the proposed construction site meets these criteria.

D. The City Coastal Permit Administrator may request through the City Council, the opinion of the Corps of Engineers, Scripps Oceanography Institute, or other qualified experts with regard to the possible erosion of beach area in the vicinity of the proposed construction in making a determination of required setbacks.

IP Section 6.76.010 states:

A. The construction or placement of any improvement which may significantly affect the natural erosion process resultant from the interaction of water bodies upon their shores, or cause significant adverse alteration of the bay or ocean environment shall require a coastal permit from the City. Without limitation, buildings, harbor channels, breakwaters, groins, piers, retaining walls, revetments, riprap, sea walls and similar items shall be governed by this chapter.

B. An improvement or activity requiring a coastal permit under this chapter shall only be allowed when it serves coastal dependent uses, protects existing structures, removes public hazards, or protects public beaches in danger of erosion.

C. In order for an improvement or activity requiring a coastal permit under this chapter to qualify for such a permit, the improvement or activity must be designed and constructed as follows:

1. To neither create nor contribute significantly to erosion or geologic instability;

2. To minimize their own breakdown and disintegration;

3. To minimize water pollution and the silting of coastal waterways;

4. To not result in a substantial or potentially substantial, adverse change in any of the physical conditions within the area affected by the coastal permit requiring activity including land, air, water, minerals, flora, fauna, ambient noises and objects of historic or aesthetic significance;

5. To not preclude the public's right of access to (including without limitation) the ocean, bay or public beach where acquired through use, custom, legislative authorization, purchase, condemnation, judicial action, gift, bequeath or escheat;

6. To encourage or facilitate, where feasible, the phasing out or upgrading of marine structures causing water stagnation contributing to pollution problems or fish kills;

7. To minimize their intrusion into public vistas by being unobtrusive and aesthetically pleasing when viewed from public streets, walk or bicycle ways or waterways;

8. To minimize extensions or projections into the bay or ocean;

9. To facilitate public access where appropriate and feasible; and

10. To minimize or mitigate resultant adverse environmental impacts.

D. The applicant, at the determination of the Coastal Permit Administrator, shall provide a certification by a civil engineer acceptable to the City indicating that the proposed improvement or activity conforms to the above criteria. (Ord. 1533)

IP Section 86.76.020 states: Repair and maintenance activities or ocean and bay shore improvements which require City issuance of a building permit, encroachment permit or City review of an initial study shall require City issuance of a coastal permit. The coastal permit shall only be issued after certification that the repair or maintenance activities are necessary, appropriate, and designed, when feasible, to minimize or mitigate resultant adverse environmental impacts. The applicant, at the request of the City Coastal Permit Administrator, shall provide a certification by a civil engineer acceptable to the City that the proposed activities meet these criteria.

IP Section 86.76.04 states: For waterfront land recorded on Miscellaneous Map 121 (Rancho Peninsula), Record of Survey 563, 2372, and Map 2544 (Bay View Estates), Record of Surveys 5191, 6014 and 6958, retaining walls, revetments, riprap, sea walls and similar development shall be permitted, with a coastal permit, subject to all other standards of this chapter, with the provision that such improvements may be situated in a manner so that the improvements' bayward faces may connect in a straight line the bayward faces of similar improvements on adjoining property.

LUP Policy E.1. states: Require that new development shall assure coastal stability and structural integrity, and neither create nor contribute significantly to erosion or geologic instability.

LUP Policy E.2. states: Permit revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes 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.

LUP Policy E.4.states: Require that any permanent building, or other structure proposed for construction be set back from an eroding beach coastline a distance sufficient to assure that the development will not be threatened by natural erosion processes during the lifetime of the structure without requiring shoreline protection structures. The builder, at the discretion of the City, shall provide a certification by a civil engineer that the proposed construction site meets this criteria.

LUP Policy E.5. states: Require that shoreline structures be planned and constructed so that they serve the purpose intended, and do not result in a substantial or potentially substantial, adverse change in any of the physical conditions within the area affected by the activity including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

LUP Policy E.6 states: Require that shoreline protection structures be designed to minimize their intrusion into public vistas by being unobtrusive and aesthetically pleasing when viewed from public streets, walk or bicycle ways, or waterways.

LUP Policy E.7 states: Require that shoreline protection structures be designed to minimize their own breakdown and disintegration to thereby minimize water pollution and the silting of coastal water ways.

LUP Policy G.1 states: Require that new development in areas of high geologic, flood or fire hazard be designed in such a way to minimize risks to life and property.

LUP Policy G. 2 states: Require that new development be designed in such a way to 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.

LUP Policy G. 3 states: Reaffirm the City's environmental policies (as presented in the City's LCP report for Policy Group 103) and shoreline structures policies (as presented in the City's LCP report for Policy Group 104) as they relate to shoreline erosion.

LUP Goal E.3 states: That the City develop for implementation of its LCP Land Use Plan more detailed criteria to implement recommended Policy number "E4".

The City's LCP only allows retaining walls, revetments, riprap, seawalls and similar improvements when it serves coastal dependent uses, protects existing structures, removes public hazards, or protects public beaches in danger or erosion. In this case, the retaining wall would protect a new single family residence and patio which are not allowable uses.

The City's LCP requires that structures "be set back from an eroding beach coastline a distance sufficient to assure that the development will not be threatened by natural processes during the lifetime of the structure without requiring shoreline protection structures" and that new development "assure coastal stability and structural integrity and neither create nor contribute significantly to erosion or geologic instability." Accordingly, the new residence should be sited and designed to be safe from flooding and sea level rise throughout its economic life in order to avoid the need for a new retaining wall, which serves as a shoreline protection structure. The retaining wall is also sited seaward of the existing retaining wall, which could impact the natural shoreline erosion process and is therefore inconsistent with the LCP. Finally, it is unclear why a new retaining wall is necessary, given the site is protected by an existing retaining wall and riprap.

Water Quality and Biological Resources

IP Section 6.76.010.C is cited above and is incorporated herein.

LUP Policy D.5 states: Maintain, enhance and, where feasible, restore marine resources. Special protection shall be given to areas and species of special biological or economic significance. Uses of the 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.

LUP Policy D.6 states: Maintain and, where feasible, restore the biological productivity and the quality of coastal waters and wetlands appropriate to maintain optimum populations of marine organisms and for the protection of human health through minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and encouraging waste water reclamation, and maintaining natural vegetation buffer areas that protect riparian habitats.

The project includes landside construction directly adjacent to the San Diego Bay. According to a 2017 survey conducted by the Port of San Diego, eelgrass is likely located in the bay adjacent to the site. Eelgrass (*Zostera marina*) is an aquatic plant consisting of tough cellulose leaves, which grows in dense beds in shallow, subtidal or intertidal unconsolidated sediments. Eelgrass is considered worthy of protection because it functions as important habitat for a variety of fish and other wildlife, according to the California Eelgrass Mitigation Policy (CEMP) (NMFS 2014) adopted by the National Marine Fisheries Service (NMFS) in coordination with a number of state and federal resource and regulatory agencies, including the Commission. For instance, eelgrass beds provide areas for fish egg laying, juvenile fish rearing, and waterfowl foraging. Sensitive species, such as the California least tern, a federally listed endangered species, utilize eelgrass beds as foraging grounds. The approved project has the potential to adversely impact water quality and eelgrass habitat.

Specifically, runoff from the site during construction could increase the turbidity and sediment in the vicinity of the eelgrass habitat and could also impact other aquatic life. Chemicals or fuels could accidentally spill and be washed into the bay which would impact water quality. The City did not analyze potential water quality impacts during construction, or include any special

conditions requiring best management practices to avoid adverse impacts to water quality and marine resources during construction.

Attachment #1 List of Interested Parties

Allan Arendsee
409 First Street
Coronado, CA 92118

Christian Rice
1127 Loma Ave.
Coronado, CA 92118

David Skelly
5741 Palmer Way
Carlsbad, CA 92010

Douglas and Karen Hatter
410 First Street
Coronado, CA 92118

CALIFORNIA COASTAL COMMISSION
SAN DIEGO AREA
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(619) 767-2370

APPEAL FROM COASTAL PERMIT DECISION OF LOCAL GOVERNMENT

Please Review Attached Appeal Information Sheet Prior To Completing This Form.

SECTION I. Appellant(s)

Name: Commissioner Donne Brownsey
Mailing Address: 45 Fremont Street, Suite 2000
San Francisco, CA 94105

Phone Number: 415-904-5202

SECTION II. Decision Being Appealed

1. Name of local/port government: City of Coronado
2. Brief description of development being appealed: demolition of an existing retaining wall aconstruction of new 85 ft. retaining wall
3. Development's location (street address, assessor's parcel no., cross street, etc:) 409 First Street, Coronado
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TO BE COMPLETED BY COMMISSION:

APPEAL NO: A-6-COR-19-0027

DATE FILED: April 25, 2019

DISTRICT: San Diego

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c. ☒ Planning Commission

b. ☐ City Council/Board of Supervisors

d. ☐ Other

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Local government's file number (if any): CP 2019-02

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5741 Palmer Way
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SECTION V. Certification

The information and facts stated above are correct to the best of my/our knowledge.

Signed: Bonnie Bonnissey
Appellant ~~or Agent~~

Dated: 4.24.19

Agent Authorization: I designate the above identified person(s) to act as my agent in all matters pertaining to this appeal.

Signed: NA

Dated: NA

Attachment A
Arendsee Retaining Wall Appeal – 409 First Street, Coronado
April 25, 2019

Project Description and History

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6. To encourage or facilitate, where feasible, the phasing out or upgrading of marine structures causing water stagnation contributing to pollution problems or fish kills;

7. To minimize their intrusion into public vistas by being unobtrusive and aesthetically pleasing when viewed from public streets, walk or bicycle ways or waterways;

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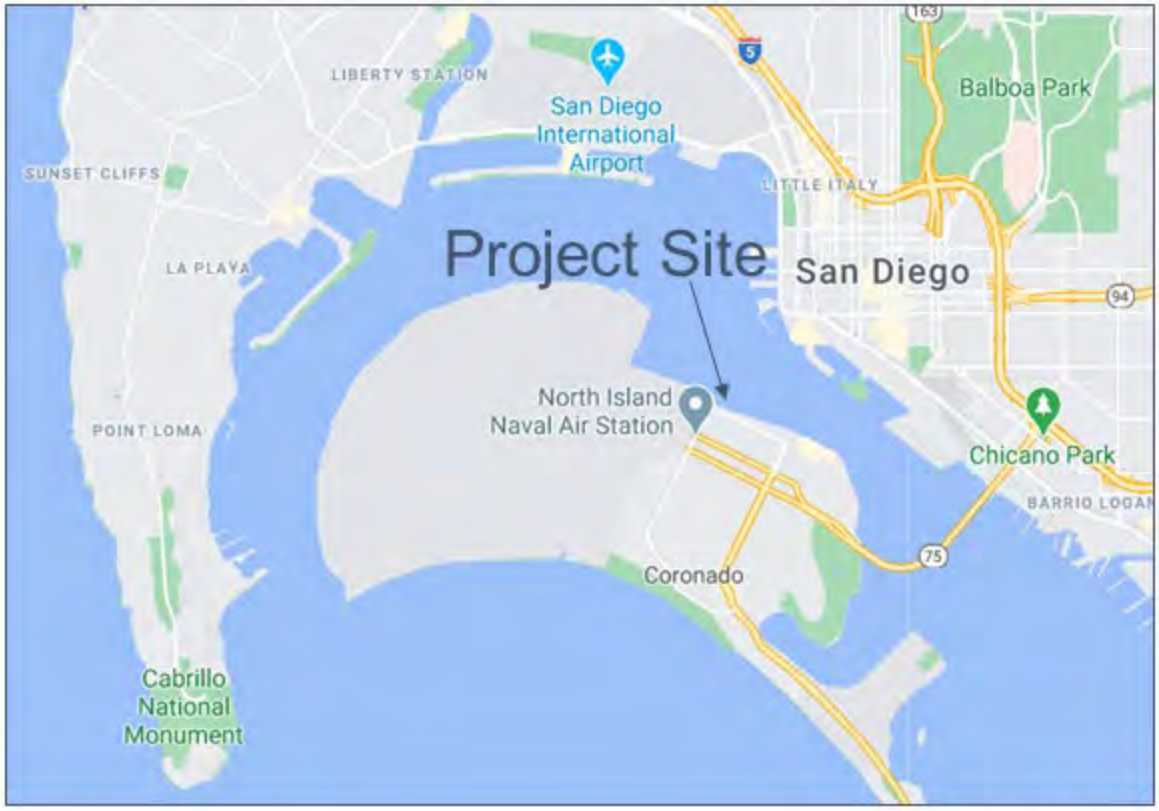
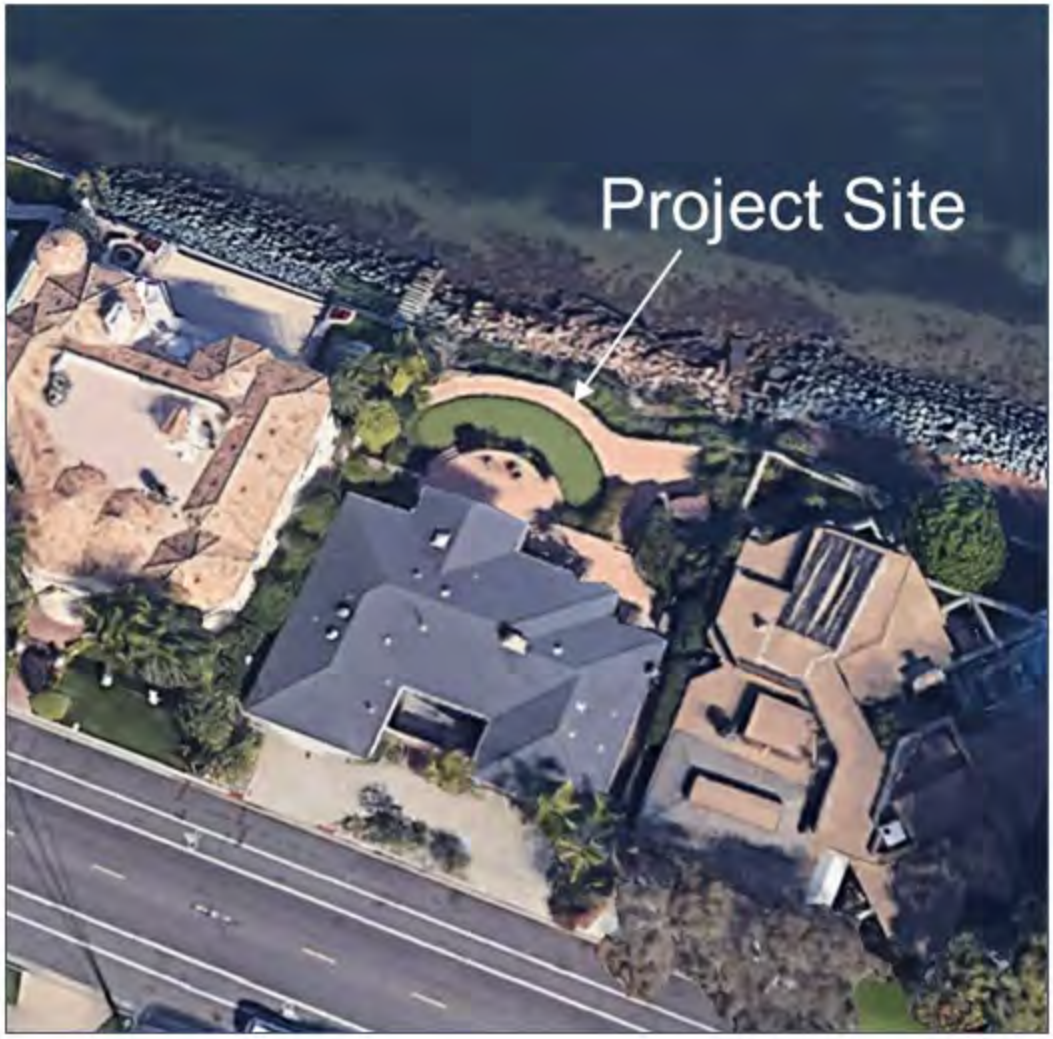
Allan Arendsee
409 First Street
Coronado, CA 92118

Christian Rice
1127 Loma Ave.
Coronado, CA 92118

David Skelly
5741 Palmer Way
Carlsbad, CA 92010

Douglas and Karen Hatter
410 First Street
Coronado, CA 92118





N

EXHIBIT NO. 2

APPLICATION NO.
A-6-COR-19-0027

Project Location

California Coastal Commission

Existing retaining wall with fencing above, facing north-east.

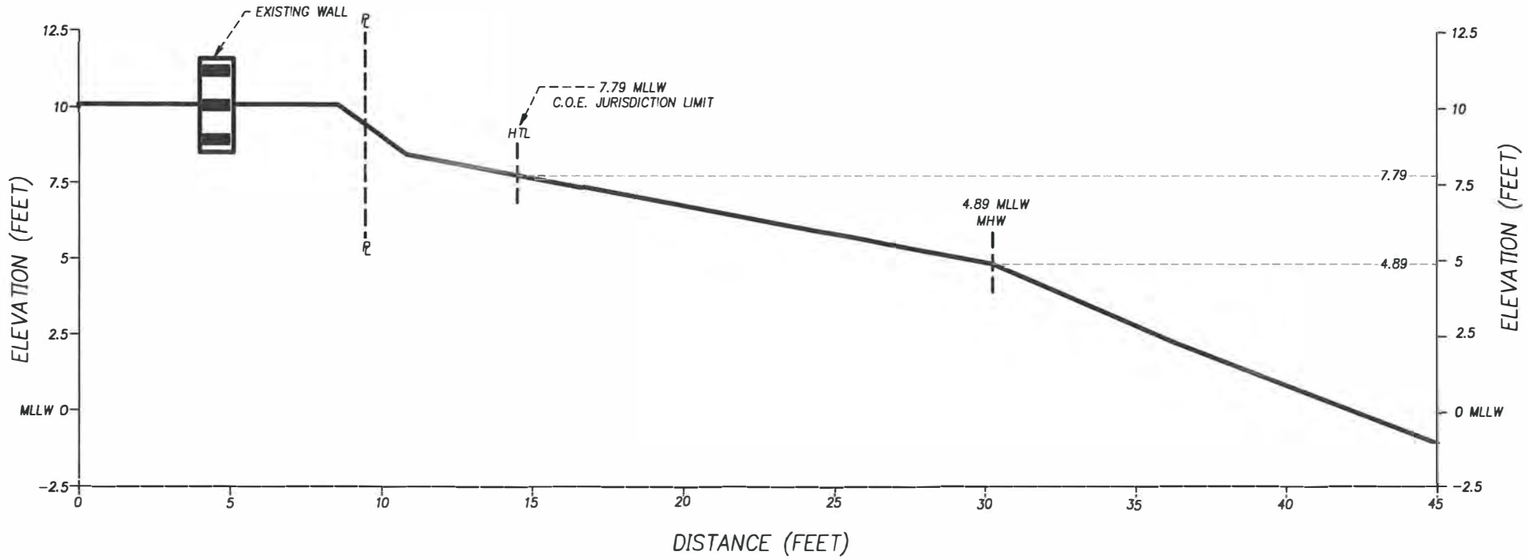
Rock revetment seaward of site, facing north-west.

EXHIBIT NO. 3

APPLICATION NO.
A-6-COR-19-0027

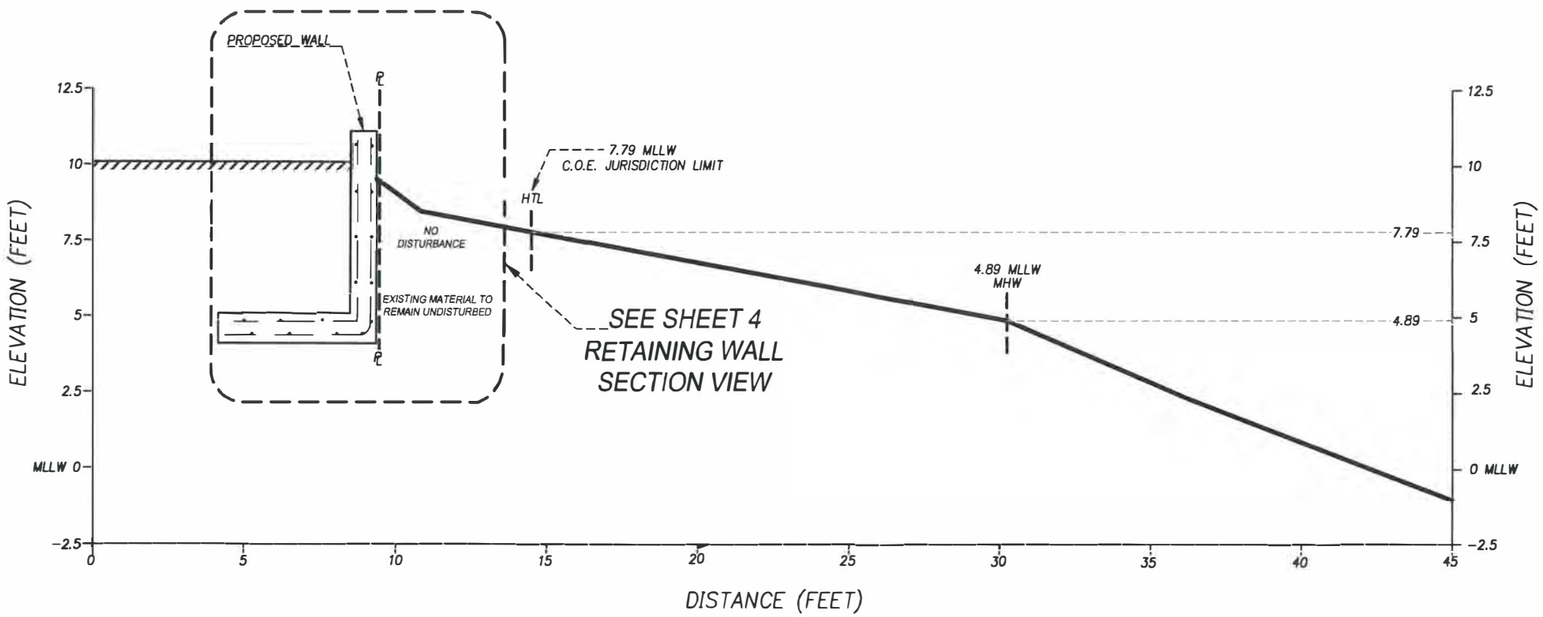
Site Photographs

California Coastal Commission



SECTION A-A'

SCALE: AS SHOWN



SECTION B-B'

SCALE: AS SHOWN

REVISIONS	BY
11/26/18	
01/04/19	

DRAFTING BY:

PROFESSIONAL ENGINEER * REGISTERED * STATE OF CALIFORNIA
DAVID W. SKELLY
No. C 47857
EXP. 12/31/19
CIVIL

GeoSoils, Inc.
Geotechnical • Geologic • Coastal • Environmental
5741 Palmer Way, Carlsbad, CA 92010
760-438-3155

TITLE:

409 First Street Retaining Wall

CLIENT: THE ALANS' LYNDSEY ARENDSEE FAMILY TRUST
409 FIRST STREET, CORONADO-92118

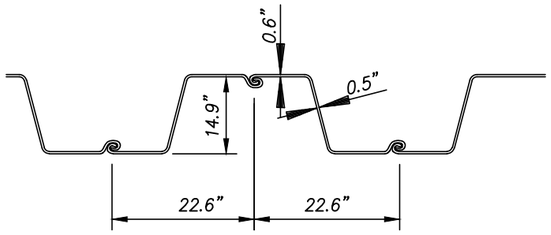
W.O. 5748O

DRAWN	
CHECKED	
DATE	11/26/18

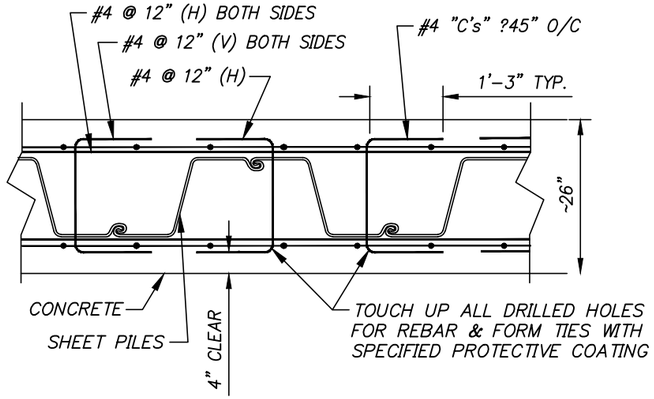
EXHIBIT NO. 4
APPLICATION NO.
A-6-COR-19-0027
City Approved Plans

California Coastal Commission

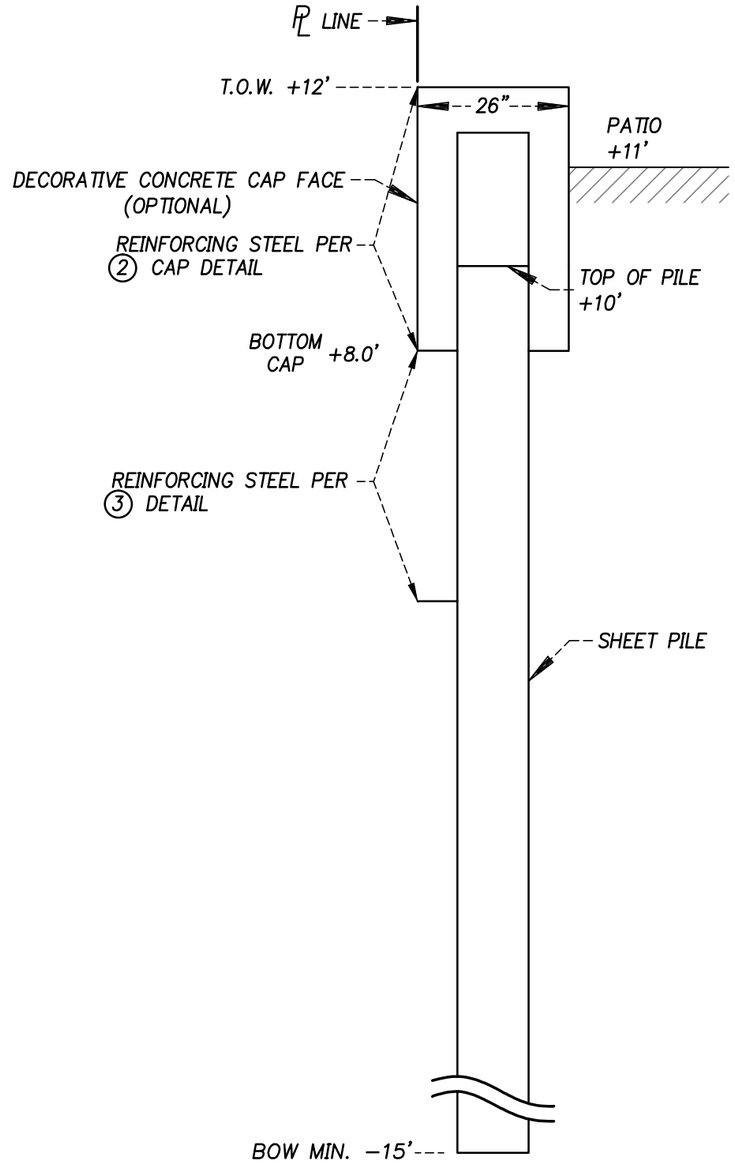
BASED ON PZ35 SECTION
PROPERTIES: S = 48.5 $IN^3/FT.$
I = 250.4 $IN^4/FT.$
WT = 66 LB/FT



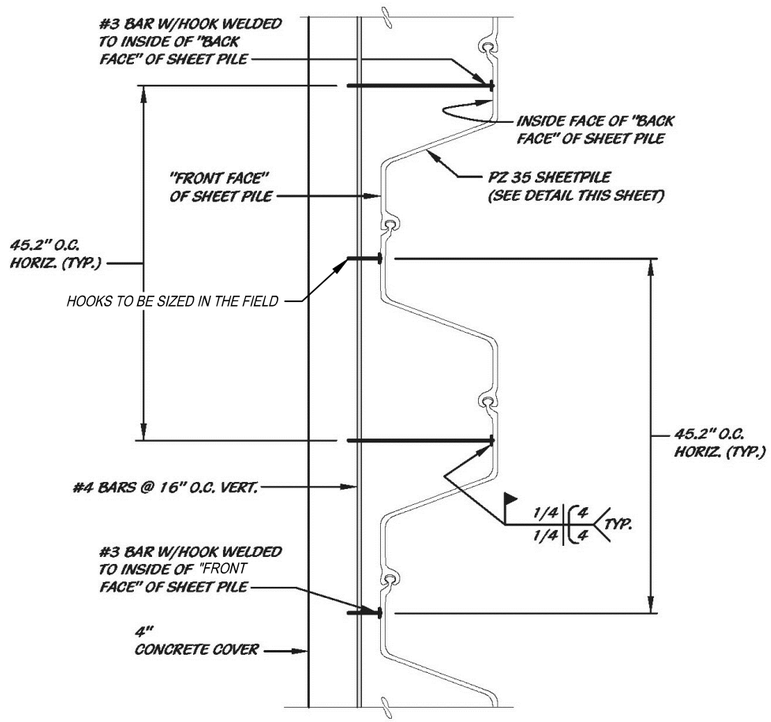
1 SHEET PILE SECTION:
NO SCALE



2 PILE CAP DETAIL - PLAN VIEW:
NO SCALE



TYPICALSECTION
SCALE: NTS



(TAKEN FROM TERRA-COSTA CONSULTING GROUP, INC. 2928 CAMINO DEL MAR PLANS)

3 REINFORCING WELD DETAIL - PLAN VIEW:
SCALE AS SHOWN

REVISIONS	BY

DRAFTING BY:

REGISTERED PROFESSIONAL ENGINEER W. DAVID SKELLY No. C 47857 EXP. 12/31/21 CIVIL STATE OF CALIFORNIA

GeoSoils, Inc.
Geotechnical • Geologic • Coastal • Environmental
5741 Palmer Way, Carlsbad, CA 92010
760-438-3155

TITLE:
409 First Street
Shore Protection Plans

W.O. 5748O

CLIENT: ALLAN & LYNDSEY ARENDSEE, ARENDSEE FAMILY TRUST
409 FIRST STREET, CORONADO-92118

DRAWN
CHECKED
DATE 01/15/20

EXHIBIT NO. 5
APPLICATION NO.
A-6-COR-19-0027
Revised Plans
California Coastal Commission

GeoSoils, Inc.

GEO SOILS, INC. 45th ANNIVERSARY 1974-2019

Geotechnical • Geologic • Coastal • Environmental

5741 Palmer Way • Carlsbad, California 92010 • (760) 438-3155 • FAX (760) 931-0915 • www.geosoilsinc.com

July 2, 2019

W.O. S7480

The Alan & Lindsey Arendsee Family Trust
c/o Christian Rice Architects, Inc.
1127 Loma Avenue
Coronado, CA 92118

SUBJECT: Response to Coastal Commission (CCC) Staff Request for Additional Information Concerning 409 First Street Retaining Wall Construction.

REFERENCE: "409 First Street Retaining Wall Construction Storm Water Pollution Prevention Plan (SWPPP) and Compliance with City of Coronado Municipal Code in Response to California Coastal Commission (CCC) Appeal," by GeoSoils, Inc., Dated June 14, 2019.

Dear Alan & Lindsey Arendsee Family Trust:

At your request, Geosoils Inc. (GSI), is pleased to provide the following additional information on the need for the new retaining wall at the subject property. This information is in response to a verbal request from CCC staff for information concerning the need for the proposed wall to protect the existing house. This information is in addition to, and an expansion of, the information provided in the above referenced GSI document.

The erosion problem along First Street in Coronado is well documented and significant. The United States Army Corps of Engineers (USACOE) in 1964, as part of their "Beach Erosion Control Report on Cooperative Study of Coast of Southern California, Special Study of San Diego," identified the severe erosion problem, and the need for additional studies to determine solutions. The 2001 USACOE "Coronado Shoreline Initial Appraisal Report, Coronado California" determined that the increasing rate of shoreline erosion was not natural. The erosion was due to wave from boat and ship traffic in the navigable channel offshore. In addition, the report identified the steepened nearshore gradients due to the deepened nearby turning basin and navigation channel as creating a man made sink for the shoreline sands. The historical erosion rate was estimated to be about 1.7 feet per year (without shore protection) and that house foundations would be in jeopardy in about 10 years. This was in 2001 about 18 year ago resulting in a minimum of 31 feet of landward shoreline movement.

The subject property is near the west end of First Street where the erosion rate is the highest due to the steep nearshore gradients. The principal structure is currently about 36 feet from the bay property line. Near the site's bay property line is a landscaping wall that in the past was referred to as a retaining wall. A closer look at this landscaping feature reveals that it does not retain soil and has a shallow foundation. Bayward of the site is an existing revetment composed of some rocks and mostly concrete debris. This revetm is in disrepair and does not meet the current Port of San Diego standard for a revetm

type shore protection. The revetment at the site has not been maintained or repaired. However, the revetment is on Port of San Diego property and the applicant is restricted from performing any work on the revetment. The properties to either side of the site have revetments that are backed by retaining walls. Without this revetment, even in the degraded state, the subject principal structure would have already been subject to erosion based about the USACOE 2001 historical erosion rate and the setback. It should also be noted that the USACOE states that the erosion rate is increasing due to more and more boat traffic within the bay and the continued dredging of the turning basin and navigation channels. There is clearly currently a need for shore protection at this site to protect the residence, as there is for the homes along the western ~2800 linear feet of First Street shoreline.

All of the properties including the street ends are protected by some form of shore protection, see the photo below. The erosion of the shoreline is not a natural erosion process but rather a result of man's activities within San Diego Bay. The processes that occur along the shoreline are not natural. The waves from boat traffic cause the erosion, and the artificially steepened nearshore gradients transport the shoreline sediment into the carrier turning basin and navigation channel.

The purpose of the new retaining wall is to protect the site and principal structure from flooding by bay waters and the erosion that is occurring as a result of wakes and artificially steepened nearshore gradients. The photograph below shows the alignment of the proposed wall in relationship to the property line walls at the adjacent properties. It also shows the degraded condition of the revetment offsite. The wall is designed such that the height can be raised if sea level reaches higher elevations than currently predicted. The proposed wall connects to walls on the adjacent properties and is in alignment with these walls. The proposed new wall is following the language in the LCP, which allows for walls "situated in a manner so that the improvements' bayward face may connect in a straight line the bayward faces of similar improvements on adjoining property" (IP Section 86.76.04).

CORONADO LCP/IP DISCUSSION

IP Section 86.74.030 A, B, C, & D.

The proposed wall is entirely on private property and currently landward of any influence of San Diego Bay waves and erosion. The area is subject to non natural erosion as described above. The proposed retaining wall will prevent bay waters and erosion from impacting the adjacent properties in the future. The proposed wall will provide an aligned and uniform shore protection along this section of shoreline. The proposed wall will not only protect the existing structure but also the adjacent structures. The information provided demonstrated the compliance with the LCP/IP to the satisfaction of the City of Coronado.

(CMC) §86.76.010.C. 1-10. For ease of consider the section is provided in italics followed by our response.

1. To neither create nor contribute significantly to erosion or geologic instability;

The wall is located behind the existing shore protection and will not interact with the bay waters unless the offsite revetment additionally fails. The wall also insures the geologic stability of the adjacent properties.

2. To minimize their own breakdown and disintegration;

The proposed wall is to be constructed of epoxy coated steel reinforced marine concrete, using the standard of construction practice for the marine environment.

3. To minimize water pollution and the silting of coastal waterways;

The wall is located beyond and above the waterway. The wall will not pollute the bay.

4. To not result in a substantial or potentially substantial, adverse change in any of the physical conditions within the area affected by the coastal permit requiring activity including land, air, water, minerals, flora, fauna, ambient noises and objects of historic or aesthetic significance;

The wall is located beyond and above the waterway, the existing rubble shore protection, the intertidal beach, and well landward of the eel grass.

5. To not preclude the public's right of access to (including without limitation) the ocean, bay or public beach where acquired through use, custom, legislative authorization, purchase, condemnation, judicial action, gift, bequeath or escheat;

The proposed wall will not impact public access.

6. To encourage or facilitate, where feasible, the phasing out or upgrading of marine structures causing water stagnation contributing to pollution problems or fish kills;

This statement is not applicable to this project.

7. To minimize their intrusion into public vistas by being unobtrusive and aesthetically pleasing when viewed from public streets, walk or bicycle ways or waterways;

The proposed wall, for the most part, is below grade and not visible.

8. To minimize extensions or projections into the bay or ocean;

The proposed wall at 409 First is entirely on private property. The wall does not project into the bay and is located landward of the existing shore protection (concrete rubble).

9. To facilitate public access where appropriate and feasible; and

The proposed wall is landward of the existing shore protection. There is no feasible way to facilitate public access due to the existing shore protection.

10. To minimize or mitigate resultant adverse environmental impacts.

There are no anticipated adverse environmental impacts.

GSI certifies* the following;

- The project is in conformance with CMC 86.72. There are no diking, dredging, or filling in US waters proposed.

- The project is in conformance with CMC 86.74. There is no development on public property or sand beaches. The project is on private property above the High Tide Line. The project does not impact public access along the shoreline.

- The project is in conformance with CMC 86.76. The project neither creates nor contributes to erosion or geologic instability. The project meets current engineering design standards and does not pollute coastal waterways. The projects does not result in a substantial or potentially substantial, adverse change in any of the physical conditions within the area affected by the coastal permit requiring activity including land, air, water, minerals, flora, fauna, ambient noises and objects of historic or aesthetic significance. The project does not preclude the public's right of access to (including without limitation) the bay or public beach where acquired through use, custom, legislative authorization, purchase, condemnation, judicial action, gift, bequeath or escheat. The project minimizes intrusion into public vistas by being unobtrusive and aesthetically pleasing when viewed from the bay. The project does not extend or project into the bay. Finally, the project minimizes adverse environmental impacts.

The opportunity to be of service is greatly appreciated. If you have any questions concerning this report, or if we may be of further assistance, please do not hesitate to contact any of the undersigned.

Respectfully Submitted,

GeoSoils Inc.

David W. Skelly, RCE #47857

*The term "certify" is used herein as defined in **Division 3, Chapter 7, Article 3**, **§ 6735.5.** of the California Business and Professions Code (2007).

GeoSoils, Inc.

Geotechnical • Geologic • Coastal • Environmental

5741 Palmer Way • Carlsbad, California 92010 • (760) 438-3155 • FAX (760) 931-0915 • www.geosoilsinc.com

August 28, 2019 W.O. S7480

The Alan & Lindsey Arendsee Family Trust
c/o Christian Rice Architects, Inc.
1127 Loma Avenue
Coronado, CA 92118

SUBJECT: Response to Coastal Commission (CCC) Staff August 2, 2019 Email Concerning 409 First Street Retaining Wall Construction.

Dear Alan & Lindsey Arendsee Family Trust:

At your request, Geosoils Inc. (GSI), is pleased to provide the following response to the CCC staff email concerning the subject project. For ease of review, the staff comment is provided in italics followed by our response.

Our main comment is that we have not received enough information to be confident that the new retaining wall is needed to protect the existing home. As such, we have some additional questions that may give us a better sense of the erosion and flooding risks to the home. It appears that the back yard at the site was redone in the winter of 2000 -2001. Was that when the existing retaining wall was installed? Did the homeowner receive a permit for that work? If so, the permit may be helpful in answering some of our questions below.

GSI was not involved with the low height retaining wall construction. It is our understanding that permits were obtained and will be provided to the CCC.

We did not find anything in the GeoSoils Report that provides strong support for the construction of a new retaining wall to prevent a risk from erosion. The GeoSoils Report notes that the site is protected by an existing, but degraded revetment..... The principal structure and the bayfacing yard are both now protected by the revetment and the erosion risk seems based solely upon the concern about the loss of the revetment. It appears that rock has been added to the neighbors' portion of the revetment and the adjacent revetments seem in much better shape than the one at 409. Maintenance of the existing revetment would address most of the hypothetical erosion that might have occurred if the revetment were not there. Do you know what the proposed maintenance schedule for the revetment is and why the revetments fronting the properties adjacent to 409 have been maintained, but the one at 409 has not been?

The proposed retaining wall is needed to protect the adjacent properties from flanking erosion. The shore protection on these adjacent sites relies upon a functioning shore protection at the subject site for flanking protection. The existing revetment is in disrepair and does not meet the current Port of San Diego standard for a revetment type shore protection. The revetment fronting the site has not been maintained or repaired. However, the revetment is on Port of San Diego property and the applicant is restricted from performing any work on the revetment. The properties to either side of the site have revetments that are backed by retaining/landscape walls. The soils behind the revetment on Port property, but in front of the existing landscaping wall, is eroding rapidly. As the soils behind the revetment (on Port property) erode, the revetment falls backward allowing wakes to reach further back towards the subject property. Figure 1 and Figure 2 are taken from Google Earth dated 2010 and 2018, respectively. They clearly show a retreat of about 14 feet of Port property over the 8 year period or a rate of about 1.77 ft/yr (the same rate as the COE report).

Figure 1. Subject site in 2010 from Google Earth

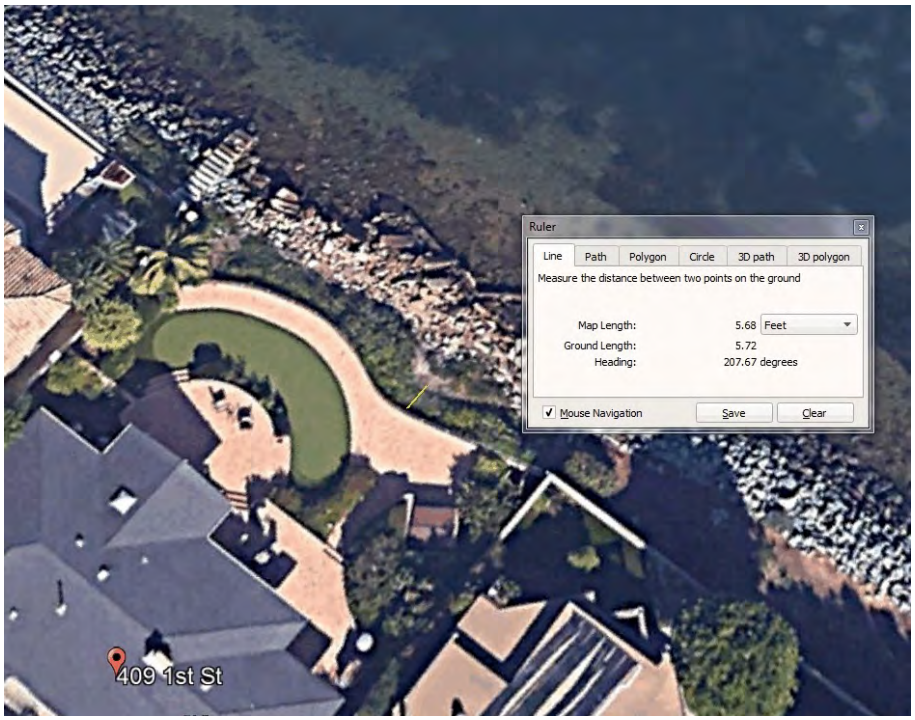


Figure 1. Subject site in 2018 from Google Earth

The fact is, the shoreline is eroding in front of the site, and the erosion will impact the adjacent shore protection within the next two years. In addition, the site will flood such that the existing home is in jeopardy with as little at 0.8 feet (25 cm) of SLR. This flooding vulnerability is confirmed by the CoSMoS output provide below as Figure 3. This increase is sea level can occur during an El Nino event similar to the 1982-83 winter, independent of SLR. Figure 4 is the CoSMoS output for 1.6 feet (50 cm) of SLR showing the homes (the subject site and the residence to the west) are clearly flooded.

Figure 3. CoSMoS output for the 409 First Street site with 0.8 feet SLR

Figure 4. CoSMoS output for the 409 First Street site with 1.6 feet SLR

The second concern from the GeoSoils Report is the assertion that the retaining wall will protect the principal structure from flooding and that the top of the wall can be raised to adapt to sea level rise. The material provided by GeoSoils does not show the existing house or provide any information about the elevation of the house. It also does not provide information on runup and overtopping of the existing revetment and the existing wall and hardscape.

Figure 1 and Figure 2 provide evidence/information that the revetment is overtopped and that the soils behind the revetment are being eroded at a rate of about 1.7 ft/yr. It should be noted that the boat traffic, which creates the waves, is much more frequent today than in the past. Therefore, the rate of erosion will increase, going forward. The plans for the retaining wall are have been modified and are attached to this letter.

It would be useful to have an analysis of flood risk to the principal structure, examining runup and overtopping of the revetment and existing wall. First of all, under what conditions can overtopping now reach the principal residence? Will the water be high enough to flow into the principal residence? If yes, could the flooding be addressed with occasional use of sand bags or some temporary efforts closer to the principal residence? What is the general amount of future sea level rise that could be accommodated in this manner before additional protection would be needed? What flooding protection would be provided by the proposed retaining wall? How much could the proposed new retaining wall be raised in the future, until additional foundation improvements would be needed?

Overtopping water has not reached the structure as of yet. It would appear that the principal structure is vulnerable to flooding during an El Nino event similar to the 1982-83 winter according to CoSMoS. This could happen next year. The flooding could temporarily be mitigated by flood shields. However, flood shields on this site will do nothing to mitigate the flanking erosion and flooding on the adjacent properties, through the subject site. This flanking problem will occur BEFORE the subject structure floods. The top of the proposed wall could be increased up to 3 feet to adapt to SLR (to >+ 12 ft NAVD88). The top of the wall on the property to the south is at elevation +12 feet NAVD88.

All of the properties along First Street, including the street ends, are protected by some form of shore protection. The continuous shore protection acts to protect all of the properties. This is how the shore protection along the urbanized sections of San Diego Bay works. Any gap in the shore protection or degradation of a segment of shore protection, as currently exists with the revetment fronting this site, jeopardizes the adjacent properties. If the uniform shore protection is not reestablish additional properties may be impacted. The project, as proposed, mitigates the impact of the gap in the degraded shore protection fronting the site on the adjacent sites and subject site. The information provided in our previous responses demonstrated the compliance with the LCP/IP to the satisfaction of the City of Coronado.

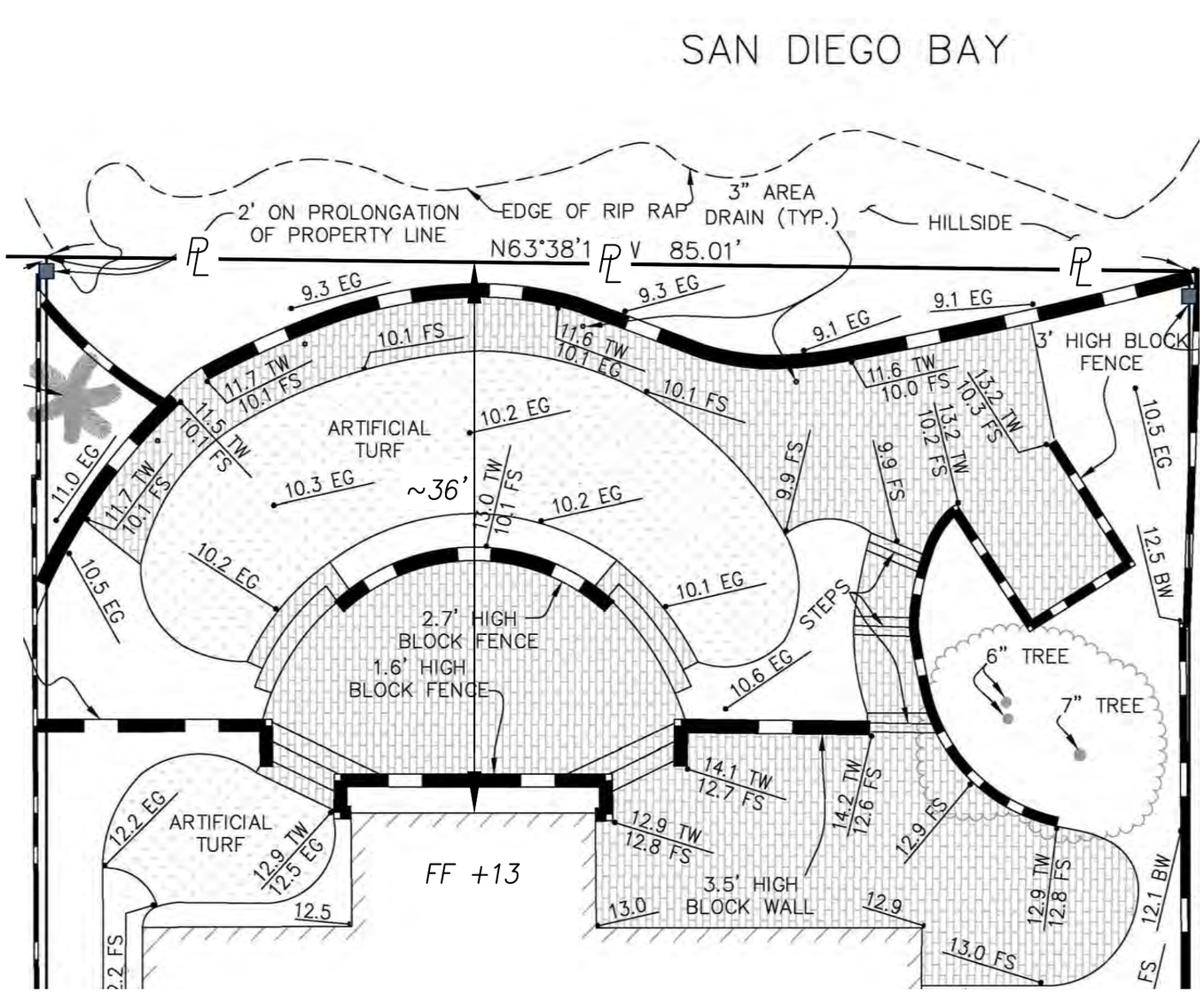
Finally, it is our understanding that the CCC is contemplating a condition of the issuance of a permit for the wall that would require it be removed, if the property is redeveloped. This condition fails to address that one of the reasons the wall is needed is to protect the adjacent properties. Removal of the subject wall would contribute to the geologic instability of the adjacent properties and not be in conformance with the City LCP and the Coastal Act. It is GSI's opinion that findings to support the future removal condition cannot be made.

The opportunity to be of service is greatly appreciated. If you have any questions concerning this report, or if we may be of further assistance, please do not hesitate to contact any of the undersigned.

Respectfully Submitted,

GeoSoils Inc.
David W. Skelly, RCE #47857
.

ATTACHED: Modified Plans



409 FIRST STREET
APN: 563-020-07
EXISTING TOPOGRAPHY
Scale: 1"=10'

NOTE:
ELEVATIONS ARE BASED ON SURVEY BY ALGERT ENGINEERING USING MLLW DATUM

SCOPE OF WORK

1. PROJECT SHALL COMPLY WITH THE 2016 CALIFORNIA BUILDING CODE
2. REMOVE EXISTING RETAINING WALLS IN PATIO AREA.
3. REPLACE WALL JUST LANDWARD OF PROPERTY LINE WITH A NEW RETAINING WALL USING A GREENBOOK STANDARD WALL DESIGN.
4. ALL WORK TO BE ON PRIVATE PROPERTY, AND LANDWARD AND ABOVE THE HIGH TIDE LINE (HTL)
5. HOME TO BE REMOVED AND REPLACED, INCLUDING NEW PATIO 'UNDER A SEPARATE PERMIT.

ENGINEER OF WORK'S CERTIFICATE

I, David W. Skelly HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS AND THE CITY OF CORONADO.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF CORONADO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME OF RESPONSIBILITIES FOR PROJECT DESIGN.

SIGNED _____ DATE. _____

R.C.E. NO. 47857 EXP. _____

FIRM GeoSoils, Inc.

NORTH

GRAPHIC SCALE
10 0 5 10 20
1" = 10'

REVISIONS	BY
11/26/18	
01/04/19	
04/12/19	
08/23/19	

DRAFTING BY:

PROFESSIONAL ENGINEER * REGISTERED * DAVID W. SKELLY * No. C 47857 EXP. 12/31/19 * CIVIL * STATE OF CALIFORNIA

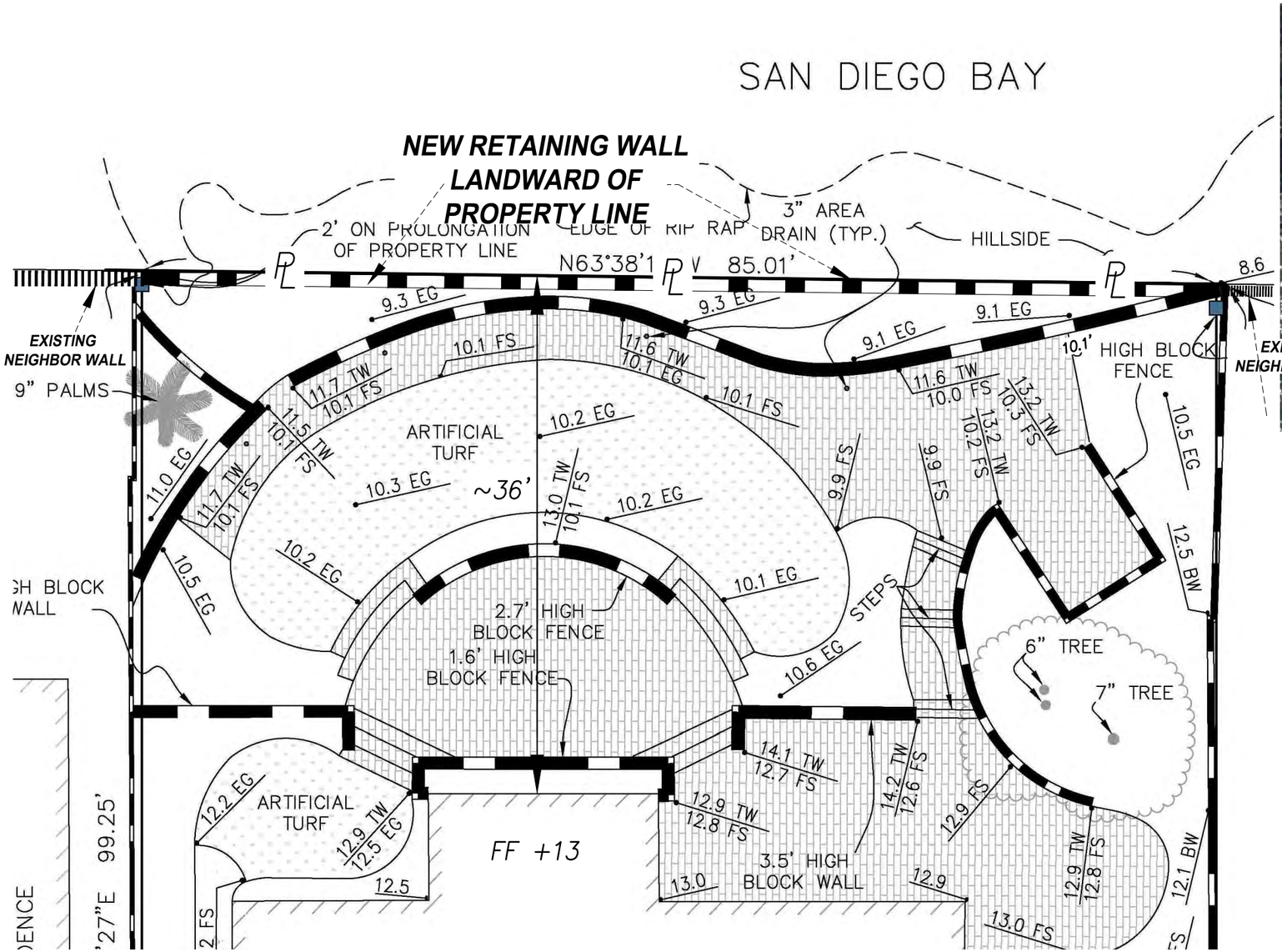
GeoSoils, Inc.
Geotechnical • Geologic • Coastal • Environmental
5741 Palmer Way, Carlsbad, CA 92010
760-438-3155

TITLE:
409 First Street
Retaining Wall

CLIENT: THE ALAN & LYNDSEY ARENDSEE FAMILY TRUST
409 FIRST STREET, CORONADO-92118

W.O. 57480-SC

DRAWN	
CHECKED	
DATE	11/26/18
SCALE	
JOB NO.	
SHEET	S1
OF	7 SHEETS



PROPOSED RETAINING WALL, PATIO

GRAPHIC SCALE
10 0 5 10 20
1" = 10'

NORTH

REVISIONS	BY
11/26/18	
01/04/19	
04/12/19	
08/23/19	

DRAFTING BY:

REGISTERED PROFESSIONAL ENGINEER DAVID W. SKELLY No. C 47857 EXP. 12/31/19 CIVIL STATE OF CALIFORNIA

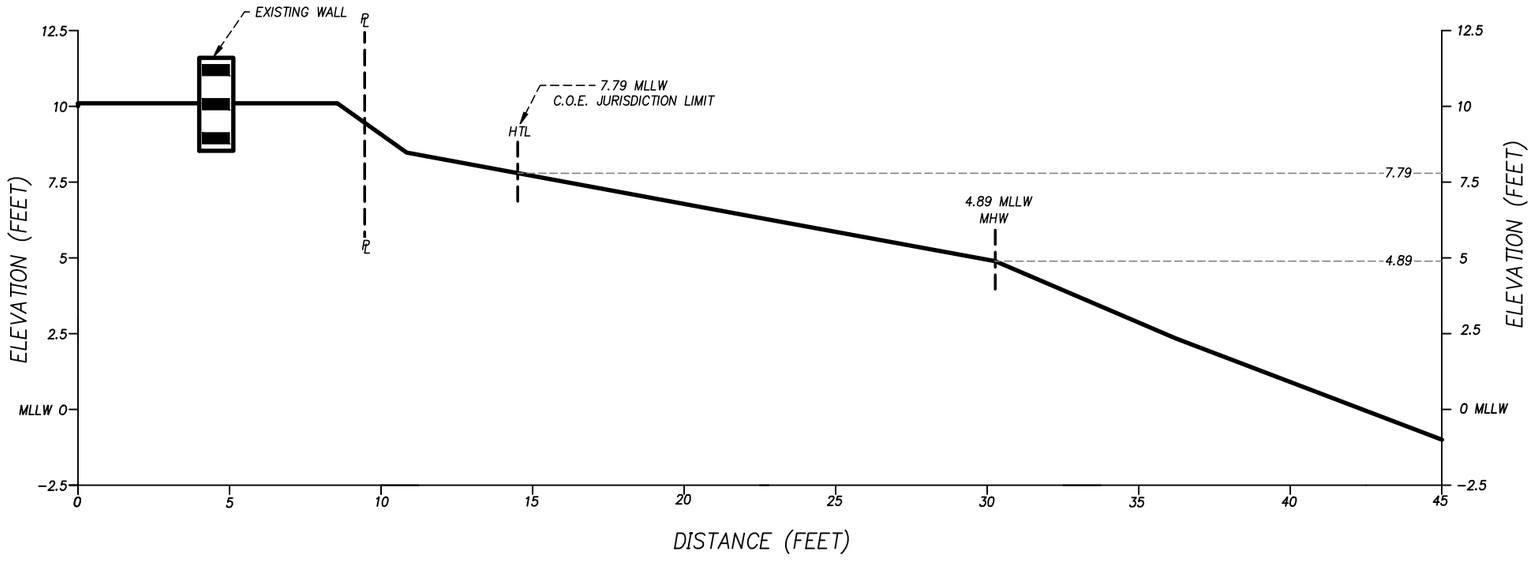
GeoSoils, Inc.
Geotechnical • Geologic • Coastal • Environmental
5741 Palmer Way, Carlsbad, CA 92010
760-438-3155

TITLE: *409 First Street Retaining Wall*

CLIENT: THE ALAN & LYNDSEY ARENDSEE FAMILY TRUST
409 FIRST STREET, CORONADO-92118

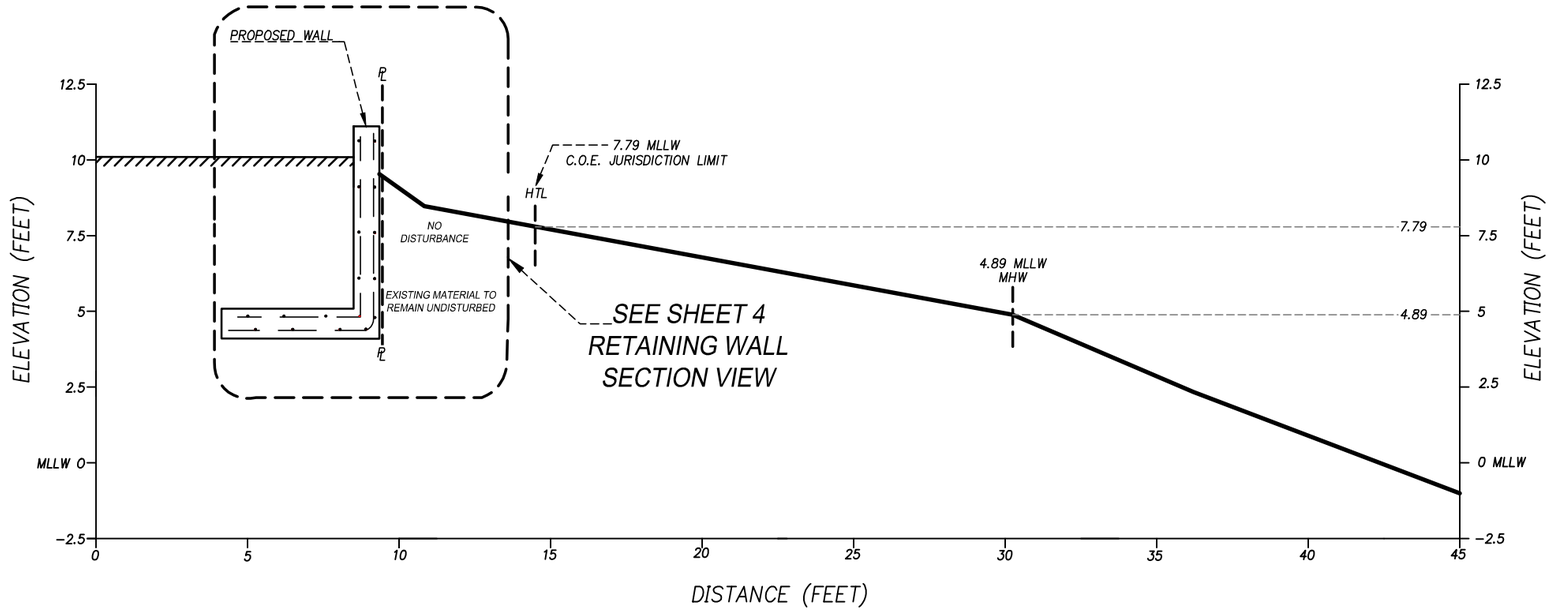
W.O. S7480-SC

DRAWN	
CHECKED	
DATE	11/26/18
SCALE	
JOB NO.	
SHEET	S2
OF	7 SHEETS



SECTION A-A'

SCALE: AS SHOWN



SECTION B-B'

SCALE: AS SHOWN

REVISIONS	BY
11/26/18	
01/04/19	
04/12/19	

DRAFTING BY:

REGISTERED PROFESSIONAL ENGINEER
DAVID W. SKELLY
No. C 47857
EXP. 12/31/19
CIVIL
STATE OF CALIFORNIA

GeoSoils, Inc.
Geotechnical • Geologic • Coastal • Environmental
5741 Palmer Way, Carlsbad, CA 92010
760-438-3155

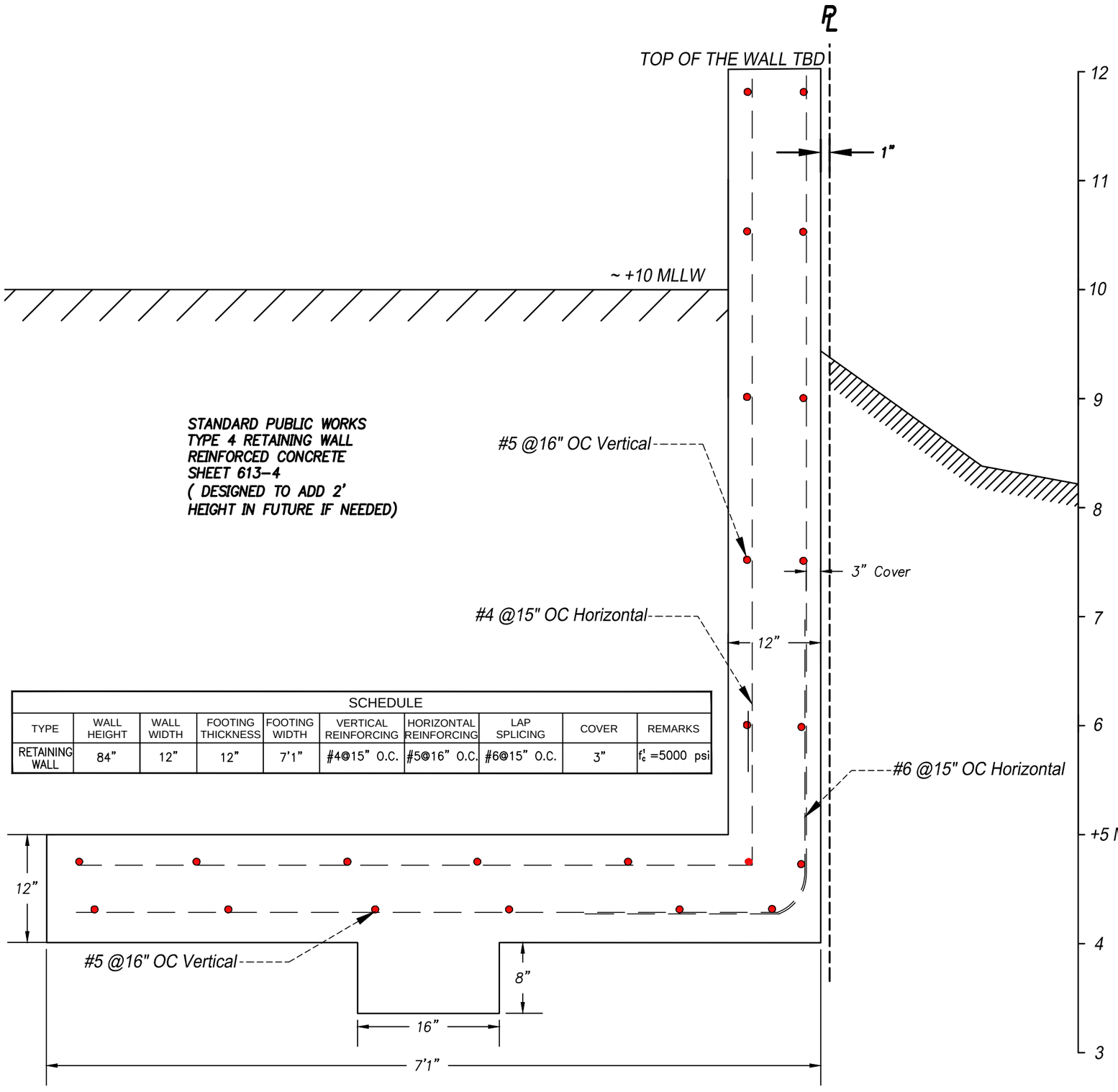
TITLE:

409 First Street Retaining Wall

CLIENT: THE ALAN & LYNDSEY ARENDSEE FAMILY TRUST
409 FIRST STREET, CORONADO-92118

W.O. S7480

DRAWN	
CHECKED	
DATE	11/26/18
SCALE	
JOB NO.	
SHEET	S3
OF	7 SHEETS



SCHEDULE									
TYPE	WALL HEIGHT	WALL WIDTH	FOOTING THICKNESS	FOOTING WIDTH	VERTICAL REINFORCING	HORIZONTAL REINFORCING	LAP SPLICING	COVER	REMARKS
RETAINING WALL	84"	12"	12"	7'1"	#4@15" O.C.	#5@16" O.C.	#6@15" O.C.	3"	f'_c =5000 psi

GENERAL NOTES

1. THE "OWNER" SHALL BE THE OWNER OF THE RESIDENCE; THE "ENGINEER" SHALL BE GEOSOILS INC; AND THE "CONTRACTOR" SHALL BE AN INDEPENDENT ENTITY RETAINED BY THE OWNER TO PERFORM THE WORK DESCRIBED HEREIN. THE ENGINEER HAS BEEN RETAINED BY THE OWNER AND IS NOT AFFILIATED WITH THE CONTRACTOR.
2. UNLESS OTHERWISE DIRECTED BY THE OWNER, THE CONTRACTOR SHALL SECURE, AT HIS EXPENSE, ALL PERMITS, LICENSES, AND CONSENTS NECESSARY FOR THE PERFORMANCE OF THE WORK DESCRIBED HEREIN. THE OWNER REMAINS RESPONSIBLE TO ASSURE THAT ALL NECESSARY PERMITS ARE OBTAINED.
3. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS, LOCATIONS AND ELEVATIONS PRIOR TO COMMENCING WORK. CONDITIONS, LOCATIONS AND ELEVATIONS SHOWN ON THE PLANS SHALL BE CONSIDERED APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD. ANY CONFLICTS OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND BE RESOLVED PRIOR TO COMMENCEMENT OF THE WORK.
4. THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES. ALL WORK SHALL COMPLY WITH 2016 CALIFORNIA BUILDING CODES.
5. THE CONTRACTOR SHALL EXERCISE DUE CARE TO PRESERVE EXISTING VEGETATION OUTSIDE LIMITS OF GRADING. CONTRACTOR SHALL TREAT ALL DISTURBED AREAS WITH EROSION CONTROL MEASURES.
6. CONTRACTOR TO REMOVE AND REPLACE ALL IMPROVEMENTS DAMAGED AS A RESULT OF THE WORK DETAILED IN THESE PLANS TO A CONDITION EQUIVALENT TO OR BETTER THAN EXISTING CONDITIONS TO THE SATISFACTION OF THE OWNER. THIS INCLUDES, BUT IS NOT NECESSARILY LIMITED TO: FENCES, GATES, AND ROADS.
7. CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR LOCATION AND AVOIDANCE OR REPAIR OF ALL UNDERGROUND UTILITIES, INCLUDING, BUT NOT LIMITED TO, GAS, WATER, ELECTRIC, CABLE TV, TELEPHONE, SANITARY SEWER, AND STORM SEWER. CONTRACTOR SHALL NOTIFY USA UNDERGROUND AND OTHER APPROPRIATE AUTHORITIES, INCLUDING PUBLIC AND PRIVATE UTILITY OWNERS, OF CONSTRUCTION ACTIVITIES A MINIMUM OF TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THE DRAWINGS OR NOT. IF THE CONTRACTOR FAILS TO ADEQUATELY PROTECT THE UTILITIES, ANY RESULTING DAMAGE SHALL BE REPAIRED AT CONTRACTOR'S COST.
8. CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR SAFETY DURING PERFORMANCE OF THE WORK.
9. IN THE EVENT THAT ANY UNUSUAL CONDITIONS NOT COVERED BY THE PLANS OR SPECIFICATIONS ARE ENCOUNTERED DURING EXCAVATION OPERATIONS, THE ENGINEER SHALL BE IMMEDIATELY CONTACTED FOR DIRECTIONS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO IMMEDIATELY NOTIFY THE ENGINEER UPON DISCOVERY OF ANY FIELD CONFLICTS.
10. EXCEPT AS OTHERWISE INDICATED IN THIS SECTION OF THE SPECIFICATIONS, THE CONTRACTOR SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1997 EDITION, INCLUDING THE 1997 REGIONAL SUPPLEMENT AMENDMENTS AND 1997 CITY OF SAN DIEGO SUPPLEMENT AMENDMENTS (SSPWC).
11. THE CONTRACTOR SHALL PROVIDE THE OWNER AND ENGINEER WITH THE NAME AND TELEPHONE NUMBER OF THE RESPONSIBLE PERSON TO CONTACT, WITH REGARD TO THIS PROJECT, 24 HOURS A DAY.
12. WHILE NOT ANTICIPATED, THE CONTRACTOR SHALL PROVIDE ADEQUATE DUST CONTROL AT ALL TIMES AS REQUIRED BY THE CITY. ANY OPERATION THAT CREATES EXCESSIVE DUST SHALL CEASE IMMEDIATELY UNTIL SUFFICIENT MEASURES SATISFACTORY TO THE CITY HAVE BEEN TAKEN TO INSURE COMPLIANCE WITH DUST CONTROL REQUIREMENTS.
13. ALL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL OF THE OWNER AND ENGINEER. ALL WORK SHALL ALSO BE SUBJECT TO INSPECTION BY THE UNITED STATES ARMY CORPS OF ENGINEERS AND THE SAN DIEGO UNIFIED PORT DISTRICT.
14. THE CONTRACTOR AGREES THAT THEY SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE SAFETY CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY: THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
15. THE ENGINEER SHALL BE PROVIDED WITH AT LEAST TWO (2) WORKING DAYS ADVANCE NOTICE OF CONSTRUCTION ACTIVITIES REQUIRING INSPECTION SERVICES AT (760) 438-3155 OR FAX (760) 931-0915. BEFORE WORK MAY BEGIN, REASONABLE NOTICE OF NOT LESS THAN 72 HOURS, MUST BE PROVIDED TO THE ARMY CORPS (THROUGH THERESE O'ROURKE, SECTION CHIEF, ARMY CORPS OF ENGINEERS, REGULATORY DIVISION, 760.602.4830) AND THE PORT (THROUGH ITS SUPERVISOR OF INSPECTIONS, 619.686.6245).
16. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE CLEAN-UP TO THE SATISFACTION OF THE OWNER.
17. CONTRACTOR SHALL COMPLY WITH THE CALIFORNIA STORM WATER BEST MANAGEMENT PRACTICE HANDBOOK.

REVISIONS	BY
11/26/18	
01/04/19	
04/12/19	

DRAFTING BY:

REGISTERED PROFESSIONAL ENGINEER DAVID W. SKELLY No. C 47857 EXP. 12/31/19 CIVIL STATE OF CALIFORNIA

GeoSoils, Inc.
Geotechnical • Geologic • Coastal • Environmental
5741 Palmer Way, Carlsbad, CA 92010
760-438-3155

TITLE:

409 First Street Retaining Wall

CLIENT: THE ALAN & LYNDSEY ARENDSEE FAMILY TRUST
409 FIRST STREET, CORONADO-92118

W.O. S7480

DRAWN	
CHECKED	
DATE	11/26/18
SCALE	
JOB NO.	
SHEET	S4
OF	7 SHEETS

RETAINING WALL NOTES

1. ALL WORK IS SUBJECT TO OBSERVATION BY THE ENGINEER. CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST TWO (2) WORKING DAYS BEFORE THE START OF ANY WORK. PORT & CORPS TO RECEIVE TEN (10) DAYS NOTICE.

2. APPROVAL OF THIS PLAN APPLIES ONLY TO THE EXCAVATION AND CONSTRUCTION OF A SEAWALL. THIS APPROVAL DOES NOT CONFER ANY RIGHTS OF ENTRY TO EITHER PUBLIC PROPERTY OR THE PRIVATE PROPERTY OF OTHERS. APPROVAL OF THIS PLAN ALSO DOES NOT CONSTITUTE APPROVAL OF ANY OTHER IMPROVEMENTS. ANY OTHER IMPROVEMENTS ARE SUBJECT TO REVIEW AND APPROVAL BY THE RESPONSIBLE AUTHORITIES AND ALL OTHER REQUIRED PERMITS SHALL BE OBTAINED.

3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY, LOCATE AND PROTECT ALL UNDERGROUND FACILITIES.

4. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHTS-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.

SPECIAL INSPECTION

1. SPECIAL INSPECTION OF THE FOLLOWING SHALL BE IN ACCORDANCE WITH CALIFORNIA BUILDING CODE 2016, CHAPTER 17
   - PLACING AND SPLICING OF REINFORCING STEEL (CBC CHAPTER 17, TABLE 1705.3)
   - 5000 PSI CONCRETE

BEST MANAGEMENT PRACTICES

1. MEASURES WILL BE IMPLEMENTED TO PREVENT FOREIGN MATERIALS ASSOCIATED WITH THE DEFINED WORK FROM FOULING OR ENTERING THE BAY DURING CONSTRUCTION.

2. A CONTAINMENT NETTING OR A FUNCTIONAL EQUIVALENT TAILORED TO THE EXACT METHOD OF CONSTRUCTION OF THE REPAIR WILL BE PLACED AROUND ALL ACTIVE PORTIONS OF THE CONSTRUCTION WORK SITE WHERE SCRAPS/CONCRETE COULD FALL INTO THE BAY.

3. FOR ALL, HEAVY DUTY MESH CONTAMINANT NETTING WILL BE PLACED AND MAINTAINED BELOW ALL WORK AREAS WHERE CONSTRUCTION DEBRIS/DISCARDS/OVERFLOWS COULD FALL INTO THE BAY.

4. NETTING WILL BE CLEARED DAILY OR AS OFTEN AS IT IS DEEMED NECESSARY BASED ON TYPE OF WORK, MATERIALS USED AND WEATHER AND TIDAL CONDITIONS TO PREVENT ACCUMULATION OF DEBRIS AND OVER FLOW OF DEBRIS.

5. CONTRACTOR WILL ENSURE THAT ALL WORK CREWS ARE BRIEFED ON THE IMPORTANCE OF OBSERVING THE APPROPRIATE PRECAUTIONS, IMPLEMENTING THESE MEASURES, AND REPORTING ANY ACCIDENTAL SPILLS.

6. CONSTRUCTION CONTRACTS SHALL CONTAIN PENALTY PROVISIONS, SUFFICIENT TO PROVIDE FOR THE RETRIEVAL AND OR CLEAN UP OF IMPROPERLY CONTAINED FOREIGN MATERIALS.

REINFORCED CONCRETE

1. CEMENT SHALL CONFORM TO ASTM C 150, TYPE V.

2. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C 33.

3. CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C 94.

4. CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", EXCEPT AS MODIFIED BY THESE NOTES.

5. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS FOLLOWS:

   Retaining Wall: 5000 PSI
   W/C RATIO 0.40 PER 2016 CBC
   SLUMP: 5" TO 7"

   FOR CONCRETE OVER 2500 PSI SPECIAL INSPECTION IS REQUIRED.

6. ADMIXTURES SHALL BE USED WITH PRIOR WRITTEN APPROVAL OF THE ENGINEER. ADMIXTURES SHALL COMPLY WITH ASTM C 494 AND BE OF A TYPE THAT INCREASES THE WORKABILITY OF THE CONCRETE, BUT WHICH SHALL NOT REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT. CALCIUM CHLORIDE SHALL NOT BE USED.

7. CONTRACTOR SHALL SUBMIT MIX DESIGNS FOR REVIEW BEFORE FABRICATION AND INSTALLATION.

8. ALL CONCRETE MAY (OPTIONAL) HAVE 4 GALLONS OF GRACE DCI" CORROSION INHIBITOR PER CUBIC YARD. CORROSION INHIBITOR SHALL MEET THE REQUIREMENTS OF ASTM C 494, TYPE C.

REINFORCING STEEL

1. BAR REINFORCEMENT SHALL BE ASTM A 615, GRADE 60.

2. ALL REINFORCING BARS SHALL BE EPOXY COATED PER ASTM A 775.

3. MINIMUM LAP SPLICES OF REINFORCING BARS SHALL BE AS FOLLOWS:
   CLASS B AS DEFINED IN ACI 318-14.

4. REINFORCEMENT DETAILING, BENDING, AND PLACEMENT SHALL BE IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE", LATEST EDITION.

5. REINFORCING STEEL SHALL BE PROVIDED WITH THE FOLLOWING AMOUNTS OF COVER:
   A. CONCRETE DEPOSITED AGAINST EARTH: 3 IN. MIN.
   B. CONCRETE SURFACE EXPOSED TO EARTH OR WEATHER: 3 IN. MIN.

6. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND INSERTS SHALL BE WELL-SECURED IN POSITION BEFORE PLACING CONCRETE.

STAGING AREA FOR CONSTRUCTION

1. OVERNIGHT STORAGE –
   NO OVERNIGHT STORAGE OF EQUIPMENT OR MATERIALS SHALL OCCUR ON PUBLIC PROPERTY. DURING CONSTRUCTION STAGES OF THE PROJECT, THE CONTRACTOR SHALL NOT STORE ANY CONSTRUCTION MATERIALS OR WASTE WHERE IT WILL BE OR COULD BE POTENTIALLY BE SUBJECT TO WAVE EROSION AND DISPERSION. IN ADDITION NO MACHINERY SHALL BE PLACED, STORED OR OTHERWISE LOCATED IN THE INTERTIDAL ZONE AT ANY TIME, EXCEPT FOR THE MINIMUM NECESSARY TO PERFORM THE WORK. CONSTRUCTION EQUIPMENT SHALL NOT BE WASHED ON THE BEACH.

2. ACCESS CORRIDORS –
   CONSTRUCTION ACCESS CORRIDORS SHALL BE LOCATED IN A MANNER THAT HAS THE LEAST IMPACT ON PUBLIC ACCESS TO AND ALONG THE SHORELINE.

3. STAGING SITE –
   ANY STAGING SITE NOT LOCATED ON OWNER PROPERTY WILL BE REMOVED AND OR RESTORED IMMEDIATELY FOLLOWING COMPLETION OF THE DEVELOPMENT

CONSTRUCTION RESPONSIBILITY & DEBRIS REMOVAL

1. MATERIALS –
   NO CONSTRUCTION MATERIALS, DEBRIS, OR WASTE SHALL BE PLACED OR STORED WHERE IT MAY BE SUBJECT TO WAVE EROSION OR DISPERSION. THERE WILL BE NO DISCHARGE CONTAINING POLLUTANTS TO THE BAY, OR RELEASE OF POLLUTANTS TO THE SOIL OR GROUNDWATER.

2. DEBRIS –
   ANY AND ALL DEBRIS RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE REMOVED FROM THE BEACH DAILLY. NO CONTACT EVER BETWEEN BAY WATER AND ANY DEBRIS. REMOVAL AND DISPOSAL OF CONSTRUCTION DEBRIS SHALL BE DONE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF THE CITY OF CORONADO AND THE ARMY CORPS OF ENGINEERS.

REVISIONS	BY
11/26/18	
01/04/19	
04/12/19	

DRAFTING BY:

REGISTERED PROFESSIONAL ENGINEER · DAVID W. SKELLY · No. C 47857 · EXP. 12/31/19 · STATE OF CALIFORNIA · CIVIL

GeoSoils, Inc.
Geotechnical • Geologic • Coastal • Environmental
5741 Palmer Way, Carlsbad, CA 92010
760-438-3155

TITLE: 409 First Street Retaining Wall

W.O. 5748O

CLIENT: THE ALAN & LYNDSEY ARENDSEE FAMILY TRUST
409 FIRST STREET, CORONADO-92118

DRAWN	
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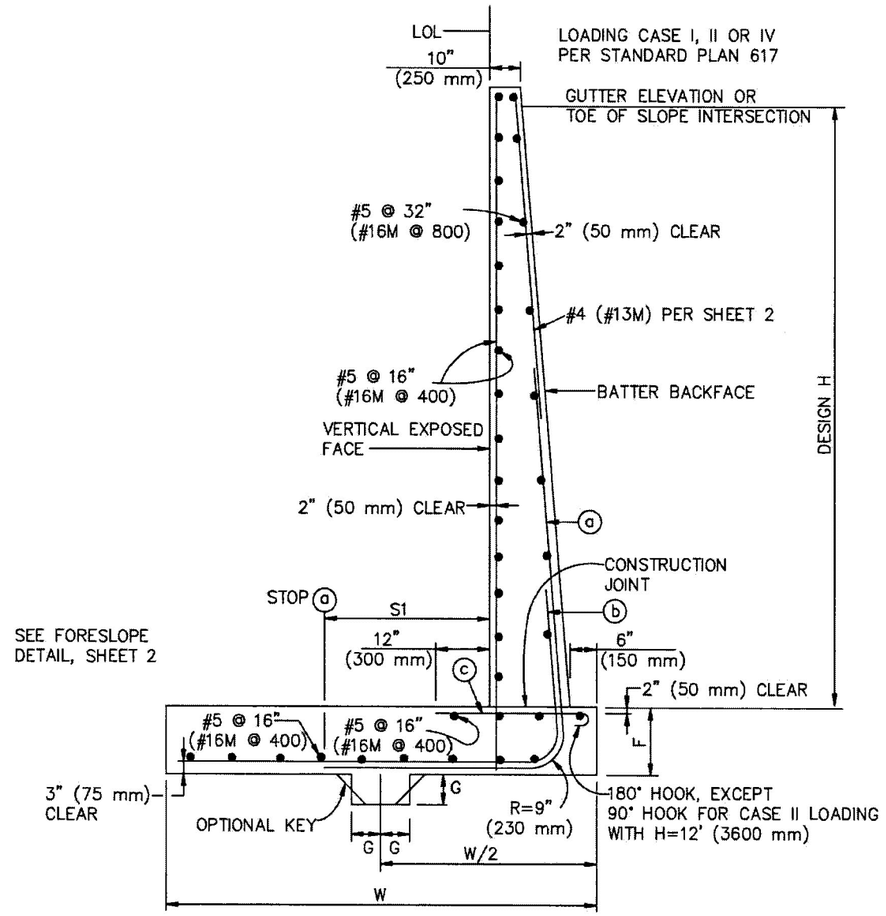
DATE	11/26/18
SCALE	
JOB NO.	
SHEET	S5
OF	7 SHEETS



SECTION

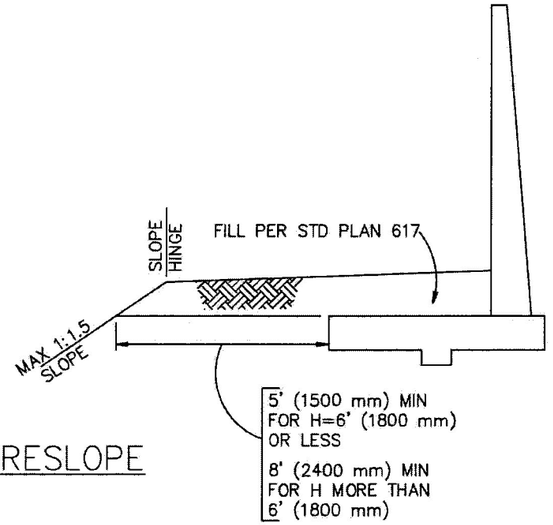
NO SIMILAR CALTRANS TYPE

NOTES:

FOR H LT 8' (2400 mm) S1 = C−2" (S1 = C−50 mm)
FOR H GE 8' (2400 mm) S1 = W/3

SEE SPPWC 617 FOR STANDARD WALL DETAILS.

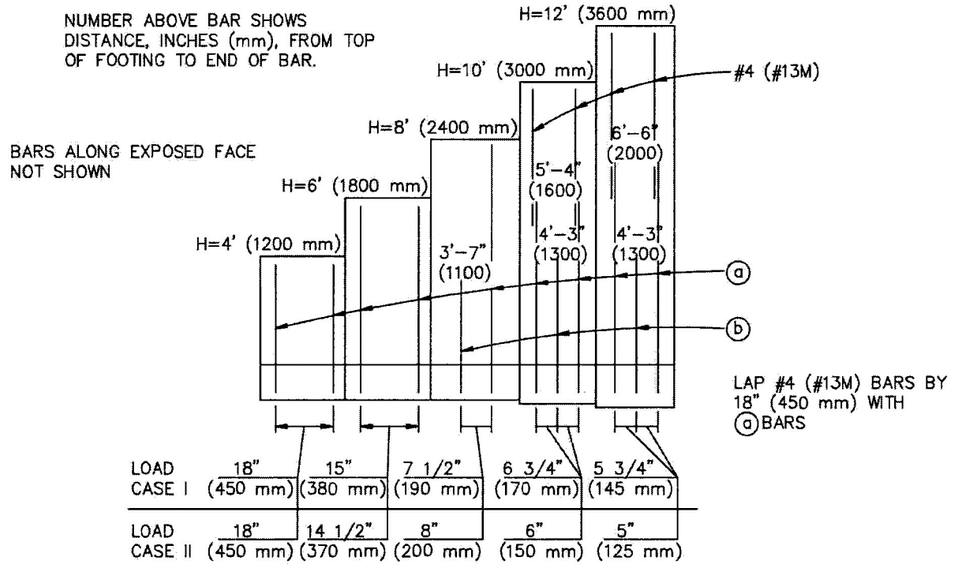
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. GREENBOOK COMMITTEE 1984 REV. 1993, 2010	**REINFORCED CONRETE RETAINING WALL TYPE 4** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN **613−4** SHEET 1 OF 3



FORESLOPE

NUMBER ABOVE BAR SHOWS
DISTANCE, INCHES (mm), FROM TOP
OF FOOTING TO END OF BAR.

BARS ALONG EXPOSED FACE
NOT SHOWN



ELEVATION

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN
REINFORCED CONCRETE RETAINING WALL TYPE 4	**613−4** SHEET 2 OF 3

REVISIONS	BY
11/26/18	
01/04/19	
04/12/19	

DRAFTING BY:

REGISTERED PROFESSIONAL ENGINEER
DAVID W. SKELLY
No. C 47857
EXP. 12/31/19
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SHEET	S6
OF	7 SHEETS

LOAD CASE I OR II

H	4' (1200 mm)	6' (1800)	8' (2400)	10' (3000)	12' (3600)
W	3'–8" (1120)	5'–3" (1600)	7'–1" (2160)	9'–4" (2840)	11'–9" (3580)
F	0'–10" (250)	0'–10" (250)	0'–10" (250)	0'–11" (280)	1'–1" (330)
C	2'–4" (710)	3'–11" (1190)	5'–9" (1750)	8'–0" (2440)	10'–5" (3180)
G	8" (200)	8" (200)	8" (200)	12" (300)	12" (300)
BATTER	NONE	NONE	NONE	NONE	100:1
ⓐ BARS	#4 @ 18" (#13M @ 450)	#5 @ 15" (#16M @ 380)	#4 @ 15" (#13M @ 380)	#5 @ 13 1/2" (#16M @ 340)	#6 @ 11 1/2" (#19M @ 290)
ⓑ BARS	———	———	#6 @ 15" (#19M @ 380)	#7 @ 13 1/2" (#22M @ 340)	#7 @ 11 1/2" (#22M @ 290)
ⓒ BARS	#4 @ 18" (#13M @ 450)	#4 @ 15" (#13M @ 380)	#4 @ 15" (#13M @ 380)	#4 @ 13 1/2" (#13M @ 340)	#4 @ 11 1/2" (#13M @ 290)
TOE SOIL PRESSURE	630 psf (30 kPa)	650 (30)	660 (30)	660 (30)	700 (35)

LOAD CASE IV

H	4' (1200 mm)	6' (1800)	8' (2400)	10' (3000)	12' (3600)
W	3'–8" (1120)	5'–3" (1600)	7'–1" (2160)	9'–4" (2840)	11'–10" (3600)
F	0'–10" (250)	0'–10" 250	0'–10" 250	1'–0" 300	1'–3" 380
C	2'–4" (710)	3'–11" (1190)	5'–9" (1750)	8'–0" (2440)	10'–5" (3180)
G	8" (200)	8" (200)	8" (200)	12" (300)	12" (300)
BATTER	NONE	NONE	NONE	100:1	100:2
ⓐ BARS	#4 @ 18" (#13M @ 450)	#5 @ 14 1/2" (#16M @ 370)	#4 @ 16" (#13M @ 400)	#5 @ 12" (#16M @ 300)	#6 @ 10" (#19M @ 250)
ⓑ BARS	———	———	#7 @ 16" (#22M @ 400)	#7 @ 12" (#22M @ 300)	#7 @ 10" (#22M @ 250)
ⓒ BARS	#4 @ 18" (#13M @ 450)	#4 @ 14 1/2" (#13M @ 370)	#4 @ 16" (#13M @ 400)	#4 @ 12" (#13M @ 300)	#4 @ 10" (#13M @ 250)
TOE SOIL PRESSURE	490 psf (25 kPa)	560 (25)	610 (30)	680 (35)	750 (35)

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN
REINFORCED CONCRETE RETAINING WALL TYPE 4	613–4 SHEET 3 OF 3

CITY OF CORONADO

DEPARTMENT OF COMMUNITY DEVELOPMENT
BUILDING DIVISION
1825 STRAND WAY, CORONADO, CA 92118
(619) 522-7331 / (619) 522-2418 (FAX)
COMMDEV@CORONADO.CA.US

HANDOUT 106 FEB 2014

SPECIAL INSPECTION PROGRAM

PURPOSE: To establish an official listing of special inspections required for a specific project.

AUTHORITY: 2013 California Building Code – Sections 1704

1704.2.3 Statement of special inspections. The applicant shall submit a statement of special inspections in accordance with Section 107.1 Chapter 1, Division II, as a condition for permit issuance. This statement shall be in accordance with Section 1704.3.

1704.3 Statement of Special Inspections. Where special inspection or testing is required by Section 1705, the registered design professional in responsible charge (RDPRC) shall prepare a statement of special inspections in accordance with Section 1704.3.1 for submittal by the applicant in accordance with Section 1704.2.3.

NOTES:

1. This Special Inspection Program is specific to the permit listed below.
2. Special Inspectors must be listed on the current City of San Diego approved Special Inspector List. See http://www.sandiego.gov/development-services/industry/pdf/specialinspectlist.pdf
3. Special Inspectors not on the aforementioned list must present their credentials to the Building Division prior to conducting any inspection. Failure to present appropriate credentials prior to an inspection shall negate the inspection and any subsequent work performed by the contractor.
4. Special Inspectors shall ensure that a legible, fully-detailed special inspection report is made available to the Building Division.
5. The General Contractor may not employ the Special Inspector.

DATA:

1. Permit:_____ Project Address:_____

2. Owner:_____ RDPRC:_____

3. List of work requiring Special Inspection:
   - ☐ Soils compliance prior to foundation inspection
   - ☐ Structural concrete over 2500 PSI
   - ☐ Pre-stressed concrete
   - ☐ Structural masonry
   - ☐ Architect / Engineer – Specified
   - ☐ Field Welding
   - ☐ High Strength Bolting
   - ☐ Expansion / Epoxy anchors
   - ☐ Sprayed-on fireproofing
   - ☐ Other – ATTACH SEPARATE LISTING

CERTIFICATION:

I, as the Registered Design Professional in Responsible Charge, by having applied my stamp hereon, certify that I have prepared the Special Inspection Program as required by the 2013 CBC, Section 1704.3. This program includes all items requiring special inspection per the 2013 CBC Section 1705 for the construction project at the address listed above.

I, as the Owner, Agent for the Owner, or the Registered Design Professional in Responsible Charge shall employ the Special Inspectors as required by this Special Inspection Program.

Signature: _____ Signature: _____

(Stamp) (Owner) (Design Professional)

REVISIONS	BY
11/26/18	
01/04/19	
04/12/19	

DRAFTING BY:

REGISTERED PROFESSIONAL ENGINEER DAVID W. SKELLY No. C 47857 EXP. 12/31/19 CIVIL STATE OF CALIFORNIA

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5741 Palmer Way • Carlsbad, California 92010 • (760) 438-3155 • FAX (760) 931-0915 • www.geosoilsinc.com

March 24, 2020 W.O. S7480

The Alan & Lyndsey Arendsee Family Trust
c/o Christian Rice Architects, Inc.
1127 Loma Avenue
Coronado, CA 92118

SUBJECT: Need for Shore Protection at 409 First Street, Coronado, CA.

Dear Alan & Lindsey Arendsee Family Trust:

At your request, Geosoils Inc. (GSI), is pleased to provide the following discussion of the need for new shore protection at the subject property. First we will document the condition of the existing shore protection. The documentation will be followed by an explanation of why viable shore protection is needed at this site, and at adjacent properties. Finally, we will provide a discussion of shore protection alternatives, and determine a preferred shore protection alternative for the site.

EXISTING SHORE PROTECTION

The existing revetment is primarily concrete debris with a smattering of undersized quarry stone, all of which has been just dumped at the shoreline. The debris is not an engineered structure and does not meet current Port of San Diego standards for a revetment type shore protection. The site is flanked by two approved engineered revetments that meet these standards as of the time they were constructed. Figure 1 shows the obvious visual difference between the site revetment and the adjacent approved revetments that are engineered and meet the design standards. The debris fronting the site has not been maintained or repaired. The reason for the lack of maintenance is that the revetment is on Port of San Diego property and the applicant is restricted from performing any work on the revetment. Any maintenance that would bring this structure into conformance would require more than 50% new rock material. This would result in the project being a “new structure” versus just maintenance under the Coronado LCP and the California Coastal Act. Figure 2 is a photograph that shows the haphazard pile of debris.

Figure 1. Google Earth photographs showing the difference in the shore protection between the site and the adjacent properties.

Figure 2. Dumped concrete debris functioning as a revetment at the subject site.

SHORE PROTECTION IS NEEDED

The existing shore protection provides only minimal protection of the site. Increased boating activity within San Diego Bay has resulted in an increase in the shoreline erosion rate. The erosion of the shoreline along First Street in Coronado, and specifically at 409

First Street, has been studied for several decades. The 2001 US Army Corp of Engineers "Coronado Shoreline Initial Appraisal Report, Coronado California" report determined that the rate of shoreline erosion was not natural. The erosion was due to wave energy from boat and ship traffic in the navigable channel offshore. In addition, the report identified the steepened nearshore gradients due to the nearby navigation channel as creating a man made sink for the shoreline sands. Finally, dredging of the carrier turning basin directly adjacent to the west end of First Street created an even deeper sink for shoreline sands. Figure 3 is a copy of the conclusion section of the 2001 Corp Report.

REPORT CONCLUSIONS

The purpose of this study was to develop information to be used in future decision documents that would determine the Federal Interest in providing protection from erosion to about one-half mile of San Diego Bay shoreline on the northeast side of the City of Coronado, California. The problem identification for this investigation indicated that the source of erosion was due to wave energy created by boat and ship traffic within the navigable channel off-shore of the study area, and that there is the potential for significant storm damage to private and public facilities. This erosion is assisted by a relatively steep off-shore slope, particularly along the western half of the shoreline being evaluated. Erosion rates for areas of the shoreline were found to be as high as 1.7 feet per year. This could result in the erosion of house foundations in approximately 10 years. Four alternatives were presented and evaluated on economic, environmental, and cost bases. The economic evaluations included benefits from added recreational access and benefits due to protection of property. These were used to determine benefit-cost ratios (or B/C ratios) for the four alternatives, which are given in the following table.

Figure 3. Conclusions from the 2001 Corps report for the west end of First Street.

Currently, the soils behind the revetment, but in front of the existing landscaping wall at the site, are eroding rapidly. As the soils behind the revetment (on Port property) erode, the revetment falls backward, allowing wakes to reach further and higher towards the subject property. The debris height is reduced as it flattens and becomes less effective in protecting the sites and the adjacent properties, as the shoreline erodes landward of the shore protection on those properties. Figure 4 and Figure 5 are taken from Google Earth dated 2010 and 2018, respectively. They clearly show a retreat of about 14 feet over the 8 year period or a rate of about 1.8 ft/yr (a higher rate than the highest rate in the COE report).

Figure 4. Subject site in 2010 from Google Earth

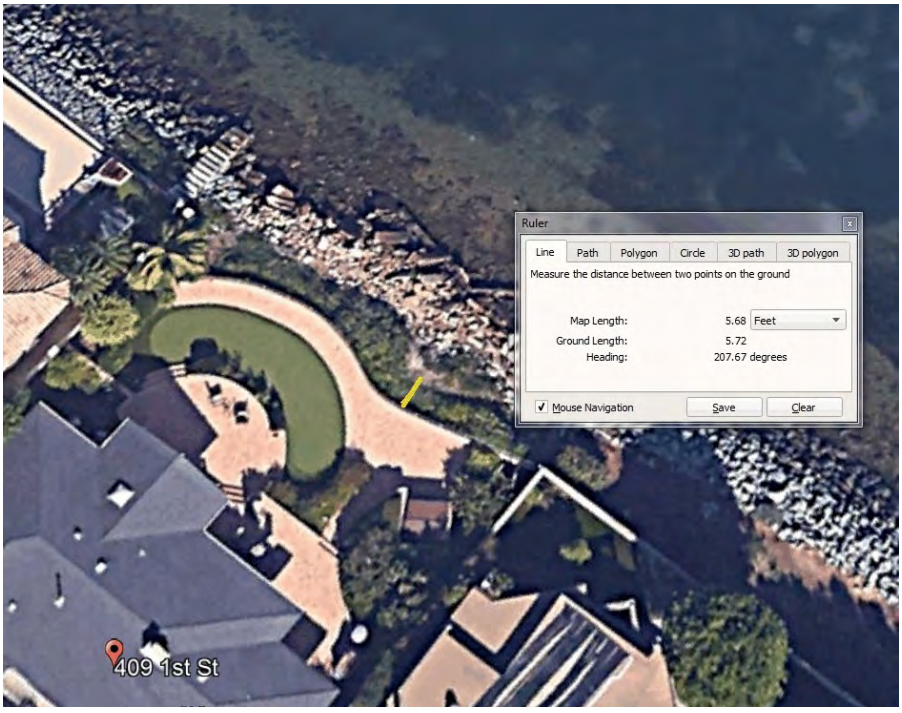

Figure 5. Subject site in 2018 from Google Earth

The fact is, the shoreline is eroding in front of the site, and the erosion will impact the adjacent shore protection and site improvements on this property, as well as the adjacent properties to the east and west, within the next two years. In addition, the site will flood

such that the existing home is in jeopardy with as little at 0.8 feet (25 cm) of SLR. This flooding vulnerability is confirmed by the CoSMoS output provided below as Figure 6. This increase in sea level can occur during an El Nino event similar to the 1982-83 winter, independent of SLR. This could happen at any time. Figure 7 is the CoSMoS output for 1.6 feet (50 cm) of SLR showing the homes (the subject site and the residence to the west) are clearly flooded.

Figure 6. CoSMoS output for the 409 First Street site with 0.8 feet SLR

Figure 7. CoSMoS output for the 409 First Street site with 1.6 feet SLR.

It should be noted that while a revetment has been approved for the adjacent properties, there is no assurance that a revetment will provide continued protection of the site improvements. The revetment at 407 First Street has partially failed and required emergency permits for remedial action from the US Army Corp of Engineers and the Port of San Diego on two different occasions. Subsidence of the patio flat work and other patio improvements, and subsidence of the pool occurred on both occasions. Figure 8 shows one of the holes in the landscaping and revetment as a result of the site soils piping out the revetment. The hole was large enough for a man to stand in and extended laterally to the pool, causing settlement of the pool shell. The piping out of the site soils not only impacts the site improvements, it causes silty soils to cover the adjacent eel grass beds. Figure 9 shows the soils cloud floating towards the nearby eel grass beds.

Figure 8. Voids in the 407 First Street revetment and landscaping. The pool is in the background.

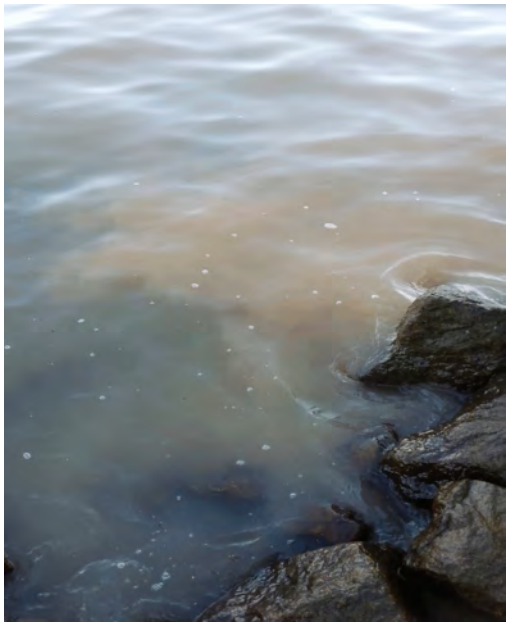

Figure 9. Muddy water sediment plume heading toward the eel grass beds.

A properly functioning shore protection is needed to protect structures on the site and the adjacent properties from flanking erosion. The shore protection on these adjacent sites relies upon a functioning shore protection at the subject site for flanking protection. Figure 4 and Figure 5 above provide evidence/information that the revetment is overtopped and that the soils behind the revetment are being eroded at a rate of about 1.8 ft/yr. It should be noted that the boat traffic, which creates the waves, is much more frequent today and expected to increase in the future. Therefore, the rate of erosion is likely to increase going forward. Site improvements and the existing principal structure are in need of protection. The Coronado Local Coastal Plan (LCP) (Coronado Mun. Code, § 86.76.010(B), 86.76.040) and the Coastal Act (Pub. Res. Code, § 30235) allow for this protection.

SHORE PROTECTION ALTERNATIVES

The need for shore protection at this site is clearly established. All of the properties along First Street, including the street ends, are protected by some form of shore protection. The continuous shore protection acts to protect all of the properties. This is how the shore protection along the urbanized sections of San Diego Bay works. Any gap in the shore protection or degradation of a segment of shore protection, as currently exists with the debris fronting this site, jeopardizes the adjacent properties. If a uniform shore protection is not reestablished, additional properties may be impacted. The project, as proposed, mitigates the impact of the gap in the degraded shore protection fronting the site on the adjacent sites and subject site. The proper circulation of the bay and the health of the environment, including the eel grass, rely on the shoreline not eroding. For these reasons, the “no shore protection alternative” is not feasible. The continued erosion of the site will not only impact the site development, and the adjacent development, but also adversely impact the nearby intertidal and subtidal habitats. The question becomes what is the least environmentally impactful shore protection alternative. Based upon GSI’s experience and on the types of shore protection used in San Diego Bay, there are two types of shore protection. The first is the sloping revetment type structure, and the second is a vertical wall.

The benefits of the sloping type rock structure are that it is relatively inexpensive in terms of up-front costs and is the most common type of shore protection in the Bay, and when properly designed and maintained, has a proven performance record. However, there are some impacts from this type of structure that need to be considered. The sloping structure has a large footprint in the intertidal zone. This footprint eliminates some of the typical intertidal flora and fauna that exist naturally at the shoreline. The structure also obstructs public access along the shoreline. As noted on the property at 407 First Street, a revetment can fail and impact improvements behind it, and contribute to pollution and adverse flora and fauna impacts. Even under ideal circumstances, a revetment requires periodic maintenance, and each maintenance project adds expense and results in temporary impacts to the tidelands area. Finally, it should be pointed out that at this site the revetment would have to extend onto Port property.

The proposed form of shore protection at this site is a vertical wall that is located entirely on private property and above the intertidal zone. While different than the adjacent revetments, it will provide the protection to structures on the subject site and adjacent properties. The wall will be located landward of the current shore protection, effectively retreating the line of development. The project calls for the restoration of the intertidal area, where the current debris and ice plant are located. This effort will require permits from the Port of San Diego and possibly other agencies. In consideration of the minimal footprint, and the location on private property above the intertidal zone, the least environmentally impactful form of shore protection is a vertical wall.

The opportunity to be of service is greatly appreciated. If you have any questions concerning this report, or if we may be of further assistance, please do not hesitate to contact any of the undersigned.

Respectfully Submitted,

GeoSoils Inc.
David W. Skelly, RCE #47857

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July 24, 2020 W.O. S7480

The Alan & Lyndsey Arendsee Family Trust
c/o Christian Rice Architects, Inc.
1127 Loma Avenue
Coronado, CA 92118

SUBJECT: Response to California Coastal Commission (CCC) June 29, 2020 Email Regarding 409 First Street, Coronado, CA.

Dear Alan & Lindsey Arendsee Family Trust:

At your request, Geosoils Inc. (GSI), is pleased to provide the following response to comments and questions raised in the subject CCC email. For ease of review the CCC comment/question will be provided in italics provided by our response.

We asked previously for coastal development permits for the existing walls on the property and the neighboring walls which are still needed.

This information will be provided by others.

We also asked previously for the elevation of the existing house (FF = 13' MLLW) and a cross section from seaward of the proposed protection through the property, with information on foundation depths if available. That is still needed. Since the navigation channel is the source of the erosive boat wake, this cross section could help highlight the problems if it were to start at the channel and extend through to the house that is at risk from erosion and flooding.

The requested section is provided attached to this response. As previously demonstrated, the shoreline fronting the site is currently eroding at a rate of about 1.8 ft/yr even with the mostly ineffective concrete debris in place. A future profile has been added that shows the loss of the low height garden wall near the bay property line in a few years. The existing garden walls are shallow founded. The foundation of the house is slab on grade with shallow perimeter footings.

We also asked for an overtopping analysis. In response, GSI stated (8/2020), "overtopping water has not reached the structure as of yet. It would appear that the principal structure is vulnerable to flooding during an El Nino event similar to the 1982-83 winter according to CoSMoS." The inclusion of the CoSMoS visuals is helpful; however, we still need an

overtopping analysis for the current site conditions and for the proposed vertical wall. Since this analysis is for the current or near-term risks, it should use sea level rise assumptions appropriate for these time periods.

The wake runup analysis is provided below.

ACES | Mode: Single Case | Functional Area: Wave - Structure Interaction

Application: Wave Runup and Overtopping on Impermeable Structures

Smooth Slope Runup and Overtopping

409 First

Wake Runup Analysis

Item		Unit	Value
Incident Wave Height	Hi:	ft	3.000
Wave Period	T:	sec	3.000
COTAN of Nearshore Slope	COT(ø):		10.000
Water Depth at Structure Toe	ds:	ft	7.800
COTAN of Structure Slope	COT(θ):		2.900
Structure Height Above Toe	hs:	ft	10.000
Wave Runup	R:	ft	4.062
Onshore Wind Velocity	U:	ft/sec	8.439
Deepwater Wave Height	H0:	ft	3.285
Relative Height	ds/H0:		2.375
Wave Steepness	H0/(gT^2):		0.011344
Overtopping Coefficient	α:		0.070000
Overtopping Coefficient	Qstar0:		0.070000
Overtopping Rate	Q:	ft^3/s-ft	1.369

For current maximum bay water level, the maximum wave runup is elevation +11.9 MLLW (7.8 MLLW + 4.1 feet). This is above the elevation of the top of the most bayward garden wall (+11.2 feet MLLW). The height of the overtopping bore at the toe of the bayward garden wall is about 0.6 feet. The height of the bayward garden wall is about 2 feet above the toe so the 0.6 feet of water cannot come over the top of the 2 feet high wall. Using a near term period of 10 years with about 0.9 feet of SLR (from CCC 2018 Guidance 0.5% San Diego Bay) and allowing for the continued erosion at about 1.8 ft/yr (or 18 feet of erosion), the wave runup elevation is 12.8 feet MLLW (7.8 feet MLLW + 0.9 feet + 4.1 feet). This runup elevation is at about the top of the second garden wall and very near the elevation of the residence FF elevation.

The proposed shore protection device (SPD) will be entirely on private property with the top of the wall at elevation +12 feet MLLW, which is about 3 feet above the existing grade on the bay side of the proposed SPD. The amount of overtopping at the toe of the SPD is only about 0.6 feet in height, and will not overtop the SPD. In 20 to 30 years the top of the proposed SPD can be increased in response to overtopping if needed. More importantly, as the shoreline erodes without a new SPD, the adjacent properties, including their SPDs and other improvements, are jeopardized by erosion at this site and lateral flooding as wave runup comes on to this site.

The provided CoSMoS maps show the area that could be floodprone with 0.8' SLR and the GSI report states that the existing home would be in jeopardy. What does jeopardy mean? Will the entire house become uninhabitable? Floodprone risks can often result from

elevated groundwater when there are connections between sea level and inland water areas and are not the same as flooding hazards. The jeopardy to the existing home might not be reduced by a seawall if it is tied to groundwater. The lack of reported damage during the most recent El Nino is not positive confirmation that no damage occurred; but it does suggest that the home might be safer than one might conclude from the floodprone information.

Jeopardy means danger of loss, harm, or failure (Oxford Dictionaries) due to flooding. Because the house is a single story home with a level finished floor at elevation +13 feet MLLW, if any portion of the house floods then the whole house will flood. The comment about El Nino in the March 24, 2020 GSI report was about a future El Nino with SLR. If SLR occurs consistent with the projections stated in the CCC SLR guidance (2018), the home will not be safe in an El Nino event similar to 1982-83.

Both floodprone and flooding hazards are included on the CoSMoS site and flooding does not seem to pose a significant threat to the existing residence until sea level rise reaches about 1.6 feet. The overtopping analysis might identify more near-term impacts and examination of groundwater might highlight some concerns about elevated groundwater. While the proposed shore protection could provide protection from some flooding, there are many other ways to protect from flooding. And since flooding can be a broader, neighborhood problem, even if the proposed protection can provide a flood barrier for this property, flooding could come from neighboring properties, so protection closer to the existing residence might be more effective from the broader flood hazards that could occur. Flood protection alternatives should be considered and analyzed. If the imminent threats are from elevated groundwater, options to protect the residence should also address those concerns.

We respectfully disagree with this comment. The shore protection at this site should be essentially aligned with the shore protection on the adjacent sites. The City of Coronado LCP, recognizing the necessity of continuous shore protection and the existing pattern of development, provides that on First Street (as well as certain other locations around the island), shore protection on adjacent properties "may connect in a straight line." If the shore protection on one property is located landward of the shore protection on adjacent properties, then the adjacent properties will be in jeopardy from lateral erosion. Even if a transition is provided between the segments of shore protection, the transition areas will be more vulnerable to wave energy and will create eddies and other undesirable effects. This information has been discussed and provided previously. There is shore protection around almost the entire developed portions of the bay. Like any well-designed shore protection system, the shore protection around San Diego Bay typically transitions linearly from one property to the next. GSI is very familiar with the existing shore protection systems around San Diego Bay and is not aware of any discontinuous alignments. The flooding threat is from bay waters moving onto the property, and then laterally onto the adjacent properties through this unprotected property.

The flooding threat is not from elevated groundwater, and it is not clear why CCC staff would even suggest this. Groundwater will NOT exceed the elevation of the bay water at

any time in the future. With the FF at +13 feet MLLW, SLR will need to exceed 5.2 feet for the maximum bay water level to be above the FF elevation. This also assumes that the bay water can come on the property and is not excluded by the proposed SPD and all of the other nearby SPDs. Using the CCC SLR very low probability (0.5%, high emissions) guidance this would be the year 2085.

The reports from GSI also identify concerns about erosion. The erosion rate that was developed from the photo comparison for the part of the site that had the greatest observed retreat between the two time periods. A more appropriate erosion for the site might be something more representative of the site, with the 1.8 ft/yr acknowledged at the upper retreat rate. The location for the maximum erosion is also the location identified as having inland drainage. These may be coincidences, but drainage can often aggravate erosion and some drainage controls for the site, or more retention of surface water on-site, might help reduce erosion at this hot spot. Since artificial turf is often installed over an impermeable concrete base, replacement of the artificial turf areas with something more permeable could minimize drainage concerns. Please identify what lies beneath the artificial turf now. Options to reduce concentrated drainage should be considered as part of an erosion effort.

The methodology for calculating the erosion rate meets the current standard of analysis and is valid. The calculated erosion has nothing to do with inland drainage. This section of shoreline has been clearly identified as having an erosion problem by the US Army Corps of Engineers (USACE). The erosion rate has been determined by the UASCE to be as much as 1.7 ft/yr. GSI inspected the site in question and did not find any site drainage issues. The turf at the site is underlain by a permeable soil drainage system. The source of the USACE calculated erosion is not due to drainage erosion. The USACE identified the causes of erosion as steepened offshore slopes and wave energy created by boat wakes. The review comment is not supported by any actual facts and it is rebutted by existing and accepted analysis by the USACE.

This site and the erosive forces seem well-suited to a living shoreline option or a perched sill, either of which could dampen wave energy as it approaches the shoreline. Expanding the eelgrass beds or addition of oyster reefs could be other options. Some repurposing of clean rubble could be part of these softer options, especially at the property boundaries to transition from this type of option to the harder rock options on the neighboring sites. Please provide an analysis of these softer alternatives.

GSI is not aware of any type of soft approach working in this section of San Diego Bay and along a small section of shoreline similar to what fronts the site. It is also important to point out that the applicant has no control as to what occurs on the Port of San Diego property. Any soft approach (or typical sloping hard approach) would be development on property not owned by the applicant. In our previous conversations with the Port of San Diego, the preferred form of shore protection are quarry stone revetments and vertical walls that are similar to the adjacent properties.

Alternative 1, “Living Shoreline”. Pros: (1) might be considered more aesthetically

pleasing, (2) it might provide a few additional square feet of habitat for birds. Cons: (1) Any aesthetic benefit would be negated by the fact that it is a very small area along First Street and is incompatible with the surrounding development. (2) A living shoreline could not provide adequate protection without a long and gradual transition to the shore protection on the neighboring properties, and there is not adequate lateral space to implement this alternative. (3) One wake runup event during high tide could remove all of the sand/vegetation, and expose the rock/debris. This could happen several times per year. (4) Living shorelines have only been implemented successfully as public projects on a much larger scale (see, e.g., Cardiff State Beach, and the jury is still out on whether that will be effective in the long term). (5) We have not found any examples where a living shoreline has been successfully implemented anywhere in San Diego Bay or on such a small scale. Simply put, a living shoreline is an unproven alternative in this setting. (6) A living shoreline would require a significant amount of work on property that belongs to the Port and is within the U.S. Army Corps of Engineers' regulatory jurisdiction. (7) A living shoreline would require continual maintenance on a large area of property that belongs to the Port and is within the U.S. Army Corps of Engineers' regulatory jurisdiction. That would not be feasible for a private homeowner. (8) Dredging has steepened the natural offshore slopes. Creating the kind of long and very gradual slope needed for a stable living shoreline would require an amount of sand that a private homeowner could not feasibly obtain. (9) Even if a private homeowner could obtain that amount of sand, bay dynamics and boat wakes, combined with a sediment-starved environment, would likely result in any added sand being washed away quickly. Replenishing the sand would impose an unreasonable, ongoing financial burden on the homeowner. (10) It would be difficult (perhaps impossible) to design a living shoreline so that the neighboring properties would not suffer from lateral erosion. (11) The homeowner would still need some kind of wall at the property line to provide privacy and protect against potential trespassers. (12) Depositing the amount of sand needed to create a living shoreline would impact a large area of eelgrass. (13) The living shoreline at Cardiff State Beach was done in conjunction with a major sand replenishment project. The sand just happened to be available because of the restoration project on the adjacent lagoon. There was no eelgrass in the open ocean to impact. There is no sand currently available for a sand replenishment project here. (14) The existing rubble cannot be repurposed. It is unsightly, uneven, of questionable origin, and a slipping hazard when wet.

Alternative 2, Perched Sill (beach). Pros: (1) If the sill is constructed off the site it might be considered a perched usable public beach. (2) This sill might be considered a more aesthetic approach. Cons: (1) In addition to Cons (2), (5), and (6)-(13) for Alternative 1, some form of structure, either a revetment or seawall will be needed to create the sill. The sill will still be subject to an erosion rate of up to 1.8 ft/yr. (2) The perched sill would need to be large, extending bayward, and could interfere with navigation.

Alternative 3, Eelgrass Bed Expansion. Pros: (1) This would increase eelgrass habitat. Cons: (1) Many of the Cons for Alternatives 1 and 2 apply to this alternative. (2) Eelgrass has an essentially subtidal habitat range. It only grows in a very narrow range from about 0 to -12 feet depending on water turbidity. To expand the eelgrass habitat would essentially require the applicant to fill in the entire hole (i.e., the Navy turning basin) dredged offshore.

If you try to add sand without filling in the hole, the new sand will just fall into the hole. The added sand would negatively impact the navigability of the Navy's turning basin for deep-draft carriers.

Alternative 4, Oyster Reefs. Pros: (1) oysters and habitat restoration. Cons: (1) An oyster reef has a limited habitat range in the water column. The erosion and flooding of the principal structure at the site occurs when the tides are very high and waves/wakes occur. An oyster reef would have no impact on this erosion because the bed would be well below the water elevation and have no impact on the wave/wake. (2) Many of the Cons for the other alternatives apply to the oyster reef alternative. Basically, an oyster reef is not a viable "soft alternative" because it would be ineffective (well below the water) when the potential erosion control is most needed.

The comparison of the hard protection options points out problems with revetment; but does not include any concerns with a vertical wall. For example, a vertical wall would require some monitoring and if it is overtopped, there could be an inland loss of soil that would require maintenance. If the vertical wall is subject to repeated wave or wake attack, there would be scour of the bay soils that might be significant problems for the eelgrass. The photos of the neighboring revetment do not allow for a detailed analysis of the large void; however, this often happens when there is nothing to prevent soil piping. The failure of the neighboring revetment is really only a problem for the proposed site if GSI expects that a revetment at the proposed site would also fail. If that is the case, why is GSI confident that a vertical wall would not fail? The analysis of alternatives should present the pros and cons of the alternatives, rather than the cons of the option that is dismissed and the pros of the preferred option.

Overtopping of the SPD will not result in loss of soil behind it because the soil is confined. It has no where to go. In addition, the SPD is designed to adapt to SLR and the potential for overtopping by simply raising the height of the SPD. This can be done in the same footprint with no bayward encroachment. The comments about the impacts of vertical walls are counter to the facts about vertical walls along First Street. There are several vertical walls along First Street that have been in place over many decades. Attached to this response is visual evidence that there is no excessive scour and no impact on the eel grass due to vertical SPDs. Vertical walls and sloping revetments are all around the developed sections of San Diego Bay. They have proven over time to be effective in preventing inland flooding with no real impacts on the beach profile of eelgrass as opined in the CCC comment.

The plans note that the new wall will join with the neighbors' seawalls yet the view of the proposed vertical wall shows rock seaward of the wall near both property lines. Is the rock already there or would new rock be added to the site? Is it possible to curve the vertical wall inland so that it is landward of the neighboring rock? The GSI report (2019) notes that the proposed wall is currently landward of any influence of SD Bay waves and erosion. Are there any estimates of when the proposed wall will be influenced by SD Bay waves and erosion?

The rock is already there. No new rock is proposed. Because there are revetments on the adjacent properties there has to be a side slope fronting the subject site for the adjacent revetments to be stable. This minor transition can be seen on the attached pictures of First Street. Curving the wall inland would result in the wake/wave energy being focused on the side or even behind the shore protection on the adjacent properties. A simple walk along this section of shoreline at a very low tide will provide the reviewer ample visual evidence of this type of transition between dissimilar SPDs and the lack impact of vertical SPDs on the shoreline and environment.

The earlier plans stated that the existing walls would be removed. This possibly was in anticipation of a new residence and patio. What are the full plans now for the site? Will those walls still be removed?

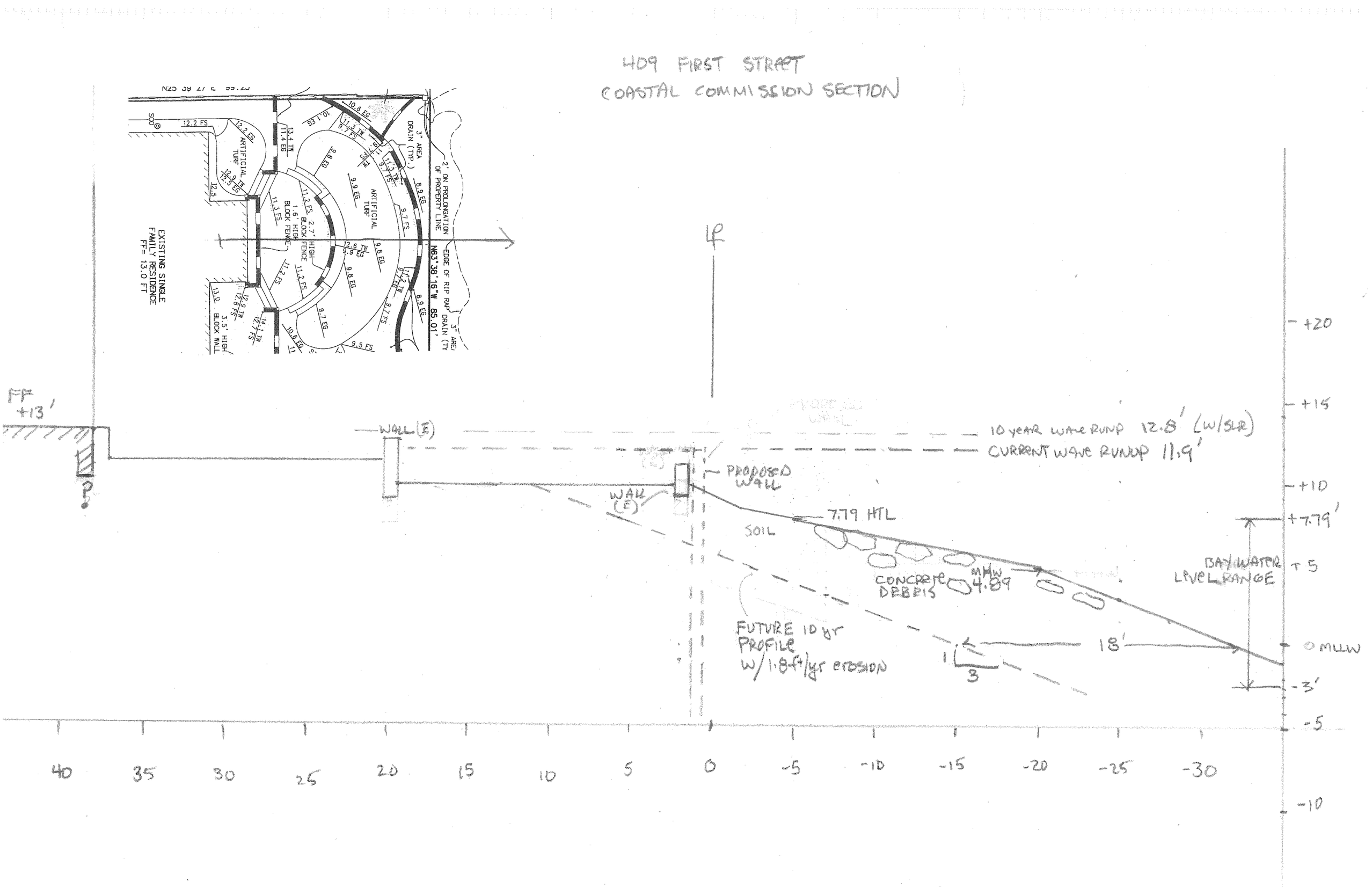
The project as amended includes only the shore protection. Future plans for the site are yet to be determined.

The opportunity to be of service is greatly appreciated. If you have any questions concerning this report, or if we may be of further assistance, please do not hesitate to contact any of the undersigned.

Respectfully Submitted,

GeoSoils Inc.
David W. Skelly, RCE #47857

409 FIRST STREET
COASTAL COMMISSION SECTION

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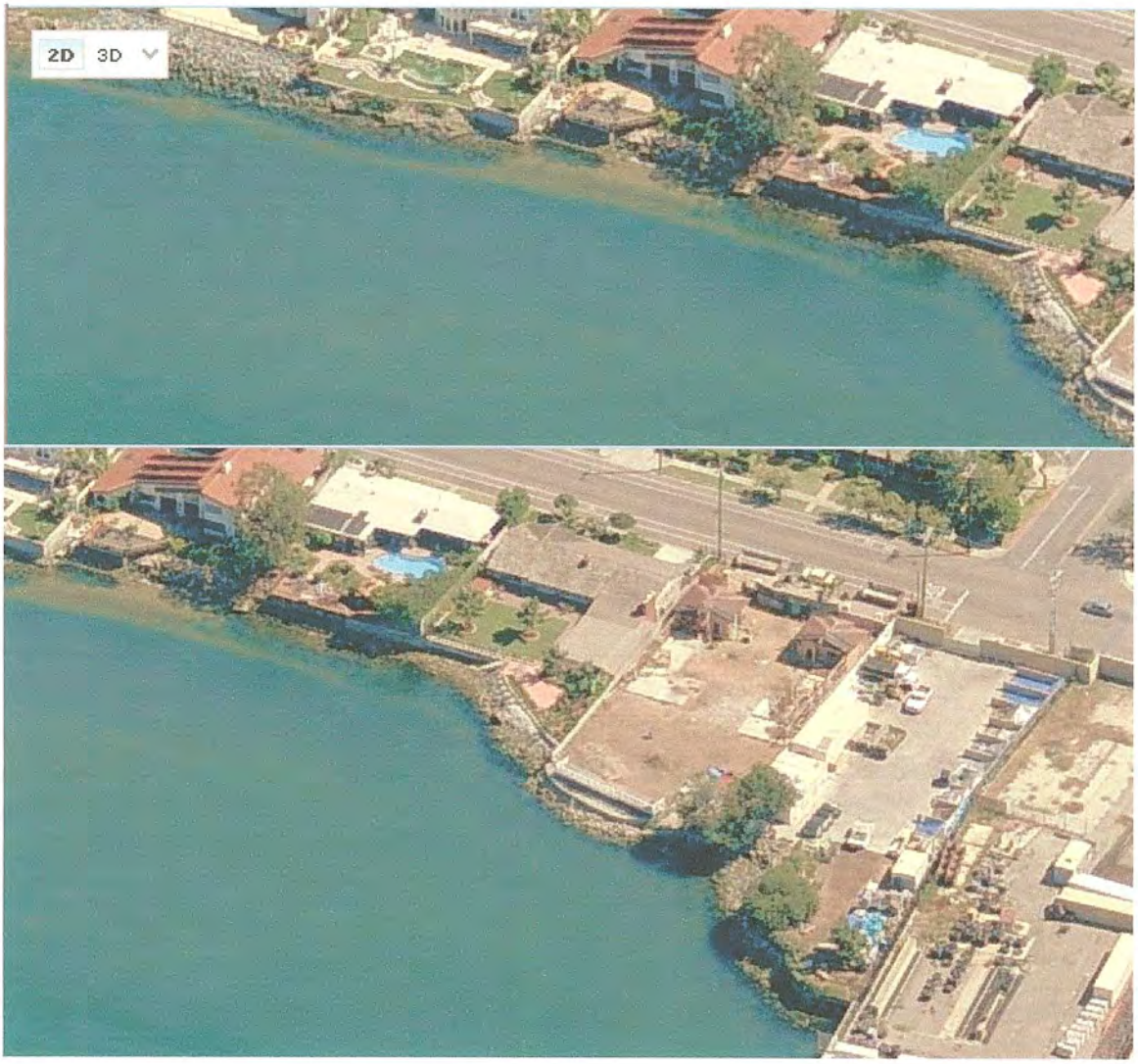

34 homes on bay side
15 have sea walls
6 have sea walls and no rip rap in front
3 have a beach only and no sea wall
14 have minimal rip rap (5' or less)
7 have 5' or more rip rap (some in front of sea wall)

First Street - 501, Southeast

First Street - 501, Southeast

505-501 First Street

First Street - 501 - Northwest

First Street - Bayview Park

501 First Street

501 First Street

505 First Street

505 First Street

307 First Street

311 First Street

407 First Street

409 First Street