STAFF REPORT
CITY OF SOLANA BEACH

TO:	Honorable Mayor and City Councilmembers
FROM:	Gregory Wade, City Manager
MEETING DATE:	January 10, 2024
ORIGINATING DEPT:	Community Development Department
SUBJECT:	Request for a Conditional Use Permit for the Maintenance and Repair of an existing lower seawall and an existing upper drilled pier wall running east/west on the southern property line at 825 S. Sierra Avenue, Solana Beach. Case No: CUP23-001; Applicant: Del Mar Beach Club Homeowners Association Resolution 2024-010.

BACKGROUND:

The Applicant, the Del Mar Beach Club Homeowners Association, is requesting the approval of a Conditional Use Permit (CUP) for the maintenance and repair of the southern 170-feet of an existing 540-foot-long lower bluff seawall on the coastal bluff below 825 S. Sierra Avenue as well as maintenance and repair of an existing upper bluff drilled pier wall running east/west at the southern property line. The proposed maintenance to the lower seawall would include the installation of a new row of tie-back anchors to provide lateral support as the existing tiebacks are failing, the removal of all spalled concrete and either cleaning or replacing the reinforcing steel, placing a new shotcrete cover over the repaired area, and the installation of weep holes at or above 7 MSL. The maintenance of the upper bluff pier wall would include the placement of a reinforced shotcrete skin on the existing 18-inch drilled piers for the length of the exposure which is approximately 4 feet and if additional tiebacks are necessary an additional three rows would be installed. The entire project would require 20 cubic yards of grading. The approximately 12-acre lot is located in the High Residential (HR) Zone and developed with 192 condominiums.

This issue before the City Council is whether to approve, approve with conditions or deny the Applicant's request for a Conditional Use Permit (CUP) as contained in Resolution 2024-010 (Attachment 1).

CITY COUNCIL ACTION:

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AGENDA ITEM # B.1.

DISCUSSION:

The existing condominium complex was constructed in the early 1970's prior to the enactment of the Coastal Act. In 1980, the 540 foot long, 15-foot-high lower bluff seawall was constructed with the approval of the California Coastal Commission (CCC). In 1984, deeper foundation footings and backfill were approved because the existing wall had become undermined by the loss of sand. In 1989, a 40-foot long, 15-foot high, mid-bluff retaining wall and the installation of 29, 18-inch drilled piers was constructed to underpin the southwest corner of the condominium structure. In March of 2001, the City and the CCC approved the installation of five, 36-inch diameter drilled piers ranging from 28 to 70 feet deep perpendicular to the beach below in the southwest corner of the condominium complex. With each project, it was determined that the existing condominium complex or the shoreline structure was threatened and that the proposed construction measures were necessary to protect the complex. As a condition of approval for the 2001 project, the Applicant paid and in-lieu sand replenishment fee as the work extended the life of the seawall for approximately 30 years.

The Applicant has provided an "Updated Geotechnical Recommendations – Proposed Maintenance Repairs Existing Lower Bluff Seawall & South Property Line Upper Bluff Caisson System" from Soil Engineering Construction, Inc. which indicates that the existing bluff retention devices (BRD's) have been adversely affected by ongoing erosion and bluff failures and have either been chemically or physically weathered due to the exposure to the elements including sea air and waive action. According to their assessment, maintenance and repair in two areas is necessary in order to extend the life of the BRD's: 1) The repair of the southern 170-feet of an existing 540-foot-long lower bluff seawall and 2) The repair of the existing upper bluff drilled pier wall running east/west at the southern property line.

Proposed maintenance to the lower seawall would include the installation of a new row of tie-back anchors to provide lateral support as the existing tiebacks are failing, the removal of all spalled concrete and either cleaning or replacing the reinforcing steel, placing a new shotcrete cover over the repaired area, and the installation of weep holes at or above 7 MSL. In addition, the underside of the lower concrete landing of the existing staircase has experienced spalling and requires moderate concrete patching and two columns supporting the lower landing have substantially deteriorated and will be replaced.

The upper bluff pier wall maintenance and repair would include the placement of a reinforced shotcrete skin on the existing 18-inch drilled piers for the length of the exposure which is approximately 4 feet and if additional tiebacks are necessary an additional three rows would be installed.

This CUP application is before the City Council because the Applicant's Engineers performed tie-back exposure and testing and determined that the existing tiebacks have little to no retention capacity and in their opinion could fail at any time. Such failure would result in significant upper bluff failure that would threaten the existing southernmost condominium structure. The letter from Soil Construction Engineering, Inc. is included in Attachment 3. Therefore, the project has been determined to be an emergency.

Solana Beach Local Coastal Program

A consistency finding with the City's Local Coastal Program (LCP) Land Use Plan (LUP) is required for the proposed project. The City's LUP policies were certified to be consistent with Coastal Act Section 30235 which states*: Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.*

Applicable City policies from the City's Certified LUP (as amended) are listed below followed by a discussion of how the project complies or has been conditioned to comply with the City's applicable and relevant LUP policies.

- Certified LUP Policy 4.14 (nonconforming structures)
- Certified LUP Policy 4.26 (irrigation controls for bluff properties)
- Certified LUP Policy 4.28 (stormwater runoff)
- Certified LUP Policy 4.39 (payment of mitigation fees)
- Certified LUP Policy 4.49 (findings)
- Certified LUP Policy 4.50 (impact mitigation fees)
- Certified LUP Policy 4.54 (shoreline protection device maintenance)
- Certified LUP Policy 4.55 (coordination among neighbors)
- Certified LUP Policy 4.58 (development on the bluff)

Policy 4.14: *Existing, lawfully established structures that are located between the sea and the first public road paralleling the sea (or lagoon) built prior to the adopted date of the LUP that do not conform to the provisions of the LCP shall be considered legal nonconforming structures. Such structures may be maintained and repaired, as long as the improvements do not increase the size or degree of non-conformity. Additions and improvements to such structures that are not considered Bluff Top Redevelopment, as defined herein, may be permitted provided that such additions or improvements themselves comply with the current policies and standards of the LCP. Complete demolition and reconstruction or Bluff Top Redevelopment is not permitted unless the entire structure is brought into conformance with the policies and standards of the LCP.*

- **Project Compliance with Policy 4.14:** The main BRD, the lower bluff seawall, was constructed prior to the City's incorporation and prior to the certification of the City's LUP/LCP, however, it was approved by the CCC. Therefore, it is considered a legally existing nonconforming structure that can remain and be maintained and repaired. The proposed project would not increase the size of the nonconformity as proposed.

Policy 4.26: *With respect to bluff properties only, the City will require the removal or capping of any permanent irrigation system within 100 feet of the bluff edge in connection with issuance of discretionary permits for new development, redevelopment, or shoreline protection, or bluff erosion, unless the bluff property owner demonstrates to the satisfaction of the Public Works Director, or the CCC if the project is appealed, that such irrigation has no material impact on bluff erosion (e.g., watering hanging plants over hardscape which drains to the street).*

- **Project Compliance with Policy 4.26:** The project has been conditioned to require the removal or capping of any permanent irrigation system within 100 feet of the bluff edge.

Policy 4.28: *All storm water drain systems that currently drain or previously drained towards the west over the bluff shall be capped. These systems should be redesigned to drain directly, or through a sump system, and then pumped to the street in compliance with SWP 2007-0001 and consistent with SUSMP requirements. This policy shall be implemented as a condition of approval for all discretionary permits issued for bluff properties or within 5 years of adoption of the LCP, whichever is sooner.*

- **Project Compliance with Policy 4.28:** The project has been conditioned to require that all storm water drain systems that currently drain towards the west over the bluff be capped.

Policy 4.39: *Provide for reasonable and feasible mitigation for the impacts of all bluff retention devices which consists of the payment of Sand Mitigation Fees and Public Recreation Fees to the City or other assessing agency.*

- **Project Compliance with Policy 4.39:** The project has been conditioned to mitigate for all impacts related to sand supply and public recreation through the payment of impact mitigation fees.

Policy 4.45: *The City has adopted preferred bluff retention solutions (see Appendix B) to streamline and expedite the City permit process for bluff retention devices. The preferred bluff retention solutions are designed to meet the following goals and objectives:*

(1) Locate bluff retention devices as far landward as feasible;
(2) Minimize alteration of the bluff face;
(3) Minimize visual impacts from public viewing areas; ,
(4) Minimize impacts to adjacent properties including public bluffs and beach area; and,
(5) Conduct annual visual inspection and maintenance as needed.

The bluff property owner's licensed Civil or Geotechnical Engineer must examine the device for use in the specific location and take responsibility for the design as the Engineer of Record.

The Bluff Property Owner shall arrange for and pay the costs of:
(1) The licensed Geotechnical or Civil Engineer;
(2) The bluff retention device;
(3) A bond to ensure completion of the bluff retention device;
(4) Appropriate mitigation; and
(5) All necessary repairs, maintenance, and if needed removal.

- **Project Compliance with Policy 4.45:** The project Applicant has paid for their licensed Geotechnical Engineer and will pay the construction costs for the maintenance and repair of the existing bluff retention devices and will be conditioned to pay the City a bond to ensure completion of the maintenance and repair bluff retention device. Sand

Supply and Public Recreation Impact Mitigation fees are required to be paid by the Applicant prior to issuance of the construction permit. The Applicant will be responsible for all necessary future repairs and maintenance.

Policy 4.49: *Coastal structures shall be approved by the City only if all the following applicable findings can be made and the stated criteria satisfied. The permit shall be valid until the currently existing structure requiring protection is redeveloped (per definition of Bluff Top Redevelopment in the LUP), is no longer present, or no longer requires a protective device, whichever occurs first and subject to an encroachment/removal agreement approved by the City.*

(a) Based upon the advice and recommendation of a licensed Geotechnical or Civil Engineer, the City makes the findings set forth below.

(1) A bluff failure is imminent that would threaten a bluff home, city facility, city infrastructure, and/or other principal structure.

(2) The coastal structure is more likely than not to preclude the need for a larger coastal structure or upper bluff retention structure. Taking into consideration any applicable conditions of previous permit approvals for development at the subject site, a determination must be made based on a detailed alternatives analysis that none of the following alternatives to the coastal structure are currently feasible, including:

- *A Seacave/Notch Infill;*
- *A smaller coastal structure; or*
- *Other remedial measures capable of protecting the bluff home, city facility, non-city-owned utilities, and/or city infrastructure, which might include or other non-beach and bluff face stabilizing measures, taking into account impacts on the near and long term integrity and appearance of the natural bluff face, and contiguous bluff properties;*

(3) The bluff property owner did not create the necessity for the coastal structure by unreasonably failing to implement generally accepted erosion and drainage control measures, such as reasonable management of surface drainage, plantings and irrigation, or by otherwise unreasonably acting or failing to act with respect to the bluff property. In determining whether or not the bluff property owner's actions were reasonable, the City shall take into account whether or not the bluff property owner acted intentionally, with or without knowledge, and shall consider all other relevant credible scientific evidence, as well as, relevant facts and circumstances.

(4) The location, size, design and operational characteristics of the proposed coastal structure will not create a significant adverse effect on adjacent public or private property, natural resources, or public use of, or access to, the beach, beyond the environmental impact typically associated with a similar coastal structure and the coastal structure is the minimum size necessary to protect the principal structure, has been designed to minimize all environmental impacts, and provides mitigation for all coastal and environmental impacts, as provided for in this LCP.

(b) The coastal structure shall meet City Design Standards, which shall include the following criteria to ensure the coastal structure will be:

(1) Constructed to resemble as closely as possible the natural color, texture and form of the adjacent bluffs;
(2) Landscaped, contoured, maintained and repaired to blend in with the existing environment;
(3) Designed so that it will serve its primary purpose of protecting the bluff home or other principal structure, provided all other requirements under the implementing ordinances are satisfied, with minimal adverse impacts to the bluff face;
(4) Reduced in size and scope, to the extent feasible, without adversely impacting the applicant's bluff property and other properties; and
(5) Placed at the most feasible landward location considering the importance of preserving the maximum amount of natural bluff and ensuring adequate bluff stability to protect the bluff home, City facility, or City infrastructure.

(c) Mitigation for the impacts to shoreline and sand supply, public access and recreation and any other relevant coastal resource impacted by the coastal structure is required and shall be assessed in 20-year increments, starting with the building permit completion certification date. Property owners shall apply for a CDP amendment prior to expiration of each 20-year mitigation period, proposing mitigation for coastal resource impacts associated with retention of the coastal structure beyond the preceding 20-year mitigation period and shall include consideration of alternative feasible measures in which the permittee can modify the coastal structure to lessen the coastal structure's impacts in coastal resources. Monitoring reports to the City and the Coastal Commission shall be required every five years from the date of the CDP issuance until CDP expiration, which evaluate whether or not the coastal structure is still required to protect the existing structure it was designed to protect. The permittee is required to submit a CDP application to remove the authorized coastal structure within six months of a determination that the coastal structure is no longer required to protect the existing structure it was designed to protect.

- **Project Compliance with Policy 4.49:** The proposed project includes the maintenance and repair of the existing BRD's. The Applicant's Engineer has made a determination that the need for repair is an emergency situation due to the fact that the existing tiebacks of the seawall have little to no retention capacity. The City's third-party geotechnical engineer Construction Testing and Engineering, Inc. (CTE) has reviewed the plans, geotechnical reports, pictures and letters provided by the Applicant and confirmed that the project complies with, or has satisfied all of the findings required in, this policy (Attachment 6). The project has been designed consistent with the engineering design requirements of the City's Certified LUP/LCP. Mitigation has been imposed on the project as a condition of approval.

Policy 4.50: *The bluff property owner shall pay for the cost of the coastal structure or Infill and pay a Sand Mitigation Fee and a Public Recreation Fee per LUP Policy 4.39. These mitigation fees are not intended to be duplicative with fees assessed by other agencies. It is anticipated the fees assessed as required by this LCP will be in conjunction with, and not duplicative of,*

the mitigation fees typically assessed by the CCC and the CSLC for impacts to coastal resources from shoreline protective devices.

- **Project Compliance with Policy 4.50:** The project will be required to mitigate all sand supply and public recreation impacts through the payment of mitigation fees to the City. The Applicant will also be required to obtain all necessary permits and approvals from the CCC and the CSLC prior to the City issuance of a construction permit.

Policy 4.54: *Any bluff retention device shall be reasonably maintained and repaired by the bluff property owner on an "as needed" basis, at the bluff property owner's expense, in accordance with the implementing ordinances and any permit issued by the City. Any authorized assessing entity in which the project lies shall ensure such payments are reimbursed to the City if the bluff property owner fails to perform such work and the City elects to do so, subject to mandatory reimbursement. However, in all cases, after inspection, it is apparent that repair and maintenance is necessary, including maintenance of the color of the structures to ensure a continued match with the surrounding native bluffs, the bluff property owner or assessing entity shall contact the City or CCC office to determine whether permits are necessary, and, if necessary, shall subsequently apply for a coastal development permit for the required maintenance.*

- **Project Compliance with Policy 4.54:** The project has been conditioned to include a requirement that the proposed project be repaired and maintained as needed for the life of the structure.

Policy 4.55: *To achieve a well maintained, aesthetically pleasing, and safer shoreline, coordination among property owners regarding maintenance and repair of all bluff retention devices is strongly encouraged. This may also result in cost savings through the realization of economies of scale to achieve these goals by coordination through an assessing entity. All bluff retention devices existing as of the date of certification of the LCP, to the extent they do not conform to the requirements of the LCP, shall be deemed non-conforming. A bluff property owner may elect to conform his/her/its bluff property or bluff retention device to the LCP at any time if the City finds that an existing bluff retention device that is required to protect existing principal structures in danger from erosion is structurally unsound, is unsafe, or is materially jeopardizing contiguous private or public principal structures for which there is no other adequate and feasible solution, then the City may require reconstruction of the bluff retention device.*

- **Project Compliance with Policy 4.55:** The subject CUP application was collectively submitted by the Del Mar Beach Club Condominium Homeowners Association.

Policy 4.58: *Development on the bluffs, including the construction of a bluff retention device, shall include measures to ensure that:*

- *No stockpiling of dirt or construction materials shall occur on the beach;*
- *All grading shall be properly covered and sandbags and/or ditches shall be used to prevent runoff and siltation;*
- *Measures to control erosion shall be implemented at the end of each day's work;*
- *No machinery shall be allowed in the intertidal zone at any time to the extent feasible;*

- *All construction debris shall be properly collected and removed from the beach. Shotcrete/concrete shall be contained through the use of tarps or similar barriers that completely enclose the application area and that prevent shotcrete/concrete contact with beach sands and/or coastal waters.*

- **Project Compliance with Policy 4.58:** Compliance with the requirements of this policy have been included as engineering conditions of approval.

Resolution No. 2024-010 (Attachment 1) contains citations to relevant policies of the City's LUP/LCP as conditions of approval.

Sand Mitigation Fee and Public Recreation Impact Mitigation Fee Deposit

As mentioned before, the lower bluff seawall was constructed prior to the certification of the City of Solana Beach LCP/LUP and the certification of how to calculate the Sand Mitigation Fee and the Public Recreation Impact Mitigation Fee for projects. These calculations are now Appendix A and C of the City's LCP/LUP. Now that the Applicant is proposing maintenance and repair that will extend the life of the southern 170 feet of the lower seawall, the City should calculate and charge the Applicant the Sand Mitigation Fee and the Public Recreation Impact Fee for a period of 20 years for this portion of the wall.

Using these calculations, the Public Recreation Impact Fee would be $205,700 for the repair of the southern portion of the lower seawall. At the time this report was published Staff was still working with the City's third-party geotechnical engineer to determine the estimated Sand Mitigation Fee which will be provided in a blue folder memo distribution.

Additional maintenance and repairs are proposed with this permit; however, some Sand Mitigation fees were previously paid for the upper bluff work and the Public Recreation Fee would not apply, therefore, the City is not assessing fees for this portion of the project at this time.

It is unclear how the fees would be assessed for maintenance of the columns and landing of the staircase, therefore, a condition of approval will be added to the Resolution indicating that the Applicant is required to pay the Sand Mitigation Fee and the Public Recreation Impact Mitigation Fee in the amount calculated by the City unless the CCC assesses the fee at a higher amount, then we would accept the fee in the amount assessed by the CCC so that the Applicant wouldn't have to return to the City Council for assessment of a different amount of fees.

Compliance with Solana Beach Certified LUP Policies

Staff has evaluated the CUP application taking into account the following factors: (1) the relevant policies of the City's Certified LUP; (2) the conclusions drawn by the (a) City of Solana Beach's independent third-party geotechnical consultant CTE, INC. regarding the need for the project and the appropriateness of the proposed maintenance and repair to be performed to the existing BRD's and (b) the City of Solana Beach City Engineering conditions of approval; and (3) the Applicant's geotechnical reports and supplemental alternatives analysis

(Attachments 4,5, and 6).

After evaluating the project plans, photos, and the geotechnical recommendations report and response letters from the Applicant's Engineers, Soils Engineering Construction, Inc. and Degenkolb Engineers, included in Attachments 4, 5, and 6, and the third-party review findings provided by the City's geotechnical engineering consultant, CTE, Inc., and the City Engineer, Staff concurs that the proposed project has met the standard of imminent danger. Without the proposed project to stabilize the existing BRD's the prospect of bluff failure could threaten the southwestern most condominium building.

Based on the foregoing information, City Staff finds that the proposed project could be found consistent with applicable LUP policies previously cited.

In addition to the required LUP findings, compliance with the Solana Beach Municipal Code is required to support issuance of a Conditional Use Permit.

Compliance with Solana Beach Municipal Code (SBMC) Findings 17.68.010 (F)

a. That the proposed use is in accord with the general plan, the general intent of this title, and the purposes of the zone in which the site is located.

b. That the proposed use, together with the conditions applicable thereto, will not be detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity.

c. That the proposed use complies with each of the applicable provisions of the zoning ordinance, unless a variance is granted pursuant to SBMC 17.68.020.

The proposed project is consistent with required finding (a), whereby shoreline protective devices are a structure/use allowed in the City to protect bluff top principal structures in danger of erosion.

The proposed project is consistent with the required finding (b) whereby the proposed project is needed to address an emergency condition whereby bluff failure has been confirmed to be imminent by Construction Testing and Engineering, Inc. (CTE, Inc. who is one of the City's on call third-party Geotechnical Engineering Firms).

The proposed project is consistent with the required finding (c) whereby the proposed project is consistent with the zoning ordinance which allows for shoreline protection.

CEQA COMPLIANCE STATEMENT:

The proposed project qualifies as an emergency repair pursuant to the California Environmental Quality Act (CEQA) Public Resources Code §§ 21060.3, as evidenced by a licensed geotechnical engineer. Thus, this project is exempt from CEQA per 2023 State CEQA Guidelines §15269(b)(c). The project Engineer also provided a letter confirming that this is an emergency condition which has been provided in attachment 3. The project also qualifies for

and exemption under 15301 existing facilities.

FISCAL IMPACT: N/A

WORK PLAN: N/A

OPTIONS:

- Approve the proposed project and adopt Resolution 2024-010.
- Deny the proposed project.
- Provide alternative direction.

DEPARTMENT RECOMMENDATION:

Staff recommends that the City Council:

1. Conduct the Public Hearing: Open the public hearing, Report Council disclosures, receive public testimony, and close the public hearing.

2. Find the Proposed Project exempt from the requirements of CEQA pursuant to 2023 State California CEQA Guidelines §15269 as emergency conditions exist onsite. The project could also be found exempt from the requirements of CEQA pursuant to Section 15301 of the State California CEQA Guidelines.

3. Adopt Resolution 2024-010 conditionally approving a Conditional Use Permit for maintenance and repair of the southern 170 feet of an existing 540-foot lower bluff seawall and an upper bluff drilled pier wall running east to west along the southern property line at 825 S. Sierra Avenue, Solana Beach.

CITY MANAGER'S RECOMMENDATION:

Approve Department Recommendation.

_____
Gregory Wade, City Manager

Attachments:

1. Resolution 2024-010
2. Proposed Plans
3. Soil Engineering Construction Inc. Designation as an Emergency
4. CTE Review Letter
5. Soil Construction Engineering, Inc. Engineering Recommendations
6. Responses from Applicant's Engineers

RESOLUTION 2024-010

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SOLANA BEACH, CALIFORNIA, APPROVING A CONDITIONAL USE PERMIT FOR MAINTENANCE AND REPAIR OF THE SOUTHER 170 FEET OF AN EXISTING 540-FOOT-LONG LOWER BLUFF SEAWALL AND MAINTENANCE AND REPAIR OF AN EXISTING UPPER BLUFF DRILLED PIER WALL THAT RUNS EAST/WEST ALONG THE SOUTHERN PROPERTY LINE ON THE BLUFF BELOW THE DEL MAR BEACH CLUB CONDOMINIUM COMPLEX AT 825 SOUTH SIERRA AVENUE IN SOLANA BEACH.

APPLICANTS: DEL MAR BEACH CLUB CONDOMINIUM HOMEOWNERS ASSOCIATION
CASE NO.: CUP23-001

WHEREAS, the Del Mar Beach Club Condominium Homeowners Association (hereinafter referred to as "Applicant") has submitted an application for a Conditional Use Permit (CUP) pursuant to Title 17 (Zoning) of the Solana Beach Municipal Code (SBMC); and

WHEREAS, the City Council adopted the Amended Local Coastal Program (LCP) Land Use Plan (LUP) in June 2014 with policies allowing for repair and maintenance of existing, lawfully established structures as long as the improvements do not increase the size or degree of the nonconformity; and

WHEREAS, an Updated Geotechnical Recommendations Report and Project Plans prepared by Soil Construction Engineering, Inc. have been reviewed and confirmed by Construction Testing & Engineering, Inc. (CTE), the City's third party independent geotechnical consultant, in a letter dated November 16, 2023, indicating the proposed project is required and has been designed consistent with all City requirements; and

WHEREAS, at the duly noticed Public Hearing held on January 10, 2024, the City Council received and considered evidence concerning the proposed application as received; and

WHEREAS, the Public Hearing was conducted pursuant to the provisions of Solana Beach Municipal Code Section 17.72.030; and

WHEREAS, the City Council of the City of Solana Beach found the proposed project exempt from the California Environmental Quality Act pursuant because the proposed project qualifies as an emergency repair pursuant to the CEQA Public Resources Code §§ 21060.3, as evidenced by a licensed geotechnical engineer. the project is exempt from CEQA per 2023 State CEQA Guidelines §15269(b)(c) and Guidelines § 15301; and

WHEREAS, this decision is based upon the evidence contained in the subject application, testimony of CTE, evidence presented at the Hearing and any information the

City Council gathered by viewing the site and the area as disclosed at the Hearing.

NOW THEREFORE, the City Council of the City of Solana Beach, California, does resolve as follows:

1. That the foregoing recitations are true and correct.

2. That the project is categorically exempt from the requirements of CEQA pursuant to 2023 State California CEQA Guidelines 15301 and the proposed project qualifies as an emergency repair pursuant to the CEQA Public Resources Code §§ 21060.3, as evidenced by a licensed geotechnical engineer. the project is exempt from CEQA per 2023 State CEQA Guidelines §15269(b)(c).

3. That the request for a CUP for the maintenance and repair of the southern 170-feet of an existing 540-foot-long lower bluff seawall on the coastal bluff below 825 S. Sierra Avenue as well as maintenance and repair of an existing upper bluff drilled pier wall running east/west at the southern property line is conditionally approved based upon the following Findings and subject to the following Conditions:

4. FINDINGS

   A. Compliance with Solana Beach Municipal Code (SBMC) Findings 17.68.010 for a Conditional Use Permit:

      I. Before granting a conditional use permit, the planning director or city council shall make all of the following findings:

         a. That the proposed use is in accord with the general plan, the general intent of this title, and the purposes of the zone in which the site is located.

         General Plan Consistency
         The City Council finds the proposed project to be consistent with the following General Plan policies in the City's Land Use (LU) Element for residential land uses as repair and maintenance of deteriorating existing legal structures is permitted:

            - Policy LU-5.1: To ensure that development does not create adverse environmental, geographic, or geologic impacts, the City Council shall maintain ordinances for the preservation of hillsides, floodplains, sensitive biological areas, canyons, wetlands, coastal lands, scenic public views and, where feasible, private views. The Council shall also continue to regulate development of property within special hazard areas, including floodplains, coastal bluffs, and steep hillside areas.

- Policy LU-7.5: Protect, maintain, and where feasible, enhance and restore coastal resources consistent with the Local Coastal Program.

Local Coastal Plan/Land Use Plan Consistency

The Solana Beach City Council adopted an LCP/LUP on February 27, 2013 (amended and certified on June 11, 2014). Although the LUP has been certified by the California Coastal Commission, the Local Implementation Plan (LIP) portion of the LCP has not yet been certified; as such, the provisions of the LUP are considered by the Coastal Commission to be advisory rather than mandatory at this time.

The purpose of the LUP is to implement the State's goals for the coastal zone. The City's LUP provides long-term goals that promote the beneficial use of lands in the City and the beach and shoreline for residents and visitors alike. The LUP allows for existing structures to be maintained and repaired pursuant to the following policies:

- Policy 4.14: Existing, lawfully established structures that are located between the sea and the first public road paralleling the sea (or lagoon) built prior to the adopted date of the LUP that do not conform to the provisions of the LCP shall be considered legal nonconforming structures. Such structures may be maintained and repaired, as long as the improvements do not increase the size or degree of non-conformity. Additions and improvements to such structures that are not considered Bluff Top Redevelopment, as defined herein, may be permitted provided that such additions or improvements themselves comply with the current policies and standards of the LCP. Complete demolition and reconstruction or Bluff Top Redevelopment is not permitted unless the entire structure is brought into conformance with the policies and standards of the LCP. See also Policy 5.45 which addresses non-Bluff Properties.

The City Council finds the proposed project to be consistent with the LCP/LUP as the existing Bluff Retention Devices (BRD's) were constructed with the approval of the California Coastal Commission prior to the Certification of the City's LCP/LUP and the proposed maintenance and repair would not enlarge or expand the wall.

Specific Plans and Special Overlays

The proposed project is located within the Coastal Zone. As a condition of project approval, the Applicant will be required to obtain a Coastal Development Permit, Waiver, or Exemption from the California Coastal Commission prior to the issuance of a grading permit.

Zoning Ordinance Consistency

The project is consistent with the Zoning Ordinance in that shoreline protective devices are a structure/use allowed in the City to protect bluff top principal structures in danger of erosion.

b. That the proposed use, together with the conditions applicable thereto, will not be detrimental to the public health, safety, or welfare, or materially injurious to+ properties or improvements in the vicinity.

The proposed project is consistent with the required finding (b) whereby the proposed project is needed to address an emergency condition whereby bluff failure has been confirmed to be imminent by Construction Testing and Engineering, Inc. (CTE, Inc. who is one of the City's on call third-party Geotechnical Engineering Firms).

c. That the proposed use complies with each of the applicable provisions of the zoning ordinance, unless a variance is granted pursuant to SBMC 17.68.020.

The project has been reviewed by the City Engineer, the City's third-party Geotechnical Engineer and found to be in compliance with the Zoning Ordinance, the LCP/LUP and the Zoning Ordinance and necessary to prevent bluff failures that would threaten the existing structures.

2. If the conditional use permit is for the purpose of permitting an expansion, restoration, or extension of a nonconforming use or structure then only the findings of Chapter 17.16 SBMC must be made.

No expansion, restoration or extension of a nonconforming structure is proposed with the project.

5. CONDITIONS

Prior to use or development of the property in reliance on this permit, the Applicant shall provide for and adhere to the following conditions:

A. Community Development Department Conditions:

I. Grading Permit plans must be in substantial conformance with the plans presented to the City Council on January 10, 2024 and located in the project file with a submittal date of October 16, 2023.

II. The Applicant shall obtain required California Coastal Commission (CCC) approval of a Coastal Development permit, waiver or exemption as determined necessary by the CCC, prior to the

issuance of a Grading Permit.

III. Any bluff retention device shall be reasonably maintained and repaired by the bluff property owner on an "as needed" basis, at the bluff property owner's expense, in accordance with the implementing ordinances and any permit issued by the City. Any authorized assessing entity in which the project lies shall ensure such payments are reimbursed to the City if the bluff property owner fails to perform such work and the City elects to do so, subject to mandatory reimbursement. However, in all cases, after inspection, it is apparent that repair and maintenance is necessary, including maintenance of the color of the structures to ensure a continued match with the existing structures, the bluff property owner or assessing entity shall contact the City or CCC office to determine whether permits are necessary and, if necessary, shall subsequently apply for a coastal development permit for the required maintenance.

IV. All construction debris shall be properly collected and removed from the area of work.

V. The Applicant is required to remove or cap any permanent irrigation system within 100 feet of the bluff edge.

VI. The Applicant is required to cap all storm water drain systems that currently drain towards the west over the bluff.

VII. Prior to the issuance of a Grading Permit the Applicant shall pay the Sand Mitigation Fee in the amount calculated by the City and the Public Recreation Impact Mitigation Fee in the amount of $205,700. If the California Coastal Commission assesses the fee in a higher amount the Applicant shall pay the City the mitigation fees assessed by the CCC.

B. Engineering Department Conditions: Prior to obtaining any building or grading permits pursuant to this project, the Applicants shall:

I. Prepare, execute and record a declaration of restrictions on real property approved by the City Attorney whereby the applicant or the applicant's successors in interest to the property will construct and maintain the shoreline defense structure in accordance with Conditions of this approval.

II. The declaration of restrictions shall include an agreement by the Applicant to defend, indemnify, and hold harmless the City, its agents, officers, and employees from any and all claims, actions, proceedings, damages, judgments, or costs, including attorney's fees, against the

City or its agents, officers, or employees, relating to any claim for damages from any injury to person or property caused by the shoreline defense structure or by its failure.

III. Said declaration of restrictions shall be acknowledged and recorded in the office of the County Recorder.

IV. Per Policy 4.49 of the certified LUP, an Encroachment Maintenance and Removal Agreement is required when the proposed Bluff Retention Device (BRD) is located in whole or in part on public land. In order to determine if an Encroachment Removal Agreement is required for this project, submit an engineering plan clearly showing the property lines, existing topography and the location of the proposed BRD.

V. Obtain required California Coastal Commission Permits prior to the issuance of any structure and grading permits or present evidence that an emergency waiver has been granted.

VI. Obtain any other permits or emergency waivers, which may be required from State and Federal agencies including the State Lands Commission and the U.S. Army Corps of Engineers.

VII. The project shall be designed and shall provide appropriate data to confirm the submitted design to the satisfaction of the City Engineer. This shall include, but is not limited to, a geotechnical report.

VIII. The property owners shall post securities to guarantee proper care and use of the Fletcher Cove Beach Access Ramp. No construction materials to be off-loaded on the ramp, at the end of the ramp or any public property including streets and Fletcher Cove Park. No washing of equipment shall occur unless a containment system is properly utilized.

IX. For all projects on which equipment is driven on the Fletcher Cove Beach Access Ramp, the ramp and adjacent parking lot must be swept daily to remove sand that has been tracked onto the ramp and parking lot. At least once a week, the access ramp and parking lot must be swept with a street sweeper that is capable of cleaning the streets and parking lots of paper, glass, dirt, silt, sand, rocks, litter and miscellaneous debris. The street sweeper shall be equipped with dual gutter brooms, and vacuum equipment may be used. If any sand is tracked outside the parking lot, these areas (including city streets) must also be cleaned weekly with a street sweeper.

X. The property owners shall pay all inspection and plan check fees as required by the City.

XI. Plans and specifications for the project shall be approved by the City Engineer in addition to approvals from the Director of Planning as may be required, and shall substantially conform to the plans submitted by the Applicant. All bluff stabilization devices shall produce a natural appearing bluff to the satisfaction of the City Engineer and the Community development director. Project implementation shall provide a final product mimicking a naturally appearing bluff in terms of colors, textures, forms and angles.

XII. A grading/drainage plan shall be prepared by a registered civil engineer in accordance with the current Grading Ordinance and be submitted to the City Engineer for approval and permit issuance.

XIII. The Applicant shall post with the City a Performance Bond equal to the full amount of the work to be completed to guarantee that once started, construction will be completed per approved plans.

XIV. The Applicant shall submit a Certificate of Insurance naming the City of Solana Beach as an additional insured in the amount of $2,000,000 on a policy of general liability insurance issued by an insurance company licensed to do business in California, and meeting the requirements established by City Council resolution for insurance companies doing business with the City, covering injuries to persons and property during the construction period.

XV. The Applicant shall obtain a Special Use (Marine Safety) Permit specifying the conditions governing use of vehicles, use of the Fletcher Cove Beach Access Ramp, and entry upon and use of areas of the public beach for construction equipment and vehicles. Evidence of permit issuance shall be submitted to the City Engineer before issuance of the permit for the project.

XVI. The Applicant shall have on file evidence from the Marine Safety Department and the City Engineer that arrangements have been made to satisfy the following criteria:

a. Prior to usage of the Solana Beach Fletcher Cove ramp or parking lot, a cash deposit, bond or other secured agreement to cover the following impact charges shall be deposited:

i. A five-dollar and thirty-cents ($6.00) per round trip vehicle charge for all construction related vehicles using the ramp.

ii. A two-dollar and seventy cents ($3.00) per ton fee, or less if approved by the City Council, based on the estimated weight of the vehicle and load for all vehicles in excess of ¾ ton capacity,

excluding any vehicles solely transporting beach grade replenishment sand.

iii. A twenty-seven dollar ($31) per day charge for the first 30 days escalating to fifty-three dollars ($57) per day for the 31st and subsequent days charge shall be collected to encourage a timely completion of all projects, unless otherwise modified for good cause by the City Council or City Manager.

iv. Any damage caused to the Solana Beach Fletcher Cove ramp and parking lot.

b. At least one City of Solana Beach Lifeguard shall be contracted, at the Applicant's expense, through the Captain of Marine Safety, to monitor all activities in order to insure full compliance with the conditions of this permit. The lifeguard(s) shall be on duty at all times when any construction activity takes place. Additional lifeguards may be required at the discretion of the Captain of Marine Safety. In addition to the lifeguard staffing cost, the Applicant shall also pay a Marine Safety equipment use fee of four-dollar and sixty-four cents ($4.64) per hour, based on the number of the number of hours the lifeguards are contracted for the project.

c. If construction access is from Fletcher Cove Park, precautions shall be taken to avoid damage to the beach access ramp during construction and repairs. If damage to the ramp occurs, it shall be repaired to a condition equivalent to the condition at the start of construction activity to the satisfaction of the City of Solana Beach City Engineer. All City owned work areas including Fletcher Cove Park and access ramp shall be videotaped prior to the commencement of the project. The videotape shall establish the "as-is" condition. In any areas missed by the videotape, the City Engineer will determine "as-is" condition.

XVII. Beach quality sand from the excavation for the proposed project shall be deposited and spread on the beach in front of this site unless unique and/or inappropriate conditions are encountered. The Applicant should reference this condition to other permitting agencies.

XVIII. An encroachment permit from the Engineering Department is required if a crane, construction materials, etc. are envisioned to be stationed in the public right of way. The City does not guarantee that an encroachment permit will be approved.

XIX. Any grout mixture used on the project that may be visible from the beach or surrounding areas shall be of similar color as the surrounding natural bluffs. Color samples shall be submitted and approved by the City prior to placing the grout.

XX. The structure and any exposed construction shall mimic the natural contours, color and texture to the maximum extent practicable, as determined by the City Engineer and Community Development Director.

XXI. A carved, colored and textured facade on the face of the structure matching the adjacent bluff areas shall be constructed. The façade shall match the contours, both vertically and horizontally, and the texture of the adjacent natural bluffs to the maximum extent feasible. Coastal bluff colored grouting shall be used and shall be submitted to the City Engineer before approval of the plans. A test prism shall be cast and delivered to a testing lab during construction.

XXII. A qualified, licensed and insured contractor shall perform all required work as outlined by certified/registered engineering geologist or Registered Civil Engineer on the construction plans. Special and general notes on said plans shall be followed to the satisfaction of the City Engineer or his designee.

XXIII. Lateral pedestrian and Marine Safety vehicular access through the construction area, shall be provided past the site at all times, subject to high tides and safety issues. A 30-foot wide safety/construction work zone shall be provided during work hours to separate the work zone from the open public beach.

XXIV. No construction activities may occur on the beach during the busier recreational season, which is defined as the period between Memorial Day and Labor Day of any year. The contractor shall obtain approval from the City of Solana Beach Engineering and Marine Safety Departments regarding the use and timing of the Fletcher Cove parking lot and beach access ramp for all construction related access, staging and parking issues if such use becomes required.

XXV. Pursuant to SBMC Section 7.34.100, Construction hours are limited to 7:00 a.m. to 7:00 p.m., Monday through Friday, and 8:00 a.m. to 7:00 p.m. on Saturday. No work is allowed on Sunday or holidays unless specifically approved pursuant to SBMC Section 7.34.100.B. Engines shall not be started, no construction-related materials shall be moved, or any other construction-related activities occur outside these hours. Work is not permitted on the beach on Saturdays without the written approval of the City Manager.

Prior to Final Inspection of the project, the Applicant shall:

I. Submit certification to the City Engineer from the Geotechnical Engineer and the Civil Engineer of Record for the project that they

have inspected the project and certify that it was constructed per the approved plan, specifying the date of the plan.

II. The applicant and/or contractor shall repair any damage caused to the Solana Beach property and facilities, including but not limited to, Fletcher Cove ramp and parking lot to the satisfaction of the City Engineer.

The Applicant shall provide for and adhere to the following Conditions:

I. All development on the site shall substantially conform to the final Conditional Use Permit Plan approved by the City Council.

II. The property owner shall be responsible to immediately remove, in perpetuity, any graffiti or other markings should they appear on the project exterior face. If erosion exposes the steel rebar, the Applicant or their successor in interest shall arrange to apply a sculptor-coat of concrete over the exposed steel to match the natural bluff. The property owner shall be responsible for the removal of the structure or any portion thereof.

III. If requested by the City Manager or his designee, the property owner or their successor in interest shall install and maintain signage about unstable bluffs fronting their property.

IV. The applicant shall provide "As-Built" plans and all certifications required to the City, before the City will release the performance bond as indicated in condition 1.XII.

C. City Council Condition:

I. N/A.

6. ENFORCEMENT: Pursuant to SBMC 17.72.120(B) failure to satisfy any and all of the above-mentioned conditions of approval is subject to the imposition of penalties as set forth in SBMC Chapters 1.1.6 and 1.18 in addition to any applicable revocation proceedings.

7. EXPIRATION: The Development Review Permit for the project will expire 24 months from the date of authorization from the California Coastal Commission in the form of a Coastal Development Permit, Waiver, or Exemption unless the Applicant has obtained a Grading Permit and commenced construction prior to that date, and diligently pursued construction to completion. An extension of the application may be granted by the City Council.

8. INDEMNIFICATION AGREEMENT: The Applicant shall defend, indemnify, and hold harmless the City, its agents, officers, and employees from any and all claims,

actions, proceedings, damages, judgments, or costs, including attorney's fees, against the City or its agents, officers, or employees, relating to the issuance of this permit including, but not limited to, any action to attack, set aside, void, challenge, or annul this development approval and any environmental document or decision. The City will promptly notify Applicant of any claim, action, or proceeding. The City may elect to conduct its own defense, participate in its own defense, or obtain independent legal counsel in defense of any claim related to this indemnification. In the event of such election, Applicant shall pay all of the costs related thereto, including without limitation reasonable attorney's fees and costs. In the event of a disagreement between the City and Applicant regarding litigation issues, the City shall have the authority to control the litigation and make litigation related decisions, including, but not limited to, settlement or other disposition of the matter. However, the Applicant shall not be required to pay or perform any settlement unless such settlement is approved by Applicant.

9. NOTICE TO APPLICANT: Pursuant to Government Code Section 66020, you are hereby notified that the 90-day period to protest the imposition of the fees, dedications, reservations or other exactions described in this resolution commences on the effective date of this resolution. To protest the imposition of any fee, dedications, reservations or other exactions described in this resolution you must comply with the provisions of Government Code Section 66020. Generally the resolution is effective upon expiration of the tenth day following the date of adoption of this resolution, unless the resolution is appealed or called for review as provided in the Solana Beach Zoning Ordinance.

PASSED AND ADOPTED at a regular meeting of the City Council of the City of Solana Beach, California, held on the 10th day of January, 2024, by the following vote:

AYES: Councilmembers –
NOES: Councilmembers –
ABSENT: Councilmembers –
ABSTAIN: Councilmembers –

_____
LESA HEEBNER, Mayor

APPROVED AS TO FORM:

_____
JOHANNA N. CANLAS, City Attorney

ATTEST:

_____
ANGELA IVEY, City Clerk

DEL MAR BEACH CLUB
PROPOSED MAINTENANCE/REPAIRS TO EXISTING SEAWALL AND UPPER BLUFF CAISSON SYSTEM - PHASE 1

GENERAL NOTES

1. APPROVAL OF THIS GRADING PLAN DOES NOT CONSTITUTE APPROVAL OF VERTICAL OR HORIZONTAL ALIGNMENT OF ANY PRIVATE ROAD SHOWN HEREIN FOR PUBLIC ROAD PURPOSES.

2. FINAL APPROVAL OF THESE GRADING PLANS IS SUBJECT TO FINAL APPROVAL OF THE ASSOCIATED IMPROVEMENT PLANS WHERE APPLICABLE. FINAL CURB GRADE ELEVATIONS MAY REQUIRE CHANGES IN THESE PLANS.

3. IMPORT MATERIALS SHALL BE LEGALLY OBTAINED.

4. A SEPARATE PERMIT FROM THE CITY ENGINEER WILL BE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY.

5. ALL SLOPES OVER THREE FEET IN HEIGHT SHALL BE LANDSCAPED AND IRRIGATED.

6. THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK. NOTICE OF PROPOSED WORK SHALL BE GIVEN TO THE FOLLOWING AGENCIES:

UNDERGROUND SERVICE ALERT 811

CITY OF SOLANA BEACH PUBLIC WORKS 858 720-2470

7. THE SOILS REPORT TITLED: UPDATED GEOTECHNICAL RECOMMENDATIONS - PROPOSED MAINTENANCE REPAIRS EXISTING LOWER BLUFF SEAWALL & SOUTH PROPERTY LINE UPPER BLUFF CAISSON SYSTEM DEL MAR BEACH CLUB HOA - 825 S. SIERRA AVENUE, SOLANA BEACH, CALIFORNIA 92075, PREPARED BY SOIL ENGINEERING CONSTRUCTION, INC., AND DATED 4/3/23 SHALL BE CONSIDERED AS PART OF THIS GRADING PLAN. ALL GRADING SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS AND SPECIFICATIONS CONTAINED IN SAID REPORT.

8. APPROVAL OF THESE PLANS BY THE CITY ENGINEER DOES NOT AUTHORIZE ANY WORK OR GRADING TO BE PERFORMED UNTIL THE PROPERTY OWNER'S PERMISSION HAS BEEN OBTAINED AND A VALID GRADING PERMIT HAS BEEN ISSUED.

9. THE CITY ENGINEER'S APPROVAL OF THESE PLANS DOES NOT CONSTITUTE THE BUILDING OFFICIAL'S APPROVAL OF ANY FOUNDATION FOR STRUCTURES TO BE PLACED ON THE AREA COVERED BY THESE PLANS. NO WAIVER OF THE GRADING ORDINANCE REQUIREMENTS CONCERNING MINIMUM COVER OVER EXPANSIVE SOILS IS MADE OR IMPLIED.

10. ALL OPERATIONS CONDUCTED ON THE PREMISES, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE OR RUNNING OF TRUCKS, EARTHMOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED GRADING EQUIPMENT SHALL BE LIMITED TO THE PERIOD BETWEEN 7:00 A.M. AND 6:00 P.M. EACH DAY, MONDAY THROUGH FRIDAY AND NO EARTHMOVING OR GRADING OPERATIONS SHALL BE CONDUCTED ON THE PREMISES ON SATURDAYS, SUNDAYS OR HOLIDAYS WITHOUT THE WRITTEN PERMISSION OF THE CITY ENGINEER.

11. ALL MAJOR SLOPES SHALL BE ROUNDED INTO EXISTING TERRAIN TO PRODUCE A CONTOURED TRANSITION FROM CUT OR FILL SUFACES TO NATURAL GROUND AND ABUTTING CUT OR FILL SURFACES.

12. NOTWITHSTANDING THE MINIMUM STANDARDS SET FORTH IN THE EXCAVATION AND GRADING CODE, AND NOTWITHSTANDING THE APPROVAL OF THESE GRADING PLANS, THE PERMITTEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO THE ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK, ALLEY, FUNCTION OF ANY SEWAGE DISPOSAL SYSTEM, OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING SCOUR OR OTHER DAMAGE WHICH MIGHT RESULT FROM THE GRADING DESCRIBED ON THIS PLAN. THE CITY WILL HOLD THE PERMITTEE RESPONSIBLE FOR CORRECTION ON NON-DEDICATED IMPROVEMENTS, WHICH DAMAGE ADJACENT PROPERTY.

13. SLOPE RATIOS: CUT 2:1 FILL 2:1
CUT 20 CY. FILL 0.0 CY.
IMPORT/(EXPORT) 0.0 CY.
NOTE: A SEPARATE PERMIT MUST EXIST FOR OFFSITE IMPORT OR EXPORT AREAS.

14. SPECIAL CONDITIONS: IF ANY ARCHEOLOGICAL RESOURCES ARE DISCOVERED ON THE SITE OF THIS GRADING DURING GRADING OPERATIONS, SUCH OPERATIONS WILL CEASE IMMEDIATELY AND THE PERMITTEE WILL NOTIFY THE CITY ENGINEER OF THE DISCOVERY. GRADING OPERATIONS WILL NOT COMMENCE UNTIL THE PERMITTEE HAS RECEIVED WRITTEN AUTHORITY FROM THE CITY ENGINEER TO DO SO.

15. ALL GRADING SHOWN ON THIS PLAN SHALL BE COMPLETED AS A SINGULAR UNIT WITH NO PROVISION FOR PARTIAL RELEASES. SHOULD IT BE ANTICIPATED THAT A PORTION OF THIS PROJECT IS COMPLETED SEPARATELY, A SEPARATE PLAN AND PERMIT APPLICATION SHALL BE SUBMITTED FOR APPROVAL.

16. THE CONTRACTOR SHALL NOTIFY THE CITY OF SOLANA BEACH AT (858) 720-2470, 24 HOURS BEFORE GRADING OPERATIONS BEGIN.

17. FINISHED GRADING AND PLANTING SHALL BE ACCOMPLISHED ON ALL SLOPES PRIOR TO OCTOBER 1, OR IMMEDIATELY UPON COMPLETION OF ANY SLOPES GRADED BETWEEN OCTOBER 1 AND APRIL 1. PRIOR TO ANY PLANTING, ALL LANDSCAPING SHALL BE APPROVED BY THE PLANNING DEPARTMENT AT THE DEVELOPMENT REVIEW STAGE, OR BY SEPARATE LANDSCAPING PLAN.

18. ALL OFF-SITE HAUL ROUTES SHALL BE SUBMITTED BY THE CONTRACTOR TO THE CITY ENGINEER FOR APPROVAL 72 HOURS PRIOR TO BEGINNING WORK.

19. UPON FINAL COMPLETION OF THE WORK UNDER THE GRADING PERMIT, BUT PRIOR TO FINAL GRADING APPROVAL AND/OR FINAL RELEASE OF SECURITY, AN AS-GRADED CERTIFICATE SHALL BE PROVIDED STATING: "THE GRADING UNDER PERMIT NO. SBGR-____ HAS BEEN PERFORMED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED GRADING PLAN OR AS SHOWN ON THE ATTACHED AS-GRADED PLAN." THIS STATEMENT SHALL BE FOLLOWED BY THE DATE AND SIGNATURE OF THE CIVIL ENGINEER WHO CERTIFIES SUCH GRADING OPERATION.

20. THE CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES INCLUDING SHORING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.

EROSION CONTROL NOTES

1. STORM WATER AND NON-STORM WATER DISCHARGE CONTROL: BEST MANAGEMENT PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO MANAGE STORM WATER AND NON-STORM WATER DISCHARGES FROM THE SITE AT ALL TIMES DURING EXCAVATION AND GRADING ACTIVITIES.

2. EROSION AND SEDIMENT CONTROL: EROSION PREVENTION SHALL BE EMPHASIZED AS THE MOST IMPORTANT MEASURE FOR KEEPING SEDIMENT ON SITE DURING EXCAVATION AND GRADING ACTIVITIES. SEDIMENT CONTROLS SHALL BE USED AS A SUPPLEMENT TO EROSION PREVENTION FOR KEEPING SEDIMENT ON SITE.

3. EROSION CONTROL ON SLOPES SHALL BE MITIGATED BY INSTALLING LANDSCAPING AS PER APPROVED LANDSCAPE PLANS AS REQUIRED BY THE DEVELOPMENT REVIEW CONDITIONS, OR BY TEMPORARY EROSION CONTROL CONFORMING TO THE FOLLOWING:

NON-IRRIGATED HYDROSEED MIX WITH A BONDED FIBER MATRIX APPLIED AT 4,000 LB/ACRE.

LBS /ACRE	% PURITY/ACRE	SEED SPECIES
20	70% PLUS	ATRIPLEX GLAUCA
50		PLANTAGE INSULARIS
8		ENCELIS FARINOSA
6	SCARIFIED	LOTUS SCOPARIUS
7	50% PLUS	EXCHSCHOLZIA CALIFORNIA

TOTAL 91 LBS

4. THE TOPS OF ALL SLOPES TALLER THAN 5' SHALL BE DIKED OR TRENCHED TO PREVENT WATER FLOWING OVER CRESTS OF SLOPES.

5. CATCH BASINS, DESILTING BASINS AND STORM DRAIN SYSTEMS SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY ENGINEER.

6. SAND BAG CHECK DAMS, SILT FENCES, FIBER ROLLS OR OTHER APPROVED BMP'S SHALL BE PLACED IN UNPAVED AREAS WITH GRADIENTS IN EXCESS OF 2%, AS WELL AS AT OR NEAR EVERY POINT WHERE CONCENTRATED FLOW LEAVE THE SITE.

7. SAND BAGS SHALL BE PLACED ON THE UPSTREAM SIDE OF ALL DRAINAGE INLETS TO MINIMIZE SILT BUILDUP IN THE INLETS AND PIPES.

8. THE CONTRACTOR SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE OFFICE OF THE CITY ENGINEER.

9. THE CONTRACTOR SHALL SWEEP ROADWAYS AND ENTRANCES TO AND FROM THE SITE ON A REGULAR BASIS TO KEEP THEM FREE OF SOIL ACCUMULATION AND AT ALL OTHER TIMES DIRECTED BY THE CITY ENGINEER.

10. THE CONTRACTOR SHALL WATER SITE ON A CONTINUOUS BASIS TO MINIMIZE AIR BORNE DUST CREATED FROM GRADING AND HAULING OPERATIONS OR EXCESSIVE WIND CONDITIONS, AND AT ALL TIMES DIRECTED BY THE CITY ENGINEER.

11. IN THE EVENT SILT DOES ENTER THE EXISTING PUBLIC STORM DRAIN SYSTEM, REMOVAL OF THE SILT FROM THE SYSTEM WILL BE AT THE DEVELOPER'S EXPENSE.

AS-BUILT:

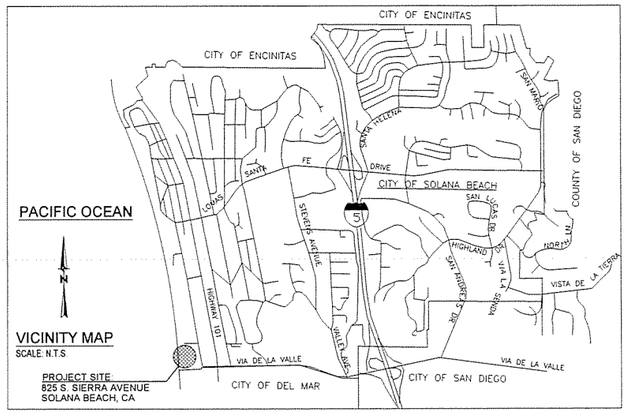
UPON COMPLETION, AND PRIOR TO RELEASING THE SECURITIES, THE ENGINEER OF WORK SHALL "AS-BUILT" THE ORIGINAL MYLAR PLANS. INITIALLY, TWO COPIES OF RED-LINED PLANS SHOWING ALL AS-BUILT INFORMATION, INCLUDING ALL NEW UNDERGROUND FACILITIES (MAIN LINES, SERVICES AND LATERALS), IS TO BE SUBMITTED TO THE ENGINEERING DEPARTMENT. WHEN THE RED-LINES ARE APPROVED, THE ORIGINAL MYLAR PLANS WILL BE CHECKED OUT TO THE ENGINEER. THE ENGINEER SHALL MAKE THE CHANGES, SIGN EACH SHEET UNDER "AS-BUILT", AND RETURN ORIGINAL MYLARS TO THE CITY.

FLOOD STATEMENT

I, _____, A REGISTERED CIVIL ENGINEER/SURVEYOR, HEREBY CERTIFY THAT THE PAD STRUCTURES SHOWN ON THIS AS-BUILT GRADING PLAN HAVE BEEN VERIFIED BY ME AND THAT SAID ELEVATIONS ARE AT OR ABOVE THE BASE FLOOD ELEVATION SHOWN ON THE FLOOD INSURANCE RATE MAP OF THE COUNTY OF SAN DIEGO.

SIGNED _____ DATE _____

R.C.E./P.L.S. NO. _____ EXP. _____



OWNER/DEVELOPER CERTIFICATE

I, _____ AS OWNER/DEVELOPER OF THE PROPERTY DESCRIBED HEREIN ACKNOWLEDGE THESE PLANS HAVE BEEN PREPARED AT MY DIRECTION WITH MY FULL CONSENT. I FULLY UNDERSTAND AND ACCEPT THE TERMS AND CONDITIONS CONTAINED HEREIN AND AS ATTACHED BY REFERENCE ON THIS GRADING PLAN.

IT IS AGREED THAT FIELD CONDITIONS MAY REQUIRE CHANGES TO THESE PLANS.

IT IS FURTHER AGREED THAT THE OWNER/DEVELOPER SHALL HAVE A REGISTERED CIVIL ENGINEER MAKE SUCH CHANGES, ALTERATIONS OR ADDITIONS TO THESE PLANS WHICH THE CITY ENGINEER DETERMINES ARE NECESSARY AND DESIRABLE FOR THE PROPER COMPLETION OF THE IMPROVEMENTS.

I FURTHER AGREE TO COMMENCE WORK ON ANY IMPROVEMENTS SHOWN ON THESE PLANS WITHIN EXISTING CITY RIGHT-OF-WAY WITHIN 9 MONTHS AFTER ISSUANCE OF THE CONSTRUCTION PERMIT AND TO PURSUE SUCH WORK ACTIVELY ON EVERY NORMAL WORKING DAY UNTIL COMPLETED, IRRESPECTIVE AND INDEPENDENT OF ANY OTHER WORK ASSOCIATED WITH THIS PROJECT OR UNDER MY CONTROL.

SIGNED _____

DATE _____

ENGINEER OF WORK CERTIFICATE

I, ROBERT D. MAHONY 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 CITY OF SOLANA BEACH RESOLUTION NO. _____.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF SOLANA BEACH AND ANY OTHER PUBLIC AGENCY IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME OF RESPONSIBILITIES FOR PROJECT DESIGN.

SIGNED Robert Mahony DATE 9/18/23

R.C.E. NO. 16459 EXP. 6/30/25

FIRM SOIL ENGINEERING CONSTRUCTION, INC.

ADDRESS 927 ARGUELLO STREET
REDWOOD CITY, CALIFORNIA 94063

TELEPHONE (760) 633-3470

ENGINEER OF WORK AS-BUILT CERTIFICATE

I, ROBERT D. MAHONY HEREBY DECLARE THAT THE PREPARATION OF THESE AS-BUILT DRAWINGS AND THAT THE INFORMATION SHOWN IS BASED ON ACTUAL SITE INVESTIGATIONS AND SURVEYS OF THE IMPROVEMENTS BETWEEN THE DATES OF _____ AND _____ TO THE BEST OF MY KNOWLEDGE AND EXPERIENCE THE INFORMATION SHOWN ON THESE PLANS PROVIDE AN ACCURATE AND CORRECT REPRESENTATION OF THE AS-BUILT CONDITIONS.

SIGNED _____ DATE _____

R.C.E. NO. 16459 EXP. 6/30/25

STORM WATER PROTECTION NOTES

1. THIS PROJECT IS SUBJECT TO MUNICIPAL STORM WATER PERMIT ORDER NO. _____, AND RISK LEVEL/TYPE: CHECK ONE BELOW
   - ☒ WPCP
   - ☐ CGP RISK LEVEL 1 ☐ CGP LUP TYPE 1
   - ☐ CGP RISK LEVEL 2 ☐ CGP LUP TYPE 2
   - ☐ CGP RISK LEVEL 3 ☐ CGP LUP TYPE 3
2. CHECK ONE
   - ☐ THIS PROJECT WILL EXCEED THE MAXIMUM DISTURBED AREA LIMIT. THEREFORE A WEATHER TRIGGERED ACTION PLAN (WTAP) IS REQUIRED.
   - ☐ THIS PROJECT WILL FOLLOW PHASED GRADING NOT TO EXCEED FIVE (5) ACRES PER PHASE.
   - ☒ NOT APPLICABLE
3. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE WPCP OR SWPPP AS APPLICABLE.

PROJECT CONTACTS/CONSULTANTS

OWNER:
DEL MAR BEACH CLUB HOA
C/O MR. TERRY HINES
825 S. SIERRA AVENUE
SOLANA BEACH, CALIFORNIA 92075

APPLICANT:
THE TRETTIN COMPANY
ROBERT TRETTIN
1195 LA MOREE ROAD, #18
SAN MARCOS, CA 92078
PH. (858) 603-1741

LAND SURVEYOR:
CIREMELE SURVEYING INC.
CHRIS CIREMELE, L.L.S. 164
S ESCONDIDO BLVD.,
ESCONDIDO, CALIFORNIA 92025
(760) 489-2200

CIVIL ENGINEER OF RECORD:
SOIL ENGINEERING CONSTRUCTION, INC.
ROBERT D. MAHONY, R.C.E., C.E.G., R.G.E. 927
ARGUELLO STREET REDWOOD CITY,
CALIFORNIA 94063 (760) 633-3470

STRUCTURAL DESIGN ENGINEER:
DEGENKOLB ENGINEERS
JEREMY GALLISTER
225 BROADWAY, STE 1325 SAN DIEGO, CA 92101
(619) 515-0299

SOIL ENGINEER OF RECORD:
SOIL ENGINEERING CONSTRUCTION, INC.
ROBERT D. MAHONY, R.C.E., C.E.G., R.G.E.
927 ARGUELLO STREET REDWOOD CITY,
CALIFORNIA 94063 (760) 633-3470

SOIL ENGINEER CERTIFICATE

I, ROBERT D. MAHONY A REGISTERED CIVIL ENGINEER OF THE STATE OF CALIFORNIA, PRINCIPALLY DOING BUSINESS IN THE FIELD OF APPLIED SOIL MECHANICS, HEREBY CERTIFY THAT A SAMPLING AND STUDY OF THE SOIL AND CONDITIONS PREVALENT WITHIN THE SITE WAS MADE BY ME OR UNDER MY DIRECTION BETWEEN THE DATES 4/3/23 AND 9/18/23. I HAVE REVIEWED THE PROJECT DESIGN AND GRADING SHOWN HEREIN IS CONSISTENT WITH THE RECOMMENDATIONS CONTAINED IN THE APPROVED SOILS AND GEOTECHNICAL REPORTS FOR THE PROJECT. ONE COMPLETE COPY OF THE FINAL SOILS REPORT COMPILED FROM THIS STUDY, WITH MY RECOMMENDATIONS, HAS BEEN SUBMITTED TO THE OFFICE OF THE CITY ENGINEER.

SIGNED Robert Mahony DATE 9/18/23

G.E./R.C.E. NO. 554/16459 EXP. 6/30/25

FIRM SOIL ENGINEERING CONSTRUCTION, INC.

ADDRESS 927 ARGUELLO STREET
REDWOOD CITY, CALIFORNIA 94063

TELEPHONE (760) 633-3470

SOILS ENGINEER AS-BUILT CERTIFICATE

TO THE BEST OF MY KNOWLEDGE AND EXPERIENCE THE GRADING CONFORMS WITH THE RECOMMENDATIONS CONTAINED IN THE SOILS REPORT AND PLANS WITH THE EXCEPTION THAT ANY CHANGES OR DEVIATIONS FROM THE PLANS DUE TO UNFORESEEN FIELD CONDITIONS HAVE BEEN IDENTIFIED IN THE FINAL SOILS REPORT FOR THE PROJECT. ONE COMPLETE COPY OF THE FINAL SOILS REPORT COMPILED FROM THIS STUDY, WITH MY RECOMMENDATIONS, HAS BEEN SUBMITTED TO THE OFFICE OF THE CITY ENGINEER.

SIGNED _____ DATE _____

G.E./R.C.E. NO. 554/16459 EXP. 6/30/25

OWNER/APN/APPLICANT

OWNER:
DEL MAR BEACH CLUB
C/O MR. TERRY HINES
825 S. SIERRA AVENUE, SOLANA BEACH, CA 92075

APN:
298-240-33,35,57

APPLICANT:
THE TRETTIN COMPANY
ROBERT TRETTIN
1195 LA MOREE ROAD, #18
SAN MARCOS, CA 92078
(858) 603-1741

TOTAL DISTURBED AREA

TOTAL SITE DISTURBED AREA APPROX.: 0.01 ACRES

GRADING QUANTITIES

GRADED AREA CUT	20 [CYD]	MAX. CUT DEPTH	20 [FT]
QUANTITIES FILL	0.0 [CYD]	MAX. CUT SLOPE RATIO (2:1MAX)	0
QUANTITIES	0.0 [CYD]	MAX. FILL DEPTH	0 [FT]
IMPORT/EXPORT	0.0 [CYD]	MAX. FILL SLOPE RATIO (2:1MAX)	N/A

THIS PROJECT PROPOSES TO EXPORT 0 CUBIC YARDS OF MATERIAL FROM THIS SITE. ALL EXPORT MATERIAL SHALL BE DISCHARGED TO A LEGAL DISPOSAL SITE. THE APPROVAL OF THIS PROJECT DOES NOT ALLOW PROCESSING AND SALE OF THE MATERIAL. ALL SUCH ACTIVITIES REQUIRE A SEPARATE CONDITIONAL USE PERMIT.

WORK TO BE DONE

THE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING TO THESE PLANS AND THE LATEST EDITIONS OF:

1. STANDARD SPECIFICATIONS:
   (1) STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION INCLUDING THE REGIONAL SUPPLEMENTAL AMENDMENTS.
   (2) CALIFORNIA DEPARTMENT OF TRANSPORTATION "MANUAL OF TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE WORK ZONES"
   (3) STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS

2. STANDARD DRAWINGS:
   (1) SAN DIEGO REGIONAL STANDARD DRAWINGS
   (2) STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION STANDARD PLANS

LEGEND

PROPOSED IMPROVEMENTS

IMPROVEMENT	STANDARD DWGS.	SYMBOL
PROPOSED SHOTCRETE WALL/FACING (PVT) ALSO LIMITS OF WORK AND SOIL DISTURBANCE		
PROPOSED TIEBACK (PVT)		T1-T15
EXISTING COASTAL BLUFF EDGE		
TOP OF WALL ELEVATION		T.O.W. EL. 35.0' MSL±, VARIES
R/W PROPERTY LINE		PL

SHEET INDEX

PROJECT SCOPE

PHASE 1 OF THIS PROJECT INCLUDES STRUCTURAL MAINTENANCE AND REPAIR OF THE SOUTHERN 170-FEET OF AN EXISTING 540-FOOT LONG LOWER BLUFF SEAWALL AND A LATERAL WALL ALONG THE SOUTHERN TERMINUS ON THE COASTAL BLUFF BELOW 825 S. SIERRA AVENUE, SOLANA BEACH.

COASTAL COMMISSION PERMIT NO.: 6-00-009

AS-BUILT

BY _____ DATE _____

R.C.E. _____ EXP. _____

0 1" 2" 3"
ORIGINAL DRAWING MEASURE

SOIL ENGINEERING CONSTRUCTION Inc

SOIL ENGINEERING CONSTRUCTION, INC.
LICENSE # A-268082
927 ARGUELLO ST, REDWOOD CITY CA 94063
PHONE (760) 633-3470 SEC JOB NO 22-006
SEC@SOILENGINEERINGCONSTRUCTION.COM

Robert Mahony
ROBERT D. MAHONY, R.C.E., R.G.E., R.E.G. EXP. 06-30-25

09/18/23
DATE

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK	CITY OF SOLANA BEACH ENGINEERING DEPARTMENT	DRAWING REF. NO
BY _____ FIRE CHIEF DATE _____	REVIEWED BY: _____ DISTRICT REP DATE _____	By: ROBERT D. MAHONY Date: 09/18/23 NAME: SOIL ENGINEERING CONST. R.C.E. 16459 EXP. 06/30/25 DRAWN BY: JK				By _____ Date _____ DAN GOLDBERG By _____ Date _____	By _____ Date _____ MOHAMMAD SAMMAK, CITY ENGINEER EXP. 6/30/24 R.C.E. 37146	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)	TITLE SHEET FOR: 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 SEAWALL AND UPPER BLUFF REPAIRS - PHASE 1	G-001
										SBGR-
										Sheet 1 of 18

LEGEND AND ABBREVIATIONS

PROPERTY LINE

20 EXISTING CONTOURS AT 2' INTERVALS

CONC CONCRETE
RET RETAINING

BENCH MARK

CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE.

ELEVATION: 71.450 FEET (NAVD88)

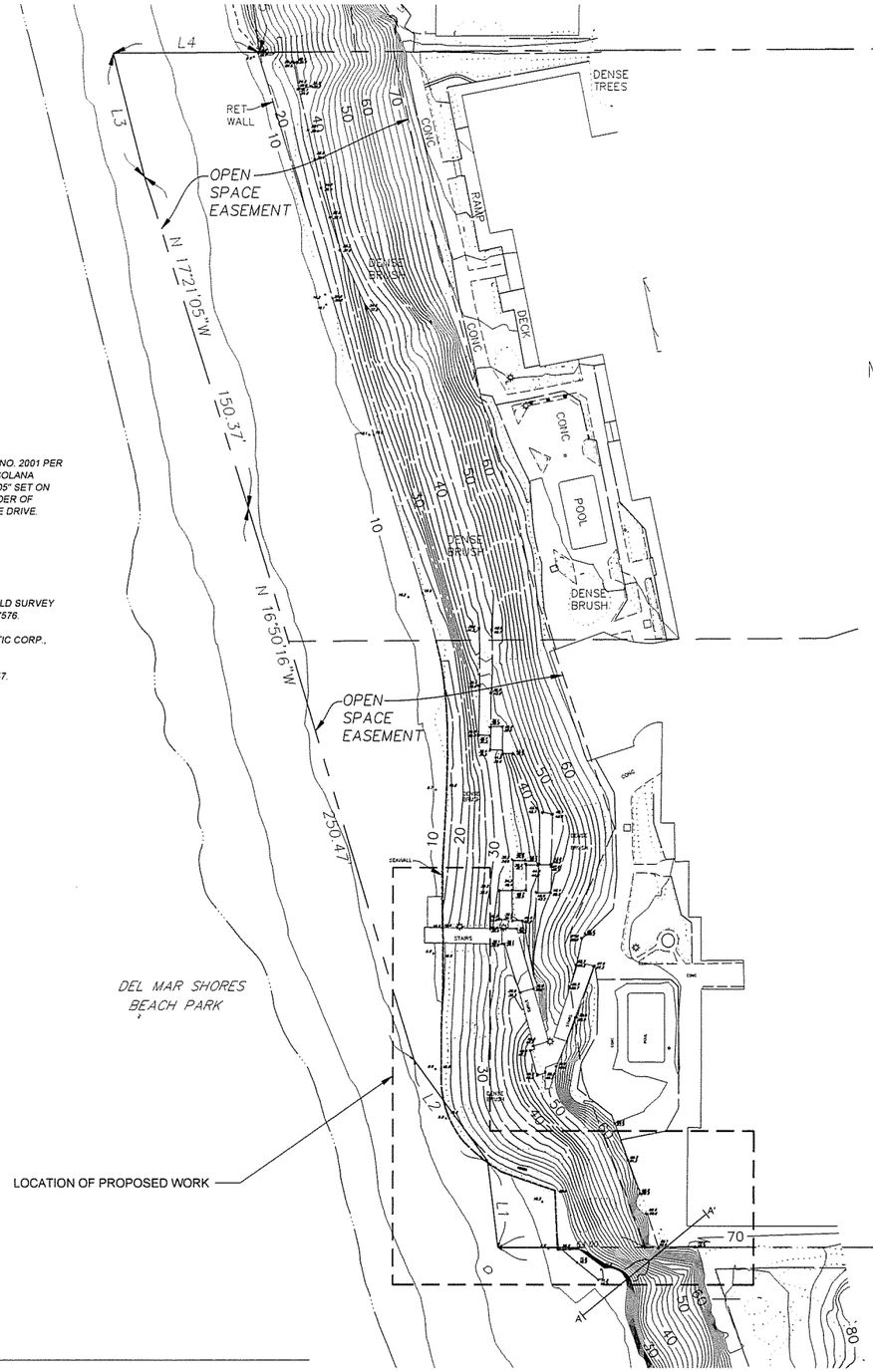
GENERAL NOTES

1.) BOUNDARY SHOWN HEREON IS BASED ON A FIELD SURVEY AND RECORD DATA PER MAP NO. 6838 & MAP NO. 7576.

2.) AERIAL MAPPING PROVIDED BY PHOTO GEODETIC CORP., PROJECT NO. 521320, DATED 8/20/20

3.) ASSESSOR'S PARCEL NUMBERS: 298-240-33,35,57.

PROPERTY LINE DATA TABLE		
NUMBER	DIRECTION	DISTANCE
L1	N 06°50'37" W	37.74'
L2	N 35°53'06" W	54.13'
L3	N 14°04'19" W	55.19'
L4	N 89°38'00" E	62.83'
L5	N 07°21'59" W	42.50'
L6	N 45°14'23" W	42.96'
L7	N 59°23'49" W	39.96'
L8	N 32°05'43" E	41.50'
L9	N 25°24'17" W	62.50'
L10	N 18°30'23" E	109.72'



N

0 30 60 90

1 INCH = 30 FEET
GRAPHIC SCALE

SITE PLAN
SCALE: 1"=30'

AS-BUILT

BY:_____ DATE:_____

R.C.E.:_____ EXP:_____

0 1" 2" 3"
ORIGINAL DRAWING MEASURE

REGISTERED PROFESSIONAL ENGINEER ROBERT D. MAHONY No. C 16459 Rs GE 554 EXP. 06-30-25 CIVIL & GEOTECHNICAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK	CITY OF SOLANA BEACH ENGINEERING DEPARTMENT	DRAWING REF. NO.
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	JK DRAWN BY	By: ROBERT D. MAHONY Date: 09/18/23 NAME: SOIL ENGINEERING CONST R.C.E. 16459 EXP: 06/30/25			By: _____ Date: _____ DAN GOLDBERG By: _____ Date: _____	By: _____ Date: _____ MOHAMMAD SAMMAK, CITY ENGINEER EXP: 6/30/24 R.C.E.: 37146	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)	SITE PLAN FOR: 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 SEAWALL AND UPPER BLUFF REPAIRS - PHASE 1	G-002 SBGR- Sheet 2 of 18

GENERAL NOTES:

I. GENERAL

1. MATERIALS AND WORKMANSHIP TO CONFORM WITH THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE, WITH CITY OF SOLANA BEACH AMENDMENTS AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
2. REFERENCE TO CODES, RULES, REGULATIONS, STANDARDS, MANUFACTURER'S INSTRUCTIONS OR REQUIREMENTS OF REGULATORY AGENCIES IS TO THE LATEST PRINTED EDITION OF EACH IN EFFECT AT THE DATE OF SUBMISSION OF BID UNLESS THE DOCUMENT DATE IS SHOWN.
3. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, USE SIMILAR DETAILS OF CONSTRUCTION, SUBJECT TO REVIEW BY THE ENGINEER.
4. DETAILS ON SHEETS TITLED "TYPICAL DETAILS" APPLY TO SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED. SUCH DETAILS ARE NOT NOTED AT EACH LOCATION THAT THEY OCCUR.
5. DO NOT SCALE THE DRAWINGS.
6. PROVIDE MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES INCLUDE, BUT MAY NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DURING CONSTRUCTION. RETAIN A REGISTERED CIVIL ENGINEER WHO IS PROPERLY QUALIFIED TO DESIGN BRACING, SHORING, ETC., VISITS TO THE SITE BY THE ENGINEER WILL NOT INCLUDE OBSERVATION OF THE ABOVE NOTED ITEMS.
7. INFORMATION SHOWN ON THE DRAWINGS RELATED TO EXISTING CONDITIONS REPRESENTS THE PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. REPORT CONDITIONS THAT CONFLICT WITH THE CONTRACT DOCUMENTS TO THE ENGINEER. DO NOT DEVIATE FROM THE CONTRACT DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE ENGINEER.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING A SAFE PLACE TO WORK AND MEETING THE REQUIREMENTS OF ALL APPLICABLE JURISDICTIONS. EXECUTE WORK TO ENSURE THE SAFETY OF PERSONS AND ADJACENT PROPERTY AGAINST DAMAGE BY FALLING DEBRIS AND OTHER HAZARDS IN CONNECTION WITH THIS WORK.
9. NOTWITHSTANDING THE MINIMUM STANDARDS SET FORTH IN THE EXCAVATION AND GRADING CODE, AND NOTWITHSTANDING THE APPROVAL OF THESE GRADING PLANS, THE PERMITEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO THE ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK, ALLEY, FUNCTION OF ANY SEWAGE DISPOSAL SYSTEM, OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING SCOUR OR OTHER DAMAGE WHICH MIGHT RESULT FROM THE GRADING DESCRIBED IN THIS PLAN. THE CITY WILL HOLD THE PERMITEE RESPONSIBLE FOR CORRECTION ON NON-DEDICATED IMPROVEMENTS, WHICH DAMAGE ADJACENT PROPERTY.
10. THE DESIGN IS BASED ON ANTICIPATED SOIL CONDITIONS ON THE BASIS OF THE BORINGS AND SOIL REPORT PREPARED BY SOIL ENGINEERING CONSTRUCTION, TITLED "UPDATED GEOTECHNICAL RECOMMENDATIONS - PROPOSED MAINTENANCE REPAIRS EXISTING LOWER BLUFF SEAWALL & SOUTH PROPERTY LINE UPPER BLUFF CAISSON SYSTEM", DATED FEBRUARY 8, 2023. IF THE ACTUAL FIELD CONDITIONS VARY FROM THE ASSUMED CONDITIONS, ADJUSTMENTS WILL BE MADE AT THE DIRECTION OF THE GEOTECHNICAL ENGINEER AND THE STRUCTURAL ENGINEER.
11. ELEVATIONS SHOWN ARE FROM THE ORIGINAL DRAWINGS. VERIFY IN FIELD & NOTIFY ENGINEER OF ANY DISCREPANCIES BEFORE PROCEEDING

II. SUBMITTALS

1. SUBMIT REQUIRED SUBMITTALS TO THE ENGINEER FOR REVIEW.
2. CONCRETE REINFORCING STEEL:
   A. SHOP DRAWINGS FOR FABRICATION, BENDING AND PLACEMENT OF CONCRETE REINFORCEMENT IN ACCORDANCE WITH ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."
3. CAST-IN-PLACE CONCRETE: MIX DESIGNS PREPARED, STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA FOR EACH CLASS OF CONCRETE. INCLUDE RESULTS OF SLUMP, SHRINKAGE AND COMPRESSION TESTS USED TO ESTABLISH MIX PROPORTIONS AND CERTIFIED MATERIAL CERTIFICATES FOR EACH COMPONENT OF THE MIX.
   A. PROPOSED CONSTRUCTION JOINT AND CONTROL JOINT LOCATIONS FOR REVIEW.
   B. PRODUCT DATA FOR CURING MATERIALS.
   C. PRODUCT DATA FOR NON-SHRINK GROUT.
4. SHOTCRETE:
   A. MIX DESIGNS PREPARED, STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA FOR EACH CLASS OF CONCRETE. INCLUDE RESULTS OF SLUMP, SHRINKAGE AND COMPRESSION TESTS USED TO ESTABLISH MIX PROPORTIONS AND CERTIFIED MATERIAL CERTIFICATES FOR EACH COMPONENT OF THE MIX.
   B. PROPOSED CONSTRUCTION JOINT AND CONTROL JOINT LOCATIONS FOR REVIEW.
   C. PRODUCT DATA FOR CURING MATERIALS.
5. STRUCTURAL STEEL:
   A. SHOP DRAWINGS PRIOR TO FABRICATION IN ACCORDANCE WITH AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
   B. SUBMIT WELDING PROCEDURE SPECIFICATION (WPS) PER AWS D1.1 FOR EACH TYPE OF WELD TO BE USED ON THE PROJECT AND PRODUCT DATA FOR WELDING ELECTRODES, CLEARLY IDENTIFYING LOCATIONS FOR USE OF ELECTRODES.
6. ADHESIVE ANCHORS:
   A. PRODUCT DATA FOR EACH TYPE OF ADHESIVE ANCHORING SYSTEM USED.
7. SEQUENCING PLAN FOR ALL WORK, INCLUDING DEMOLITION AND COLUMN SHORING, INDICATING SEQUENTIAL AND CONCURRENT OPERATIONS.
8. SHOP DRAWINGS FOR ALL TIEBACKS INDICATING THE ASTM MATERIAL DESIGNATIONS, MEMBER DIMENSIONS, INSTALLATION PROCEDURES, EMBEDMENT DEPTHS, DESIGN LOADS, AND CONNECTION DETAILS.
9. CERTIFIED MILL TEST REPORTS FOR EACH OF THE FOLLOWING:
   A. EACH HEAT OF TIEBACK
10. TEST DATA CERTIFYING THAT TIEBACK HAS SUITABLE PHYSICAL PROPERTIES TO FULLY DEVELOP THE MINIMUM GUARANTEED ULTIMATE TENSILE STRENGTH OF THE TIEBACK.

III. FORMWORK

1. DESIGN AND CONSTRUCT FORMWORK IN ACCORDANCE WITH ACI 347 "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE" UNLESS OTHERWISE NOTED.
2. PROVIDE POUR POCKETS IN FORMS AND UNDER EXISTING STRUCTURAL MEMBERS AS REQUIRED TO PREVENT AIR POCKETS AND/OR "HONEYCOMB" UNDER OR AROUND THE EXISTING MEMBERS. CONCRETE CAST WITH AIR POCKETS AND/OR "HONEYCOMB" UNDER OR AROUND THE MEMBERS IS NOT ACCEPTABLE.
3. PROVIDE 3/4 INCH x 3/4 INCH CHAMFER STRIPS ON ALL EXTERNAL CORNERS OF BEAMS, COLUMNS AND WALLS, UNLESS OTHERWISE NOTED.
4. REMOVE FORMS AND SHORES IN ACCORDANCE WITH THE FOLLOWING:

LOCATION	REMOVE NO SOONER THAN
BOTTOM FORMS AND SHORES FOR MILDLY REINFORCED SLABS, BEAMS AND GIRDERS	7 DAYS AND F'C = 3500 PSI MINIMUM
SIDE FORMS FOR BEAMS AND GIRDERS	72 HOURS
COLUMNS AND WALLS	72 HOURS
FOOTINGS AND GRADE BEAMS	48 HOURS

5. PROVIDE CURING WHERE FORMS ARE REMOVED IN LESS THAN 7 DAYS.
6. FOAM FILL: ASTM C578, EXPANDED POLYSTYRENE (EPS) WITH MINIMUM COMPRESSIVE STRENGTH OF 40 PSI AT 10% DEFORMATION.

IV. REINFORCING STEEL

1. FABRICATE AND PLACE REINFORCING STEEL IN ACCORDANCE WITH ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE", UNLESS OTHERWISE NOTED.
2. REINFORCING TO CONFORM TO THE FOLLOWING, UNLESS OTHERWISE NOTED:

REINFORCING STEEL	TYPE
#5 AND SMALLER	ASTM A615, 60 KSI
#6 AND LARGER & BARS TO BE WELDED	ASTM A706, 60 KSI
HIGH STRENGTH REINF WHERE NOTED ON DWGS	ASTM A615, 75 KSI
1/2 INCH DIAMETER LOW RELAXATION SEVEN-WIRE POST-TENSIONING STRAND	ASTM A416, 270 KSI
WELDED STEEL WIRE FABRIC	ASTM A185, 70 KSI
SMOOTH DOWELS IN SLAB ON GRADE	ASTM A36, 36 KSI

3. ACCURATELY POSITION, SUPPORT, AND SECURE REINFORCEMENT FROM DISPLACING DUE TO FORMWORK, CONSTRUCTION, OR CONCRETE PLACEMENT OPERATIONS. LOCATE AND SUPPORT REINFORCING BY METAL CHAIRS, RUNNERS, BOLSTERS, SPACERS, AND HANGERS AT A MAXIMUM 3-FOOT SPACING.
4. MECHANICAL COUPLERS: TYPE 2 PER ACI-318, UNLESS OTHERWISE NOTED.
5. WELD REINFORCING STEEL IN ACCORDANCE WITH AWS D1.4 USING QUALIFIED WELDERS.
6. TERMINATE REINFORCING STEEL IN STANDARD HOOKS, UNLESS OTHERWISE SHOWN.
7. ALL STEEL REINFORCEMENT TO EPOXY COATED

V. EPOXY-COATED REINFORCEMENT

1. REINFORCEMENT SHALL BE SHOP FABRICATED PRIOR TO COATING AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 284.
2. VISIBLE VOIDS IN THE COATING, REGARDLESS OF CAUSE, SHALL BE PATCHED IF THE TOTAL AREA OF VOIDS EXCEEDS 0.25% OF THE SURFACE AREA OF THE BAR. BARS THAT REQUIRE SURFACE AREA PATCHING LESS THAN 5% OF THE TOTAL SURFACE AREA OF THE BAR MAY BE FIELD COATED WITH AN APPROVED PATCH MATERIAL SUPPLIED BY THE EPOXY FABRICATOR. BARS WHICH REQUIRE SURFACE PATCHING IN EXCESS OF 5% OF THE TOTAL SURFACE AREA OF THE BAR WILL BE REJECTED.
3. ALL SYSTEMS FOR HANDLING COATED BARS SHALL HAVE PADDED CONTACT AREAS FOR THE BARS WHENEVER POSSIBLE. ALL BUNDLING BANDS SHALL BE PADDED AND ALL BUNDLES WHALL BE LIFTED WITH STRONG BACK, MULTIPLE SUPPORTS OR A PLATFORM BRIDGE SO AS TO PREVENT BAR-TO-BAR ABRASION FROM SAGS IN THE BAR BUNDLE.
4. ALL STEEL REINFORCEMENT TO BE EPOXY COATED.

VI. CAST-IN-PLACE CONCRETE

1. PROPORTION, MIX, TRANSPORT AND PLACE CAST-IN-PLACE CONCRETE IN ACCORDANCE WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE" UNLESS OTHERWISE NOTED.
2. CONCRETE IS REINFORCED AND CAST-IN-PLACE UNLESS OTHERWISE NOTED. WHERE REINFORCING IS NOT SPECIFICALLY SHOWN OR WHERE DETAILS ARE NOT GIVEN, PROVIDE REINFORCING SIMILAR TO THAT SHOWN FOR SIMILAR CONDITIONS, SUBJECT TO REVIEW BY THE OWNER'S REPRESENTATIVE.
3. ROUGHEN CONCRETE SURFACES OF CONSTRUCTION JOINTS TO 1/4 INCH AMPLITUDE AND CLEAN OF LAITANCE, FOREIGN MATTER, AND LOOSE PARTICLES AT THE FOLLOWING LOCATIONS: [WHERE CAST AGAINST EXISTING CONCRETE; AT WALL, COLUMN AND BEAM JOINTS; WHERE CAST EXISTING MASONRY/STONE, ETC.]
4. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATIONS OF ADDITIONAL CONCRETE CURBS AND HOUSEKEEPING PADS NOT SHOWN.
5. CONCRETE CLEAR COVER TO REINFORCING BARS IS AS FOLLOWS, UNLESS OTHERWISE NOTED:

LOCATION	CLEAR COVER
CONCRETE PLACED AGAINST EARTH	3 INCHES
FORMED SURFACES EXPOSED TO WEATHER OR IN CONTACT WITH EARTH:	
#6 BARS AND LARGER	2 INCHES
#5 BARS AND SMALLER	1 1/2 INCHES
SLABS ON GRADE (TOP CLEARANCE)	1 1/2 INCHES
BEAMS, GIRDERS AND COLUMNS NOT EXPOSED TO WEATHER OR EARTH	1 1/2 INCHES
WALL OR SLAB SURFACES NOT EXPOSED TO WEATHER OR EARTH:	
#5 & SMALLER	3/4 INCH
#6 & #7	1 INCH
#8, #9, #10 & #11	1 1/2 INCHES
#14 & #18	2 1/2 INCHES

6. CONCRETE TYPES:
   A. SEAWALL AND BLUFF INFILL AND STAIR COLUMNS:
      a. 28-DAY STRENGTH: F'C = 5,000 PSI
      b. TYPE: NORMAL WEIGHT
      c. WATER-CEMENT RATIO: 0.40 MAX.
      d. WATER-SOLUBLE CHLORIDE ION CONTENT IN CEMENT: 0.15 MAX
7. WATER-SOLUBLE CHLORIDE ION CONTENT THAT IS CONTRIBUTED FROM THE INGREDIENTS INCLUDING WATER, AGGREGATES, CEMENTITIOUS MATERIALS, AND ADMIXTURES SHALL BE DETERMINED ON THE CONCRETE MIXTURE BY ASTM C1218 AT AGE BETWEEN 28 AND 42 DAYS.
8. DRYING SHRINKAGE: PER ASTM C192 & C157, MEASURED AT 28 DAYS AIR DRY AGE.
   A. TYPICAL: 0.050 MAXIMUM.
   B. PROVIDE SHRINKAGE REDUCING ADMIXTURE WHEN SHRINKAGE TEST DATA NOT AVAILABLE.
9. FLY ASH: ASTM C618, CLASS F. MINIMUM OF [25] PERCENT OF CEMENTITIOUS MATERIAL BY WEIGHT.
10. ADMIXTURES TO BE COMPATIBLE WITH ALL OTHER COMPONENTS IN THE MIX AND INCLUDED IN THE MIX DESIGN. WHEN USED COMPLY THE FOLLOWING:
    A. AIR ENTRAINMENT: ASTM C260.
    B. WATER REDUCING, RETARDING AND ACCELERATING: ASTM C494, TYPES A THROUGH G.
    C. SHRINKAGE REDUCING: ASTM C494 & ASTM C157.
11. CONTINUOUSLY MOIST CURE CONCRETE SLABS ON GRADE FOR 7 DAYS MINIMUM USING WATER FOG SPRAYS, PONDING, SATURATED ABSORPTIVE COVERS OR MOISTURE RETAINING COVERS.
12. LIQUID CURING COMPOUND: ASTM C309, TYPE1, CLEAR OR TRANSLUCENT.
    A. FOR SURFACES TO BE FINISHED, CONFIRM THAT CURING COMPOUND IS COMPATIBLE WITH FINISH.
13. NON-SHRINK GROUT: ASTM C1107, WITH MINIMUM COMPRESSIVE STRENGTH OF 7,000 PSI.

VII. SHOTCRETE

1. PROPORTION, MIX, TRANSPORT AND PLACE SHOTCRETE IN ACCORDANCE WITH ACI 506.2 "SPECIFICATION FOR SHOTCRETE" U.O.N. TOLERANCES FOR SHOTCRETE TO CONFORM TO ACI 117 "STANDARD SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS" FOR CAST-IN-PLACE CONCRETE.
2. USE SHOTCRETE ONLY WHERE DESIGNATED ON THE DRAWINGS. NO SUBSTITUTION OF SHOTCRETE FOR CAST-IN-PLACE CONCRETE IS ALLOWED.
3. COMPLY WITH THE REQUIREMENTS OF THE CAST-IN-PLACE CONCRETE AND REINFORCING STEEL SECTIONS OF THESE GENERAL NOTES, EXCEPT AS MODIFIED IN THIS SECTION.
4. SHOTCRETE TYPES:

LOCATION	28-DAY STRENGTH
SEAWALL	5,000 PSI

5. MAXIMUM AGGREGATE SIZE: 3/8 INCH
6. MEAN CORE GRADE PER ACI 506.2: 2.5
7. A PREQUALIFICATION TEST PANEL IS REQUIRED FOR EACH NOZZLEMAN. EACH TEST PANEL TO BE 4 FEET BY 4 FEET BY 8 INCHES THICK AND TO HAVE REINFORCING STEEL SIMILAR TO THE MOST CONGESTED CONDITION ON THE PROJECT. A MEAN TEST PANEL CORE GRADE IS REQUIRED FOR EACH NOZZLEMAN.
8. CLEAN SUBSTRATES AND FORMS OF LOOSE OR UNSOUND MATERIAL PRIOR TO THE PLACEMENT OF SHOTCRETE. WET CEMENTITIOUS OR ABSORPTIVE SUBSTRATES AND FORMS PRIOR TO SHOOTING. DO NOT PLACE SHOTCRETE AGAINST SURFACES WITH STANDING OR RUNNING WATER.
9. COMPLETELY FILL AREAS AND COMPLETELY ENCASE REINFORCEMENT. REMOVE REBOUND AND OTHER LOOSE MATERIAL FROM NEW CONSTRUCTION.
10. DO NOT REUSE REBOUND OR OVERSPRAY.
11. FINISHED APPEARANCE / COSMETIC SHOTCRETE: IT IS THE INTENT OF THESE SPECIFICATIONS THAT THE COMPLETED FACING COSMETIC SHOTCRETE ON ANCHORED WALLS HAVE AN UNEVEN SURFACE PROFILE AND COLOR SIMILAR IN APPEARANCE TO THAT OF THE ADJACENT BLUFFS.
12. KEEP SHOTCRETE CONTINUOUSLY MOIST BY DIRECT WATER APPLICATION FOR 24 HOURS AFTER SHOOTING. FOLLOW BY CURING THE SHOTCRETE WITH A FOG SPRAY OR AN APPROVED MOISTURE-RETAINING COVER, MEMBRANE, OR CURING COMPOUND UNTIL 7 DAYS AFTER SHOOTING.
13. LIQUID CURING COMPOUND: ASTM C309, TYPE1, CLEAR OR TRANSLUCENT.
    A. FOR SURFACES TO BE FINISHED, CONFIRM THAT CURING IS COMPATIBLE WITH FINISH.
    B. APPLY AT TWICE THE MANUFACTURER'S RECOMMENDED COVERAGE.

VIII. STRUCTURAL STEEL

1. FABRICATE AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH AISC 360, AISC 303 AND AISC 340. WELDED CONNECTIONS TO CONFORM TO AWS D1.1 AND D1.8
2. STRUCTURAL STEEL TO CONFORM TO THE FOLLOWING UNLESS OTHERWISE NOTED:

SECTIONS	TYPE
ROLLED SHAPES:	
WIDE FLANGES	ASTM A992
CHANNELS, ANGLES, & OTHER	ASTM A36
PLATES:	
COLUMN BASE PLATES	ASTM A572, GR 50
BRACE GUSSET PLATES	ASTM A572, GR 50
BEAM SHEAR CONNECTION PLATES	ASTM A572, GR 50
COLUMN CONTINUITY PLATES	ASTM A572, GR 50
BEAM STIFFENER PLATES	ASTM A36
EDGE OF DECK BENT PLATE	ASTM A36
OTHER	ASTM A572, GR 50
STEEL PIPE	ASTM A53 GRADE B
COLD FORMED STRUCTURAL TUBING (HSS)	ASTM A500 GRADE B
STAINLESS STEEL SHAPES, PLATES & BARS	ASTM A276, TYPE 304L
BOLTS	ASTM F3125 GRADE A325X, F1852X
MACHINE BOLTS	ASTM A307, GRADE A
STAINLESS STEEL BOLTS	ASTM A193 B8M, CLASS 1
ANCHOR RODS	ASTM F1554, GR55 W/ WELDABLE SUPPLEMENT S1
ALL-THREAD ROD AND THRU BOLTS	ASTM [A36;A572, GR50]
HIGH STRENGTH ALL-THREAD ROD	ASTM A193 B7, GR105
STAINLESS STEEL ALL-THREAD ROD	ASTM A193 B8M CLASS 2
HANGER ROD	ASTM A572, GR50
WELDED SHEAR STUD CONNECTORS	ASTM A108, GRADE 1015 TO1020
WELDED THREADED STUDS	ASTM A108, GRADE 1015 TO 1020
NUTS FOR BOLTS AND MACHINE BOLTS	ASTM A563
STAINLESS STEEL NUTS	ASTM A194 GR8M
HARDENED WASHERS FOR BOLTS	ASTM F436
UNHARDENED FLAT WASHERS	ASTM F844, ANSI B18.22.1
STAINLESS STEEL WASHERS	ASTM A276, TYPE 304
BEVELED WASHERS	ANSI B18.23.1

3. HOT DIP GALVANIZE IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STRUCTURAL STEEL AND FASTENERS. REPAIR GALVANIZING AFTER WELDING IN ACCORDANCE WITH ASTM A780. HOT-DIP GALVANIZE ASTM F1554 RODS IN ACCORDANCE WITH ASTM F2329
4. ARC-WELDING ELECTRODES/FILLER METALS TO BE LOW HYDROGEN TYPES E7XTX, E7XTXX OR E70XXX MINIMUM AS APPLICABLE. ELECTRODES WITH CHARPY V-NOTCH TESTS VALUES OF A MINIMUM 20 FOOT-POUNDS AT 0 DEGREES FAHRENHEIT AND 40 FOOT- POUNDS AT 70 DEGREES FAHRENHEIT ARE TO BE USED AT ALL WELDS OF THE SEISMIC FORCE RESISTING SYSTEM (SFRS), WHERE DESIGNATED "DC" ON THE DRAWINGS AND THE FOLLOWING LOCATIONS:
   A. COMPLETE JOINT PENETRATION WELDS.
   B. BEAM TO COLUMN MOMENT CONNECTIONS – INCLUDING FLANGE, WEB,DOUBLER PLATES, BASE PLATES, AND CONTINUITY PLATE FILLET AND PARTIAL JOINT PENETRATION WELDS.
   C. BRACE CONNECTIONS – INCLUDING BRACE, GUSSET, BASE PLATES, BEAM STIFFENER PLATES, AND CONTINUITY PLATE FILLET AND PARTIAL JOINT PENETRATION WELDS.
   D. COLLECTORS – SHEAR TABS, FLANGE AND WEB WELDS.
5. WELDERS TO BE QUALIFIED IN ACCORDANCE WITH AWS D1.1 WITH SUPPLEMENTAL QUALIFICATIONS PER AWS D1.8.
6. WHERE FIELD WELDING IS NOTED, THE DESIGNATION IS GIVEN AS A SUGGESTED CONSTRUCTION PROCEDURE ONLY.

IX. ADHESIVE ANCHORS AND DOWELS

1. ANCHORS AND DOWELS INSTALLED INTO CONCRETE: HILTI HIT-RE-500-V3 (ICC-ESR-3814), SIMPSON STRONG-TIE SET-3G (ICC-ESR-4057) OR DEWALT PURE 110+ (ICC-ESR-3298). ALL EMBEDMENT DEPTHS NOTED ON DRAWINGS ARE EFFECTIVE EMBEDMENT PER MANUFACTURER.
2. THE TESTING LABORATORY IS TO PERFORM TENSION TESTS ON 10% OF ANCHORS AND DOWELS INSTALLED INTO CONCRETE TO THE FOLLOWING TEST LOADS:

ROD DIA OR BAR SIZE	CMIN	TEST LOAD (LBS)	
		ANCHOR LOCATED > CMIN & < 12" FROM EDGE	ANCHOR LOCATED ≥ 12" FROM EDGE
3/8", #3	2"	1,300	1,600
1/2", #4	2 1/2"	2,000	3,400
5/8", #5	3"	2,800	4,200
3/4", #6	4"	3,700	5,000
7/8", #7	4 1/2"	3,700	5,000
1", #8	5"	4,800	6,100

4. ANCHORS AND DOWELS INSTALLED INTO UNREINFORCED BRICK MASONRY (URM): HILTI-HY 270 (ICC-ESR-4144), SIMPSON STRONG-TIE SET (ICC-ESR-1772), OR DEWALT AC100+ GOLD (ICC-ESR-4105). USE SCREENS AS SPECIFIED BY THE MANUFACTURER.
5. ANCHORS: ASTM A36 THREADED RODS WITH ASTM A563 GRADE A NUTS AND ANSI B18.22.1 TYPE A WASHERS, UNLESS OTHERWISE NOTED. ANCHORS DESIGNATED AS ASTM A193 GRADE B7 THREADED RODS TO USE ASTM A563 GRADE DH HEAVY HEX NUTS AND ASTM F436 WASHERS.
6. REBAR DOWELS: ASTM A615 GRADE 60 REINFORCING STEEL.
7. INSTALL ANCHORS IN ACCORDANCE WITH LATEST ICC-ESR REPORT AND MANUFACTURER INSTRUCTIONS.
8. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE DOWEL AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOWEL MAY NOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER WILL DETERMINE A NEW LOCATION.
9. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH ADHESIVE ANCHORS.

X. EROSION CONTROL NOTES

1. STORM WATER AND NON-STORM WATER DISCHARGE CONTROL: BEST MANAGEMENT PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO MANAGE STORM WATER AND NON-STORM WATER DISCHARGES FROM THE SITE AT ALL TIMES DURING EXCAVATION AND GRADING ACTIVITIES.
2. EROSION AND SEDIMENT CONTROL: EROSION PROTECTION SHALL BE EMPHASIZED AS THE MOST IMPORTANT MEASURE FOR KEEPING SEDIMENT ON SITE DURING EXCAVATION AND GRADING ACTIVITIES. SEDIMENT CONTROLS SHOULD BE USED AS A SUPPLEMENT TO EROSION PREVENTION FOR KEEPING SEDIMENT ON SITE.
3. THE TOPS OF ALL SLOPES SHALL BE DIKED OR TRENCHED TO PREVENT WATER FLOWING OVER CRESTS OF SLOPES.
4. THE CONTRACTOR SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE OFFICE OF THE CITY ENGINEER.
5. THE CONTRACTOR SHALL SWEEP ROADWAYS AND ENTRANCES TO AND FROM THE SITE ON A REGULAR BASIS TO KEEP THEM FREE OF SOIL ACCUMULATION AND AT ALL OTHER TIMES DIRECTED BY THE CITY ENGINEER.
6. THE CONTRACTOR SHALL WATER SITE ON A CONTINUOUS BASIS TO MINIMIZE AIR BORNE DUST CREATED FROM GRADING AND HAULING OPERATIONS OR EXCESSIVE WIND CONDITIONS, AND AT ALL TIMES DIRECTED BY THE CITY ENGINEER
7.
8. IN THE EVENT SILT THE DOES ENTER THE EXISTING PUBLIC STORM DRAIN SYSTEM, REMOVAL OF THE SILT FROM THE SYSTEM WILL BE AT THE CONTRACTOR'S EXPENSE.

Degenkolb
DEGENKOLB ENGINEERS
225 Broadway, Suite 1325
San Diego, CA 92101
619.515.0299 PHONE
www.degenkolb.com

DE Job Number: C1676031.00

Date: 9/18/2023

REGISTERED PROFESSIONAL ENGINEER — JEREMY T. CALLISTER — No. S 5646 — STRUCTURAL — STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	By: JEREMY T. CALLISTER Date: 9/18/2023	Description	No.	Date
	LH DRAWN BY	NAME: DEGENKOLB ENGINEERS			
		R.C.E. S 5646 EXP: _____			

RECOMMENDED FOR APPROVAL

By: _____ Date: _____

By: _____ Date: _____

APPROVED FOR CONSTRUCTION

By: _____ Date: _____

BENCH MARK

DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE.

ELEVATION: 71.450 FEET (NAVD88)

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

GENERAL NOTES
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-001

Sheet 3 of 18

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GENERAL NOTES CONT:

XI. PERMANENT TIEBACKS

1. PERMANENT TIEBACK RODS SHALL BE COLD STRETCHED HIGH STRENGTH ALLOY THREADED STEEL BARS (THREADBARS) FABRICATED FROM STEEL CONFORMING TO ASTM A722 WITH A MINIMUM ULTIMATE TENSILE STRENGTH OF 150,000 PSI (REGULAR GRADE DYWIDAG BARS). THE UNBONDED LENGTH SHALL BE COVERED IN A SMOOTH PLASTIC SHEATHING, SUCH AS PVC OR POLYETHYLENE, TO PREVENT BONDING. RODS SHALL BE FULL LENGTH WITHOUT SPLICES OR COUPLERS, UNKINKED, AND FREE FROM NICKS OR ABRASIONS.

2. PERMANENT TIEBACK STRANDS SHALL BE EPOXY COATED, EPOXY-FILLED IN THE INTERSTICES BETWEEN THE STRAND WIRES, GRIT-IMPREGNATED, 0.6-INCH NOMINAL DIAMETER LOW-RELAXATION STRAND, CONSISTING OF 7 STRESS-RELIEVED STEEL WIRES. THE STRAND SHALL BE IN ACCORDANCE WITH ASTM A882. THE STEEL STRAND BENEATH THE COATING SHALL HAVE A MINIMUM ULTIMATE TENSILE STRENGTH OF 270 KSI, IN ACCORDANCE WITH ASTM A416, PLUS SUPPLEMENTS FOR LOW-RELAXATION WIRE AND LOW-RELAXATION STRAND. WIRES SHALL BE FULL LENGTH WITHOUT SPLICES OR COUPLERS, UNKINKED, AND FREE FROM NICKS OR ABRASIONS. USE FLOFIL STRANDS, SUPPLIED BY INSTEEL INDUSTRIES, INC., OR APPROVED EQUIVALENT FOR PERMANENT TIEBACKS.

3. PERMANENT TIEBACK ASSEMBLIES SHALL BE DOUBLE CORROSION PROTECTED OVER THE ENTIRE LENGTH OF THE ANCHOR. DOUBLE CORROSION PROTECTION SHALL CONSIST OF EPOXY COATED BARS, OR EPOXY COATED/FILLED STRANDS, IN CONTINUOUS GROUT. OVER THE UNBONDED LENGTH THE BARS/STRANDS SHALL BE INDIVIDUALLY GREASED AND SHEATHED TO PREVENT BONDING. CORRUGATED PE SHEATHING SHALL BE PROVIDED OVER THE LENGTH OF THE TIEBACK.

4. ANCHORAGES SHALL BE CAPABLE OF DEVELOPING NO LESS THAN 95% OF THE MINIMUM ULTIMATE TENSILE STRENGTH OF THE TENDONS, AND SHALL CONFORM TO THE STATIC STRENGTH REQUIREMENTS OF THE PTI "GUIDE SPECIFICATION FOR POST-TENSIONING MATERIALS." AT BARS, ANCHOR HEADS SHALL BE DESIGNED TO ACCEPT THE BAR LOADS AND TRANSFER THE ENTIRE LOAD ONTO THE BEARING PLATE. AT STRANDS, ANCHOR HEADS SHALL BE DESIGNED TO ACCEPT INDIVIDUAL STRAND LOADS, SEAT THE WEDGES, AND TRANSFER THE ENTIRE TENDON LOAD ONTO THE BEARING PLATE.

5. WEDGES FOR STRAND TIEBACKS SHALL BE BITE-THROUGH WEDGES, SPECIFICALLY DESIGNED AND MANUFACTURED FOR EPOXY COATED STRAND. REMOVAL OF EPOXY COATING TO ACCOMMODATE CONVENTIONAL WEDGES IS NOT ALLOWED.

6. CENTRALIZERS AND SPACERS SHALL BE STEEL OR PLASTIC. WOOD SHALL NOT BE USED. CENTRALIZERS SHALL BE DESIGNED TO WITHSTAND LATERAL LOADS FROM THE BARS OR TENDONS. COMBINATION SPACER/CENTRALIZERS ARE ACCEPTABLE. SPACERS AND CENTRALIZERS SHALL NOT RESTRICT THE PASSAGE OF GROUT, AND SHALL BE ATTACHED SO THEY ARE RESTRAINED FROM MOVING UP OR DOWN THE BARS/STRANDS DURING INSTALLATION OR GROUTING.

   THE SPACERS AND CENTRALIZERS SHALL MEET THE FOLLOWING ADDITIONAL CRITERIA FOR STRAND TIEBACKS:

   A. SPACERS SHALL SEPARATE THE TENDON STRANDS SO THAT THE SURFACE OF EACH STRAND CAN BE SURROUNDED BY GROUT AND SO THAT INDIVIDUAL STRANDS HAVE CLEARANCES OF NO LESS THAN 0.5 INCHES FROM EACH OTHER.

   B. CENTRALIZERS SHALL PROVIDE A MINIMUM 0.5 INCHES OF GROUT COVER BETWEEN THE OUTER PERIMETER ROW OF TENDON STRANDS AND THE BOREHOLE WALL.

   C. WHERE PE SHEATHING IS PRESENT, CENTRALIZERS SHALL PROVIDE 0.5 INCHES OF GROUT COVER BETWEEN THE STRANDS AND THE SHEATHING AND AT LEAST 0.5 INCHES OF GROUT COVER BETWEEN THE PE SHEATHING AND THE BOREHOLE.

7. ALL METAL COMPONENTS OF THE BAR/STRAND ANCHORAGE SYSTEM SHALL BE COMPATIBLE WITH RESPECT TO THEIR CORROSION POTENTIAL AND THE SOLDIER BEAM CONNECTION.

8. HANDLING, SHIPPING, AND STORAGE SHALL BE CONDUCTED IN A MANNER THAT PROTECTS ALL BARS AND TENDON ASSEMBLIES AND HARDWARE FROM MECHANICAL DAMAGE, ABRASION, CORROSION, CHEMICAL ATTACK, AND DIRT. EACH BAR/TENDON SHALL BE TAGGED AND IDENTIFIABLE AT ALL TIMES. THE CONTRACTOR SHALL PROVIDE PROPER STORAGE FACILITIES ON SITE FOR THE TIME BETWEEN DELIVERY AND INSTALLATION OF BAR/STRANDS AND HARDWARE. STORAGE FACILITIES SHALL BE DRY AND SHALL PROTECT EPOXY-COATED BARS/STRAND FROM EXPOSURE TO SUNLIGHT. IMPROPER HANDLING, SHIPMENT, OR STORAGE WILL BE SUFFICIENT CAUSE FOR REJECTION OF TENDONS.

9. THE BARS/TENDONS SHALL BE HANDLED AND PROTECTED DURING THEIR INSERTION IN THE HOLES IN SUCH A MANNER THAT PREVENTS PHYSICAL DAMAGE AND SHARP BENDS AND PROTECTS THE EPOXY COATING AND OTHER CORROSION PROTECTION ELEMENTS. SPECIAL MEASURES SHALL BE TAKEN TO PREVENT ABRASION OF THE BARS/TENDONS AT THE BOREHOLE COLLAR. FOR STRAND TIEBACKS, EACH TENDON SHALL BE FITTED WITH A PROTECTIVE NOSE CONE PRIOR TO INSERTION TO KEEP INDIVIDUAL STRAND TIPS FROM CATCHING ON THE BOREHOLE WALLS.

10. THE CONTRACTOR SHALL CUT THE BAR/TENDON STRAND LENGTHS PROTRUDING BEYOND THE ANCHOR HEAD. CUTTING OF BAR/TENDON PROTRUSIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE PREFERRED METHOD IS BY ABRASIVE BLADES. USE OF A CUTTING TORCH IS NOT ACCEPTABLE. CARE SHALL BE TAKEN NOT TO DAMAGE THE ANCHOR HEAD HARDWARE PACKAGE. THE EXPOSED CUT ENDS OF THE BARSTRANDS SHALL BE CORROSION PROTECTED WITH EPOXY MATERIALS PER MANUFACTURERS RECOMMENDATIONS.

11. STRUCTURAL GROUT FOR TIEBACK HOLES SHALL CONTAIN A MINIMUM OF 10 SACKS OF CEMENT PER CUBIC YARD AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI IN 7 DAYS. GROUT SHALL BE PUMPED INTO PLACE FROM THE BACK OF THE HOLE TOWARD THE FRONT. PERMANENT TIEBACKS SHALL BE FULLY GROUTED WITH STRUCTURAL GROUT FROM END TO END.

XII. TIEBACK INSTALLATION

1. TIEBACK DETAILS AND PERFORMANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL SELECT MATERIALS AND PROCEDURES SUITABLE FOR THE SITE AND THE PROJECT CONSISTENT WITH THE CONTRACT DOCUMENTS. THE BONDED TIEBACK LENGTHS INDICATED ON THE DRAWINGS ARE FOR GUIDANCE ONLY. THE INDICATED TIEBACK BONDED LENGTHS MAY BE ALTERNATIVELY DETERMINED BASED ON IN SITU TESTING. ULTIMATELY, THE BONDED LENGTHS SHALL BE SUFFICIENT TO DEVELOP THE INDICATED TEST LOADS, AND THE BOREHOLE DIAMETER, ANCHOR LENGTH, INSTALLATION PROCEDURES, CURING TIME, AND ADJUSTMENTS PER ACTUAL FIELD CONDITIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

2. TIEBACK HOLES SHALL BE EITHER DRILLED WITH CASING OR THE GEOTECHNICAL ENGINEER MAY PERMIT NO CASING BASED ON FIELD OBSERVATIONS. CONTRACTOR TO COORDINATE WITH GEOTECHNICAL ENGINEER REGARDING ALTERNATIVE DRILLING PROCEDURES AT ADVERSE CONDITIONS.

3. HOLES DRILLED FOR TIE-BACK ANCHORS SHALL BE DONE WITHOUT DETRIMENTAL LOSS OF GROUND, SLOUGHING OR CAVING OF MATERIALS, AND WITHOUT ENDANGERING PREVIOUSLY INSTALLED SHORING MEMBERS OR EXISTING FOUNDATIONS.

4. DRILLING SHALL BE PERFORMED WITH CARE IN VICINITY OF POTENTIAL OBSTRUCTIONS. CONTRACTOR SHALL USE CARE IN CONTROLLING AND MEASURING DRILL ANGLE. TIEBACK LENGTHS, ANGLES, AND LOCATIONS HAVE BEEN COORDINATED TO THE FULLEST EXTENT POSSIBLE TO AVOID OBSTRUCTIONS. HOWEVER, IF OBSTRUCTIONS ARE ENCOUNTERED PRIOR TO COMPLETION OF DRILLING, THE HOLE SHALL BE ABANDONED AND FILLED WITH NEAT CEMENT GROUT. NOTIFY THE SHORING ENGINEER FOR DIRECTION. A NEW HOLE WITH THE ANGLE ADJUSTED SHALL BE DRILLED.

5. ALL LOOSE MATERIAL SHALL BE REMOVED FROM THE HOLE PRIOR TO PLACEMENT OF THE TIEBACK. WHERE TIEBACKS EXTEND BELOW WATER TABLE, WATER MAY REMAIN IN THE CASED HOLD PROVIDED GROUT IS PLACED BY A GROUT TUBE EXTENDING TO THE BOTTOM OF THE HOLE.

6. DO NOT INSTALL TIEBACK ROD UNTIL INSPECTOR OF RECORD AND GEOTECHNICAL ENGINEER HAVE VIEWED AND APPROVED THE HOLE.

7. INSTALL GROUT OVER THE FULL LENGTH OF THE TIEBACK. GROUTING METHODS SHALL ENSURE THAT ALL VOIDS ARE FILLED AND THAT TIEBACKS MEET TESTING CRITERIA. ALL TIEBACKS SHALL BE EQUIPPED WITH POST GROUTING TUBES. POST GROUTING PROCEDURES SHALL BE USED AT ALL TIEBACKS.

8. GROUT MIXER SHALL PRODUCE GROUT FREE OF LUMPS AND INDISPENSED CEMENT. GROUTING EQUIPMENT SHALL BE SIZED TO ENABLE THE GROUT TO BE PUMPED IN A CONTINUOUS OPERATION. THE MIXER SHALL BE CAPABLE OF CONTINUOUSLY AGITATING THE GROUT.

9. CONTRACTOR SHALL RECORD GROUT PRESSURE AND QUANTITY OF GROUT PLACED.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REGROUTING, REDRILLING, OR REPLACEMENT OF TIEBACKS THAT FAIL TO MEET TEST CRITERIA.

11. TIEBACK TESTING MAY COMMENCE 3 DAYS AFTER POST-GROUTING OPERATIONS PROVIDED GROUT COMPRESSIVE STRENGTH HAS REACHED 3000 PSI.

12. AFTER THE HIGH STRENGTH GROUT HAS ACHIEVED 3000 PSI, THE TIEBACK SHALL BE STRESSED IN THE FOLLOWING MANNER:

   A. INSTALL ANCHORAGE.

   B. PERFORMANCE TEST SELECT TIEBACKS IN ACCORDANCE WITH THE TIEBACK TESTING SECTION OF THESE GENERAL NOTES.

   C. PROOF TEST EVERY TIEBACK BY STRESSING TO TEST LOAD SHOWN IN THE SCHEDULE ON S-541 AND MAINTAINING THAT LOAD FOR 30 MINUTES. PROOF TEST IS SUCCESSFUL IF THE CRITERIA FOR PERFORMANCE TESTS, FOUND IN THE TIEBACK TESTING SECTION OF THESE GENERAL NOTES, ARE MET.

   D. TEMPORARILY STRESS ANCHOR TO MAXIMUM 80% OF GROSS ULTIMATE TENSILE STRENGTH (GUTS) TO COMPENSATE FOR WEDGE SEATING LOSSES. ANCHOR SYSTEMS SUPPLIER TO PROVIDE STRESSING DATA SHEET PRIOR TO STRESSING.

   E. ADJUST LOAD TO THE LOCK LOAD SHOWN IN THE TIEBACK SCHEDULE AND SECURE ANCHORAGE DEVICES.

13. IF THE TIEBACK FAILS TO MAINTAIN THE TEST LOAD FOR TEN MINUTES, USE POST GROUTING PROCEDURES TO REPAIR TIEBACKS. A TUBE SHALL BE PROVIDED WITH THE TIEBACK FOR SUCH PURPOSES. AFTER POST GROUTING THE TIEBACKS SHALL BE RE-TESTED. IF THE TIEBACK STILL FAILS, AN ADDITIONAL TIEBACK SHALL BE ADDED AT THE DIRECTION OF THE SHORING ENGINEER AT THE CONTRACTOR'S EXPENSE.

14. THE MINIMUM PRESSURE FOR POST GROUTING SHALL BE 300 PSI, SUBJECT TO CONTROL TO PREVENT EXCESSIVE HEAVE OR FRACTURING. POST GROUTING SHALL TAKE PLACE AFTER INITIAL GROUT HAS SET FOR 24 HOURS. POST GROUTING SHALL OCCUR IN THE BONDED LENGTH ONLY. THE POST-GROUT PRESSURE SHALL BE SUFFICIENT TO FRACTURE THE INITIAL GROUT AND THEREAFTER SHALL BE REDUCED TO 300 PSI. THE CONTRACTOR SHALL DETERMINE THE QUANTITY OF GROUT TO BE PLACED AND THE NUMBER OF TIMES TO POST GROUT.

XIII. TIEBACK TESTING

1. REVIEW MILL CERTIFICATIONS FOR ALL TIEBACK STEEL.

2. PERFORM MATERIAL TESTING OF TIEBACKS. TWO SAMPLES OF EACH HEAT SHALL BE TENSION TESTED.

3. PERFORM COMPRESSION TESTS OF TIEBACK GROUT USED DAILY. PREPARE 4 CYLINDERS OR CUBES AND TEST TWO SAMPLES AT 4 DAYS AND 1 SAMPLE AT 7 DAYS. ONE SPECIMEN SHALL BE RETAINED FOR LATER TESTING, IF REQUIRED.

4. VISUALLY INSPECT EACH TIEBACK ASSEMBLY IMMEDIATELY PRIOR TO INSERTION IN THE HOLE. THE PURPOSE OF THE INSPECTION WILL BE TO ASCERTAIN THE SUITABILITY AND ACCEPTABILITY OF THE ASSEMBLY FOR INSERTION INTO THE HOLE. THE PRESENCE OF ANY UNACCEPTABLE CONDITION OR DAMAGE SHALL BE SUFFICIENT CAUSE FOR REJECTION. A PARTIAL LIST OF UNACCEPTABLE CONDITIONS AND TYPES OF DAMAGE INCLUDES: ABRASIONS, KINDS, WELDS, WELD SPLATTERS, AND CUTS. ASSEMBLIES SHALL ALSO BE FREE OF DIRT, GREASE, OIL, DETRIMENTAL RUST, PITTING, AND ALL OTHER DELETERIOUS SUBSTANCES.

5. PROOF-TEST EVERY TIEBACK, UNLESS OTHERWISE NOTED. REFER TO TIEBACK INSTALLATION SECTION OF THESE GENERAL NOTES FOR ADDITIONAL INFORMATION AND PTI MANUAL FOR ADDITIONAL REQUIREMENTS.

6. PERFORMANCE-TEST TWO PERCENT OF THE TIEBACKS, OR A MINIMUM OF THREE TIEBACKS, WHICHEVER IS GREATER. THE FIRST PRODUCTION TIEBACK SHALL BE PERFORMANCE TESTED. THE ENGINEER SHALL SELECT THE REMAINING TIEBACKS TO BE PERFORMANCE TESTED. PERFORMANCE TESTING OF TIEBACKS SHALL BE IN ACCORDANCE WITH PTI (2004) AND THE FOLLOWING PROCEDURES:

   a. THE PERFORMANCE TEST SHALL BE MADE BY INCREMENTALLY LOADING AND UNLOADING THE TIEBACK IN ACCORDANCE WITH THE SCHEDULE ON S-541. THE LOAD SHALL BE RAISED FROM ONE INCREMENT TO ANOTHER IMMEDIATELY AFTER A DEFLECTION READING. DEFLECTION READINGS SHALL BE RECORDED TO THE NEAREST 0.001 INCHES WITH RESPECT TO AN INDEPENDENT FIXED REFERENCE POINT. THE FIXED REFERENCE FOR MOVEMENT RECORDING SHALL BE A FREE STANDING TRIPOD-MOUNTED DIAL GAUGE WITH A PRECISION OF 0.001 INCHES.

   b. THE MAXIMUM LOAD IN A PERFORMANCE TEST SHALL BE HELD FOR 10 MINUTES. THE LOAD-HOLD PERIOD SHALL START AS SOON AS THE MAXIMUM LOAD IS APPLIED AND THE TIEBACK MOVEMENT SHALL BE MEASURED AND RECORDED AT 1 MINUTE, 2, 3, 4, 5, 6, AND 10. IF THE ANCHOR MOVEMENT BETWEEN 1 MINUTE AND 10 MINUTES EXCEEDS 0.04 INCHES, THE MAXIMUM LOAD SHALL BE HELD FOR AN ADDITIONAL 50 MINUTES. IF THE LOAD HOLD IS EXTENDED, THE ANCHOR MOVEMENT SHALL BE RECORDED AT 15, 20, 30, 40, 50, AND 60 MINUTES. IF AN ANCHOR FAILS IN CREEP, RE-TESTING WILL NOT BE ALLOWED.

   c. A TIEBACK PERFORMANCE TEST WITH A 10 MINUTE LOAD HOLD IS ACCEPTABLE IF BOTH OF THE FOLLOWING ARE MET:

      1. THE TIEBACK CARRIES THE MAXIMUM LOAD WITH LESS THAN 0.04 INCHES OF MOVEMENT BETWEEN 1 AND 10 MINUTES.

      2. THE TOTAL MOVEMENT AT THE MAXIMUM LOAD EXCEEDS 80 PERCENT OF THE THEORETICAL ELASTIC ELONGATION OF THE TIEBACK UNBONDED LENGTH.

   d. IF THE LOAD HOLD IS EXTENDED, THE TEST IS ACCEPTABLE IF THE TIEBACK CARRIES THE MAXIMUM LOAD WITH LESS THAN 0.04 INCHES OF MOVEMENT BETWEEN 6 AND 60 MINUTES AND SATISFIES ITEM c.2. ABOVE.

7. LOCK OFF: SUCCESSFULLY TESTED TIEBACKS SHALL BE LOCKED OFF AT LEAST AT THE DESIGN LOAD OR GREATER (UNLESS OTHERWISE DIRECTED BY THE ENGINEER).

8. ANCHORS SHALL BE STRESSED STRAIGHT AND TRUE. KINKING OR SHARP CURVATURE IN THE ANCHORS UNDER TENSION SHALL BE CAUSE FOR REJECTION.

9. TIEBACKS THAT ULTIMATELY FAIL TO MEET THE TESTING CRITERIA MAY BE RETESTED AT A LOWER LOAD AND ASSIGNED A VALUE EQUAL TO THAT LOAD IF THE ENGINEER APPROVES SUCH AN APPROACH. AN ADDITIONAL TIEBACK SHALL BE INSTALLED TO MAKE UP THE LOAD DIFFERENCE. THE LOCATION OF THE ADDITIONAL TIEBACK WILL BE DETERMINED BY THE ENGINEER.

10. IF A TIEBACK CONTINUES TO FAIL A LOAD TEST, THE TIEBACK MY BE POST-GROUTED AND RETESTED. IF TIEBACK FAILS AFTER SECOND POST-GROUT, TIEBACK IS REJECTED AND SHALL BE REPLACED.

XIV. STRUCTURAL TESTS, INSPECTIONS, AND OBSERVATIONS

1. AN INDEPENDENT TESTING AGENCY AND SPECIAL INSPECTORS WILL BE RETAINED BY THE OWNER TO PERFORM TESTS AND INSPECTION.

2. THE FOLLOWING ITEMS REQUIRE TESTS AND INSPECTIONS IN ACCORDANCE WITH THE REQUIREMENTS OF THE CHAPTER "STRUCTURAL TESTS AND INSPECTIONS" OF THE APPLICABLE CODE. REQUIREMENTS FOR TESTS AND INSPECTIONS ARE IDENTIFIED IN THE SPECIFICATIONS.

   A. REINFORCING STEEL
   B. CAST-IN-PLACE CONCRETE
   C. POST-INSTALLED ANCHORS
   D. REPAIR MORTARS
   E. TIEBACKS

XV. MONITORING

1. ESTABLISH CONTROL POINTS ALONG THE EXISTING SEAWALL AS IDENTIFIED IN THE ELEVATIONS PRIOR TO START OF EXCAVATION OR CONSTRUCTION OR DEMOLITION. MONITOR ANY MOVEMENT OF SEAWALL DURING TRENCHING, EXCAVATIONS OR DEMOLITION WORK NEAR THE SEAWALL. NOTIFY SEOR OF ANY MOVEMENT EXCEEDING 1/4".

XVI. DESIGN CRITERIA

1. APPLICABLE CODE: 2022 CALIFORNIA BUILDING CODE

2. GRAVITY LOADS:
   A. DEAD LOADS - VARY BASED ON ACTUAL WEIGHTS
   B. LIVE LOADS:
      a. STAIRS: 100 PSF

3. SHORING DESIGN PARAMETERS (PER GEOTECH REPORT)
   A. TIEBACKS
      ALLOWABLE SKIN FRICTION: 21 PSI

4. DESIGN ASSUMPTIONS REGARDING SHARING OF LOAD BETWEEN NEW AND EXISTING TIEBACKS
   A. NEW TIEBACKS AT STRAIGHT WALL SEGMENTS ARE DESIGNED TO RESIST 75% OF THE LATERAL SOIL LOADS (WITH THE EXISTING TIEBACKS RESISTING 25%)
   B. NEW TIEBACKS AT THE CURVED WALL SEGMENT ARE DESIGNED TO RESIST 50% OF THE LATERAL SOIL LOADS (WITH EXISTING TIEBACKS RESISTING 50%).

XVII. PROJECT SEQUENCING

1. PRIOR TO ALL REPAIR WORK, CONTRACTOR TO
   A. BRACE WALL AS REQUIRED
   B. INSTALL ADEQUATE PROTECTION TO PREVENT SEA WATER FROM CONTACTING WALL DURING REPAIRS.
   C. SET UP MONITORING CONTROL POINTS AS IDENTIFIED.

2. SEQUENCE OF WALL REPAIRS ARE AS FOLLOWS:

   A. DEMOLITION, REPAIR, AND INSTALLATION OF WALL REBAR PER DETAIL 6/S-511.
   B. CORE THROUGH (E) WALL AND INSTALL TIEBACK.
   C. SHOTCRETE INFILL EXCEPT FOR AREA OF TIEBACK BLOCKOUT PER DETAIL 7/S-541 OR 9/S-541.
   D. TEST TIEBACKS PER XIII OF GENERAL NOTES.
   E. INFILL TIE-BACK BLOCKOUT WITH CONCRETE OR NON-SHRINK GROUT
   F. CONTRACTOR MAY SUBMIT ALTERNATE SEQUENCE FOR EOR REVIEW.

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DE Job Number: C1676031.00

REGISTERED PROFESSIONAL ENGINEER — JEREMY T. CALLISTER — No. S 5646 — STRUCTURAL — STATE OF CALIFORNIA

Date: 9/18/2023

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	JTB DRAWN BY	By: JEREMY T. CALLISTER Date: 9/18/2023 NAME: DEGENKOLB ENGINEERS R.C.E. S 5646 EXP: _____	Description	No. Date	By: _____ Date: _____ By: _____ Date: _____	By: _____ Date: _____	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971, 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

GENERAL NOTES
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-002

Sheet 4 of 18

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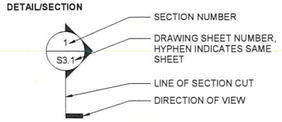
ABBREVIATIONS

(E)	EXISTING	FT	FOOT OR FEET	RFG	ROOFING
#	NUMBER	FTG, FTGS	FOOTING, FOOTINGS	RO	ROUGH OPENING
&	AND			RSJ	ROLLED STEEL JOIST
@	AT	GA	GAUGE		
Ø	DIAMETER OR ROUND	GALV	GALVANIZED	S.A.D.	SEE ARCHITECTURAL DOCUMENTS/DRAWINGS
ℓd	DEVELOPMENT LENGTH	GL	GLU-LAM	S.M.D.	SEE MECHANIAL DRAWINGS
ℓdh	HOOK DEVELOPMENT LENGTH	GLB	GLU-LAM BEAM	SCHED	SCHEDULE
ℓs	LAP SPLICE LENGTH	GR	GRADE	SECT	SECTION
		GRND	GROUND	SEOR	STRUCTURAL ENGINEER OF RECORD
AA	ADHESIVE ANCHOR	GYP	GYPSUM	SFRS	SEISMIC FORCE RESISTING SYSTEM
AB	ANCHOR BOLT			SHT	SHEET
ABV	ABOVE	HDG	HOT DIPPED GALVANIZED	SHTG	SHEATHING
AC	ASPHALT CONCRETE	HDR	HEADER	SIM	SIMILAR
ADDL	ADDITIONAL	HK, HKS	HOOK, HOOKS	SL	SLOPE
ADJ	ADJACENT	HORIZ, (H)	HORIZONTAL	SMF	SPECIAL MOMENT FRAME
AGGR	AGGREGATE	HP	HIGH POINT	SMS	SHEET METAL SCREW
ALT	ALTERNATE	HSB	HIGH STRENGTH BOLTS	SOG	SLAB ON GRADE
ALUM	ALUMINUM	HSS	HOLLOW STRUCTURAL SECTION	SP	STRUCTURAL PLYWOOD
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	HT	HEIGHT	SPEC, SPECS	SPECIFICATION, SPECIFICATIONS
APPROX	APPROXIMATE			SPSW	SPECIAL PLATE SHEAR WALL
AR	ANCHOR ROD	ID	INSIDE DIAMETER/DIMENSION	SQ	SQUARE
ARCH	ARCHITECTURAL / ARCHITECT	INFO	INFORMATION	SS	STAINLESS STEEL
ASPH	ASPHALT			STAG	STAGGER or STAGGERED
ASTM	AMERICAN SOCIETY for TESTING and MATERIALS	JH	JOIST HANGER	STD	STANDARD
AWG	AMERICAN WIRE GAUGE	JST,JSTS	JOIST, JOISTS	STIF	STIFFENER
		JT	JOINT	STIR	STIRRUP OR STIRRUPS
B. O.	BOTTOM OF			STL	STEEL
BF	BOTH FACES	KO	KNOCK-OUT	STRUCT	STRUCTURAL
BF	BRACED FRAME			SUB	SUBSTITUTE
BLDG	BUILDING	L	ANGLE	SUSP	SUSPENDED
BLK, BLKG	BLOCK OR BLOCKING	LEV	LEVEL	SYMM	SYMMETRICAL
BLW	BELOW	LLH	LONG LEG HORIZONTAL		
BM, BMS	BEAM, BEAMS	LLV	LONG LEG VERTICAL	T&B	TOP AND BOTTOM
BN	BOUNDARY NAILING	LOC	LOCATION	T&G	TONGUE and GROOVE
BOF	BOTTOM OF FOOTING	LONGIT	LONGITUDINAL	T.O.	TOP OF
BOT	BOTTOM	LP	LOW POINT	THK	THICK
BRBF	BUCKLING RESTRAINED BRACE FRAME	LT	LIGHT	THRD	THREADED
BRG	BEARING	LWC	LIGHTWEIGHT CONCRETE	THRU	THROUGH
BS	BOTH SIDES			TN	TOE NAIL
BSMT	BASEMENT	MAX	MAXIMUM	TOC	TOP OF CONCRETE
BTWN	BETWEEN	MB	MACHINE BOLT	TOF	TOP OF FOOTING
BW	BOTH WAYS	MECH	MECHANICAL	TOS	TOP OF STEEL
		MEP	MECHANICAL, ELECTRICAL, PLUMBING DOCUMENTS	TOW	TOP OF WALL
C	CHANNEL	MEZZ	MEZZANINE	TR	TREAD
CIP	CAST IN PLACE	MF	MOMENT FRAME	TYP	TYPICAL
CJ	CONSTRUCTION JOINT	MFR	MANUFACTURER		
CJP	COMPLETE JOINT PENETRATION	MIN	MINIMUM	UON	UNLESS OTHERWISE NOTED
CL	CENTERLINE	MISC	MISCELLANEOUS	URM	UNREINFORCED MASONRY
CLG	CEILING	MTD	MOUNTED		
CLR	CLEAR	MTL	METAL	VENT	VENTILATE
CMU	CONCRETE MASONRY UNIT			VERT, (V)	VERTICAL
COL	COLUMN	NF	NEAR FACE	VIF	VERIFY IN FIELD
CONC	CONCRETE	NIC	NOT IN CONTRACT		
CONN	CONNECTION	NOM	NOMINAL (DIAMETER)	W or WF	WIDE FLANGE
CONSTR	CONSTRUCTION	NS	NEAR SIDE	W/	WITH
CONT	CONTINUOUS	NTS	NOT TO SCALE	W/O	WITHOUT
CSK	COUNTERSINK	NWC	NORMAL WEIGHT CONCRETE	WD	WOOD
CTR	CENTER			WP	WORK POINT
		OBF	ORDINARY BRACED FRAMES	WS	WOOD SCREW
d	PENNY (NAIL SIZE)	OC	ON CENTER	WT	WEIGHT/TEE SECTION
DBA	DEFORMED BAR ANCHOR	OD	OUTSIDE DIAMETER	WWM	WELDED WIRE MESH
DBL	DOUBLE	OPH	OPPOSITE HAND		
DEMO	DEMOLITION	OPNG	OPENING	X HVY	EXTRA HEAVY
DET, DETS	DETAIL, DETAILS	OPP	OPPOSITE	X STR	EXTRA STRONG
DIA, DIAM	DIAMETER			XX HVY	DOUBLE EXTRA HEAVY
DIAG	DIAGONAL	P-T	POST-TENSION	XX STR	DOUBLE EXTRA STRONG
DIM, DIMS	DIMENSION, DIMENSIONS	PC, PCS	PIECE, PIECES		
DIST	DISTANCE	PCC	PRECAST CONCRETE		
DK, DKG	DECK OR DECKING	PERP	PERPENDICULAR		
DN	DOWN	PJP	PARTIAL JOINT PENETRATION		
DO	DITTO	PL	PLATE		
DP	DEEP	PLYWD	PLYWOOD		
DS	DIAGONAL SHEATHING	PT	PRESSURE TREATED		
DSA	DIVISION OF THE STATE ARCHITECT	PTN	PARTITION		
DWG, DWGS	DRAWING, DRAWINGS				
DWL, DWLS	DOWEL, DOWELS	R	RADIUS		
		REBAR	REINFORCING BAR		
EA	EACH	REF	REFERENCE		
EBF	ECCENTRIC BRACE FRAME	REINF	REINFORCING		
EF	EACH FACE	REQD	REQUIRED		
EJ	EXPENSION JOINT	REV	REVISION		
EL	ELEVATION				
ELEC	ELECTRICAL				
ELEV	ELEVATOR				
EMBED	EMBEDMENT				
EN	EDGE NAILING				
EOS	EDGE OF SLAB				
EQ	EQUAL				
EQUIP	EQUIPMENT				
ES	EACH SIDE				
EW	EACH WAY				
EXCAV	EXCAVATION				
EXP	EXPANSION				
EXT	EXTERIOR				
FDN	FOUNDATION				
FF	FAR FACE				
FIN	FINISH				
FLG	FLANGE				
FLR, FLRS	FLOOR, FLOORS				
FN	FIELD NAILING				
FO	FACE OF				
FOC	FACE OF CONCRETE				
FOS	FACE OF STUD				
FP	FIREPROOF				
FRMG	FRAMING				
FS	FAR SIDE				

REFERENCE SYMBOLS

DETAIL/SECTION



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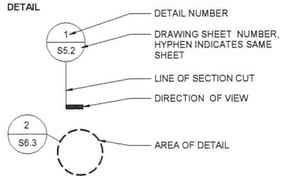
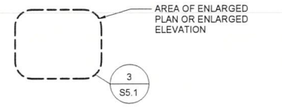
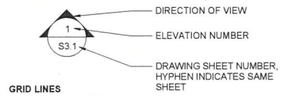


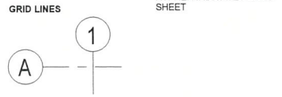
DETAIL PLAN OR ELEVATION



SINGLE ELEVATION



GRID LINES



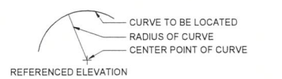
LEVEL LINE

WORK POINT

REVISION

KEY NOTE

CENTER POINT OF CURVE



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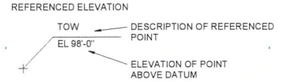
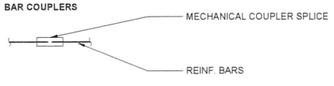
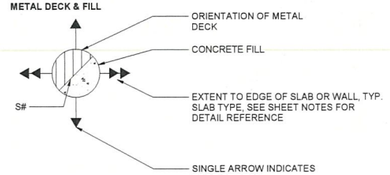


BAR COUPLERS

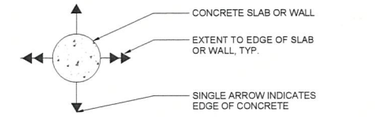


PLAN SYMBOLS

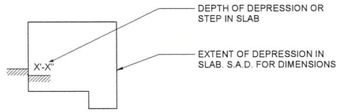
METAL DECK & FILL



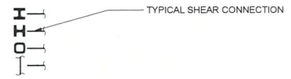
CONCRETE FILL



FLOOR DEPRESSIONS

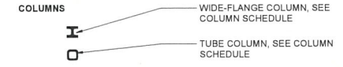


SHEAR CONNECTIONS



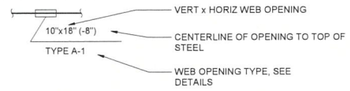
MOMENT CONNECTIONS

COLUMNS



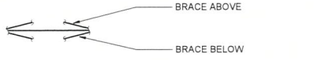
BEAM-BEAM MOMENT CONNECTION

BEAM PENETRATIONS

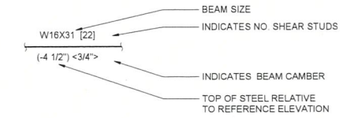


SLAB OPENING

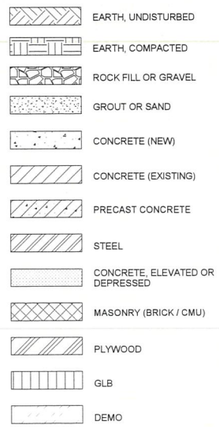
BRACED FRAME OR DIAGONAL BRACE



BEAM DESIGNATIONS



MATERIAL SYMBOLS



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DE Job Number: C1676031.00
Date: 9/18/2023

REGISTERED PROFESSIONAL ENGINEER JEREMY T. CALLISTER No. S 5646 STRUCTURAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	LH DRAWN BY	Description	No.	Date	By: Date:	By: Date:	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)
		By: JEREMY T. CALLISTER Date: 9/18/2023				By: Date:		
		NAME: DEGENKOLB ENGINEERS						
		R.C.E. S.5646 EXP:						

CITY OF SOLANA BEACH	ENGINEERING DEPARTMENT	DRAWING NO.
SYMBOLS AND ABBREVIATIONS 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS PHASE 1		S-003 Sheet 5 of 17

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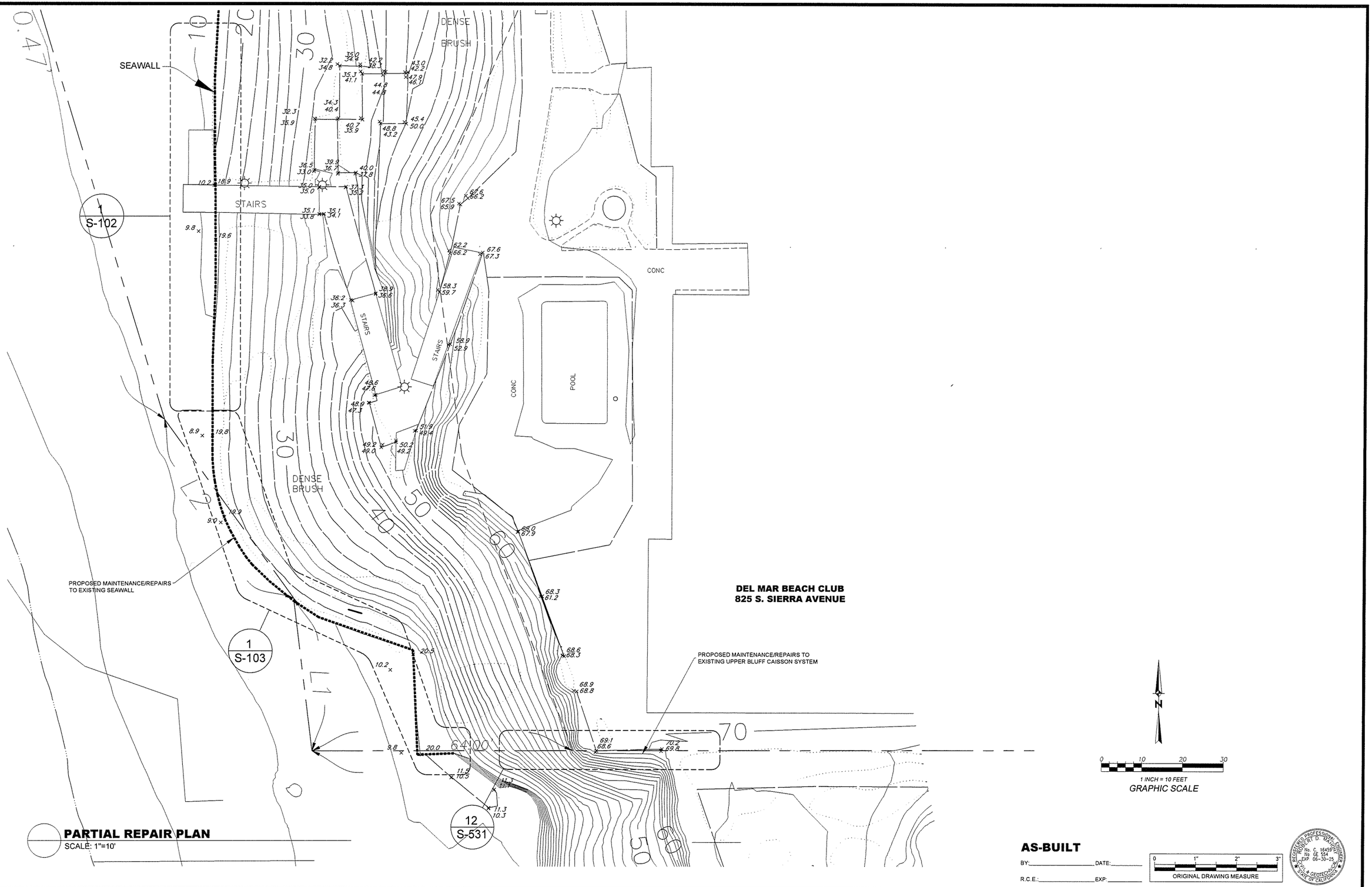


PARTIAL REPAIR PLAN

SCALE: 1"=10'

AS-BUILT

BY:_____ DATE:_____

R.C.E.:_____ EXP:_____

0 1" 2" 3"

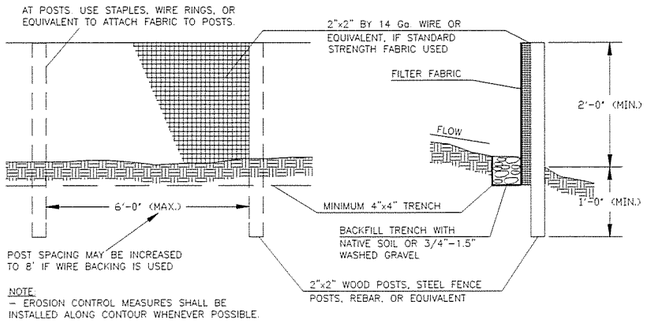
ORIGINAL DRAWING MEASURE

REGISTERED PROFESSIONAL ENGINEER ROBERT D MAHONY No. C 16459 No. GE 554 EXP 06-30-25 CIVIL & GEOTECHNICAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	JK DRAWN BY	By: ROBERT D. MAHONY Date: 09/18/23 NAME: SOIL ENGINEERING CONST. R.C.E. 16459 EXP: 06/30/25		

RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
By: _____ Date: _____ DAN GOLDBERG By: _____ Date: _____	By: _____ Date: _____ MOHAMMAD SAMMAK, CITY ENGINEER EXP: 6/30/24 R.C.E.: 37146	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)

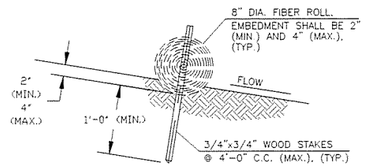
CITY OF SOLANA BEACH ENGINEERING DEPARTMENT	DRAWING REF. NO. C-101
PARTIAL REPAIR PLAN FOR: 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 SEAWALL AND UPPER BLUFF REPAIRS - PHASE 1	SBGR-
	Sheet 6 of 18



ALT. SECTION-SILT FENCE EROSION CONTROL

SCALE: 1"=1'-0"

E/7



SECTION-FIBER ROLL

SCALE: 1"=1'-0"

F/7

EROSION & SEDIMENT CONTROL NOTES

TEMPORARY EROSION/SEDIMENT CONTROL, PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR OR QUALIFIED PERSON AS INDICATED BELOW:

1. ALL REQUIREMENTS OF THE CITY OF SOLANA BEACH STORM WATER STANDARDS MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED GRADING/IMPROVEMENTS CONSISTENT WITH THE APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND/OR WATER POLLUTION CONTROL PLAN (WPCP) FOR CONSTRUCTION LEVEL BMP'S.

2. FOR STORM DRAIN INLETS, PROVIDE A GRAVEL BAG SILT BASIN IMMEDIATELY UPSTREAM OF INLET AS INDICATED ON DETAILS.

3. FOR INLETS LOCATED AT SUMPS ADJACENT TO TOP OF SLOPES, THE CONTRACTOR SHALL ENSURE THAT WATER DRAINING TO THE SUMP IS DIRECTED INTO THE INLET AND THAT A MINIMUM OF 1.00' FREEBOARD EXISTS AND IS MAINTAINED ABOVE THE TOP OF THE INLET. IF FREEBOARD IS NOT PROVIDED BY GRADING SHOWN ON THESE PLANS, THE CONTRACTOR SHALL PROVIDE IT VIA TEMPORARY MEASURES, I.E. GRAVEL BAGS OR DIKES.

4. THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEM DUE TO CONSTRUCTION ACTIVITY.

5. THE CONTRACTOR OR QUALIFIED PERSON SHALL CHECK AND MAINTAIN ALL LINED AND UNLINED DITCHES AFTER EACH RAINFALL.

6. THE CONTRACTOR SHALL REMOVE SILT DEBRIS AFTER EACH MAJOR RAINFALL

7. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ON SITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.

8. THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER OR RESIDENT ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.

9. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY BE REQUIRED BY THE RESIDENT ENGINEER DUE TO UNCOMPLETED GRADING OPERATIONS OR UNFORESEEN CIRCUMSTANCES, WHICH MAY ARISE.

10. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATERS CREATE A HAZARDOUS CONDITION.

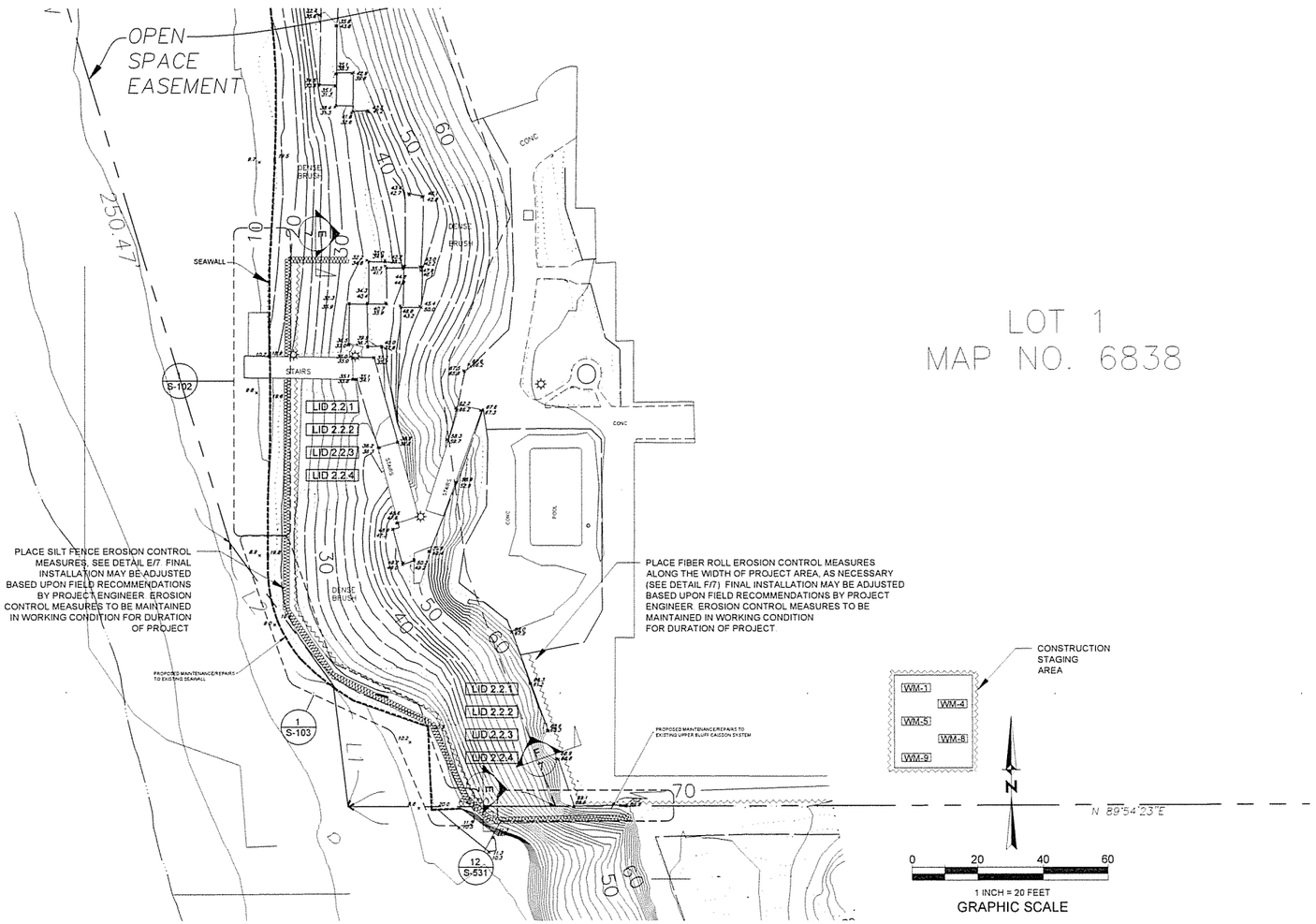
11. ALL EROSION/SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED GRADING PLAN SHALL BE INCORPORATED HEREON. ALL EROSION/SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER.

12. GRADED AREAS AROUND THE PROJECT PERIMETER MUST DRAIN AWAY FROM THE FACE OF THE SLOPE AT THE CONCLUSION OF EACH WORKING DAY.

13. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT.

14. THE CONTRACTOR SHALL ONLY GRADE, INCLUDING CLEARING AND GRUBBING FOR THE AREAS FOR WHICH THE CONTRACTOR OR QUALIFIED PERSON CAN PROVIDE EROSION/SEDIMENT CONTROL MEASURES.

15. THE CONTRACTOR SHALL ARRANGE FOR WEEKLY MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER AND THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION/SEDIMENT CONTROL MEASURES AND OTHER RELATED CONSTRUCTION ACTIVITIES.



LOT 1
MAP NO. 6838

BMP LEGEND

DIRECTION OF LOT DRAINAGE ⟶

MATERIAL & WASTE MANAGEMENT CONTROL BMP'S

- WM-1 MATERIAL DELIVERY & STORAGE
- WM-4 SPILL PREVENTION & CONTROL
- WM-5 SOLID WASTE MANAGEMENT
- WM-8 CONCRETE WASTE MANAGEMENT
- WM-9 SANITARY WASTE MANAGEMENT

TEMPORARY RUNOFF CONTROL BMP'S.

- SC-1 SILT FENCE
- SC-5 FIBER ROLL
- SC-6 GRAVEL BAGS
- SC-7 STREET SWEEPING DAILY, OR AS DIRECTED
- SC-10 STORM INLET PROTECTION, AS APPLICABLE

LOW IMPACT DEVELOPMENT BMP's:

- LID 2.2.1 CONSERVATION OF NATURAL DRAINAGES, WELL DRAINED SOILS AND SIGNIFICANT VEGETATION
- LID 2.2.2 MINIMIZE DISTURBANCES TO NATURAL DRAINAGES
- LID 2.2.3 MIINIMIZE AND DISCONNECT IMPERVIOUS SURFACES
- LID 2.2.4 MINIMIZE SOIL COMPACTION

EROSION CONTROL PLAN

SCALE: 1"=20'

AS-BUILT

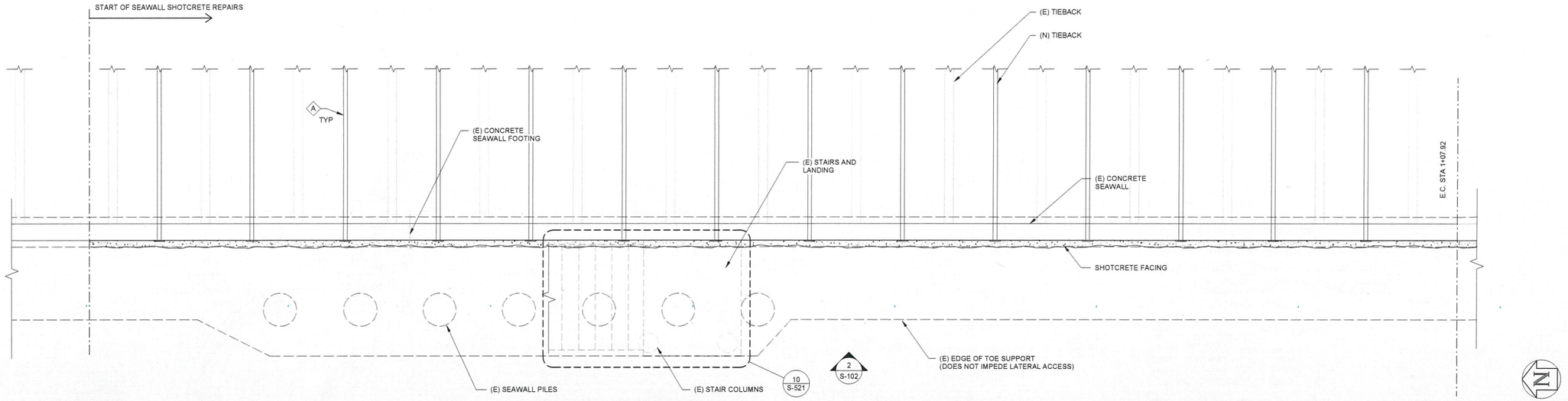
BY_____ DATE _____

R C E _____ EXP _____

0 1" 2" 3"
ORIGINAL DRAWING MEASURE

REGISTERED PROFESSIONAL ENGINEER ROBERT D. MAHONY No. C 16459 Exp. 06-30-25 CIVIL & GEOTECHNICAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK	CITY OF SOLANA BEACH ENGINEERING DEPARTMENT	DRAWING REF. NO
BY: FIRE CHIEF DATE	REVIEWED BY: DISTRICT REP DATE	By ROBERT D. MAHONY Date 09/18/23				By: Date DAN GOLDBERG	By: Date MOHAMMAD SAMMAK, CITY ENGINEER EXP. 6/30/24 R.C.E. 37146	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)	EROSION CONTROL PLAN FOR: 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 SEAWALL AND UPPER BLUFF REPAIRS - PHASE 1	C-102
		JK DRAWN BY NAME SOIL ENGINEERING CONST R C E 16459 EXP 06/30/25				By: Date			SBGR- Sheet 7 of 18	

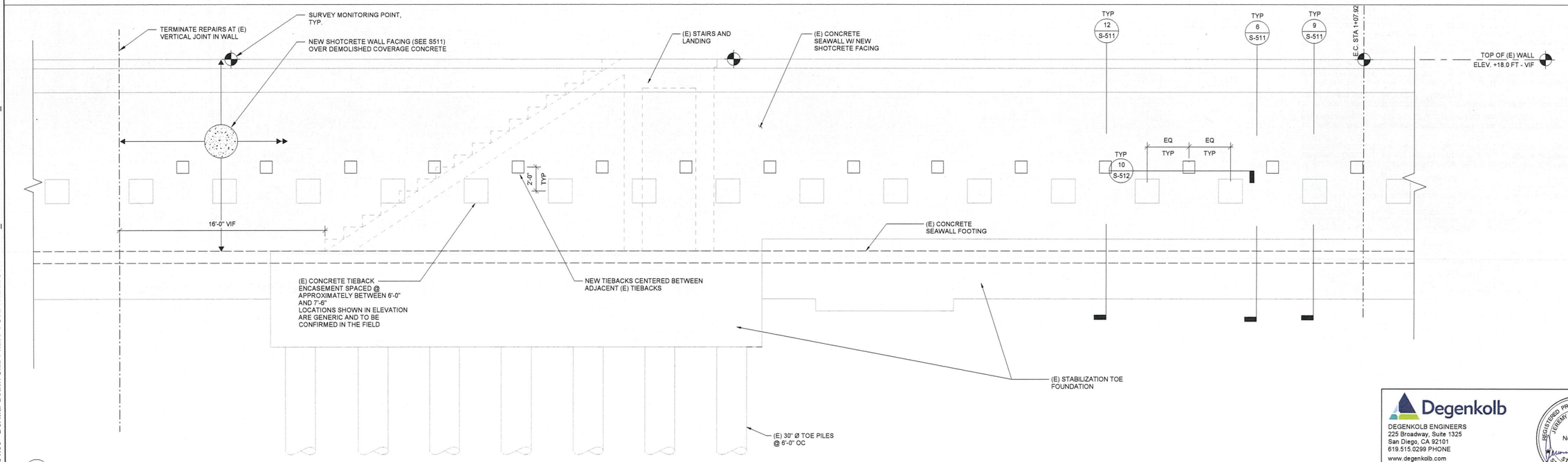


KEYNOTES

A TIEBACK MARK. SEE TIEBACK SCHEDULE ON 12/S-541

1 SEAWALL PLAN SEGMENT 1

1/4" = 1'-0"



2 SEAWALL ELEVATION SEGMENT 1

1/4" = 1'-0"

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DE Job Number: C1676031.00
Date: 9/18/2023

REGISTERED PROFESSIONAL ENGINEER
JEREMY T. CALLISTER
No. S 5646
STRUCTURAL
STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	LH DRAWN BY	Description	No.	Date	By: _____ Date: _____	By: _____ Date: _____	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)

By: JEREMY T. CALLISTER Date: 9/18/2023
NAME: DEGENKOLB ENGINEERS
R.C.E. S 5646 EXP: _____

By: _____ Date: _____

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

SEAWALL PLAN AND ELEVATION
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-102

Sheet 8 of 18

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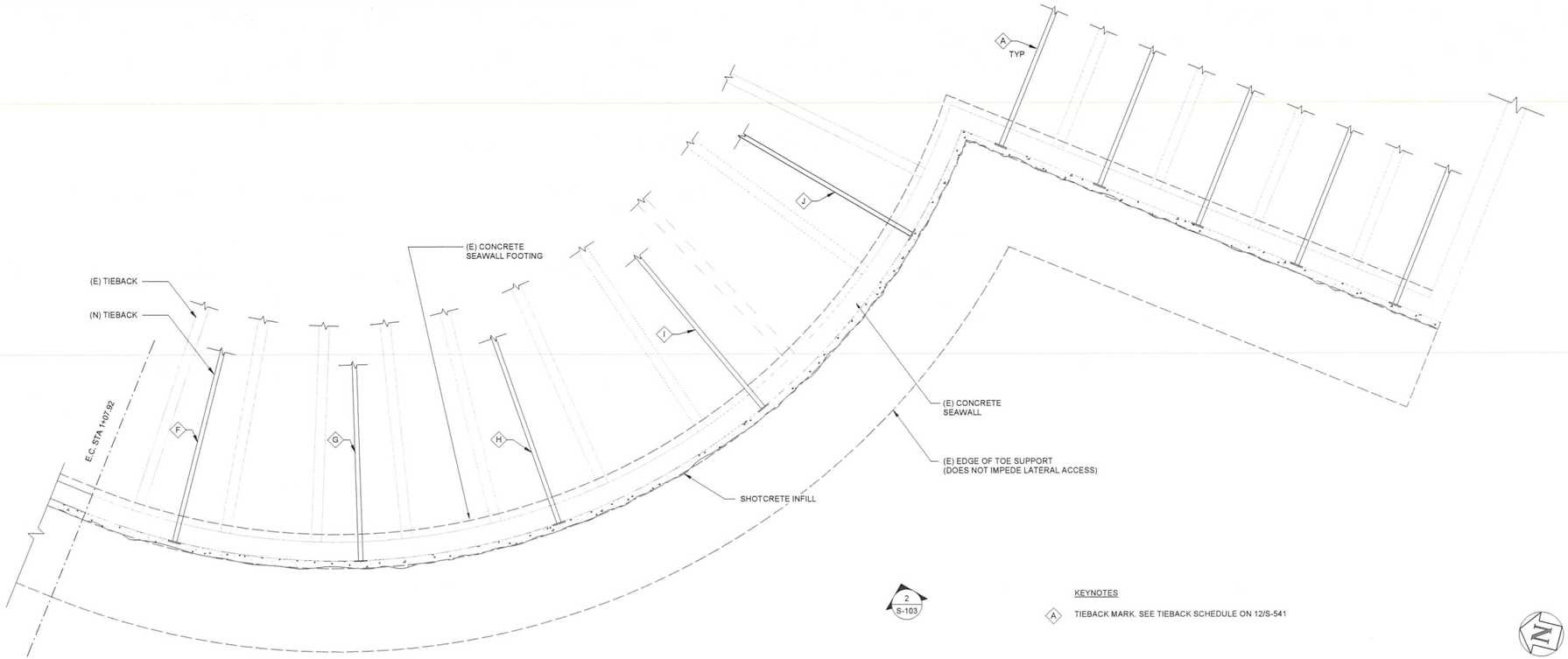
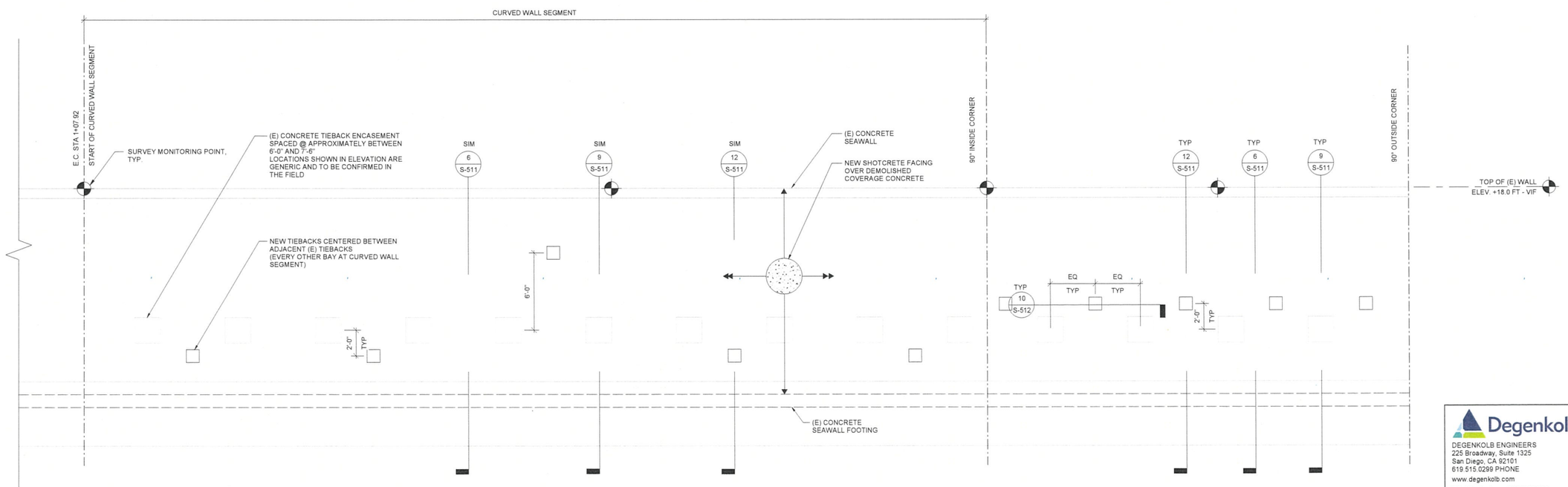


1 SEAWALL PLAN SEGMENT 2
1/4" = 1'-0"



2 SEAWALL ELEVATION SEGMENT 2
1/4" = 1'-0"

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STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	LH DRAWN BY	Description	No.	Date	By: Date:	By: Date:	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)

By: JEREMY T. CALLISTER Date: 9/18/2023
NAME: DEGENKOLB ENGINEERS
R.C.E. S 5646 EXP:

By: Date:

CITY OF SOLANA BEACH	ENGINEERING DEPARTMENT	DRAWING NO.
SEAWALL PLAN AND ELEVATION 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS PHASE 1		S-103 Sheet 9 of 18

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CONCRETE REPAIR NOTES

REPAIR CRITERIA

1. THE CRACKS AND SPALLS IDENTIFIED IN THESE DRAWINGS REPRESENT THE MAJORITY OF THE SIGNIFICANT CRACKS/SPALLS OBSERVED; HOWEVER, IT IS NOT MEANT TO BE A COMPREHENSIVE AND COMPLETE PORTRAYAL OF ITEMS REQUIRING MITIGATION. IN ADDITION, THEIR LENGTH & LOCATION ARE APPROXIMATE IN NATURE.

MATERIALS AND PRODUCTS

1. BONDING AGENTS:
   A. EPOXY-MODIFIED, CEMENTITIOUS BONDING AND ANTICORROSION AGENT: MANUFACTURED PRODUCT THAT CONSISTS OF WATER-INSENSITIVE EPOXY ADHESIVE, PORTLAND CEMENT, AND WATER-BASED SOLUTION OF CORROSION-INHIBITING CHEMICALS THAT FORMS A PROTECTIVE FILM ON STEEL REINFORCEMENT. ACCEPTABLE PRODUCTS INCLUDE:
      a. EUCLID CHEMICAL COMPANY; DURALPREP A.C.
      b. SIKA CORPORATION; ARMATEC 110 EPOCEM.
2. MORTAR SCRUB COAT: MIX CONSISTING OF 1 PART PORTLAND CEMENT AND 1 PART FINE AGGREGATE COMPLYING WITH ASTM C 144 EXCEPT 100 PERCENT PASSING A NO. 16 (1.18-MM) SIEVE.
3. PATCHING MORTAR:
   A. GENERAL:
      a. ONLY USE PATCHING MORTARS THAT ARE RECOMMENDED BY MANUFACTURER FOR EACH APPLICABLE HORIZONTAL, VERTICAL, OR OVERHEAD USE ORIENTATION.
      b. COARSE AGGREGATE FOR PATCHING MORTAR: ASTM C 33, WASHED AGGREGATE, SIZE NO. 8, CLASS 5S. ADD TO PATCHING-MORTAR MIX ONLY AS PERMITTED BY PATCHING-MORTAR MANUFACTURER.
   B. CEMENTITIOUS PATCHING MORTAR: PACKAGED, DRY MIX FOR REPAIR OF CONCRETE.
      a. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT INDICATED ON DRAWINGS OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
         - BASF CONSTRUCTION CHEMICALS - BUILDING SYSTEMS
         - DAYTON SUPERIOR CORPORATION
         - EUCLID CHEMICAL COMPANY
         - SIKA CORPORATION; CONSTRUCTION PRODUCT DIVISION
      a. COMPRESSIVE STRENGTH: NOT LESS THAN 5000 PSI AT 28 DAYS WHEN TESTED ACCORDING TO ASTM C 109/C 109M
   C. POLYMER-MODIFIED, CEMENTITIOUS PATCHING MORTAR: PACKAGED, DRY MIX FOR REPAIR OF CONCRETE AND THAT CONTAINS A NON-REDISPERSIBLE LATEX ADDITIVE AS EITHER A DRY POWDER OR A SEPARATE LIQUID THAT IS ADDED DURING MIXING.
      a. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT INDICATED ON DRAWINGS OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
         - BASF CONSTRUCTION CHEMICALS - BUILDING SYSTEMS
         - DAYTON SUPERIOR CORPORATION
         - EUCLID CHEMICAL COMPANY
         - SIKA CORPORATION; CONSTRUCTION PRODUCT DIVISION
      a. COMPRESSIVE STRENGTH: NOT LESS THAN 5000 PSI AT 28 DAYS WHEN TESTED ACCORDING TO ASTM C 109/C 109M
4. EPOXY CRACK INJECTION MATERIALS
   A. EPOXY CRACK-INJECTION ADHESIVE: ASTM C 881/C 881M, TYPE IV AT STRUCTURAL LOCATIONS AND WHERE NOT INDICATED.
   B. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT INDICATED ON DRAWINGS OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
      a. EUCLID CHEMICAL COMPANY
      b. SIKA CORPORATION; CONSTRUCTION PRODUCT DIVISION
      c. SIMPSON STRONG TIE, INC
   A. CAPPING ADHESIVE: PRODUCT MANUFACTURED FOR USE WITH CRACK INJECTION ADHESIVE BY SAME MANUFACTURER

SURFACE PREPARATION FOR PATCH LOCATIONS (WHERE CORROSION NOT OBSERVED)

1. LOCATION AND MARKING OF WORK
   A. WITHIN THE REGIONS IDENTIFIED IN THE ELEVATIONS, CONTRACTOR TO LOCATE SPALLS DELAMINATIONS HONEYCOMBS, ROCK POCKETS,AND VOIDS MORE THAN 1 INCH IN ANY DIMENSION TO SOLID CONCRETE BY VISUAL INSPECTION AND CONCRETE SOUNDING AND MARK THEIR BOUNDARIES WITH CHALK OR PAINT.
   B. AREAS TO BE REMOVED SHALL BE AS STRAIGHT AND RECTANGULAR AS PRACTICAL TO ENCOMPASS THE REPAIR AND PROVIDE A NEAT PATCH.
   C. CONTRACTOR TO LOCATE ALL EMBEDDED POST-TENSIONING TENDONS AND REINFORCEMENT IN THE REPAIR AREA AND MARK THESE LOCATIONS FOR REFERENCE DURING THE CONCRETE REMOVAL IN CONCRETE SLAB.
2. CONCRETE REMOVAL
   A. FOR VERTICAL AND OVERHEAD SURFACES THE MARKED BOUNDARY MAY BE SAWCUT TO A DEPTH OF 1/4 INCH INTO THE EXISTING CONCRETE, MEASURED FROM THE ORIGINAL SURFACE. EXTRA CAUTION SHALL BE EXERCISED DURING THE SAWCUTTING OPERATIONS TO AVOID DAMAGING EXISTING REINFORCEMENT.
   B. ALL CONCRETE SHALL BE REMOVED FROM WITHIN THE MARKED BOUNDARY TO A MINIMUM DEPTH OF 1/2 INCH USING CHIPPING HAMMERS LESS THAN 15 LBS AT SLABS AND LESS THAN 30 LBS AT COLUMNS AND WALLS. IF UNSOUND CONCRETE EXISTS BEYOND THE MINIMUM REMOVAL DEPTH, THEN CHIPPING SHALL CONTINUE UNTIL ALL UNSOUND CONCRETE HAS BEEN REMOVED FROM THE CAVITY.
   C. WHERE EMBEDDED REINFORCEMENT IS EXPOSED BY CONCRETE REMOVAL, EXTRA CAUTION SHALL BE EXERCISED TO AVOID DAMAGING IT DURING REMOVAL OF ADDITIONAL UNSOUND CONCRETE. IF BOND BETWEEN EXPOSED EMBEDDED REINFORCEMENT AND ADJACENT CONCRETE IS IMPAIRED BY THE CONTRACTOR'S REMOVAL OPERATIONS, THEN THE CONTRACTOR SHALL PERFORM ADDITIONAL REMOVAL AROUND AND BEYOND THE PERIMETER OF THE REINFORCEMENT FOR A MINIMUM OF 3/4 INCH ALONG THE ENTIRE LENGTH AFFECTED.
3. PREPARATION OF CAVITY FOR PATCH PLACEMENT
   A. THOROUGHLY CLEAN REMOVAL AREAS OF LOOSE CONCRETE, DUST AND DEBRIS. VERIFY FRACTURED PROFILE OF AT LEAST 1/8 INCH OCCURS AT PATCH LOCATION.
   B. PERFORM ADDITIONAL PREPARATION AND CLEANING OF THE SPALL CAVITY AS REQUIRED BY THE PATCHING MATERIAL MANUFACTURER. NOTIFY ENGINEER OF COMPLETION OF PREPERATION OF CAVITY.

SURFACE PREPARATION FOR PATCH LOCATIONS (WHERE CORROSION IS OBSERVED)

1. LOCATION AND MARKING OF WORK
   A. CONTRACTOR TO LOCATE SPALLS AND DELAMINATIONS BY VISUAL INSPECTION AND CONCRETE SOUNDING AND MARK THEIR BOUNDARIES WITH CHALK OR PAINT.
   B. AREAS TO BE REMOVED SHALL BE AS STRAIGHT AND RECTANGULAR AS PRACTICAL TO ENCOMPASS THE REPAIR AND PROVIDE A NEAT PATCH.
   C. CONTRACTOR TO LOCATE ALL EMBEDDED POST-TENSIONING TENDONS AND REINFORCEMENT IN THE REPAIR AREA AND MARK THESE LOCATIONS FOR REFERENCE DURING THE CONCRETE REMOVAL IN CONCRETE SLAB.
2. CONCRETE REMOVAL
   A. DELAMINATED, SPALLED, AND UNSOUND CONCRETE FLOOR AREAS SHALL HAVE THEIR MARKED BOUNDARIES SAWCUT TO A DEPTH OF 1/4 INCH INTO THE FLOOR SLAB, UNLESS OTHERWISE NOTED. FOR VERTICAL AND OVERHEAD SURFACES THE MARKED BOUNDARY MAY BE SAWCUT, GROUND OR CHIPPED TO A DEPTH OF 1/4 INCH INTO EXISTING CONCRETE, MEASURED FROM THE ORIGINAL SURFACE. EXTRA CAUTION SHALL BE EXERCISED DURING THE SAWCUTTING OPERATIONS TO AVOID DAMAGING EXISTING REINFORCEMENT (ESPECIALLY POST-TENSIONING TENDONS AND SHEATHS).
   B. ALL CONCRETE SHALL BE REMOVED FROM WITHIN THE MARKED BOUNDARY TO A MINIMUM DEPTH OF 1/2 INCH USING CHIPPING HAMMERS LESS THAN 15 LBS AT SLABS AND LESS THAN 30 LBS AT COLUMNS AND WALLS. IF UNSOUND CONCRETE EXISTS BEYOND THE MINIMUM REMOVAL DEPTH, THEN CHIPPING SHALL CONTINUE UNTIL ALL UNSOUND CONCRETE HAS BEEN REMOVED FROM THE CAVITY.
   C. WHERE EMBEDDED REINFORCEMENT IS EXPOSED BY CONCRETE REMOVAL, EXTRA CAUTION SHALL BE EXERCISED TO AVOID DAMAGING IT DURING REMOVAL OF ADDITIONAL UNSOUND CONCRETE. IF BOND BETWEEN EXPOSED EMBEDDED REINFORCEMENT AND ADJACENT CONCRETE IS IMPAIRED BY THE CONTRACTOR'S REMOVAL OPERATIONS, THEN THE CONTRACTOR SHALL PERFORM ADDITIONAL REMOVAL AROUND AND BEYOND THE PERIMETER OF THE REINFORCEMENT FOR A MINIMUM OF 3/4 INCH ALONG THE ENTIRE LENGTH AFFECTED.
   D. IF RUST IS PRESENT ON EMBEDDED REINFORCEMENT WHERE IT ENTERS SOUND CONCRETE, THEN ADDITIONAL REMOVAL OF CONCRETE ALONG AND BENEATH THE REINFORCEMENT WILL BE REQUIRED. SUCH ADDITITIONL REMOVAL SHALL CONTINUE UNTIL NONRUSTED REINFORCMENT IS EXPOSED, OR AS DIRECTED BY THE ENGINEER.
3. REINFORCEMENT IN REPAIR AREA
   A. ALL EMBEDDED REINFORCEMENT EXPOSED DURING SURFACE PREPARATION THAT HAS LOST MORE THAN **20%** OF THE ORIGINAL CROSS-SECTIONAL AREA DUE TO CORROSION SHALL BE CONSIDERED DEFECTIVE, AND WILL REQUIRE REMOVAL AND REPLACEMENT. CONTRACTOR TO NOTIFY ENGINEER OF THESE CONDITIONS.
   B. CONCRETE SHALL BE REMOVED TO PROVIDE A MINIMUM OF 3/4 INCH CLEARANCE ON ALL SIDES OF DEFECTIVE OR DAMAGED EXPOSED EMBEDDED REINFORCEMENT THAT IS LEFT IN PLACE. A MINIMUM OF 1 1/2 INCH CONCRETE COVER SHALL BE PROVIDED OVER ALL NEW AND EXISTING REINFORCEMENT. CONCRETE COVER OVER REINFORCEMENT MAY BE REDUCED TO 3/4 INCH WITH THE ENGINEER'S APPROVAL IF COATED WITH AN APPROVED EPOXY RESIN.
4. CLEANING OF REINFORCING
   A. ALL EXPOSED STEEL SHALL BE CLEANED OF RUST TO BARE METAL BY SANDBLASTING OR WIRE BRUSHING.
5. PREPARATION OF CAVITY FOR PATCH PLACEMENT
   A. THOROUGHLY CLEAN REMOVAL AREAS OF LOOSE CONCRETE, DUST AND DEBRIS. VERIFY FRACTURED PROFILE OF AT LEAST 1/8 INCH OCCURS AT PATCH LOCATION.
   B. PERFORM ADDITIONAL PREPARATION AND CLEANING OF THE SPALL CAVITY AS REQUIRED BY THE PATCHING MATERIAL MANUFACTURER.
   C. COAT REBAR AND CAVITY WITH SIKA ARMATEC 110 PER MANUFACTURER RECOMMENDATIONS.

APPLICATION OF PATCH MATERIALS

1. APPLICATION OF PATCHING MORTAR: PLACE AS FOLLOWS UNLESS OTHERWISE RECOMMENDED IN WRTING BY MANUFACTURER: BASIS OF DESIGN FOR SHALLOW SURFACE REPAIRS IS SIKATOP 122 PLUS.
   A. PROVIDE FORMS WHERE NECESSARY TO CONFINE PATCH TO REQUIRED SHAPE.
   B. WET SUBSTRATE AND FORMS THOROUGHLY AND THEN REMOVE STANDING WATER.
   C. APPLY BONDING AGENT PER MANUFACTURER RECOMMENDATIONS.
   D. GENERAL PLACEMENT: PLACE PATCHING MORTAR BY TROWELING TOWARD EDGES OF PATCH TO FORCE INTIMATE CONTACT WITH EDGE SURFACES. FOR LARGE PATCHES, FILL EDGES FIRST AND THEN WORK TOWARD CENTER, ALWAYS TROWELING TOWARD EDGES OF PATCH. AT FULLY EXPOSED REINFORCING BARS, FORCE PATCHING MORTAR TO FILL SPACE BEHIND BARS BY COMPACTING WITH TROWEL FROM SIDES OF BARS.
   E. VERTICAL PATCHING: PLACE MATERIAL IN LIFTS OF NOT MORE THAN 1-1/2 INCHES NOR LESS THAN 1/8 INCH. DO NOT FEATHER EDGE.
   F. OVERHEAD PATCHING: PLACE MATERIAL IN LIFTS OF NOT MORE THAN 1-1/2 INCHES NOR LESS THAN 1/8 INCH. DO NOT FEATHER EDGE.
   G. CONSOLIDATION: AFTER EACH LIFT IS PLACED, CONSOLIDATE MATERIAL AND SCREED SURFACE.
   H. FINISHING: ALLOW SURFACES OF LIFTS THAT ARE TO REMAIN EXPOSED TO BECOME FIRM AND THEN FINISH TO A SURFACE MATCHING ADJACENT CONCRETE.
   I. CURING: WET-CURE CEMENTITIOUS PATCHING MATERIALS, INCLUDING POLYMER-MODIFIED CEMENTITIOUS PATCHING MATERIALS, FOR NOT LESS THAN SEVEN DAYS BY WATER-FOG SPRAY OR WATER-SATURATED ABSORPTIVE COVER. ALTERNATIVELY, USE CURING COMPOUND APPROVED BY THE EOR AND REPAIR MORTAR/GROUT MANUFACTURER.
2. APPLICATION OF DRY PACK MORTAR: USE FOR DEEP CAVITIES AND WHERE INDICATED. PLACE AS FOLLOWS UNLESS OTHERWISE RECOMMENDED IN WRITING BY MANUFACTURER.
   A. PROVIDE FORMS WHERE NECESSARY TO CONFINE PATCH TO REQUIRED SHAPE.
   B. WET SUBSTRATE AND FORMS THOROUGHLY AND THEN REMOVE STANDING WATER.
   C. APPLY BONDING AGENT PER MANUFACTURER RECOMMENDATIONS.
   D. PLACE DRY-PACK MORTAR INTO CAVITY BY HAND, AND COMPACT TIGHTLY INTO PLACE. DO NOT PLACE MORE MATERIAL AT A TIME THAN CAN BE PROPERLY COMPACTED. CONTINUE PLACING AND COMPACTING UNTIL PATCH IS APPROXIMATELY LEVEL WITH SURROUNDING SURFACE.
   E. AFTER CAVITY IS FILLED AND PATCH IS COMPACTED, TROWEL SURFACE TO MATCH PROFILE AND FINISH OF SURROUNDING CONCRETE. A THIN COAT OF PATCHING MORTAR MAY BE TROWELED INTO THE SURFACE OF PATCH TO HELP OBTAIN REQUIRED FINISH.
   F. WET-CURE PATCH FOR NOT LESS THAN SEVEN DAYS BY WATER-FOG SPRAY OR WATER-SATURATED ABSORPTIVE COVER. ALTERNATIVELY, USE CURING COMPOUND APPROVED BY THE EOR AND REPAIR MORTAR/GROUT MANUFACTURER.
3. PLACEMENT OF CONCRETE PATCH: BASIS OF DESIGN FOR FORM AND POUR REPAIRS IS SIKACRETE 211 SCC PLUS
   A. APPLY BONDING AGENT PER MANUFACTURER RECOMMENDATIONS.
   B. STANDARD PLACEMENT:
      a. PROVIDE FORMS WHERE NECESSARY TO CONFINE PATCH TO REQUIRED SHAPE.
      b. WET SUBSTRATE AND FORMS THOROUGHLY AND THEN REMOVE STANDING WATER.
      c. APPLY BONDING AGENT PER MANUFACTURER RECOMMENDATIONS.
      d. PLACE MATERIAL PER MANUFACTURER'S RECOMMENDATIONS
   C. WET-CURE CONCRETE FOR NOT LESS THAN SEVEN DAYS BY LEAVING FORMS IN PLACE OR KEEPING SURFACES CONTINUOUSLY WET BY WATER-FOG SPRAY OR WATER-SATURATED ABSORPTIVE COVER. ALTERNATIVELY, USE CURING COMPOUND APPROVED BY THE EOR AND REPAIR MORTAR/GROUT MANUFACTURER.
   D. FILL PLACEMENT CAVITIES WITH DRY-PACK MORTAR AND REPAIR VOIDS WITH PATCHING MORTAR. FINISH TO MATCH SURROUNDING CONCRETE.

EPOXY CRACK INJECTION

1. EPOXY CRACK INJECTION: BASIS OF DESIGN IS SIKADUR 35
   A. CLEAN AREAS TO RECEIVE CAPPING ADHESIVE OF OIL, DIRT, AND OTHER SUBSTANCES THAT WOULD INTERFERE WITH BOND, AND CLEAN CRACKS WITH OIL-FREE COMPRESSED AIR OR LOW-PRESSURE WATER TO REMOVE LOOSE PARTICLES.
   B. PLACE INJECTION PORTS AS RECOMMENDED BY EPOXY MANUFACTURER, SPACING NO FARTHER APART THAN THICKNESS OF MEMBER BEING INJECTED. SEAL INJECTION PORTS IN PLACE WITH CAPPING ADHESIVE.
   C. SEAL CRACKS AT EXPOSED SURFACES WITH A RIBBON OF CAPPING ADHESIVE AT LEAST 1/4 INCH (6 MM) THICK BY 1 INCH (25 MM) WIDER THAN CRACK.
   D. INJECT EPOXY ADHESIVE, BEGINNING AT WIDEST PART OF CRACK AND WORKING TOWARD NARROWER PARTS. INJECT ADHESIVE INTO PORTS TO REFUSAL, CAPPING ADJACENT PORTS WHEN THEY EXTRUDE EPOXY. CAP INJECTED PORTS AND INJECT THROUGH ADJACENT PORTS UNTIL CRACK IS FILLED.
   E. AFTER EPOXY ADHESIVE HAS SET, REMOVE INJECTION PORTS AND GRIND SURFACES SMOOTH

FIELD QUALITY CONTROL

1. PERFORM THE FOLLOWING TESTS AND INSPECTIONS:
   A. PACKAGED, CEMENTITIOUS PATCHING MORTAR: 2 RANDOMLY SELECTED SETS OF SAMPLES FOR EACH TYPE OF MORTAR REQUIRED, TESTED ACCORDING TO ASTM C 928.
   B. JOB-MIXED PATCHING MORTAR: 2 RANDOMLY SELECTED SETS OF SAMPLES FOR EACH TYPE OF MORTAR REQUIRED, TESTED FOR COMPRESSIVE STRENGTH ACCORDING TO ASTM C 109/C 109M.
2. PRODUCT WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.
3. PREPARE TEST AND INSPECTION REPORTS.

PROJECT SEQUENCING

SEE SECTION XVII OF GENERAL NOTES ON S-002 FOR CONCRETE REPAIR AND TIEBACK INSTALLATION WORK SEQUENCING.

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DE Job Number: C1676031.00

Date: 9/18/2023

REGISTERED PROFESSIONAL ENGINEER — JEREMY T. CALLISTER — No. S 5646 — STRUCTURAL — STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK		DRAWING NO.
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	LH DRAWN BY	Description	No.	Date	By: _____ Date: _____	By: _____ Date: _____	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971, 2.5" CITY OF SOLANA BEACH BRASS DISK, STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)	CITY OF SOLANA BEACH ENGINEERING DEPARTMENT CONCRETE REPAIR GENERAL NOTES 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS PHASE 1	S-501
		By: JEREMY T. CALLISTER Date: 9/18/2023 NAME: DEGENKOLB ENGINEERS R.C.E. S 5646 EXP: _____				By: _____ Date: _____				Sheet 10 of 18

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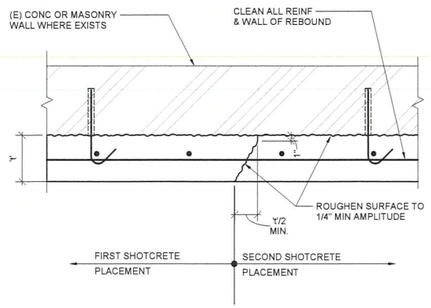
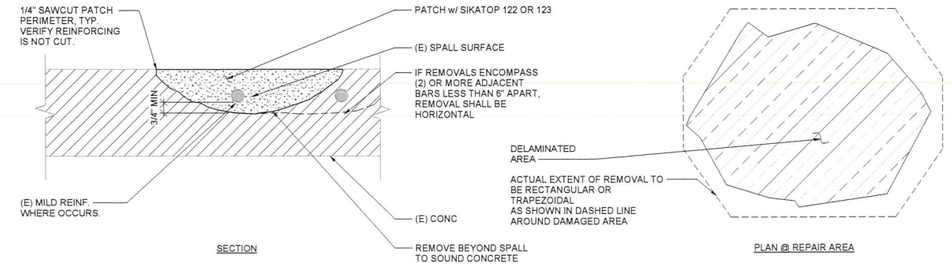


10 PLAN AT VERTICAL CONSTRUCTION JOINT
1" = 1'-0"



NOTES:
1. SEE THE CONCRETE REPAIR GENERAL NOTES (S-501) FOR REQUIREMENTS REGARDING THE REMOVAL OF UNSOUND CONCRETE, SURFACE PREPARATION, AND PLACEMENT OF PATCH MATERIALS.

4 LARGE CRACK, SPALL, OR DELAMINATION REPAIR
3" = 1'-0"

11 SECTION AT HORIZONTAL CONSTRUCTION JOINT
1" = 1'-0"

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Date: 9/18/2023

REGISTERED PROFESSIONAL ENGINEER JEREMY T. CALLISTER No. S 5646 STRUCTURAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK	CITY OF SOLANA BEACH	DRAWING NO.
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	LH DRAWN BY	Description	No.	Date	By: Date:	By: Date:	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)	ENGINEERING DEPARTMENT	S-502
		By: JEREMY T. CALLISTER Date: 9/18/2023				By: Date:			CONCRETE REPAIR DETAILS	
		NAME: DEGENKOLB ENGINEERS							825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075	
		R.C.E. S 5646 EXP:							DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS PHASE 1	Sheet 11 of 18

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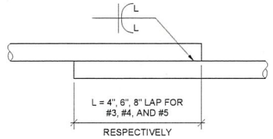
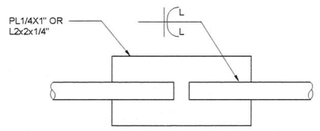
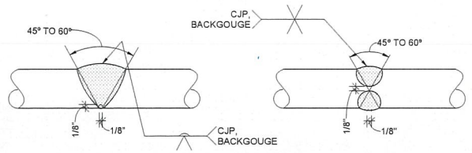
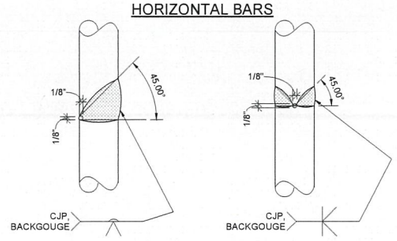




DIRECT LAP JOINT OR INDIRECT BUTT JOINT
(#3 TO #5 BARS)



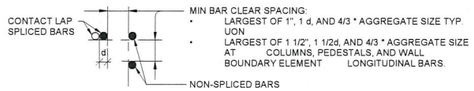
HORIZONTAL BARS



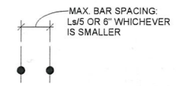
VERTICAL BARS
DIRECT BUTT JOINTS (#6 TO #11, #14, #18 BARS)

NOTES:
1. CONFORM TO AWS D1.4 FOR ALL REINFORCEMENT WELDING.
2. USE THIS DETAIL ONLY WHERE WELDED SPLICES ARE SPECIFICALLY NOTED ON THE DRAWINGS.
3. SEE SPECIFICATIONS FOR TESTING REQUIREMENTS ON COMPLETE JOINT PENETRATION WELDS.
4. DETAIL APPLIES ONLY TO BARS DESIGNATED GRADE A706. FOR ALL OTHER BARS, WELDING IS NOT ALLOWED UNLESS THE REQUIREMENTS OF AWS D1.4 SECTION 1.3.4 ARE MET.

11 WELDED REINFORCEMENT BAR SPLICE
6" = 1'-0"



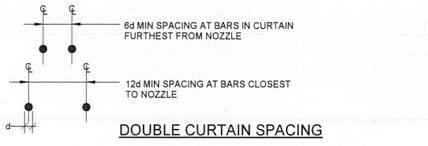
A MIN BAR CLEAR SPACING



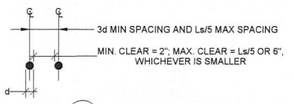
NOTE:
PROVIDE LOCATIONS OF NON-CONTACT SPLICES TO SEOR FOR APPROVAL

B MAX BAR SPACING BETWEEN NON-CONTACT LAP SPLICED BARS

7 SPACING IN CONCRETE
1" = 1'-0"



A BAR SPACING AT NON-LAPPED BARS, U.O.N.



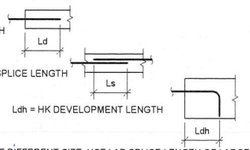
B LAPPED BAR SPACING

WHERE d = DIAMETER OF LARGER BAR

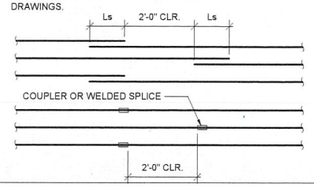
8 BAR SPACING IN SHOTCRETE
1" = 1'-0"

CONCRETE REINFORCING DEVELOPMENT & SPLICE LENGTHS																															
BAR LOCATION	CONCRETE		BAR SIZE																												
	TYPE	STRENGTH	#3			#4			#5			#6			#7			#8			#9			#10			#11		
			Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh
VERT WALL BARS	NWC	f'c ≥ 4ksi	12	16	6	14	18	8	18	23	12	21	27	15	38	49	23	43	56	29	49	63	54	58	75	65	71	92	76
HORIZ WALL BARS	NWC	f'c ≥ 4ksi	14	18	6	18	24	8	23	29	12	27	35	15	43	56	23	49	63	29	55	71	54	66	85	65	81	105	76
VERT COL BARS	NWC	f'c ≥ 4ksi	12	16	6	14	18	8	18	23	12	21	27	15	38	49	23	43	56	29	49	63	54	58	75	65	71	92	76

NOTES:
1. Ld = DEVELOPMENT LENGTH
Ls = TYPE 'B' LAP SPLICE LENGTH
Ldh = HK DEVELOPMENT LENGTH
2. WHEN SPLICING BARS OF DIFFERENT SIZE, USE LAP SPLICE LENGTH OF LARGER BAR, UON

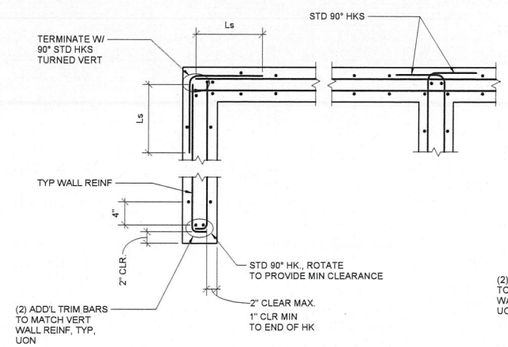


3. STAGGER SPLICES AS INDICATED ON DRAWINGS.

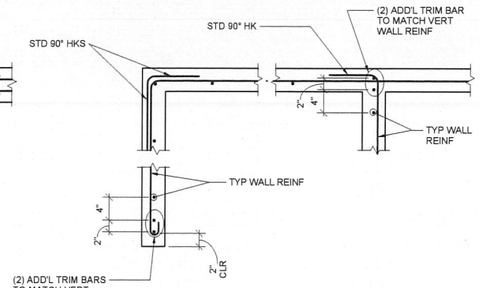


4. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS. FOR GRADES GREATER THAN 60, UP TO GRADE 80, MULTIPLY THE ABOVE LENGTHS BY THE RATIO OF THE PROPOSED GRADE AND 60.
5. FOR LIGHTWEIGHT AGGREGATE CONCRETE, MULTIPLY THE TABULATED VALUES FOR 'NWC' TYPE CONCRETE BY 1.33.
6. TABLES INCLUDE INCREASED DEVELOPMENT AND SPLICE LENGTHS DUE TO EPOXY COATING.

4 REINFORCING DEVELOPMENT & SPLICE LENGTHS
1" = 1'-0"

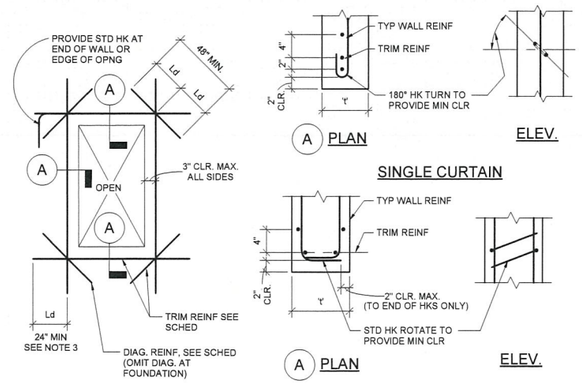


A DOUBLE CURTAIN REINF. AT WALL



B SINGLE CURTAIN REINF. AT WALL

5 WALL REINFORCING AT CORNERS AND INTERSECTIONS
1" = 1'-0"

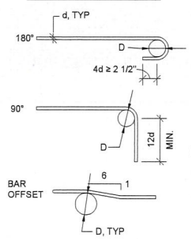


TRIM REINFORCING SCHEDULE		
WALL THICKNESS 't'	MIN TRIM REINF	DIAGONAL REINF
6" ≤ t ≤ 9"	(2) #5	#5
9" ≤ t ≤ 12"	(2) #6	#5
12" ≤ t ≤ 16"	(2) #7	#5
t > 16"	(2) #8	#7

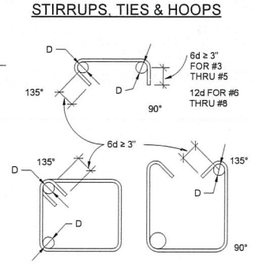
NOTES:
1. SCHED REINF APPLIES TO ALL OPENINGS, UNLESS OTHERWISE SHOWN.
2. MIN TRIM REINF TO BE LARGER OF TYP WALL REINF OR SIZE SHOWN IN SCHED
3. AT SERIES OF OPENINGS WHERE PIER OR SPANDEREL IS NARROWER THAN THREE TIMES d, RUN TRIM REINF CONT
4. MAY OMIT DIAGONALS IF THE LARGEST OPNG DIMENSION IS LESS THAN 3'-0"
5. DETAILS IS NOT REQUIRED FOR OPENINGS SMALLER THAN THE WALL THICKNESS OF 12", WHICHEVER IS SMALLER.
6. COORDINATE OPNG LOCATIONS AND SIZES W/ OTHER TRADES INCLUDING BUT NOT LIMITED TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING.

12 WALL REINFORCING AT OPENINGS
1" = 1'-0"

STD HKS & BENDS



STIRRUPS, TIES & HOOPS



NOTE:
1. DO NOT FIELD BEND REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE.

BEND DIAMETER, D		
BAR SIZE	STD HKS & BENDS	STIRRUPS, TIES & HOOPS
#3 THRU #5	6d	4d
#6 THRU #8	6d	6d
#9 THRU #11	8d	NA
#14 THRU #18	10d	NA

6 HOOKS & BENDS
1" = 1'-0"

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SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	LH DRAWN BY	Description	No.	Date
		By: JEREMY T. CALLISTER Date: 9/18/2023			
		NAME: DEGENKOLB ENGINEERS			
		R.C.E.: S 5646 EXP:			

RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
By: Date:	By: Date:	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK, STAMPED 'SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)
By: Date:		

CITY OF SOLANA BEACH ENGINEERING DEPARTMENT
TYPICAL CONCRETE DETAILS
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-503
Sheet 12 of 18

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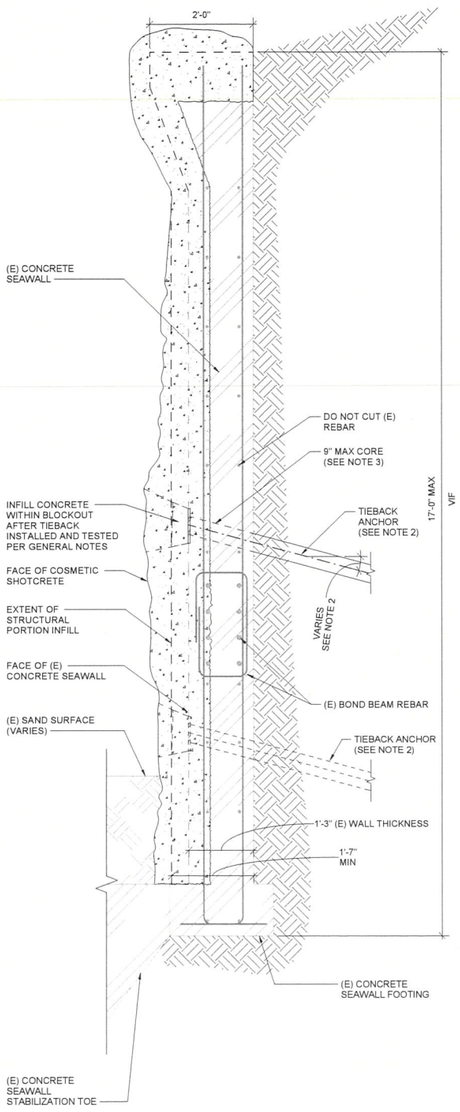
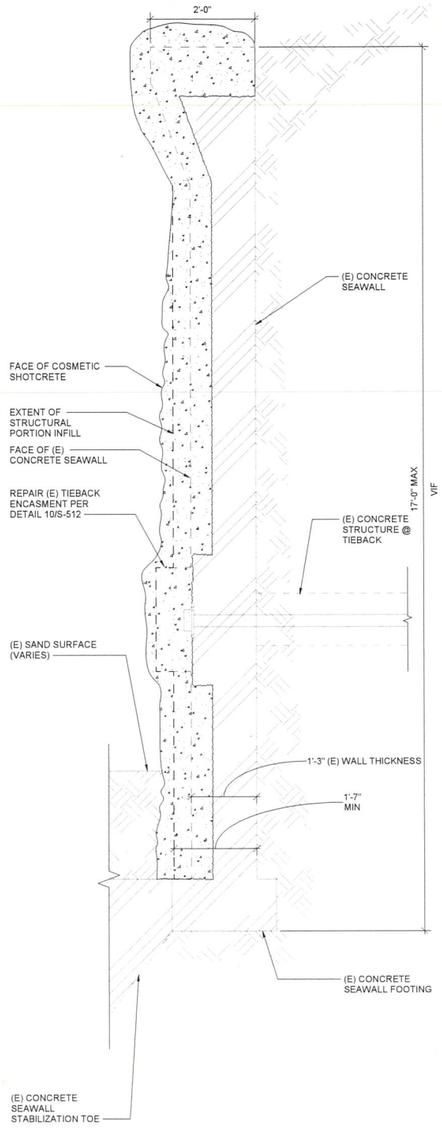


NOTES:

1. SEE DETAIL 6/- FOR INFORMATION NOT SHOWN. NEW REINFORCEMENT AND DOWELS NOT SHOWN FOR CLARITY.
2. SEE 10/S-512 FOR REPAIR DETAIL. SEE SEAWALL ELEVATION ON S-102 AND S-103 FOR TIEBACK ANCHOR HEIGHT. SEE 12/S-541 FOR TIEBACK SCHEDULE
3. (E) REBAR SHALL NOT BE DAMAGED AT CORE LOCATIOINS

12 SECTION AT NEW SEAWALL TIEBACK
3/4" = 1'-0"



NOTES:

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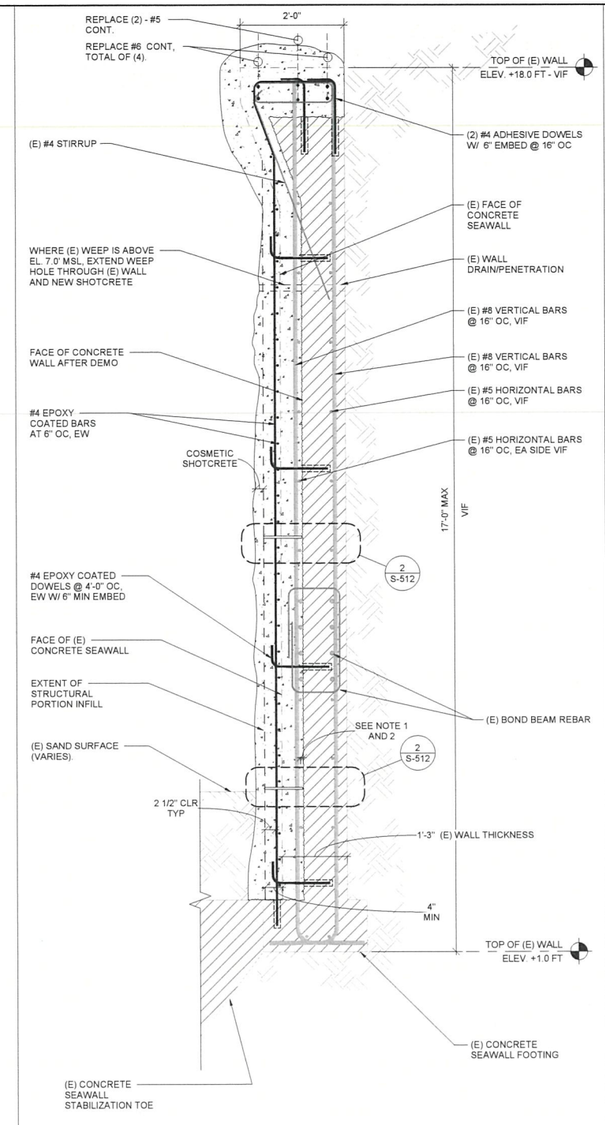
9 SECTION AT (E) SEAWALL TIEBACK
3/4" = 1'-0"



NOTES:

1. EXTERIOR CONCRETE COVER TO BE REMOVED TO EXPOSE THE FIRST LAYER OF EXISTING STEEL REINFORCEMENT. IF THE EXPOSED REINFORCEMENT HAS LOST **MORE THAN 50%** OF ITS CROSS SECTIONAL AREA, THEN THE EXTENTS OF THE DEMO SHALL EXTEND 3/4" BEYOND THE REINFORCEMENT. THEN, NEW SUPPLEMENTAL BARS SHALL BE SPLICED TO THE EXISTING CORRODED STEEL WITH A MINIMUM SPLICE LENGTH OF Ls ON BOTH SIDES OF THE CORRODED STEEL.
2. IF IT IS DETERMINED THAT THE REINFORCEMENT HAS LOST **LESS THAN 50%** OF ITS CROSS SECTIONAL AREA, THEN NO FURTHER DEMO IS REQUIRED BEYOND THE CENTERLINE OF THE REINFORCEMENT. THE EXPOSED STEEL SHALL THEN BE CLEANED OF RUST TO BARE METAL BY SANDBLASTING OR WIRE BRUSHING.
3. SEE THE CONCRETE REPAIR GENERAL NOTES (S-501) FOR REQUIREMENTS REGARDING THE REMOVAL OF UNSOUND CONCRETE, SURFACE PREPARATION, AND PROTECTION OF EXISTING REINFORCEMENT WITH SIKA COATING.
4. CONTRACTOR TO BRACE WALL AS REQUIRED DURING DEMOLITION, WALL REPAIRS, AND PLACEMENT OF SHOTCRETE.
5. PRIOR TO SHOTCRETE INSTALLATION, RINSE WALL WITH CLEAN POTABLE WATER
6. CONTRACTOR SHALL PREVENT SEA WATER FROM CONTACTING WALL DURING CONSTRUCTION.
7. ALL NEW STEEL REINFORCEMENT IS TO BE EPOXY COATED.

6 TYPICAL SEAWALL SHOTCRETE REPAIR DETAIL
3/4" = 1'-0"

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CITY OF SOLANA BEACH ENGINEERING DEPARTMENT

SEAWALL REPAIR DETAILS
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-511

Sheet 13 of 18

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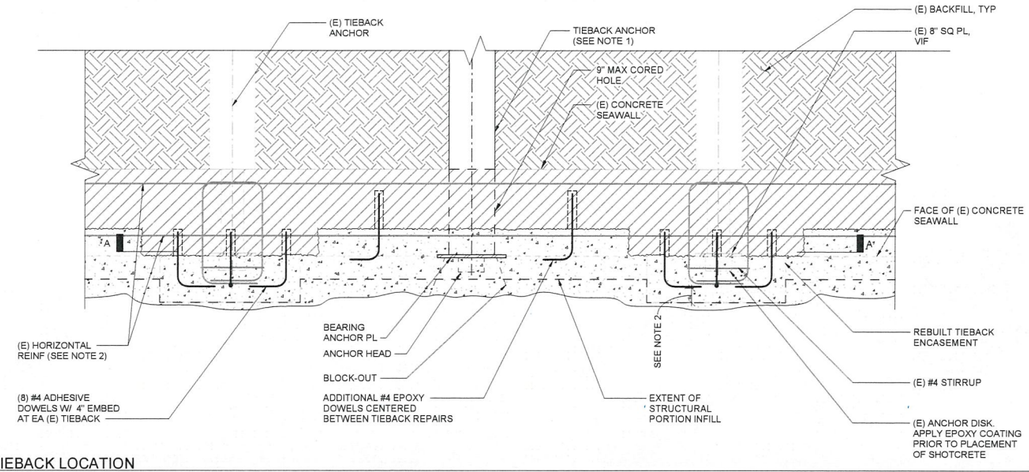
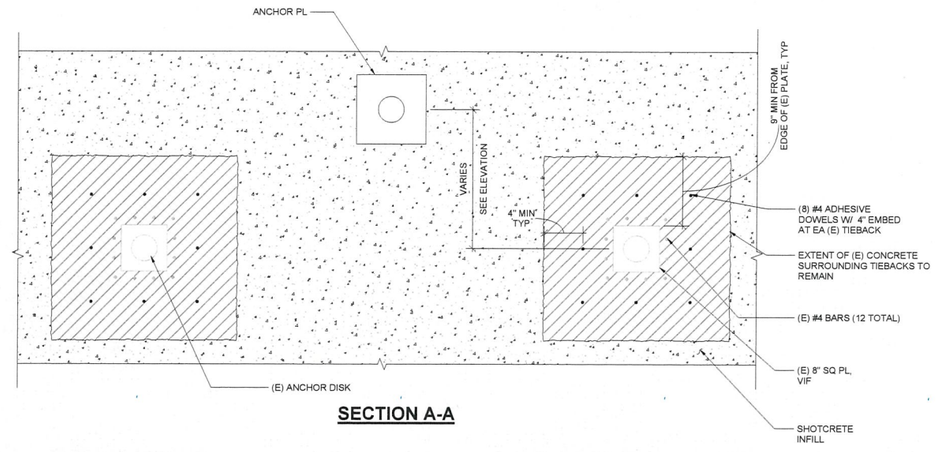


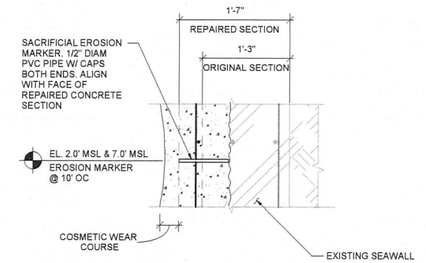
NOTES:

1. SEE S-541 FOR TIEBACK SCHEDULE AND DETAILS
2. SEE 6/S-511 FOR WALL REPAIR DETAIL
3. ALL NEW STEEL REINFORCEMENT IS TO BE EPOXY COATED.
4. NEW SHOTCRETE WALL REINF NOT SHOWN FOR CLARITY

10 SEAWALL SECTION REPAIR AT TIEBACK LOCATION
1" = 1'-0"



SECTION A-A



2 MARKER DETAIL
1" = 1'-0"

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CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

SEAWALL REPAIR DETAILS
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PHASE 1

DRAWING NO. S-512

Sheet 14 of 18

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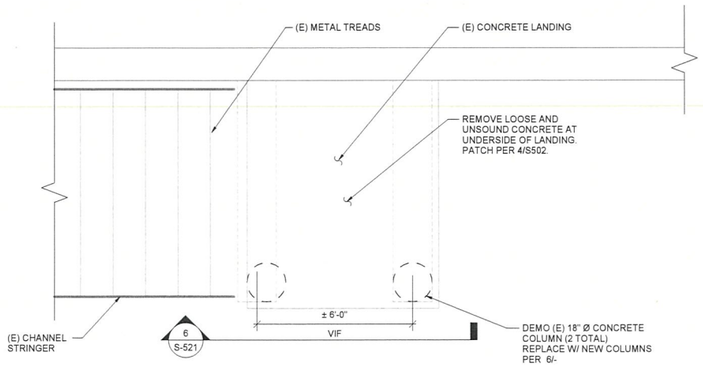
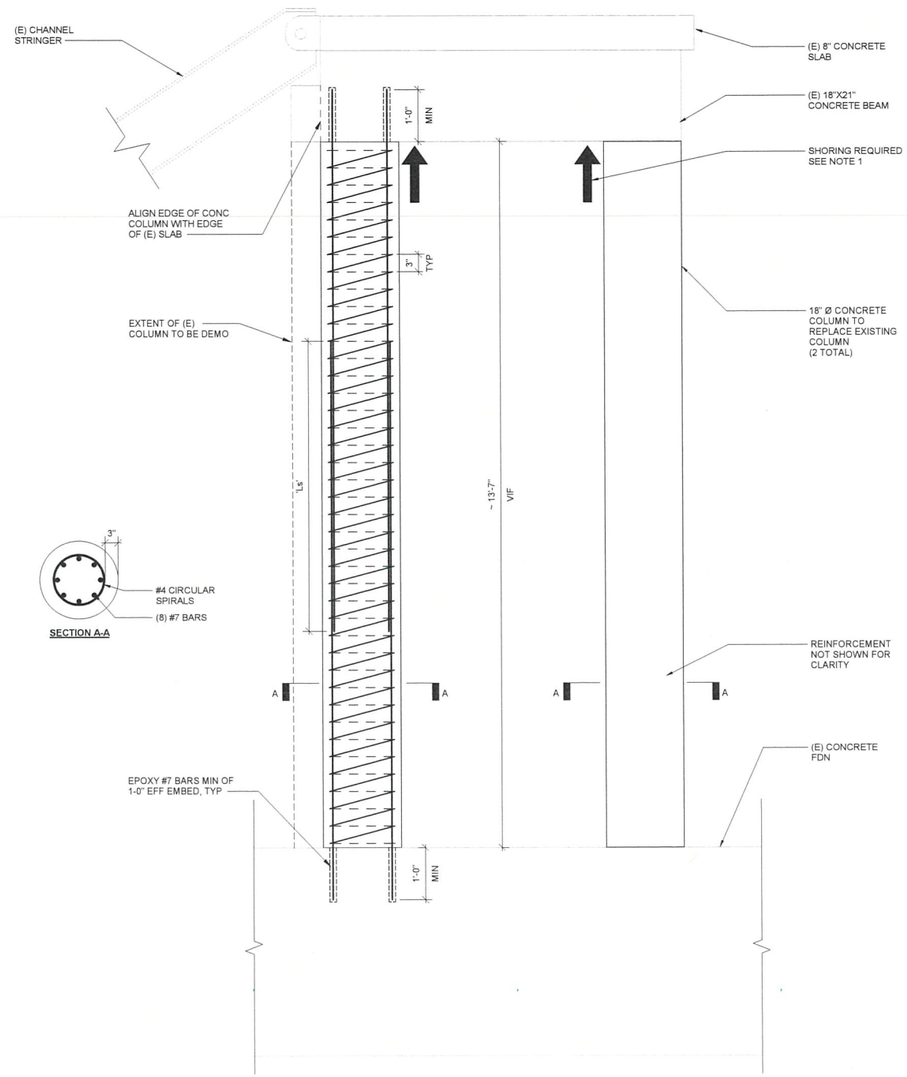


10 CONCRETE STAIRS LANDING PLAN VIEW
3/8" = 1'-0"



NOTES:
1. PRIOR TO ANY DEMO ACTIVITY, RESTRICT STAIR ACCESS AND SHORE BEAM PER SHORING ENGINEER REQUIREMENTS.
2. ALL NEW STEEL REINFORCEMENT IS TO BE EPOXY COATED.

6 CONCRETE STAIRS LANDING SECTION
3/4" = 1'-0"

Degenkolb
DEGENKOLB ENGINEERS
225 Broadway, Suite 1325
San Diego, CA 92101
619.515.0299 PHONE
www.degenkolb.com
DE Job Number: C1676031.00
Date: 9/18/2023

REGISTERED PROFESSIONAL ENGINEER JEREMY T. CALLISTER No. S.5646 STRUCTURAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK	CITY OF SOLANA BEACH ENGINEERING DEPARTMENT	DRAWING NO.
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	LH DRAWN BY	Description	No.	Date	By: Date:	By: Date:	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)	CONCRETE STAIR COLUMN REPAIR DETAILS 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS PHASE 1	S-521
		By: JEREMY T. CALLISTER Date: 9/18/2023 NAME: DEGENKOLB ENGINEERS R.C.E. S.5646 EXP:				By: Date:	By: Date:			Sheet 15 of 18

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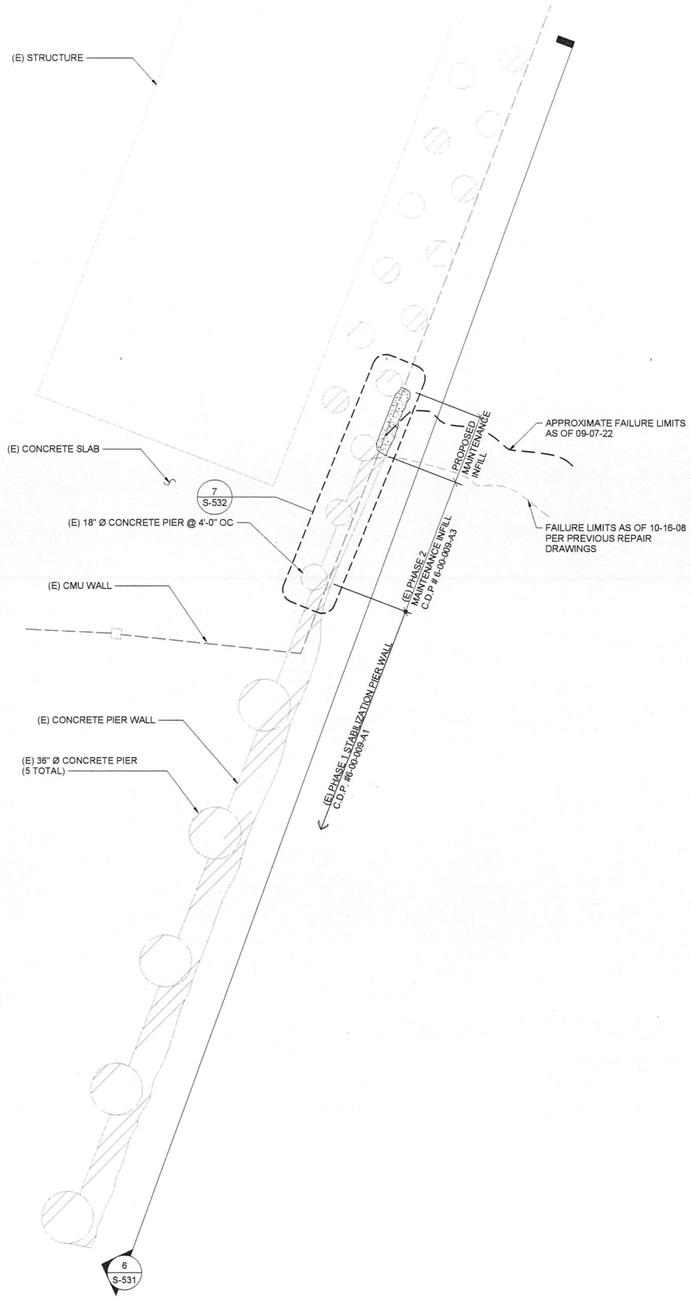
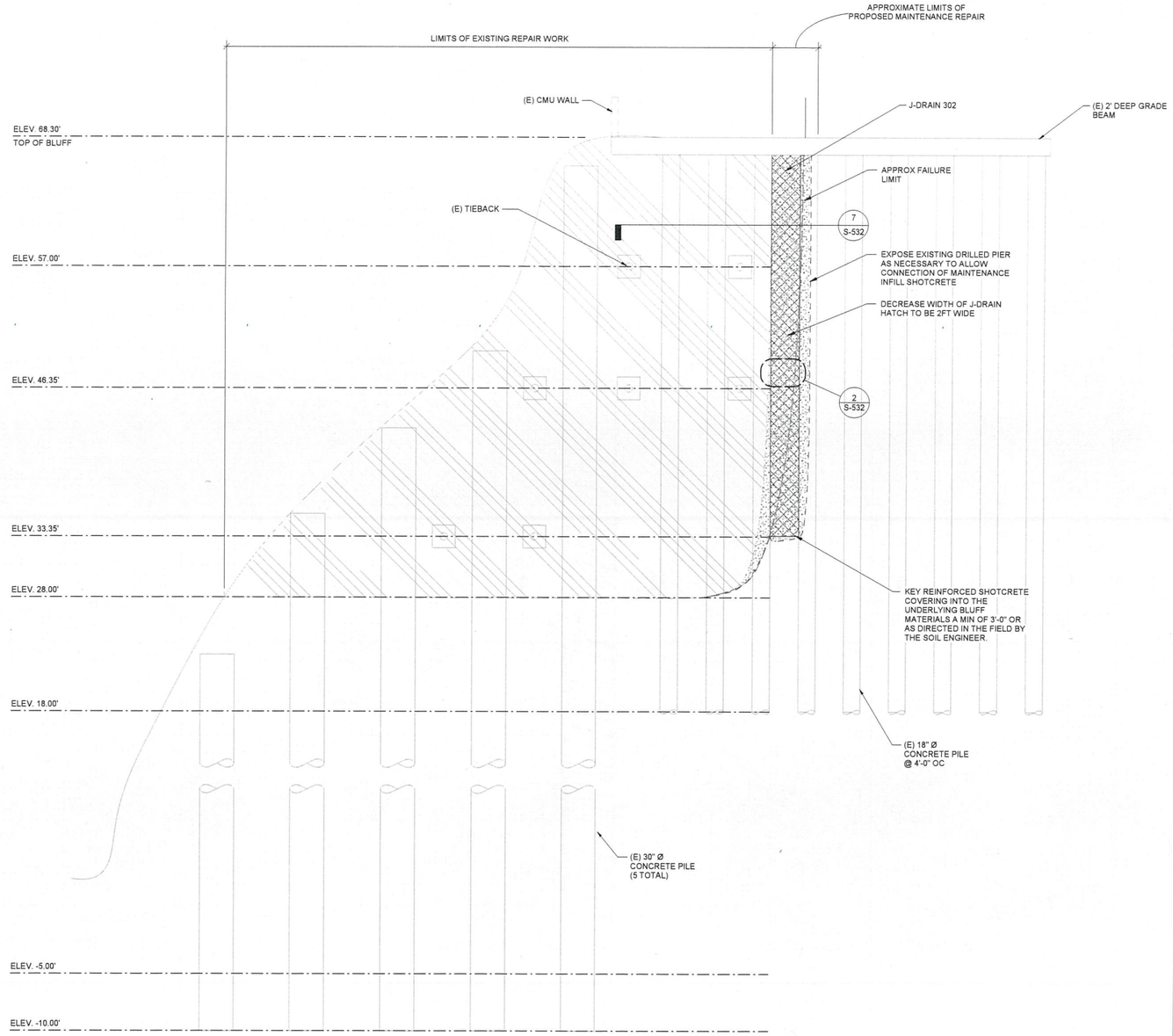


12 SITE PLAN VIEW
1/4" = 1'-0"



6 UPPER BLUFF PIER WALL REPAIRS
3/16" = 1'-0"

NOTES:

1. EXISTING PIER AND TIEBACK LOCATIONS AND SIZES ARE PER AVAILABLE RECORD DRAWINGS. CONTRACTOR TO VIF AS REQUIRED.

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DE Job Number: C1676031.00

Date: 9/18/2023

REGISTERED PROFESSIONAL ENGINEER — JEREMY T. CALLISTER — No. S 5646 — STRUCTURAL — STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	LH DRAWN BY	By: JEREMY T. CALLISTER Date: 9/18/2023 NAME: DEGENKOLB ENGINEERS R.C.E. S 5646 EXP: _____	Description / No. / Date	

RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
By: _____ Date: _____ By: _____ Date: _____	By: _____ Date: _____	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971, 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

UPPER BLUFF REPAIR DETAILS
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-531

Sheet 16 of 18

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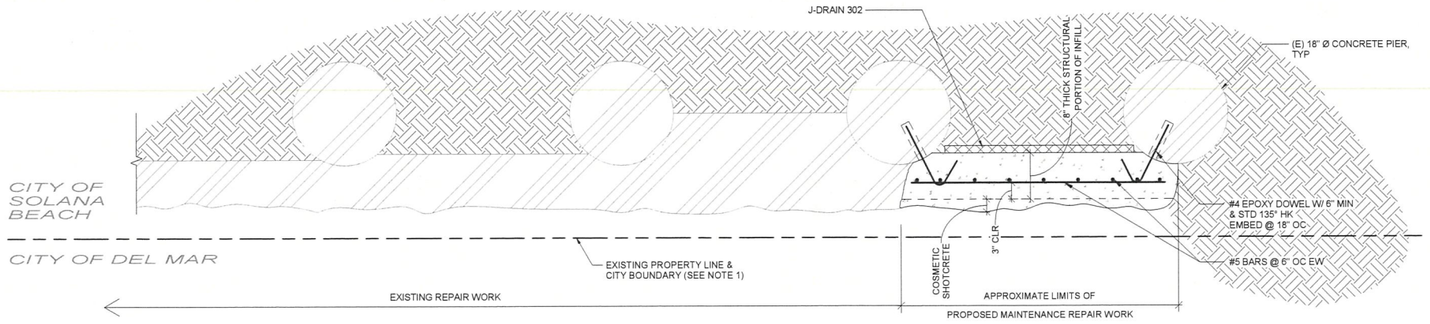
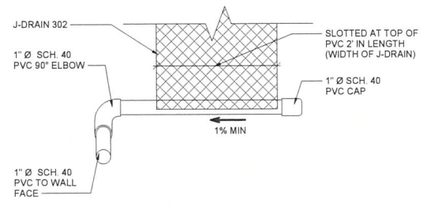


NOTES:

1. CONCRETE INFILL SHALL NOT EXTEND PAST EXISTING PROPERTY LINE.
2. KEY REINFORCED SHOTCRETE COVERING INTO THE UNDERLYING BLUFF MATERIALS A MIN OF 3'-0" OR AS DIRECTED IN THE FIELD BY THE SOIL ENGINEER.
3. ALL STEEL REINFORCEMENT IS TO BE EPOXY COATED.

7 UPPER BLUFF PIER PLAN VIEW
1" = 1'-0"



WALL DRAINAGE NOTES:

PROVISIONS FOR WALL DRAINAGE WILL CONSIST OF 2-FOOT WIDE GECOMPOSITE DRAIN BOARDS, CENTERED BETWEEN ADJACENT PILES. J-DRAIN 302 SHALL BE USED FOR ALL VERTICAL CHIMNEY DRAINS. CHIMNEY DRAINS WILL THEN BE MANIFOLDED AND EXTENDED THROUGH THE BASE OF EACH SECTION OF THE STRUCTURAL SHOTCRETE INFILL AS NEW INFILLS ARE PLACED. CHIMNEY DRAIN EXTENSIONS SHALL BE ATTACHED TO THE OVERLYING IN-PLACE CHIMNEY DRAIN, WITH NEW MANIFOLDED OUTLET INSTALLED AT THE BOTTOM OF THE NEW INFILL SECTION.

2 WALL DRAINAGE DETAIL
1/2" = 1'-0"

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225 Broadway, Suite 1325
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www.degenkolb.com
DE Job Number: C1676031.00
Date: 9/18/2023

REGISTERED PROFESSIONAL ENGINEER JEREMY T. CALLISTER No. S.5646 STRUCTURAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	By: JEREMY T. CALLISTER Date: 9/18/2023	Description	No.	Date	By: _____ Date: _____	By: _____ Date: _____	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)
		JEL DRAWN BY NAME: DEGENKOLB ENGINEERS R.C.E. S.5646 EXP: _____				By: _____ Date: _____		

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

UPPER BLUFF REPAIR DETAILS
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-532

Sheet 17 of 18

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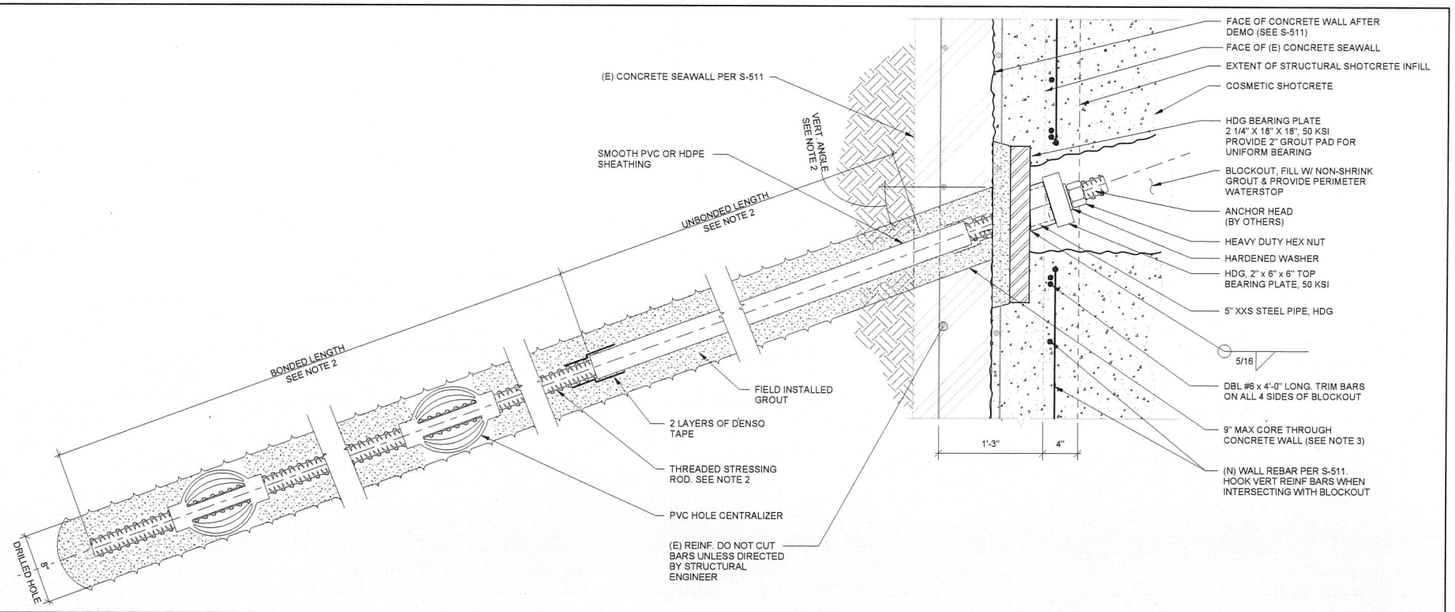
TIEBACK PERFORMANCE TEST			
LOAD	RECORD TOTAL MOVEMENT	RECORD RESIDUAL MOVEMENT	LOAD HOLD TIME
AL	X		N/A
0.25 DL	X		LESS THAN 1 MINUTE
AL		X	N/A
0.25 DL	X		< 1 MIN.
0.50 DL	X		< 1 MIN.
AL		X	N/A
0.25 DL	X		< 1 MIN.
0.50 DL	X		< 1 MIN.
0.75 DL	X		< 1 MIN.
AL		X	N/A
0.25 DL	X		N/A
0.50 DL	X		N/A
0.75 DL	X		N/A
1.00 DL	X		10 MINUTES
AL		X	N/A
0.25 DL	X		< 1 MIN.
0.50 DL	X		< 1 MIN.
0.75 DL	X		< 1 MIN.
1.00 DL	X		< 1 MIN.
1.25 DL	X		10 MINUTES
AL		X	N/A
0.25 DL	X		< 1 MIN.
0.50 DL	X		< 1 MIN.
0.75 DL	X		< 1 MIN.
1.00 DL	X		< 1 MIN.
1.50 DL = TEST LOAD	X		10 MINUTES

NOTES:
1. AL = ALIGNMENT LOAD, DL = DESIGN LOAD = LOCK LOAD
2. SEE GENERAL NOTES FOR TESTING PROCEDURES.

10 TIEBACK PERFORMANCE TEST

NOTES:
1. SEE GENERAL NOTES FOR CORROSION PROTECTION, INSTALLATION, AND TESTING REQUIREMENTS.
2. SEE 12/- FOR TIEBACK SCHEDULE
3. (E) REBAR SHALL NOT BE DAMAGED AT CORE LOCATIOINS



7 ROD TIEBACK AT SEAWALL
N.T.S

TIEBACK PROOF TEST	
LOAD	LOAD HOLD TIME
AL	N/A
0.25 DL	N/A
0.50 DL	N/A
0.75 DL	N/A
1.00 DL	N/A
1.25 DL	N/A
1.33 DL	10 MINUTES

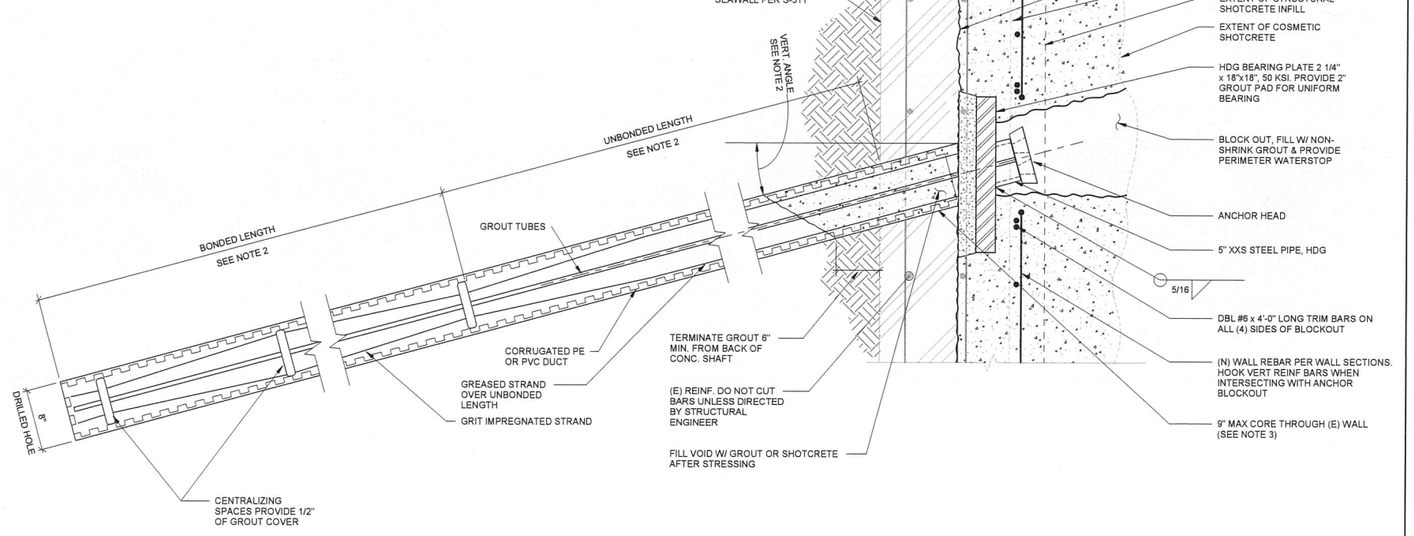
NOTES:
1. AL = ALIGNMENT LOAD, DL = DESIGN LOAD = LOCK LOAD
2. SEE GENERAL NOTES FOR TESTING PROCEDURES.

11 TIEBACK PROOF TEST

MARK	VERT. ANGLE [DEGREE]	# OF 0.6" Ø STRANDS[2]	ROD Ø [INCH][3]	LOCK LOAD (DESIGN LOAD) [KIP]	PROOF TEST LOAD [KIP]	UNBONDED LENGTH [FEET]	BONDED LENGTH [FEET][4]	TOTAL LENGTH [FEET][4]
A	10	3	1-5/8	123.2	164	30	20	50
B	15	3	1-5/8	126.4	168	30	20	50
C	20	3	1-5/8	131.1	174	30	21	51
D	25	3	1-5/8	137.4	183	30	22	52
E	30	4	1-5/8	145.7	194	30	23	53
F	10	4	1-3/4	166.0	221	30	27	57
G	15	4	1-3/4	172.4	229	30	28	58
H	20	4	1-3/4	181.7	242	30	29	59
I	25	5	1-3/4	194.3	258	30	31	61
J	30	5	1-7/8	210.8	280	30	34	64

TABLE NOTES:
1. SEE SEAWALL PLANS ON S-101 AND S-102 FOR TIEBACK MARK.
2. SEE DETAILS 7/- AND 9/- FOR TIEBACK DETAILS. TIEBACKS DRILLED HOLES SHALL BE 8"Ø MIN.
3. SUBSTITUTION OF STRAND FOR ROD IS ACCEPTABLE FOR TIEBACKS. CONTRACTOR SHALL SELECT STRAND APPROPRIATE TO ACHIEVE THE DESIGN LOADS AND TEST LOADS REQUIRED. SEE GENERAL NOTES FOR MORE INFORMATION.
4. TIEBACK BONDED LENGTH AND TOTAL LENGTH VALUES ARE BASED ON ESTIMATED GEOTECHNICAL PARAMETERS. THESE LENGTHS REPRESENT THE MAXIMUM LENGTHS TO WHICH THE TIEBACKS HAVE BEEN COORDINATED FOR CONFLICTS WITH OTHER TIEBACKS AND EXISTING ELEMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TIEBACK LENGTHS THAT WILL ACHIEVE THE REQUIRED DESIGN AND TEST LOADS. SEE GENERAL NOTES.
5. SEE GENERAL NOTES FOR TIEBACK INSTALLATION AND TESTING REQUIREMENTS.
6. SEE DETAILS 10/- AND 11/- FOR TIEBACK PERFORMANCE AND PROOF TESTS REQUIREMENTS.
7. NEW TIEBACKS AT STRAIGHT WALL SEGMENTS ARE DESIGNED TO RESIST 75% OF THE LATERAL SOIL LOADS (WITH THE EXISTING TIE-BACKS RESISTING 25%). AT THE CURVED PORTION OF THE WALLS, THE NEW TIEBACKS ARE DESIGNED TO RESIST 50% OF THE LATERAL SOIL LOADS (WITH EXISTING TIEBACKS RESISTING 50%).

12 TIEBACK SCHEDULE



NOTES:
1. SEE GENERAL NOTES FOR CORROSION PROTECTION, INSTALLATION, AND TESTING REQUIREMENTS.
2. SEE 12/- FOR TIEBACK SCHEDULE
3. (E) REBAR SHALL NOT BE DAMAGED AT CORE LOCATIOINS

9 STRAND TIEBACK AT SEAWALL
1 1/2" = 1'-0"

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225 Broadway, Suite 1325
San Diego, CA 92101
619.515.0299 PHONE
www.degenkolb.com

DE Job Number: C1676031.00
Date: 9/18/2023

REGISTERED PROFESSIONAL ENGINEER JEREMY T. CALLISTER No. S 5646 STRUCTURAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	JEL DRAWN BY	Description	No.	Date	By: _____ Date: _____	By: _____ Date: _____	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971, 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)

By: JEREMY T. CALLISTER Date: 9/18/2023
NAME: DEGENKOLB ENGINEERS
R.C.E. S 5646 EXP: _____

By: _____ Date: _____

CITY OF SOLANA BEACH	ENGINEERING DEPARTMENT	DRAWING NO.
TIEBACK DETAILS 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS PHASE 1		S-541 Sheet 18 of 18

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**SOIL
ENGINEERING
CONSTRUCTION INC.**

September 18, 2023

Mr. Terry Himes
Del Mar Beach Club HOA
c/o Robert Trettin
825 S. Sierra Avenue
Solana Beach, California 92075

Reference: Del Mar Beach Club – Phase I Seawall & Upper Bluff Repair
825 S. Sierra Avenue
Solana Beach, California

Dear Mr. Hines:

In response to your request, we have reviewed the "Grading & Improvement Plans for: Del Mar Beach Club – Phase I Seawall & Upper Bluff Repair", prepared by Degenkolb Engineers. Based on our review, the plans and structural calculations have been prepared in general accordance, from a geotechnical perspective, with the recommendations included in our geotechnical report.

Following completion of tie-back exposure and testing, and having documented that the existing tiebacks have little to no retention capacity, it is our opinion that failure of segments of the seawall could occur at any time. Such failure would likely result in significant up-slope failure that would ultimately impact the southwestern condominium building. Therefore, we recommend that this project be addressed an emergency.

This opportunity to be of service is sincerely appreciated. If you have any questions, please call this office.

Respectfully submitted,
SOIL ENGINEERING CONSTRUCTION, INC.

John W. Niven, P.E.

Robert D. Mahony, G.E., C.E.G.

Attachments: Appendix A – References

ATTACHMENT 3

APPENDIX A

1) California Coastal Commission, Staff Report, 341, 347, and 355 Pacific Avenue, Solana Beach, September 25, 2013.

2) California Coastal Records Project, Aerial Images, 1972, 1979, 1987, 1989, 2002, 2004, 2006, 2008, 2010, and 2013.

3) Continental Aerial Photo, Stereo-pair Aerial Photos, Flights 12-10-1969, 4-16-1972, 12-13-1978, 12-17-1979, 04-08-1980, 01-14-1988, 10-30-1993, 08-12-1998.

4) Google Earth, Aerial Images, 05-31-1994,12-31-2002, 06-29-2004, 01-03-2006, 02-29-2008, 08-23-2010, 11-2-2012, 05-11-2014, 04-14-2015.

5) Group Delta, Shoreline Erosion Study, North Solana Beach, California, August 20, 1998.

6) Group Delta, Geotechnical Investigation, Coastal Bluff at Southwest Property Corner, Del Mar Beach Club, Solana Beach, California, dated March 3, 1999.

7) Kennedy and Tan, Geologic Map of the San Diego 30' x 60' Quadrangle, 2005

8) State Coastal Conservancy, California Beach Restoration Study, January 2002.

9) "Updated Geotechnical Recommendations – Proposed Maintenance Repairs Existing Lower Bluff Seawall & South Property Line Upper Buff Caisson System, Del Mar Beach Club HOA, 825 S. Sierra Avenue, Solana Beach, California 92075", prepared by Soil Engineering Construction, dated April 3, 2023.

10) Grading and Improvement plans, Del Mar Beach Club – Phase I Seawall and Upper Bluff Repair, 825 S. Sierra Avenue, Solana Beach, California, prepared by Degenkolb Engineers, job number C1676031.00

Universal Engineering Sciences (UES)
1441 Montiel Road, Suite 115
Escondido, CA 92026
p. 760.746.4955 | TeamUES.com

November 16, 2023 UES/CTE Job No. 4830.2300109

City of Solana Beach
635 South Highway 101
Solana Beach, California 92075

Attention: Ms. Corey Andrews
(858) 720-2434
candrews@cosb.org

Subject: Application Submittal Geotechnical Review -3rd Review
Del Mar Beach Club Seawall Repair
825 South Sierra Avenue, Solana Beach, California 92075

References: At End of Document

Ms. Andrews:

As requested, Universal Engineering Sciences (UES/CTE) has reviewed the submittal application documents referenced at the end of this letter. The purpose of our review was to assess whether the proposed project is in substantial compliance with the City of Solana Beach's (City) Local Coastal Plan (LCP) policies.

Based on CTE's review and report of the project geotechnical consultant (SEC), the proposed work consists of an emergency repair to the existing lower sea-wall (a length of approximately 170 ft north from the southern extent of the wall), and repair to the existing upper bluff pier wall running east/west at the southern property line.

1) The City should note that the applicant's geotechnical engineer has indicated an emergency condition in the referenced letter (SEC, Sept. 2023).
2) It has been noted that grout sampling will be performed daily. **Previous request is satisfied.**
3) It has been noted that monitoring points have been identified on the plan sheets and a threshold movement of ¼" is indicated. **Previous request is satisfied.**
4) The structural engineer has confirmed that the wall has been designed for hydrostatic pressures for the full wall height. **Previous request is satisfied.**
5) The project Geotechnical Engineer has indicated that they have reviewed the project plans and calculations, from a geotechnical perspective, and finds them to be in general conformance with their recommendations (SEC, 2023). **Previous request is satisfied.**

Based on our review of referenced documents, no additional information is requested. If referenced plans or documents are revised, they should be provided to UES/CTE for review.

LIMITATIONS

UES/CTE has reviewed the referenced documents for this review from a geotechnical perspective and for geotechnical conformance with the City of Solana Beach's (City) Local Coastal Plan (LCP) policies and regionally accepted geotechnical standards of practice. It is not in UES/CTE's scope of work or responsibility to perform an independent geotechnical investigation or analysis of the proposed work site. The proposed site exists on an actively eroding coastal bluff, and as such, local and global stability are unpredictable and subject to change based on internal and external factors. UES/CTE makes no warranties as to the effectiveness or appropriateness of the applicant's proposed work.

We appreciate this opportunity to be of service on this project. If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Respectfully,

UNIVERSAL ENGINEERING SCIENCES (UES/CTE)

Colm J. Kenny, GE #3201
Senior Engineer

REGISTERED PROFESSIONAL ENGINEER
COLM J. KENNY
No.3201
GEOTECHNICAL
STATE OF CALIFORNIA

Jay F. Lynch, CEG #1890
Principal Engineering Geologist

PROFESSIONAL GEOLOGIST
JAY F. LYNCH
No.1890
CERTIFIED ENGINEERING GEOLOGIST
EXP.5/31/25
STATE OF CALIFORNIA

CJK/JFL:cjk

REVIEWED DOCUMENTS:

Del Mar Beach Club – Phase I Seawall and Upper Bluff Repair
825 S. Sierra Avenue
Solana Beach, California
[Degenkolb Job Number C1676031.00]
Conditional Use Permit No.: CUP23-001
Dated November 14, 2023

Letter: Del Mar Beach Club – Phase I Seawall & Upper Bluff Repair
825 S. Sierra Avenue
Solana Beach, California
Soil Engineering Construction, Inc. dated September 18, 2023

Del Mar Beach Club Proposed Maintenance/Repairs to Existing Seawall and Upper Bluff Caisson System – Phase 1
Prepared by Soil Engineering, Inc.

Del Mar Beach Club – Phase I Seawall and Upper Bluff Repair
825 S. Sierra Avenue
Solana Beach, California
[Degenkolb Job Number C1676031.00]
Conditional Use Permit No.: CUP23-001
Dated September 18, 2023

Application Submittal Geotechnical Review -1st Review
Del Mar Beach Club Seawall Repair
825 South Sierra Avenue, Solana Beach, California 92075
UES Job No. 4830.2300109, dated September 7, 2023

Response to Planning Review Comments
Del Mar Beach Club, CUP 23-001
Prepared by SEC, Dated July 31, 2023

CUP23-001 a Conditional Use Permit (CUP)
Maintenance and Repair of Southern 170-ft of an Existing 540-ft Long Lower Bluff Seawall and
A Lateral Wall Along the Southern Terminus of the Coastal Bluff Below
825 S. Sierra Avenue, Solana Beach, California , Dated June 16, 2023

Bluff Retention Device Conditional Use Permit Application
825 South Sierra Avenue, Solana Beach, California 92075
City of Solana Beach, Applicant dated April 27, 2023

Update Geotechnical Recommendations
Proposed Maintenance Repairs Existing Lower Bluff Seawall & South Property Line
Upper Bluff Caisson System, 825 South Sierra Avenue, Solana Beach, California 92075
Prepared by SEC, Dated April 3, 2023

Drawings Revised Del Mar Beach Club Sea Wall Del Mar Beach Club Proposed Maintenance/Repairs to Existing Seawall and Upper Bluff Caisson System-Phase 1
Prepared by SEC, Dated April 3, 2023

Structural Calculations
Del Mar Beach Club Seawall and Upper Bluff Repairs
825 South Sierra Avenue, Solana Beach, California 92075
Degenklob Engineers Job No. C1676031.00, Dated February 8, 2023

Existing Photo; Lateral Wall on Southerly Property Line
DMBC, Existing Conditions—Upper Bluff South End

Existing Photo; Segment of Southerly 170ft of DMBC Seawall
DMBC Existing Conditions

2013 Photo; Del Mar Beach Club, California Coastal Records Project

1989 Photo; Del Mar Beach Club, California Coastal Records Project

SOIL
ENGINEERING
CONSTRUCTION INC.

UPDATED GEOTECHNICAL RECOMMENDATIONS - PROPOSED MAINTENANCE REPAIRS EXISTING LOWER BLUFF SEAWALL & SOUTH PROPERTY LINE UPPER BLUFF CAISSON SYSTEM

DEL MAR BEACH CLUB HOA
825 S. SIERRA AVENUE
SOLANA BEACH, CALIFORNIA 92075

Prepared for:

Mr. Terry Himes
Del Mar Beach Club HOA
c/o Robert Trettin
825 S. Sierra Avenue
Solana Beach, California 92075

April 3, 2023

927 Arguello Street, Redwood City, California 94063 (760) 633-3470 // (650) 367-9595

ATTACHMENT 5

Updated Geotechnical Recommendations - Proposed Maintenance Repairs Existing Lower Bluff Seawall & South Property Line Upper Bluff Caisson System

***Del Mar Beach Club HOA** - 825 S. Sierra Avenue, Solana Beach, California 92075*

1.0 INTRODUCTION AND OVERVIEW

This report summarizes the findings of the Soil Engineering Construction, Inc. (SEC) updated geotechnical recommendations for the coastal bluff area at the south and west portions of the subject site. Coastal bluff retreat has adversely affected the subject site since the early 1980's. To protect improvements on-site, the DMBC has permitted and constructed various coastal protection devices over the years. These include a lower bluff seawall which fronts the western boundary of the subject property, a drilled pier wall within the building pad near the southwest property corner, and a pile supported wall with shotcrete facing on the bluff face at the southwest property corner. Ongoing erosion and bluff failures in this area have worsened conditions from a geotechnical standpoint, maintenance repairs to the protective devices are now required.

Purpose of this updated geotechnical evaluation for the DMBC:

- Document the condition of the previously installed coastal protection devices within the subject area;
- Provide opinions of the stability of the subject property related to the deterioration of coastal protection devices;
- Document whether an imminent threat of damage or failure to the coastal protective devices or structures on-site now exists as a result of continuing mid/upper bluff failure at the southwest property corner; and,
- Provide recommendations for improvements to the coastal protection devices. Elements of the report include an evaluation of previous geotechnical studies and a presentation of useful information relevant to the coastline erosion processes in the area. The site location is depicted on Figure 1 in Appendix B

2.0 SCOPE OF WORK

The scope of this geotechnical evaluation includes:

- Review of geological, topographical, and historic aerial imagery and literature pertaining to the site and vicinity. (see **Appendix A**).
- Geological reconnaissance to record, measure and map portions of the coastal bluff and document the current conditions of the previously installed coastal protective devices.
- Destructive testing to expose the steel reinforcement of the existing seawall.

- Load testing of the previously installed tie-back anchors associated with the existing seawall.

- Assess previous laboratory test data relative to strength parameters for the soil/geologic units of the area.

- Present site topographic plans and provide geological cross-section profiles of the coastal bluff properties.

- Geotechnical analysis of the previous data obtained relative to existing bluff stability as well as proposed bluff conditions once recommended repairs are implemented at the site (see **Appendix B**).

- Preparation of this final report.

3.0 GEOLOGIC SETTING

The site is located within the coastal portion of the Peninsular Ranges Geomorphic Province of California. This province, which extends 900 miles from Southern California to the southern tip of Baja California, is characterized by northwest-trending structural blocks. The coastal portion of the province in San Diego County is typically comprised of upper Cretaceous-aged to Tertiary-aged (1.8 million to 65 million years) marine and non-marine sedimentary bedrock units that have been deposited within a northwest trending basin known as the San Diego Embayment (Norris & Webb, 1976). Recent geologic uplift along the San Diego coastal margin, combined with sea level changes, have created marine terraces and associated deposits consisting of near-shore marine, beach estuarine, and lagoonal facies. These deposits range from early to mid-Quaternary-aged (45,000 to 1.5 million years) and are designated in geologic literature as Paralic Deposits.

According to the geologic literature, the site is underlain by Quaternary-aged surficial deposits designated Old Paralic Deposits, Unit 6. These deposits are in turn underlain by the Tertiary-aged Torrey Sandstone. The site location is identified on the Geologic Plan (Figure 5 in Appendix B). Geologic literature describes the Paralic Deposits as, “poorly sorted, moderately permeable, reddish-brown, interfingered strandline, beach, estuarine and colluvial deposits composed of siltstone, sandstone and conglomerate.” The Torrey Sandstone is described as, “white to light brown, medium to coarse grained, moderately well indurated, massive and broadly cross bedded, arkosic sandstone” (Kennedy and Tan, 2008).

4.0 SITE STRATIGRAPHY

The subsurface descriptions presented below are interpreted from the conditions exposed during the referenced field investigation conducted by others, recent mapping of the bluff exposure and/or inferred from local geologic literature. Cross Section A-A’, Figure 4 in Appendix B, which was adapted from the referenced investigation by Group Delta, depicts the subsurface profile and changes in the bluff profile over time.

Old Paralic Deposits – Unit 6 (Qop6) – Old surficial deposits designated Quaternary-aged Old Paralic Deposits, Unit 6 were encountered during the referenced investigation. These deposits are associated with the Nestor marine terrace and are approximately 120,000 years old and are often referred to as Terrace Sands or Terrace Deposits. The upper approximate 20 feet were generally logged as a light reddish brown, medium dense, fine to medium grained sandstone. Below the approximate 20-foot depth within the paralic deposits an increase in density was noted.

Mapping of the bluff revealed the moderately cemented reddish brown sandstone or "beach ridge" deposits within the upper approximate 5 feet of the bluff, forming a cap across the lot that is more resistant to erosion as indicated by the near vertical exposures of this material. Underlying the "beach ridge" cap, two zones of poorly cemented tan sandstone were identified. These zones, which are more susceptible to erosion, form the sloping terrain, which extends down to the underlying bedrock sea cliff.

Bedrock – Torrey Sandstone (Tt) – Bedrock of the Tertiary-aged Torrey Sandstone was mapped underlying the Paralic Deposits at an approximate elevation of 28 feet MSL, and was generally described as a well indurated, medium to coarse grained, tan to light gray sandstone. The sandstone forms an approximate 15-foot-high sea cliff, the base of which is within beach sands. The face of the sea cliff is at or beyond vertical with several feet of overhang along some portions. General bedding with a southeasterly dip on the order of 2 degrees, along with localized higher angled cross bedding with random orientations, was measured within exposures of the Torrey Sandstone. Several minor sea caves or notches were noted within the base of the sea cliff at the existing beach grade.

5.0 SITE-SPECIFIC COASTAL BLUFF TOP RETREAT

A site-specific coastal bluff top retreat rate was evaluated utilizing small scale (1" = 2000') stereo-pair historical aerial photos ranging from 1969 through 1998, large scale (1" = 40') aerial photographs ranging from 1994 through 2010, and higher resolution oblique aerials ranging from 1972 to 2013. Based on a review of these images, there appears to have been relatively small changes in the bluff top configuration along the western perimeter of the lot. Three oblique aerials, 1972, 1989, and 2013, which were shot at similar angles, were selected and roughly scaled for comparative purposes. Over the approximate 40-year period with the three images, it is evident that the subject bluff top experienced a very minor level of erosion during this period.

It should be noted that site-specific erosion rates have likely been reduced as the base of bluff has been improved with a concrete and wood seat wall. Similar improvements were noted along the base of bluff to neighboring lots both north and south of the subject site. These conditions would tend to reduce erosion caused by wave action along the base of bluff along with associated bluff top retreat. For purposes of our evaluation, an average retreat rate consistent with those established by regional studies which are summarized in the next section was utilized. In this case, an average rate of 0.25 ft/year was adopted for the site.

6.0 REVIEW OF COASTAL BLUFF RETREAT DOCUMENTS AND STUDIES

In addition to the review of aerial images, published reports which address coastal bluff retreat rates in the Solana Beach, Encinitas and Leucadia area were reviewed.

A FEMA funded study conducted by Benumof and Griggs (1999), evaluated sea cliff erosion rates along several coastline sites within San Diego County including a 0.5 mile stretch of Encinitas located south of the subject site. These rates were determined over a 62-year period 1932 through 1994 and include short-term erosional episodes related to severe winter storms, including sea cave or notch overhand collapses. The study reported average long-term retreat rate for the Encinitas area of 7.7 cm/year or 0.25 ft/year.

A 2015 study by the U.S. Army Corps of Engineers evaluated the potential impacts from coastal erosion in the Encinitas area from the south end of Solana Beach to the north end of Leucadia. The study was divided into nine different zones or reaches, with the subject lot located in Reach 1, which extends from Leucadia Boulevard north to La Costa Avenue. Reach 1 was described as having many properties with bluff base improvements similar to the wall identified at the subject property. Bluff composition for the reach was described as having a flatter upper bluff slope with vegetation cover, and an erosion resistant bluff base comprised of bedrock and a continuous cobble berm. The study concluded sea cliff retreat rates of 0.3 ft/year, and bluff top retreat rates of 0.2 ft/year.

7.0 POTENTIAL SEA LEVEL RISE IMPACT

As part of our investigation, and in accordance with the State of California Sea-Level Rise Guidance 2018 Update, we evaluated potential site impact regarding sea-level rise. For evaluation purposes, we utilized data from gauge (#9410230) in La Jolla and assumed a project lifespan target date for 2090.

Based on information from the NOAA.gov website, the La Jolla tide gauge has tide level measurements dating back to 1924. Historical tide gauge measurements over the previous 97 years indicate a sea-level trend of 2.04 mm/year, with a 95 percent confidence interval of +/- 0.23 mm/year. The sea-level trend data projected to a 75-year lifespan indicates a sea-level rise ranging from 135 mm to 170 mm. Although useful, the historical sea-level trend does not consider the impact of climate change on sea-level rise.

The State of California Sea-Level Rise Guidance (2018) document provides projected sea-level rise, with climate change taken into account, for 12 tide gauges located along the California coastline from Crescent City in Northern California to San Diego in Southern California. Tables for each of the 12 tide gauges are provided with sea-level rise projections at 10-year intervals for years ranging from 2030 to 2150 and projected ranges including median, likely, 1-in-20 chance, and 1-in-200 chance. Different risk aversion levels, including low, medium-high, and extreme, are also provided for project planning purposes. The low-risk aversion is associated with the "likely" range with a 66 percent probability of occurrence, and the medium-high risk aversion is "1-in-200 chance" with a 0.5 percent probability of occurrence. There is also an extreme risk aversion category that is not associated with a specific climate change projection and is intended for projects with a low tolerance for risks, such as power plants, airports, and hazardous waste storage sites. For years beyond 2050, different emission scenarios, either low emission or high emission, are also provided.

As previously mentioned, the La Jolla tide gauge was identified as #9410230, and a project lifespan target date of 2090 was utilized for our evaluation. The following table summarizes sea level rise

projections provided in "Table 34: Projected Sea-Level Rise (in feet) for San Diego" from the State of California Sea-Level Rise Guidance (2018) document. These values can be utilized for determining potential site impact from sea level rise.

SEA LEVEL RISE PROJECTIONS						
	MEDIAN	**LIKELY**		**1-in-20 Chance**	**1-in-200 Chance**	**H++ scenario (Sweet et al, 2017) *Single scenario**
	50% probability sea level rise meets or exceeds…	66% probability sea level rise is between…		5% probability sea level rise meets or exceeds…	0.5% probability sea level rise meets or exceeds…	
			Low Risk Aversion		**Medium – High Risk Aversion**	**Extreme Risk Aversion**
Low emissions (2090)	1.6'	1.0'	2.2'	2.9'	4.8'	--
High emissions (2090)	2.2'	1.6'	3.0'	3.7'	5.7'	8.3'

The project designers can consider the potential impacts of sea-level rise on the proposed development.

8.0 GROUNDWATER AND SURFACE WATER

No significant groundwater seepage was observed at the contact of the Pleistocene terrace deposits over the Torrey Sandstone. We note that seasonal perched groundwater levels and conditions can fluctuate due to factors such as rainfall amounts, rainfall intensity, temperatures, or other factors. Changes in this perched groundwater condition can affect the stability of the upper bluff area.

9.0 CONCLUSIONS, FINDINGS & RECOMMENDATIONS

Based on our investigation, the previously installed protective devices have been adversely impacted by on-going erosion and bluff failures. These devices have undergone both chemical and physical weathering as a result of exposure to the elements including sea air and wave action. To extend the lifespan of the devices, and minimize the potential impacts to the improvements on-site, maintenance and repairs are warranted. For the purposes of this report, there are two areas proposed for immediate maintenance/improvement. Our findings and recommendations are discussed in further detail below. A photo image depicting the current site conditions is provided as Proposed South end Caisson Repair, Figure 2 in Appendix B, and a topographic plan view of the subject area is provided as Section Plan View, Figure 3 in Appendix B.

The first area for required maintenance and repairs is the southern +/- 170 lineal feet of the lower sea wall. As part of our geotechnical work, several tieback anchorage heads along the seawall were exposed by removing the concrete anchorage encasements. Severe corrosion of the tieback

anchor tendons, anchor heads and bearing plates were observed. SEC attempted to pull test several individual anchor tendons at different tieback locations using a calibrated center hole jack. Each of the tested tieback tendons failed at relatively low loads, less than 50% of a typical tendon load, with some tendons failing at near zero loads behind the bearing plate, due to corrosion. Based on our observations and experience, it is our finding that most of the existing lower bluff seawall tiebacks have been severely compromised, see photo below, and that as part of the wall repair project a new row of tiebacks should be installed. Relying on the existing tiebacks for lateral support of the existing seawall is not recommended.

The proposed new seawall tiebacks should be designed assuming unbonded lengths and loading consistent with the original seawall design. It is recommended that the new tieback unbonded zone should 20 feet and a bond stress of 21 psi can be assumed for tieback anchor design.

SEC also observed severe concrete spalling along most of the entire length of the lower bluff seawall. A few areas in the concrete seawall face were opened up to observe the outer layer of reinforcing steel. It appears that a new outer reinforcing steel mat will be required, in most areas, to be replaced due to corrosion. We recommend that all spalled concrete be removed and reinforcing steel be replaced or cleaned and a new shotcrete cover be installed over the length of the repair.

No weep holes were observed in the seawall. It is recommended that weep holes be installed at or above elevation +7msl. Installing weep holes at lower elevations may cause piping behind the wall from ocean surges during high tides and storm conditions. If it is decided to install weep holes at a higher elevation, like +7'msl, then the structural engineer should consider adding hydrostatic pressures in design of the lateral support anchors.

The second area for required maintenance and repairs is the upper bluff pier wall and adjacent bluff face along the southern property line of the DMBC condominium complex. Based on our recent review the bluff has receded eastward approximately 8 feet since the pier wall and shotcrete were previously installed. This greatly exceeds the normal annual bluff retreat rate, and is a result of bluff failures. Ongoing upper-bluff failures and associated erosion will continue resulting in the exposure of the concrete piers and potentially threatening to undermine the existing bluff-top structures. At a minimum, we recommend a reinforced shotcrete skin be installed over the existing 18-inch diameter drilled piers for the full length of the current erosion exposure, approximately 4 lineal feet +/-. The new reinforced shotcrete covering should extend a minimum of 3 feet into the underlying bluff materials. If additional tiebacks are necessary, then the minimum unbonded length should be 20 feet. A bond stress in the upper native terrace deposits may be assumed as 15psi. In order to keep tiebacks at a reasonable design load, we recommend a minimum of 3 rows of anchors. The anchors shall be proof tested to 133% of design load. We recommend that the project structural engineer evaluate the existing wall design and make a determination if additional tieback anchors are required. A preliminary wall loading diagram is provided in Figure 6, Appendix B.

10.0 SAFETY CONSIDERATIONS

Due to the large-scale failures that have occurred to the bluff face, the safety factor at the top and base of bluff is a very important issue. Recent bluff failures in the immediate vicinity have resulted in fatalities and/or significant injuries. Contractors, engineers, pedestrians, and *any other persons in the vicinity*, should be aware and warned of the severity of the bluff face conditions.

The present condition of the bluff profile constitutes an active hazard to properties and persons living and/or working above the bluff profile. The present condition also constitutes a hazard to persons along the base of the bluff profile. This hazard along the base of the bluff is estimated to extend approximately 50 feet seaward of the base of the bluff.

Without the proposed shore protection measures, the section along the beach-level area does not have ample space between the bluff face and the ocean during high tide periods for a person

to walk and not be in a region of hazard. Generally, beach hazards include complete collapse of sea caves and undercut and over-steepened bluffs, as well as massive slope failures of the bluff above the bedrock. Potential failures along the top of the bluff profile may extend landward from approximately several feet to 20-foot.

11.0 LIMITATIONS AND CHANGING CONDITIONS

This updated geotechnical evaluation report addresses limited geotechnical conditions at DMBC site, and is based on our document review, our experience in bluff projects, and our observations of the geological conditions exposed in the bluff at this locality. This report assumes that the geologic/soils conditions do not deviate appreciably from those observed. The recommendations of this report pertain only to the subject site.

The findings of this report are valid as of this date. Changes in conditions of this region can occur with the passage of time, through natural processes or the work of man at this vicinity. In addition, applicable standards may be changed by legislation or the broadening of knowledge in the fields of geotechnical engineering or geology. Hence, the findings of this report may be invalidated wholly or in part by changes beyond our control.

If there are questions regarding the information contained herein, we should be contacted. We will not be responsible for the misinterpretation by others of the information herein. Our services consist of professional consultation, and no warranty of any kind whatsoever, express or implied, is made or intended in connection with the work performed by us.

Respectfully submitted,
SOIL ENGINEERING CONSTRUCTION, INC.

John W. Niven, P.E.

Robert D. Mahony, G.E., C.E.G.

Attachments:
Appendix A – References
Appendix B – Figures (1-6)
Appendix C – Repairs to Coastal Bluff, DMBC, Solana Beach. Drawing Sheets 1-18

APPENDIX A

1) California Coastal Commission, Staff Report, 341, 347, and 355 Pacific Avenue, Solana Beach, September 25, 2013.

2) California Coastal Records Project, Aerial Images, 1972, 1979, 1987, 1989, 2002, 2004, 2006, 2008, 2010, and 2013.

3) Continental Aerial Photo, Stereo-pair Aerial Photos, Flights 12-10-1969, 4-16-1972, 12-13-1978, 12-17-1979, 04-08-1980, 01-14-1988, 10-30-1993, 08-12-1998.

4) Google Earth, Aerial Images, 05-31-1994,12-31-2002, 06-29-2004, 01-03-2006, 02-29-2008, 08-23-2010, 11-2-2012, 05-11-2014, 04-14-2015.

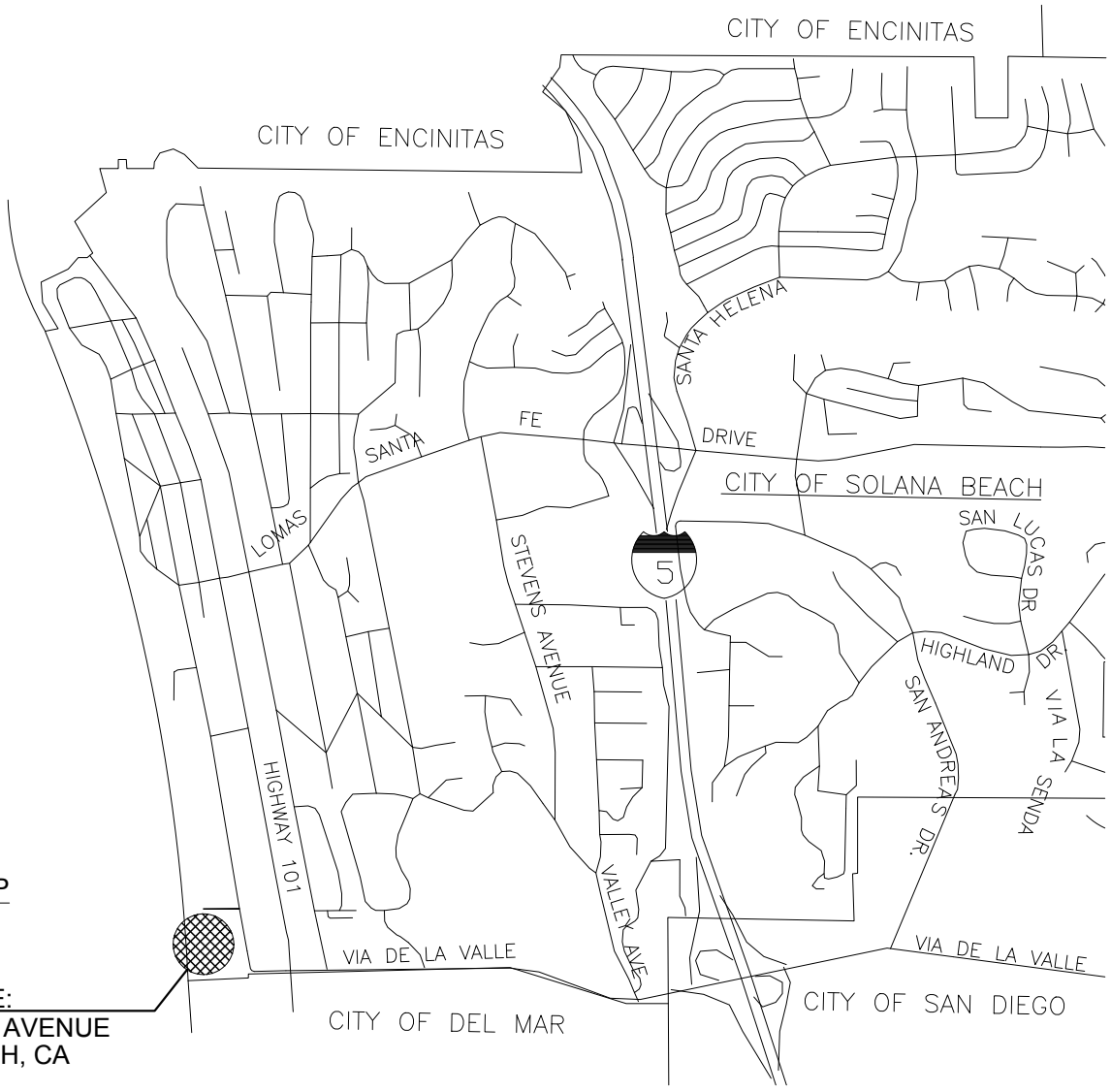
5) Group Delta, Shoreline Erosion Study, North Solana Beach, California, August 20, 1998.

6) Group Delta, Geotechnical Investigation, Coastal Bluff at Southwest Property Corner, Del Mar Beach Club, Solana Beach, California, dated March 3, 1999.

7) Kennedy and Tan, Geologic Map of the San Diego 30' x 60' Quadrangle, 2005

8) State Coastal Conservancy, California Beach Restoration Study, January 2002.

APPENDIX B



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SITE LOCATION MAP

DEL MAR BEACH CLUB
825 S. SIERRA AVENUE
SOLANA BEACH, CA 92075

DATE:	SCALE:	PROJECT:	DRAWN BY:
4/3/23	NTS	DMBC	JK

FIGURE

1

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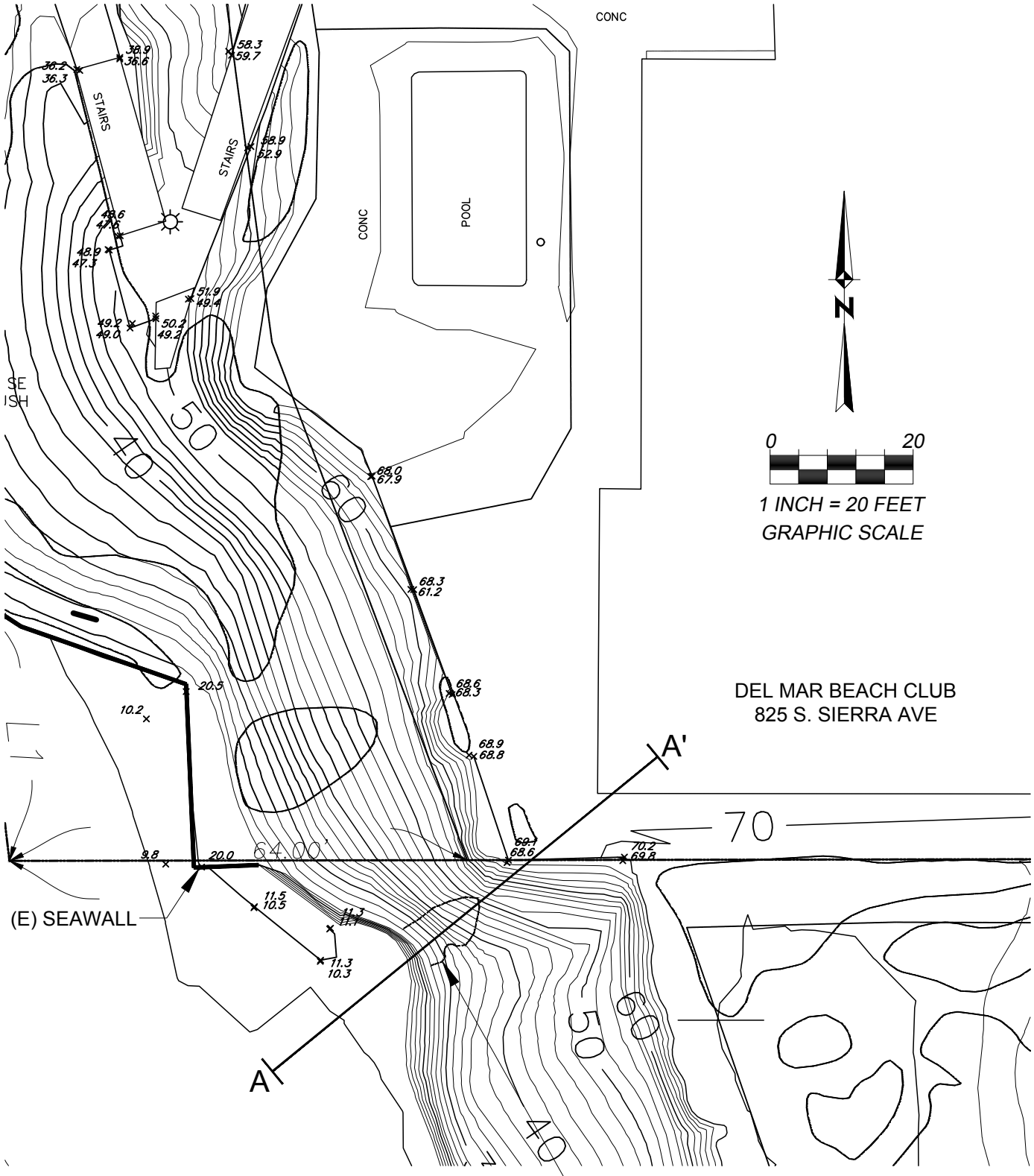
PROPOSED SOUTH END CAISSON REPAIR

DEL MAR BEACH CLUB
825 S. SIERRA AVENUE
SOLANA BEACH, CA 92075

DATE:	SCALE:	PROJECT:	DRAWN BY:
4/3/23	NTS	DMBC	JK

FIGURE

2



SECTION PLAN VIEW
SCALE: 1"=20'

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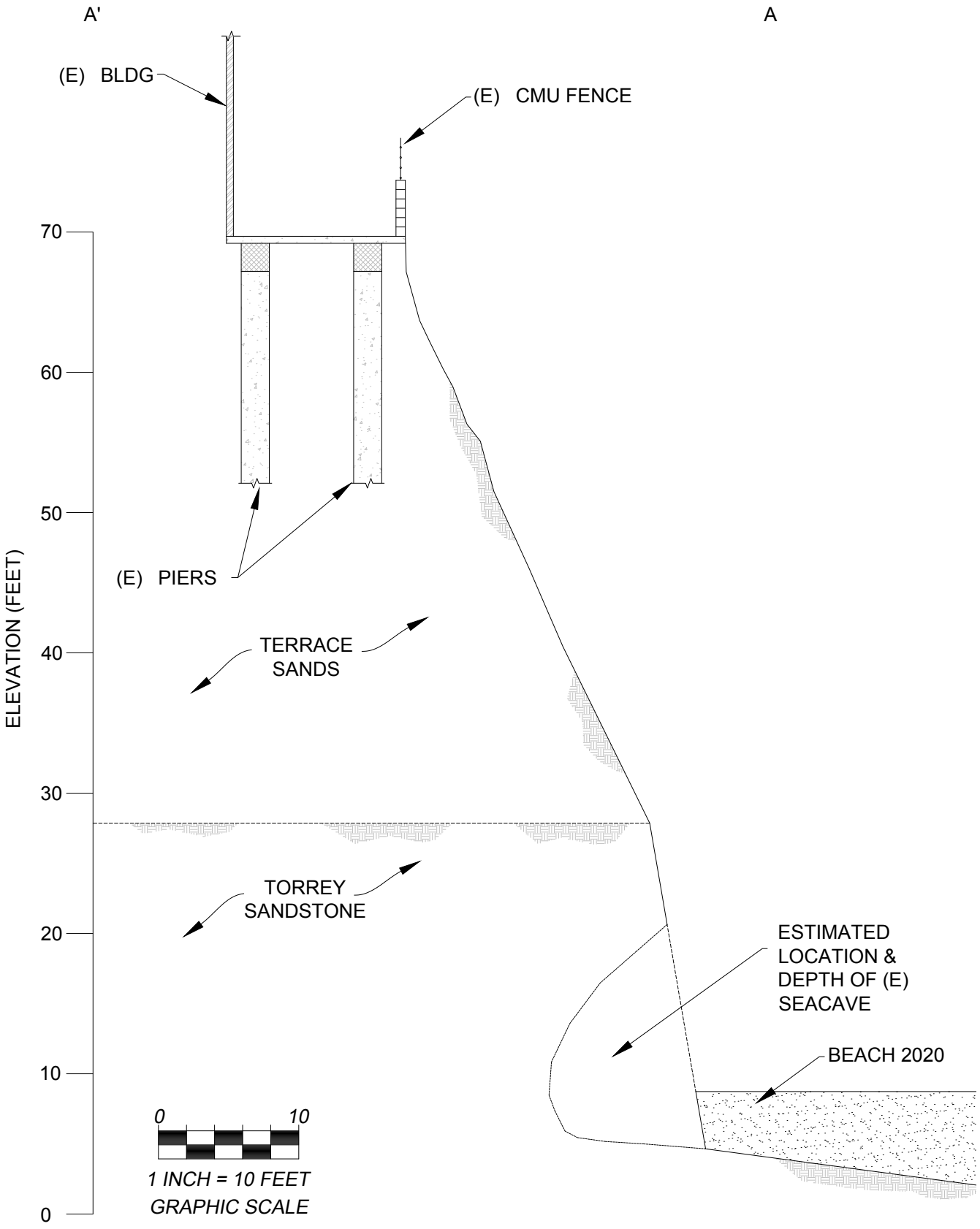
SECTION PLAN VIEW

DEL MAR BEACH CLUB
825 S. SIERRA AVENUE
SOLANA BEACH, CA 92075

DATE:	SCALE:	PROJECT:	DRAWN BY:
4/3/23	1" = 20'	DMBC	JK

FIGURE

3



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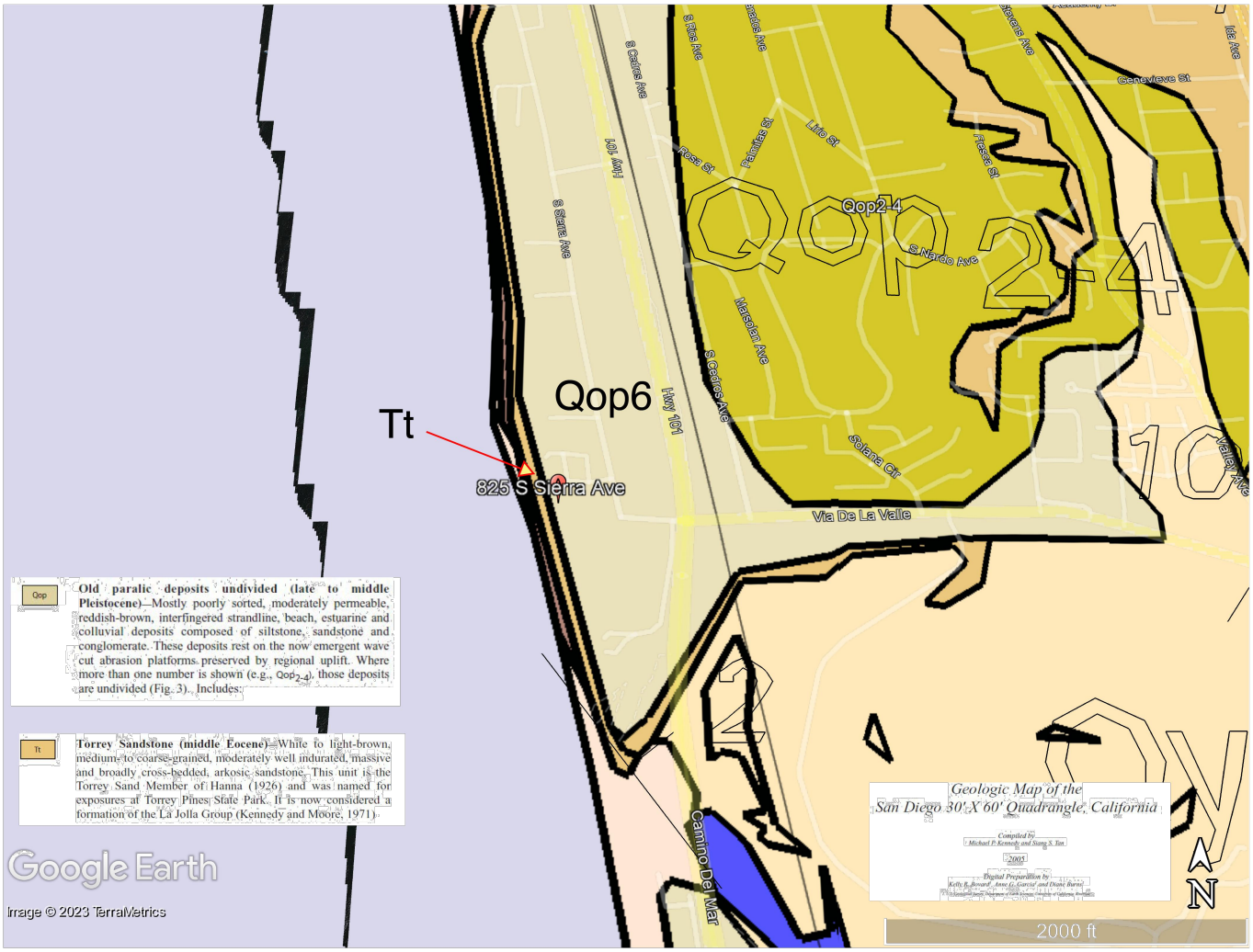
SECTION A-A'

DEL MAR BEACH CLUB
825 S. SIERRA AVENUE
SOLANA BEACH, CA 92075

DATE:	SCALE:	PROJECT:	DRAWN BY:
4/3/23	1" = 10'	DMBC	JK

FIGURE

4



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GEOLOGIC MAP

DEL MAR BEACH CLUB
825 S. SIERRA AVENUE
SOLANA BEACH, CA 92075

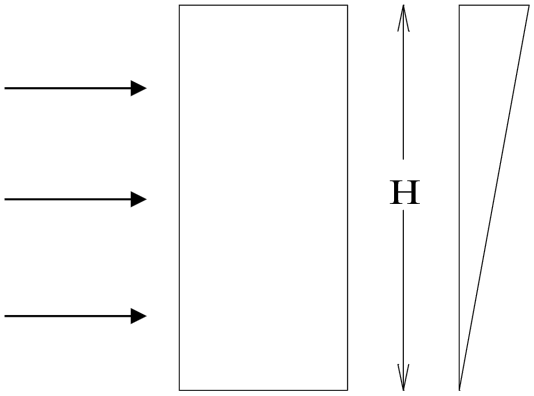
DATE:	SCALE:	PROJECT:	DRAWN BY:
4/3/23	NTS	DMBC	JK

FIGURE

5

Anchored Retaining Wall
Loading Distribution

Static pressure:
from Terzaghi & Peck, sand
$p_{static} = 0.65\ K_a\ (g\ H + q)$



Seismic increment:
Inverted triangle
Dp_{ae} = 800 psf, (at top)

Data:

f, (deg.):	33
g, (pcf):	125
H, (ft.):	25
q, (psf):	750
k_h:	0.37

building surcharge (3 stories)

Results:

	743
K_a =	0.29

$p_{static} = 0.65\ K_a\ (gH + q)$ = psf

Total static load:

$P_T = 0.65\ K_a\ (g\ H + q)\ x\ H$ = 18.6 kips per lineal ft.

Total seismic load:

K_{ae} =	0.59

Mononobe-0kabe

$P_{ae} = ½\ K_{ae}\ (g\ H + q)\ x\ H$ = 28.6 kips per lineal ft.

Seismic increment:

$DP_{ae} = P_{ae} - P_T$ = 10.0 kips per lineal ft.

$Dp_{ae} = 2\ DP_{ae} / H$ = psf (at top) 800

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ANCHORED WALL LOADING CALCULATION

DEL MAR BEACH CLUB
825 S. SIERRA AVENUE
SOLANA BEACH, CA 92075

DATE:	SCALE:	PROJECT:	DRAWN BY:
4/3/23	NTS	DMBC	JK

FIGURE
6

APPENDIX C

DEL MAR BEACH CLUB
PROPOSED MAINTENANCE/REPAIRS TO EXISTING SEAWALL AND UPPER BLUFF CAISSON SYSTEM - PHASE 1

GENERAL NOTES

1. APPROVAL OF THIS GRADING PLAN DOES NOT CONSTITUTE APPROVAL OF VERTICAL OR HORIZONTAL ALIGNMENT OF ANY PRIVATE ROAD SHOWN HEREIN FOR PUBLIC ROAD PURPOSES.

2. FINAL APPROVAL OF THESE GRADING PLANS IS SUBJECT TO FINAL APPROVAL OF THE ASSOCIATED IMPROVEMENT PLANS WHERE APPLICABLE. FINAL CURB GRADE ELEVATIONS MAY REQUIRE CHANGES IN THESE PLANS.

3. IMPORT MATERIALS SHALL BE LEGALLY OBTAINED.

4. A SEPARATE PERMIT FROM THE CITY ENGINEER WILL BE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY.

5. ALL SLOPES OVER THREE FEET IN HEIGHT SHALL BE LANDSCAPED AND IRRIGATED.

6. THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK. NOTICE OF PROPOSED WORK SHALL BE GIVEN TO THE FOLLOWING AGENCIES:

UNDERGROUND SERVICE ALERT 811

CITY OF SOLANA BEACH PUBLIC WORKS 858 720-2470

7. THE SOILS REPORT TITLED: UPDATED GEOTECHNICAL RECOMMENDATIONS - PROPOSED MAINTENANCE REPAIRS EXISTING LOWER BLUFF SEAWALL & SOUTH PROPERTY LINE UPPER BLUFF CAISSON SYSTEM DEL MAR BEACH CLUB HOA - 825 S. SIERRA AVENUE, SOLANA BEACH, CALIFORNIA 92075, PREPARED BY SOIL ENGINEERING CONSTRUCTION, INC., AND DATED 4/3/23 SHALL BE CONSIDERED AS PART OF THIS GRADING PLAN. ALL GRADING SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS AND SPECIFICATIONS CONTAINED IN SAID REPORT.

8. APPROVAL OF THESE PLANS BY THE CITY ENGINEER DOES NOT AUTHORIZE ANY WORK OR GRADING TO BE PERFORMED UNTIL THE PROPERTY OWNER'S PERMISSION HAS BEEN OBTAINED AND A VALID GRADING PERMIT HAS BEEN ISSUED.

9. THE CITY ENGINEER'S APPROVAL OF THESE PLANS DOES NOT CONSTITUTE THE BUILDING OFFICIAL'S APPROVAL OF ANY FOUNDATION FOR STRUCTURES TO BE PLACED ON THE AREA COVERED BY THESE PLANS. NO WAIVER OF THE GRADING ORDINANCE REQUIREMENTS CONCERNING MINIMUM COVER OVER EXPANSIVE SOILS IS MADE OR IMPLIED.

10. ALL OPERATIONS CONDUCTED ON THE PREMISES, INCLUDING THE WARMING UP, REPAIR, ARRIVAL, DEPARTURE OR RUNNING OF TRUCKS, EARTHMOVING EQUIPMENT, CONSTRUCTION EQUIPMENT AND ANY OTHER ASSOCIATED GRADING EQUIPMENT SHALL BE LIMITED TO THE PERIOD BETWEEN 7:00 A.M. AND 6:00 P.M. EACH DAY, MONDAY THROUGH FRIDAY AND NO EARTHMOVING OR GRADING OPERATIONS SHALL BE CONDUCTED ON THE PREMISES ON SATURDAYS, SUNDAYS OR HOLIDAYS WITHOUT THE WRITTEN PERMISSION OF THE CITY ENGINEER.

11. ALL MAJOR SLOPES SHALL BE ROUNDED INTO EXISTING TERRAIN TO PRODUCE A CONTOURED TRANSITION FROM CUT OR FILL SUFACES TO NATURAL GROUND AND ABUTTING CUT OR FILL SURFACES.

12. NOTWITHSTANDING THE MINIMUM STANDARDS SET FORTH IN THE EXCAVATION AND GRADING CODE, AND NOTWITHSTANDING THE APPROVAL OF THESE GRADING PLANS, THE PERMITTEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO THE ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK, ALLEY, FUNCTION OF ANY SEWAGE DISPOSAL SYSTEM, OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING SCOUR OR OTHER DAMAGE WHICH MIGHT RESULT FROM THE GRADING DESCRIBED ON THIS PLAN. THE CITY WILL HOLD THE PERMITTEE RESPONSIBLE FOR CORRECTION ON NON-DEDICATED IMPROVEMENTS, WHICH DAMAGE ADJACENT PROPERTY.

13. SLOPE RATIOS: CUT 2:1 FILL 2:1
CUT: 2.0 CY. FILL: 0.0 CY.
IMPORT/(EXPORT): 0.0 CY.
NOTE: A SEPARATE PERMIT MUST EXIST FOR OFFSITE IMPORT OR EXPORT AREAS.

14. SPECIAL CONDITIONS: IF ANY ARCHEOLOGICAL RESOURCES ARE DISCOVERED ON THE SITE OF THIS GRADING DURING GRADING OPERATIONS, SUCH OPERATIONS WILL CEASE IMMEDIATELY AND THE PERMITTEE WILL NOTIFY THE CITY ENGINEER OF THE DISCOVERY. GRADING OPERATIONS WILL NOT COMMENCE UNTIL THE PERMITTEE HAS RECEIVED WRITTEN AUTHORITY FROM THE CITY ENGINEER TO DO SO.

15. ALL GRADING SHOWN ON THIS PLAN SHALL BE COMPLETED AS A SINGULAR UNIT WITH NO PROVISION FOR PARTIAL RELEASES. SHOULD IT BE ANTICIPATED THAT A PORTION OF THIS PROJECT IS COMPLETED SEPARATELY, A SEPARATE PLAN AND PERMIT APPLICATION SHALL BE SUBMITTED FOR APPROVAL.

16. THE CONTRACTOR SHALL NOTIFY THE CITY OF SOLANA BEACH AT (858) 720-2470, 24 HOURS BEFORE GRADING OPERATIONS BEGIN.

17. FINISHED GRADING AND PLANTING SHALL BE ACCOMPLISHED ON ALL SLOPES PRIOR TO OCTOBER 1, OR IMMEDIATELY UPON COMPLETION OF ANY SLOPES GRADED BETWEEN OCTOBER 1 AND APRIL 1. PRIOR TO ANY PLANTING, ALL LANDSCAPING SHALL BE APPROVED BY THE PLANNING DEPARTMENT AT THE DEVELOPMENT REVIEW STAGE, OR BY SEPARATE LANDSCAPING PLAN.

18. ALL OFF-SITE HAUL ROUTES SHALL BE SUBMITTED BY THE CONTRACTOR TO THE CITY ENGINEER FOR APPROVAL 72 HOURS PRIOR TO BEGINNING WORK.

19. UPON FINAL COMPLETION OF THE WORK UNDER THE GRADING PERMIT, BUT PRIOR TO FINAL GRADING APPROVAL AND/OR FINAL RELEASE OF SECURITY, AN AS-GRADED CERTIFICATE SHALL BE PROVIDED STATING: "THE GRADING UNDER PERMIT NO. SBGR- HAS BEEN PERFORMED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED GRADING PLAN OR AS SHOWN ON THE ATTACHED AS-GRADED PLAN." THIS STATEMENT SHALL BE FOLLOWED BY THE DATE AND SIGNATURE OF THE CIVIL ENGINEER WHO CERTIFIES SUCH GRADING OPERATION.

20. THE CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES INCLUDING SHORING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.

EROSION CONTROL NOTES

1. STORM WATER AND NON-STORM WATER DISCHARGE CONTROL: BEST MANAGEMENT PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO MANAGE STORM WATER AND NON-STORM WATER DISCHARGES FROM THE SITE AT ALL TIMES DURING EXCAVATION AND GRADING ACTIVITIES.

2. EROSION AND SEDIMENT CONTROL: EROSION PREVENTION SHALL BE EMPHASIZED AS THE MOST IMPORTANT MEASURE FOR KEEPING SEDIMENT ON SITE DURING EXCAVATION AND GRADING ACTIVITIES. SEDIMENT CONTROLS SHALL BE USED AS A SUPPLEMENT TO EROSION PREVENTION FOR KEEPING SEDIMENT ON SITE.

3. EROSION CONTROL ON SLOPES SHALL BE MITIGATED BY INSTALLING LANDSCAPING AS PER APPROVED LANDSCAPE PLANS AS REQUIRED BY THE DEVELOPMENT REVIEW CONDITIONS, OR BY TEMPORARY EROSION CONTROL CONFORMING TO THE FOLLOWING:

NON-IRRIGATED HYDROSEED MIX WITH A BONDED FIBER MATRIX APPLIED AT 4,000 LB/ACRE.

LBS./ACRE	% PURITY/ACRE	SEED SPECIES
20	70% PLUS	ATRIPLEX GLAUCA
50		PLANTAGE INSULARIS
8		ENCELIS FARINOSA
6	SCARIFIED	LOTUS SCOPARIUS
7	50% PLUS	EXCHSCHOLZIA CALIFORNIA

TOTAL 91 LBS.

4. THE TOPS OF ALL SLOPES TALLER THAN 5' SHALL BE DIKED OR TRENCHED TO PREVENT WATER FLOWING OVER CRESTS OF SLOPES.

5. CATCH BASINS, DESILTING BASINS AND STORM DRAIN SYSTEMS SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY ENGINEER.

6. SAND BAG CHECK DAMS, SILT FENCES, FIBER ROLLS OR OTHER APPROVED BMP'S SHALL BE PLACED IN UNPAVED AREAS WITH GRADIENTS IN EXCESS OF 2%, AS WELL AS AT OR NEAR EVERY POINT WHERE CONCENTRATED FLOW LEAVE THE SITE.

7. SAND BAGS SHALL BE PLACED ON THE UPSTREAM SIDE OF ALL DRAINAGE INLETS TO MINIMIZE SILT BUILDUP IN THE INLETS AND PIPES.

8. THE CONTRACTOR SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE OFFICE OF THE CITY ENGINEER.

9. THE CONTRACTOR SHALL SWEEP ROADWAYS AND ENTRANCES TO AND FROM THE SITE ON A REGULAR BASIS TO KEEP THEM FREE OF SOIL ACCUMULATION AND AT ALL OTHER TIMES DIRECTED BY THE CITY ENGINEER.

10. THE CONTRACTOR SHALL WATER SITE ON A CONTINUOUS BASIS TO MINIMIZE AIR BORNE DUST CREATED FROM GRADING AND HAULING OPERATIONS OR EXCESSIVE WIND CONDITIONS, AND AT ALL TIMES DIRECTED BY THE CITY ENGINEER.

11. IN THE EVENT SILT DOES ENTER THE EXISTING PUBLIC STORM DRAIN SYSTEM, REMOVAL OF THE SILT FROM THE SYSTEM WILL BE AT THE DEVELOPER'S EXPENSE.

AS-BUILT:

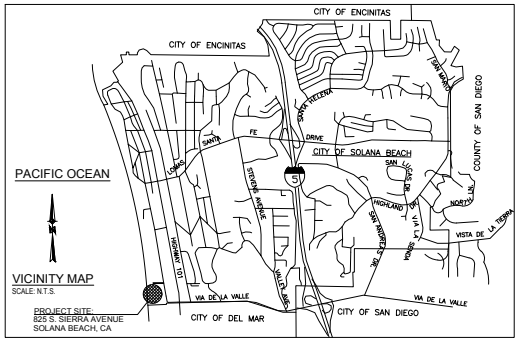
UPON COMPLETION, AND PRIOR TO RELEASING THE SECURITIES, THE ENGINEER OF WORK SHALL "AS-BUILT" THE ORIGINAL MYLAR PLANS. INITIALLY, TWO COPIES OF RED-LINED PLANS SHOWING ALL AS-BUILT INFORMATION, INCLUDING ALL NEW UNDERGROUND FACILITIES (MAIN LINES, SERVICES AND LATERALS), IS TO BE SUBMITTED TO THE ENGINEERING DEPARTMENT. WHEN THE RED-LINES ARE APPROVED, THE ORIGINAL MYLAR PLANS WILL BE CHECKED OUT TO THE ENGINEER. THE ENGINEER SHALL MAKE THE CHANGES, SIGN EACH SHEET UNDER "AS-BUILT", AND RETURN ORIGINAL MYLARS TO THE CITY.

FLOOD STATEMENT

I, _____, A REGISTERED CIVIL ENGINEER/SURVEYOR, HEREBY CERTIFY THAT THE PAD STRUCTURES SHOWN ON THIS AS-BUILT GRADING PLAN HAVE BEEN VERIFIED BY ME AND THAT SAID ELEVATIONS ARE AT OR ABOVE THE BASE FLOOD ELEVATION SHOWN ON THE FLOOD INSURANCE RATE MAP OF THE COUNTY OF SAN DIEGO.

SIGNED _____ DATE _____

R.C.E./P.L.S. NO. _____ EXP. _____



OWNER/DEVELOPER CERTIFICATE

I, _____ AS OWNER/DEVELOPER OF THE PROPERTY DESCRIBED HEREIN ACKNOWLEDGE THESE PLANS HAVE BEEN PREPARED AT MY DIRECTION WITH MY FULL CONSENT. I FULLY UNDERSTAND AND ACCEPT THE TERMS AND CONDITIONS CONTAINED HEREIN AND AS ATTACHED BY REFERENCE ON THIS GRADING PLAN.

IT IS AGREED THAT FIELD CONDITIONS MAY REQUIRE CHANGES TO THESE PLANS.

IT IS FURTHER AGREED THAT THE OWNER/DEVELOPER SHALL HAVE A REGISTERED CIVIL ENGINEER MAKE SUCH CHANGES, ALTERATIONS OR ADDITIONS TO THESE PLANS WHICH THE CITY ENGINEER DETERMINES ARE NECESSARY AND DESIRABLE FOR THE PROPER COMPLETION OF THE IMPROVEMENTS.

I FURTHER AGREE TO COMMENCE WORK ON ANY IMPROVEMENTS SHOWN ON THESE PLANS WITHIN EXISTING CITY RIGHT-OF-WAY WITHIN 9 MONTHS AFTER ISSUANCE OF THE CONSTRUCTION PERMIT AND TO PURSUE SUCH WORK ACTIVELY ON EVERY NORMAL WORKING DAY UNTIL COMPLETED, IRRESPECTIVE AND INDEPENDENT OF ANY OTHER WORK ASSOCIATED WITH THIS PROJECT OR UNDER MY CONTROL.

SIGNED _____

DATE _____

ENGINEER OF WORK CERTIFICATE

I, ROBERT D. MAHONY 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 CITY OF SOLANA BEACH RESOLUTION NO. _____.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF SOLANA BEACH AND ANY OTHER PUBLIC AGENCY IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME OF RESPONSIBILITIES FOR PROJECT DESIGN.

SIGNED Robert Mahony DATE 4/3/23

R.C.E. NO. 16459 EXP. 6/30/25

FIRM SOIL ENGINEERING CONSTRUCTION, INC.

ADDRESS 927 ARGUELLO STREET REDWOOD CITY, CALIFORNIA 94063

TELEPHONE (760) 633-3470

ENGINEER OF WORK AS-BUILT CERTIFICATE

I, ROBERT D. MAHONY HEREBY DECLARE THAT THE PREPARATION OF THESE AS-BUILT DRAWINGS AND THAT THE INFORMATION SHOWN IS BASED ON ACTUAL SITE INVESTIGATIONS AND SURVEYS OF THE IMPROVEMENTS BETWEEN THE DATES OF _____ AND _____, TO THE BEST OF MY KNOWLEDGE AND EXPERIENCE THE INFORMATION SHOWN ON THESE PLANS PROVIDE AN ACCURATE AND CORRECT REPRESENTATION OF THE AS-BUILT CONDITIONS.

SIGNED _____ DATE _____

R.C.E. NO. 16459 EXP. 6/30/25

OWNER/APN/APPLICANT

OWNER:
DEL MAR BEACH CLUB
C/O MR. TERRY HINES
825 S. SIERRA AVENUE, SOLANA BEACH, CA 92075

APN:
298-240-33,35,57

APPLICANT:
THE TRETTIN COMPANY
ROBERT TRETTIN
1195 LA MOREE ROAD, #18
SAN MARCOS, CA 92078
(858) 603-1741

TOTAL DISTURBED AREA

TOTAL SITE DISTURBED AREA APPROX. : 0.01 ACRES

GRADING QUANTITIES

GRADED AREA CUT	2.0 [CYD]	MAX. CUT DEPTH	2.0 [FT]
QUANTITIES FILL	0.0 [CYD]	MAX CUT SLOPE RATIO (2:1MAX)	0
QUANTITIES	0.0 [CYD]	MAX. FILL DEPTH	0 [FT]
IMPORT/EXPORT	0.0 [CYD]	MAX FILL SLOPE RATIO (2:1MAX)	N/A

THIS PROJECT PROPOSES TO EXPORT 0 CUBIC YARDS OF MATERIAL FROM THIS SITE. ALL EXPORT MATERIAL SHALL BE DISCHARGED TO A LEGAL DISPOSAL SITE. THE APPROVAL OF THIS PROJECT DOES NOT ALLOW PROCESSING AND SALE OF THE MATERIAL. ALL SUCH ACTIVITIES REQUIRE A SEPARATE CONDITIONAL USE PERMIT.

STORM WATER PROTECTION NOTES

1. THIS PROJECT IS SUBJECT TO MUNICIPAL STORM WATER PERMIT ORDER NO. _____, AND RISK LEVEL/TYPE: CHECK ONE BELOW
   - ☒ WPCP
   - ☐ CGP RISK LEVEL 1
   - ☐ CGP RISK LEVEL 2
   - ☐ CGP RISK LEVEL 3
   - ☐ CGP LUP TYPE 1
   - ☐ CGP LUP TYPE 2
   - ☐ CGP LUP TYPE 3
2. CHECK ONE
   - ☐ THIS PROJECT WILL EXCEED THE MAXIMUM DISTURBED AREA LIMIT, THEREFORE A WEATHER TRIGGERED ACTION PLAN (WTAP) IS REQUIRED.
   - ☐ THIS PROJECT WILL FOLLOW PHASED GRADING NOT TO EXCEED FIVE (5) ACRES PER PHASE.
   - ☒ NOT APPLICABLE
3. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE WPCP OR SWPPP AS APPLICABLE.

PROJECT CONTACTS/CONSULTANTS

OWNER:
DEL MAR BEACH CLUB HOA
C/O MR. TERRY HINES
825 S. SIERRA AVENUE
SOLANA BEACH, CALIFORNIA 92075

APPLICANT:
THE TRETTIN COMPANY
ROBERT TRETTIN
1195 LA MOREE ROAD, #18
SAN MARCOS, CA 92078
PH: (858) 603-1741

LAND SURVEYOR:
CIREMELE SURVEYING INC.
CHRIS CIREMELE, L.L.S. 164
S. ESCONDIDO BLVD.,
ESCONDIDO, CALIFORNIA 92025
(760) 489-2200

CIVIL ENGINEER OF RECORD:
SOIL ENGINEERING CONSTRUCTION, INC.
ROBERT D. MAHONY, R.C.E., C.E.G., R.G.E. 927
ARGUELLO STREET REDWOOD CITY,
CALIFORNIA 94063 (760) 633-3470

STRUCTURAL DESIGN ENGINEER:
DEGENKOLB ENGINEERS
JEREMY CALLISTER
225 BROADWAY, STE 1325 SAN DIEGO, CA 92101
(619) 515-0299

SOIL ENGINEER OF RECORD:
SOIL ENGINEERING CONSTRUCTION, INC.
ROBERT D. MAHONY, R.C.E., C.E.G., R.G.E.
927 ARGUELLO STREET REDWOOD CITY,
CALIFORNIA 94063 (760) 633-3470

SOIL ENGINEER CERTIFICATE

I, ROBERT D. MAHONY A REGISTERED CIVIL ENGINEER OF THE STATE OF CALIFORNIA, PRINCIPALLY DOING BUSINESS IN THE FIELD OF APPLIED SOIL MECHANICS, HEREBY CERTIFY THAT A SAMPLING AND STUDY OF THE SOIL AND CONDITIONS PREVALENT WITHIN THE SITE WAS MADE BY ME OR UNDER MY DIRECTION BETWEEN THE DATES 4/3/23 AND _____, I HAVE REVIEWED THE PROJECT DESIGN AND GRADING SHOWN HEREIN IS CONSISTENT WITH THE RECOMMENDATIONS CONTAINED IN THE APPROVED SOILS AND GEOTECHNICAL REPORTS FOR THE PROJECT. ONE COMPLETE COPY OF THE FINAL SOILS REPORT COMPILED FROM THIS STUDY, WITH MY RECOMMENDATIONS, HAS BEEN SUBMITTED TO THE OFFICE OF THE CITY ENGINEER.

SIGNED Robert Mahony DATE 4/3/23

G.E./R.C.E. NO. 554/16459 EXP. 6/30/25

FIRM SOIL ENGINEERING CONSTRUCTION, INC.

ADDRESS 927 ARGUELLO STREET REDWOOD CITY, CALIFORNIA 94063

TELEPHONE (760) 633-3470

SOILS ENGINEER AS-BUILT CERTIFICATE

TO THE BEST OF MY KNOWLEDGE AND EXPERIENCE THE GRADING CONFORMS WITH THE RECOMMENDATIONS CONTAINED IN THE SOILS REPORT AND PLANS WITH THE EXCEPTION THAT ANY CHANGES OR DEVIATIONS FROM THE PLANS DUE TO UNFORESEEN FIELD CONDITIONS HAVE BEEN IDENTIFIED IN THE FINAL SOILS REPORT FOR THE PROJECT. ONE COMPLETE COPY OF THE FINAL SOILS REPORT COMPILED FROM THIS STUDY, WITH MY RECOMMENDATIONS, HAS BEEN SUBMITTED TO THE OFFICE OF THE CITY ENGINEER.

SIGNED _____ DATE _____

G.E./R.C.E. NO. 554/16459 EXP. 6/30/25

WORK TO BE DONE

THE IMPROVEMENTS CONSIST OF CONSTRUCTION OF SEAWALL AND UPPER BLUFF REPAIR. WORK TO BE DONE ACCORDING TO THESE PLANS AND THE SPECIFICATIONS AND STANDARD DRAWINGS OF THE CITY AND COUNTY OF SAN DIEGO. PROPOSED WORK INCLUDES LANDSCAPING TO BLUFF DETAILS.

1. STANDARD SPECIFICATIONS:

DOCUMENT NO.	DESCRIPTION
PWP1070116-01	STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK), 2015 EDITION CITY OF SAN DIEGO STANDARD
PWP1070116-02	SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (WHITE BOOK), 2015 EDIT. CALIFORNIA DEPARTMENT OF
PITS070112-04	TRANSPORTATION, MANUAL OF UNIFORN TRAFFIC CONTROL
PITS070112-06	DEVICES, 2012 EDITION CALIFORNIA DEPARTMENT OF TRANSPORTATION, U.S. CUSTOMARY STANDARD SPECIFICATIONS, 2010 EDITION

2. STANDARD DRAWINGS:

DOCUMENT NO.	DESCRIPTION
PWP1070116-03	CITY OF SAN DIEGO STANDARD DRAWINGS FOR PUBLIC WORKS
PITS070112-05	CONSTRUCTION, 2016 EDITION CALIFORNIA DEPARTMENT OF TRANSPORTATION, U.S. CUSTOMARY STANDARD PLANS, 2010 EDITION

LEGEND

PROPOSED IMPROVEMENTS

IMPROVEMENT	STANDARD DWGS.	SYMBOL
PROPOSED SHOTCRETE WALL/FACING (PVT) ALSO LIMITS OF WORK AND SOIL DISTURBANCE		
PROPOSED TIEBACK (PVT)	T1-T15	
EXISTING COASTAL BLUFF EDGE		
TOP OF WALL ELEVATION		T.O.W. EL. 35.0' MSL±, VARIES
R/W PROPERTY LINE		PL

SHEET INDEX

PROJECT SCOPE

PHASE 1 OF THIS PROJECT INCLUDES STRUCTURAL REPAIRS TO THE APPROXIMATE 170 FT LONG SOUTHERN SEGMENT OF THE COASTAL BLUFF SEAWALL EXTENDING FROM THE BEACH ACCESS STAIRWAY TO THE SOUTHERN PROPERTY LINE AND TO THE (2) CONCRETE COLUMNS THAT SUPPORT THE LOWER PLATFORM LANDING OF THE BEACH ACCESS STAIRWAY. THERE IS ALSO AN APPROXIMATE 10FT LONG SEGMENT OF THE UPPER BLUFF ALONG THE SOUTHERN PROPERTY LINE THAT IS TO BE INFILLED WITH NEW SHOTCRETE

COASTAL COMMISSION PERMIT NO.: 6-00-009

AS-BUILT

BY: _____ DATE: _____

R.C.E.: _____ EXP: _____

0 1" 2" 3"
ORIGINAL DRAWING MEASURE

SOIL ENGINEERING CONSTRUCTION Inc

SOIL ENGINEERING CONSTRUCTION, INC.
LICENSE # A-268082
927 ARGUELLO ST, REDWOOD CITY CA 94063
PHONE (760) 633-3470 SEC JOB NO. 22-006
SEC@SOILENGINEERINGCONSTRUCTION.COM

Robert Mahony
ROBERT D. MAHONY, R.C.E., R.G.E., R.E.G. EXP. 06-30-25

04/03/23
DATE

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	JK DRAWN BY	By: ROBERT D. MAHONY Date: 04/03/23 NAME: SOIL ENGINEERING CONST. R.C.E. 16459 EXP: 06/30/25		

RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
By: _____ Date: _____ DAN GOLDBERG By: _____ Date: _____	By: _____ Date: _____ MOHAMMAD SAMMAK, CITY ENGINEER EXP: 6/30/24 R.C.E.: 37146	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2009" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)

CITY OF SOLANA BEACH	ENGINEERING DEPARTMENT	DRAWING REF. NO.
TITLE SHEET FOR: 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 SEAWALL AND UPPER BLUFF REPAIRS - PHASE 1		G-001
		SBGR-
		Sheet 1 of 18

LEGEND AND ABBREVIATIONS

PROPERTY LINE

20 EXISTING CONTOURS AT 2' INTERVALS

CONC CONCRETE
RET RETAINING

BENCH MARK

CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE.

ELEVATION: 71.450 FEET (NAVD88)

GENERAL NOTES

1.) BOUNDARY SHOWN HEREON IS BASED ON A FIELD SURVEY AND RECORD DATA PER MAP NO. 6838 & MAP NO. 7576.

2.) AERIAL MAPPING PROVIDED BY PHOTO GEODETIC CORP., PROJECT NO. 521320, DATED 8/20/20

3.) ASSESSOR'S PARCEL NUMBERS: 298-240-33,35,57.

PROPERTY LINE DATA TABLE

NUMBER	DIRECTION	DISTANCE
L1	N 06°50'37" W	37.74'
L2	N 35°53'06" W	54.13'
L3	N 14°04'19" W	55.19'
L4	N 89°38'00" E	62.83'
L5	N 07°21'59" W	42.50'
L6	N 45°14'22" W	42.96'
L7	N 59°23'49" W	39.96'
L8	N 32°05'43" E	41.50'
L9	N 25°24'17" W	62.50'
L10	N 18°30'23" E	109.72'

N

0 30 60 90

1 INCH = 30 FEET

GRAPHIC SCALE

SITE PLAN

SCALE: 1"=30'

AS-BUILT

BY:_____ DATE:_____

R.C.E.:_____ EXP:_____

0 1" 2" 3"

ORIGINAL DRAWING MEASURE

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	JK DRAWN BY	By: ROBERT D. MAHONY Date: 04/03/23 NAME: SOIL ENGINEERING CONST. R.C.E. 16459 EXP: 06/30/25			By: DAN GOLDBERG Date: By: Date:	By: MOHAMMAD SAMMAK, CITY ENGINEER EXP: 6/30/24 R.C.E.: 37146 Date:	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

SITE PLAN FOR:
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
SEAWALL AND UPPER BLUFF REPAIRS - PHASE 1

DRAWING REF. NO. G-002

SBGR-

Sheet 2 of 18

GENERAL NOTES:

I. GENERAL

1. MATERIALS AND WORKMANSHIP TO CONFORM WITH THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE, WITH CITY OF SOLANA BEACH AMENDMENTS AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
2. REFERENCE TO CODES, RULES, REGULATIONS, STANDARDS, MANUFACTURER'S INSTRUCTIONS OR REQUIREMENTS OF REGULATORY AGENCIES IS TO THE LATEST PRINTED EDITION OF EACH IN EFFECT AT THE DATE OF SUBMISSION OF BID UNLESS THE DOCUMENT DATE IS SHOWN.
3. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, USE SIMILAR DETAILS OF CONSTRUCTION, SUBJECT TO REVIEW BY THE ENGINEER.
4. DETAILS ON SHEETS TITLED "TYPICAL DETAILS" APPLY TO SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED. SUCH DETAILS ARE NOT NOTED AT EACH LOCATION THAT THEY OCCUR.
5. DO NOT SCALE THE DRAWINGS.
6. PROVIDE MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES INCLUDE, BUT MAY NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DURING CONSTRUCTION. RETAIN A REGISTERED CIVIL ENGINEER WHO IS PROPERLY QUALIFIED TO DESIGN BRACING, SHORING, ETC. VISITS TO THE SITE BY THE ENGINEER WILL NOT INCLUDE OBSERVATION OF THE ABOVE NOTED ITEMS.
7. INFORMATION SHOWN ON THE DRAWINGS RELATED TO EXISTING CONDITIONS REPRESENTS THE PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. REPORT CONDITIONS THAT CONFLICT WITH THE CONTRACT DOCUMENTS TO THE ENGINEER. DO NOT DEVIATE FROM THE CONTRACT DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE ENGINEER.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING A SAFE PLACE TO WORK AND MEETING THE REQUIREMENTS OF ALL APPLICABLE JURISDICTIONS. EXECUTE WORK TO ENSURE THE SAFETY OF PERSONS AND ADJACENT PROPERTY AGAINST DAMAGE BY FALLING DEBRIS AND OTHER HAZARDS IN CONNECTION WITH THIS WORK.
9. NOTWITHSTANDING THE MINIMUM STANDARDS SET FORTH IN THE EXCAVATION AND GRADING CODE, AND NOTWITHSTANDING THE APPROVAL OF THESE GRADING PLANS, THE PERMITEE IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO THE ADJACENT PROPERTY. NO PERSON SHALL EXCAVATE ON LAND SO CLOSE TO THE PROPERTY LINE AS TO ENDANGER ANY ADJOINING PUBLIC STREET, SIDEWALK, ALLEY, FUNCTION OF ANY SEWAGE DISPOSAL SYSTEM, OR ANY OTHER PUBLIC OR PRIVATE PROPERTY WITHOUT SUPPORTING AND PROTECTING SUCH PROPERTY FROM SETTLING, CRACKING, EROSION, SILTING SCOUR OR OTHER DAMAGE WHICH MIGHT RESULT FROM THE GRADING DESCRIBED IN THIS PLAN. THE CITY WILL HOLD THE PERMITEE RESPONSIBLE FOR CORRECTION ON NON-DEDICATED IMPROVEMENTS, WHICH DAMAGE ADJACENT PROPERTY.
10. THE DESIGN IS BASED ON ANTICIPATED SOIL CONDITIONS ON THE BASIS OF THE BORINGS AND SOIL REPORT PREPARED BY SOIL ENGINEERING CONSTRUCTION, TITLED "UPDATED GEOTECHNICAL RECOMMENDATIONS - PROPOSED MAINTENANCE REPAIRS EXISTING LOWER BLUFF SEAWALL & SOUTH PROPERTY LINE UPPER BLUFF CAISSON SYSTEM", DATED FEBRUARY 8, 2023. IF THE ACTUAL FIELD CONDITIONS VARY FROM THE ASSUMED CONDITIONS, ADJUSTMENTS WILL BE MADE AT THE DIRECTION OF THE GEOTECHNICAL ENGINEER AND THE STRUCTURAL ENGINEER.
11. ELEVATIONS SHOWN ARE FROM THE ORIGINAL DRAWINGS. VERIFY IN FIELD & NOTIFY ENGINEER OF ANY DISCREPANCIES BEFORE PROCEEDING

II. SUBMITTALS

1. SUBMIT REQUIRED SUBMITTALS TO THE ENGINEER FOR REVIEW.
2. CONCRETE REINFORCING STEEL:
   A. SHOP DRAWINGS FOR FABRICATION, BENDING AND PLACEMENT OF CONCRETE REINFORCEMENT IN ACCORDANCE WITH ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."
3. CAST-IN-PLACE CONCRETE: MIX DESIGNS PREPARED, STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA FOR EACH CLASS OF CONCRETE. INCLUDE RESULTS OF SLUMP, SHRINKAGE AND COMPRESSION TESTS USED TO ESTABLISH MIX PROPORTIONS AND CERTIFIED MATERIAL CERTIFICATES FOR EACH COMPONENT OF THE MIX.
   A. PROPOSED CONSTRUCTION JOINT AND CONTROL JOINT LOCATIONS FOR REVIEW.
   B. PRODUCT DATA FOR CURING MATERIALS.
   C. PRODUCT DATA FOR NON-SHRINK GROUT.
4. SHOTCRETE:
   A. MIX DESIGNS PREPARED, STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA FOR EACH CLASS OF CONCRETE. INCLUDE RESULTS OF SLUMP, SHRINKAGE AND COMPRESSION TESTS USED TO ESTABLISH MIX PROPORTIONS AND CERTIFIED MATERIAL CERTIFICATES FOR EACH COMPONENT OF THE MIX.
   B. PROPOSED CONSTRUCTION JOINT AND CONTROL JOINT LOCATIONS FOR REVIEW.
   C. PRODUCT DATA FOR CURING MATERIALS.
5. STRUCTURAL STEEL:
   A. SHOP DRAWINGS PRIOR TO FABRICATION IN ACCORDANCE WITH AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
   B. SUBMIT WELDING PROCEDURE SPECIFICATION (WPS) PER AWS D1.1 FOR EACH TYPE OF WELD TO BE USED ON THE PROJECT AND PRODUCT DATA FOR WELDING ELECTRODES, CLEARLY IDENTIFYING LOCATIONS FOR USE OF ELECTRODES.
6. ADHESIVE ANCHORS:
   A. PRODUCT DATA FOR EACH TYPE OF ADHESIVE ANCHORING SYSTEM USED.
7. SEQUENCING PLAN FOR ALL WORK, INCLUDING DEMOLITION AND COLUMN SHORING, INDICATING SEQUENTIAL AND CONCURRENT OPERATIONS.
8. SHOP DRAWINGS FOR ALL TIEBACKS INDICATING THE ASTM MATERIAL DESIGNATIONS, MEMBER DIMENSIONS, INSTALLATION PROCEDURES, EMBEDMENT DEPTHS, DESIGN LOADS, AND CONNECTION DETAILS.
9. CERTIFIED MILL TEST REPORTS FOR EACH OF THE FOLLOWING:
   A. EACH HEAT OF TIEBACK
10. TEST DATA CERTIFYING THAT TIEBACK HAS SUITABLE PHYSICAL PROPERTIES TO FULLY DEVELOP THE MINIMUM GUARANTEED ULTIMATE TENSILE STRENGTH OF THE TIEBACK.

III. FORMWORK

1. DESIGN AND CONSTRUCT FORMWORK IN ACCORDANCE WITH ACI 347 "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE" UNLESS OTHERWISE NOTED.
2. PROVIDE POUR POCKETS IN FORMS AND UNDER EXISTING STRUCTURAL MEMBERS AS REQUIRED TO PREVENT AIR POCKETS AND/OR "HONEYCOMB" UNDER OR AROUND THE EXISTING MEMBERS. CONCRETE CAST WITH AIR POCKETS AND/OR "HONEYCOMB" UNDER OR AROUND THE MEMBERS IS NOT ACCEPTABLE.
3. PROVIDE 3/4 INCH x 3/4 INCH CHAMFER STRIPS ON ALL EXTERNAL CORNERS OF BEAMS, COLUMNS AND WALLS, UNLESS OTHERWISE NOTED.
4. REMOVE FORMS AND SHORES IN ACCORDANCE WITH THE FOLLOWING:

LOCATION	REMOVE NO SOONER THAN
BOTTOM FORMS AND SHORES FOR MILDLY REINFORCED SLABS, BEAMS AND GIRDERS	7 DAYS AND F'C = 3500 PSI MINIMUM
SIDE FORMS FOR BEAMS AND GIRDERS	72 HOURS
COLUMNS AND WALLS	72 HOURS
FOOTINGS AND GRADE BEAMS	48 HOURS

5. PROVIDE CURING WHERE FORMS ARE REMOVED IN LESS THAN 7 DAYS.
6. FOAM FILL: ASTM C578, EXPANDED POLYSTYRENE (EPS) WITH MINIMUM COMPRESSIVE STRENGTH OF 40 PSI AT 10% DEFORMATION.

IV. REINFORCING STEEL

1. FABRICATE AND PLACE REINFORCING STEEL IN ACCORDANCE WITH ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE", UNLESS OTHERWISE NOTED.
2. REINFORCING TO CONFORM TO THE FOLLOWING, UNLESS OTHERWISE NOTED:

REINFORCING STEEL	TYPE
#5 AND SMALLER	ASTM A615, 60 KSI
#6 AND LARGER & BARS TO BE WELDED	ASTM A706, 60 KSI
HIGH STRENGTH REINF WHERE NOTED ON DWGS	ASTM A615, 75 KSI
1/2 INCH DIAMETER LOW RELAXATION SEVEN-WIRE POST-TENSIONING STRAND	ASTM A416, 270 KSI
WELDED STEEL WIRE FABRIC	ASTM A185, 70 KSI
SMOOTH DOWELS IN SLAB ON GRADE	ASTM A36, 36 KSI

3. ACCURATELY POSITION, SUPPORT, AND SECURE REINFORCEMENT FROM DISPLACING DUE TO FORMWORK, CONSTRUCTION, OR CONCRETE PLACEMENT OPERATIONS. LOCATE AND SUPPORT REINFORCING BY METAL CHAIRS, RUNNERS, BOLSTERS, SPACERS, AND HANGERS AT A MAXIMUM 3-FOOT SPACING.
4. MECHANICAL COUPLERS: TYPE 2 PER ACI-318, UNLESS OTHERWISE NOTED.
5. WELD REINFORCING STEEL IN ACCORDANCE WITH AWS D1.4 USING QUALIFIED WELDERS.
6. TERMINATE REINFORCING STEEL IN STANDARD HOOKS, UNLESS OTHERWISE SHOWN.
7. ALL STEEL REINFORCEMENT TO EPOXY COATED

V. EPOXY-COATED REINFORCEMENT

1. REINFORCEMENT SHALL BE SHOP FABRICATED PRIOR TO COATING AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 284.
2. VISIBLE VOIDS IN THE COATING, REGARDLESS OF CAUSE, SHALL BE PATCHED IF THE TOTAL AREA OF VOIDS EXCEEDS 0.25% OF THE SURFACE AREA OF THE BAR. BARS THAT REQUIRE SURFACE AREA PATCHING LESS THAN 5% OF THE TOTAL SURFACE AREA OF THE BAR MAY BE FIELD COATED WITH AN APPROVED PATCH MATERIAL SUPPLIED BY THE EPOXY FABRICATOR. BARS WHICH REQUIRE SURFACE PATCHING IN EXCESS OF 5% OF THE TOTAL SURFACE AREA OF THE BAR WILL BE REJECTED.
3. ALL SYSTEMS FOR HANDLING COATED BARS SHALL HAVE PADDED CONTACT AREAS FOR THE BARS WHENEVER POSSIBLE. ALL BUNDLING BANDS SHALL BE PADDED AND ALL BUNDLES WHALL BE LIFTED WITH STRONG BACK, MULTIPLE SUPPORTS OR A PLATFORM BRIDGE SO AS TO PREVENT BAR-TO-BAR ABRASION FROM SAGS IN THE BAR BUNDLE.
4. ALL STEEL REINFORCEMENT TO BE EPOXY COATED.

VI. CAST-IN-PLACE CONCRETE

1. PROPORTION, MIX, TRANSPORT AND PLACE CAST-IN-PLACE CONCRETE IN ACCORDANCE WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE" UNLESS OTHERWISE NOTED.
2. CONCRETE IS REINFORCED AND CAST-IN-PLACE UNLESS OTHERWISE NOTED. WHERE REINFORCING IS NOT SPECIFICALLY SHOWN OR WHERE DETAILS ARE NOT GIVEN, PROVIDE REINFORCING SIMILAR TO THAT SHOWN FOR SIMILAR CONDITIONS, SUBJECT TO REVIEW BY THE OWNER'S REPRESENTATIVE.
3. ROUGHEN CONCRETE SURFACES OF CONSTRUCTION JOINTS TO 1/4 INCH AMPLITUDE AND CLEAN OF LAITANCE, FOREIGN MATTER, AND LOOSE PARTICLES AT THE FOLLOWING LOCATIONS: [WHERE CAST AGAINST EXISTING CONCRETE; AT WALL, COLUMN AND BEAM JOINTS; WHERE CAST EXISTING MASONRY/STONE, ETC.]
4. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATIONS OF ADDITIONAL CONCRETE CURBS AND HOUSEKEEPING PADS NOT SHOWN.
5. CONCRETE CLEAR COVER TO REINFORCING BARS IS AS FOLLOWS, UNLESS OTHERWISE NOTED.

LOCATION	CLEAR COVER
CONCRETE PLACED AGAINST EARTH	3 INCHES
FORMED SURFACES EXPOSED TO WEATHER OR IN CONTACT WITH EARTH:	
#6 BARS AND LARGER	2 INCHES
#5 BARS AND SMALLER	1 1/2 INCHES
SLABS ON GRADE (TOP CLEARANCE)	1 1/2 INCHES
BEAMS, GIRDERS AND COLUMNS NOT EXPOSED TO WEATHER OR EARTH:	1 1/2 INCHES
WALL OR SLAB SURFACES NOT EXPOSED TO WEATHER OR EARTH:	
#5 & SMALLER	3/4 INCH
#6 & #7	1 INCH
#8, #9, #10 & #11	1 1/2 INCHES
#14 & #18	2 1/2 INCHES

6. CONCRETE TYPES:
   A. SEAWALL AND BLUFF INFILL:
      a. 28-DAY STRENGTH: F'C = 5,000 PSI
      b. TYPE: NORMAL WEIGHT
      c. WATER-CEMENT RATIO: 0.40 MAX
      d. WATER-SOLUBLE CHLORIDE ION CONTENT IN CEMENT: 0.15 MAX
7. WATER-SOLUBLE CHLORIDE ION CONTENT THAT IS CONTRIBUTED FROM THE INGREDIENTS INCLUDING WATER, AGGREGATES, CEMENTITIOUS MATERIALS, AND ADMIXTURES SHALL BE DETERMINED ON THE CONCRETE MIXTURE BY ASTM C1218 AT AGE BETWEEN 28 AND 42 DAYS.
8. DRYING SHRINKAGE: PER ASTM C192 & C157, MEASURED AT 28 DAYS AIR DRY AGE.
   A. TYPICAL: 0.050 MAXIMUM.
   B. PROVIDE SHRINKAGE REDUCING ADMIXTURE WHEN SHRINKAGE TEST DATA NOT AVAILABLE.
9. FLY ASH: ASTM C618, CLASS F. MINIMUM OF [25] PERCENT OF CEMENTITIOUS MATERIAL BY WEIGHT.
10. ADMIXTURES TO BE COMPATIBLE WITH ALL OTHER COMPONENTS IN THE MIX AND INCLUDED IN THE MIX DESIGN. WHEN USED COMPLY THE FOLLOWING:
    A. AIR ENTRAINMENT: ASTM C260.
    B. WATER REDUCING, RETARDING AND ACCELERATING: ASTM C494, TYPES A THROUGH G.
    C. SHRINKAGE REDUCING: ASTM C494 & ASTM C157.
11. CONTINUOUSLY MOIST CURE CONCRETE SLABS ON GRADE FOR 7 DAYS MINIMUM USING WATER FOG SPRAYS, PONDING, SATURATED ABSORPTIVE COVERS OR MOISTURE RETAINING COVERS.
12. LIQUID CURING COMPOUND: ASTM C309, TYPE1, CLEAR OR TRANSLUCENT.
    A. FOR SURFACES TO BE FINISHED, CONFIRM THAT CURING COMPOUND IS COMPATIBLE WITH FINISH.
13. NON-SHRINK GROUT: ASTM C1107, WITH MINIMUM COMPRESSIVE STRENGTH OF 7,000 PSI.

VII. SHOTCRETE

1. PROPORTION, MIX, TRANSPORT AND PLACE SHOTCRETE IN ACCORDANCE WITH ACI 506.2 "SPECIFICATION FOR SHOTCRETE" U.O.N. TOLERANCES FOR SHOTCRETE TO CONFORM TO ACI 117 "STANDARD SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS" FOR CAST-IN-PLACE CONCRETE.
2. USE SHOTCRETE ONLY WHERE DESIGNATED ON THE DRAWINGS. NO SUBSTITUTION OF SHOTCRETE FOR CAST-IN-PLACE CONCRETE IS ALLOWED.
3. COMPLY WITH THE REQUIREMENTS OF THE CAST-IN-PLACE CONCRETE AND REINFORCING STEEL SECTIONS OF THESE GENERAL NOTES, EXCEPT AS MODIFIED IN THIS SECTION.
4. SHOTCRETE TYPES:

LOCATION	28-DAY STRENGTH
SEAWALL	5,000 PSI

5. MAXIMUM AGGREGATE SIZE: 3/8 INCH
6. MEAN CORE GRADE PER ACI 506.2: 2.5
7. A PREQUALIFICATION TEST PANEL IS REQUIRED FOR EACH NOZZLEMAN. EACH TEST PANEL TO BE 6 FEET BY 6 FEET BY 8 INCHES THICK AND TO HAVE REINFORCING STEEL SIMILAR TO THE MOST CONGESTED CONDITION ON THE PROJECT. A MEAN TEST PANEL CORE GRADE IS REQUIRED FOR EACH NOZZLEMAN.
8. CLEAN SUBSTRATES AND FORMS OF LOOSE OR UNSOUND MATERIAL PRIOR TO THE PLACEMENT OF SHOTCRETE. WET CEMENTITIOUS OR ABSORPTIVE SUBSTRATES AND FORMS PRIOR TO SHOOTING. DO NOT PLACE SHOTCRETE AGAINST SURFACES WITH STANDING OR RUNNING WATER.
9. COMPLETELY FILL AREAS AND COMPLETELY ENCASE REINFORCEMENT. REMOVE REBOUND AND OTHER LOOSE MATERIAL FROM NEW CONSTRUCTION.
10. DO NOT REUSE REBOUND OR OVERSPRAY.
11. FINISHED APPEARANCE / COSMETIC SHOTCRETE: IT IS THE INTENT OF THESE SPECIFICATIONS THAT THE COMPLETED FACING COSMETIC SHOTCRETE ON ANCHORED WALLS HAVE AN UNEVEN SURFACE PROFILE AND COLOR SIMILAR IN APPEARANCE TO THAT OF THE ADJACENT BLUFFS.
12. KEEP SHOTCRETE CONTINUOUSLY MOIST BY DIRECT WATER APPLICATION FOR 24 HOURS AFTER SHOOTING. FOLLOW BY CURING THE SHOTCRETE WITH A FOG SPRAY OR AN APPROVED MOISTURE-RETAINING COVER, MEMBRANE, OR CURING COMPOUND UNTIL 7 DAYS AFTER SHOOTING.
13. LIQUID CURING COMPOUND: ASTM C309, TYPE1, CLEAR OR TRANSLUCENT.
    A. FOR SURFACES TO BE FINISHED, CONFIRM THAT CURING IS COMPATIBLE WITH FINISH.
    B. APPLY AT TWICE THE MANUFACTURER'S RECOMMENDED COVERAGE.

VIII. STRUCTURAL STEEL

1. FABRICATE AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH AISC 360, AISC 303 AND AISC 340. WELDED CONNECTIONS TO CONFORM TO AWS D1.1 AND D1.8
2. STRUCTURAL STEEL TO CONFORM TO THE FOLLOWING UNLESS OTHERWISE NOTED:

SECTIONS	TYPE
ROLLED SHAPES:	
WIDE FLANGES	ASTM A992
CHANNELS, ANGLES, & OTHER	ASTM A36
PLATES:	
COLUMN BASE PLATES	ASTM A572, GR 50
BRACE GUSSET PLATES	ASTM A572, GR 50
BEAM SHEAR CONNECTION PLATES	ASTM A572, GR 50
COLUMN CONTINUITY PLATES	ASTM A572, GR 50
BEAM STIFFENER PLATES	ASTM A36
EDGE OF DECK BENT PLATE	ASTM A36
OTHER	ASTM A572, GR 50
STEEL PIPE	ASTM A53 GRADE B
COLD FORMED STRUCTURAL TUBING (HSS)	ASTM A500 GRADE B
STAINLESS STEEL SHAPES, PLATES & BARS	ASTM A276, TYPE 304L
BOLTS	ASTM F3125: GRADE A325X, F1852X
MACHINE BOLTS	ASTM A307, GRADE A
STAINLESS STEEL BOLTS	ASTM A193 B8M, CLASS 1
ANCHOR RODS	ASTM F1554, GR55 W/ WELDABLE SUPPLEMENT S1
ALL-THREAD ROD AND THRU BOLTS	ASTM [A36;A572, GR50]
HIGH STRENGTH ALL-THREAD ROD	ASTM A193 B7, GR105
STAINLESS STEEL ALL-THREAD ROD	ASTM A193 B8M CLASS 2
HANGER ROD	ASTM A572, GR50
WELDED SHEAR STUD CONNECTORS	ASTM A108, GRADE 1015 TO1020
WELDED THREADED STUDS	ASTM A108, GRADE 1015 TO 1020
NUTS FOR BOLTS AND MACHINE BOLTS	ASTM A563
STAINLESS STEEL NUTS	ASTM A194 GR8M
HARDENED WASHERS FOR BOLTS	ASTM F436
UNHARDENED FLAT WASHERS	ASTM F844, ANSI B18.22.1
STAINLESS STEEL WASHERS	ASTM A276, TYPE 304
BEVELED WASHERS	ANSI B18.23.1

3. HOT DIP GALVANIZE IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STRUCTURAL STEEL AND FASTENERS. REPAIR GALVANIZING AFTER WELDING IN ACCORDANCE WITH ASTM A780. HOT-DIP GALVANIZE ASTM F1554 RODS IN ACCORDANCE WITH ASTM F2329.
4. ARC-WELDING ELECTRODES/FILLER METALS TO BE LOW HYDROGEN TYPES E7XTX, E7XT7XX OR E70XXX MINIMUM AS APPLICABLE. ELECTRODES WITH CHARPY V-NOTCH TESTS VALUES OF A MINIMUM 20 FOOT-POUNDS AT 0 DEGREES FAHRENHEIT AND 40 FOOT- POUNDS AT 70 DEGREES FAHRENHEIT ARE TO BE USED AT ALL WELDS OF THE SEISMIC FORCE RESISTING SYSTEM (SFRS), WHERE DESIGNATED "DC" ON THE DRAWINGS AND THE FOLLOWING LOCATIONS:
   A. COMPLETE JOINT PENETRATION WELDS.
   B. BEAM TO COLUMN MOMENT CONNECTIONS – INCLUDING FLANGE, WEB,DOUBLER PLATES, BASE PLATES, AND CONTINUITY PLATE FILLET AND PARTIAL JOINT PENETRATION WELDS.
   C. BRACE CONNECTIONS – INCLUDING BRACE, GUSSET, BASE PLATES, BEAM STIFFENER PLATES, AND CONTINUITY PLATE FILLET AND PARTIAL JOINT PENETRATION WELDS.
   D. COLLECTORS – SHEAR TABS, FLANGE AND WEB WELDS.
5. WELDERS TO BE QUALIFIED IN ACCORDANCE WITH AWS D1.1 WITH SUPPLEMENTAL QUALIFICATIONS PER AWS D1.8.
6. WHERE FIELD WELDING IS NOTED, THE DESIGNATION IS GIVEN AS A SUGGESTED CONSTRUCTION PROCEDURE ONLY.

IX. ADHESIVE ANCHORS AND DOWELS

1. ANCHORS AND DOWELS INSTALLED INTO CONCRETE: HILTI HIT-RE-500-V3 (ICC-ESR-3814), SIMPSON STRONG-TIE SET-3G (ICC-ESR-4057) OR DEWALT PURE 110+ (ICC-ESR-3298). ALL EMBEDMENT DEPTHS NOTED ON DRAWINGS ARE EFFECTIVE EMBEDMENT PER MANUFACTURER.
2. THE TESTING LABORATORY IS TO PERFORM TENSION TESTS ON 10% OF ANCHORS AND DOWELS INSTALLED INTO CONCRETE TO THE FOLLOWING TEST LOADS:

ROD DIA OR BAR SIZE	CMIN	TEST LOAD (LBS)	
		ANCHOR LOCATED > CMIN & < 12" FROM EDGE	ANCHOR LOCATED ≥ 12" FROM EDGE
3/8", #3	2"	1,300	1,600
1/2", #4	2 1/2"	2,000	3,400
5/8", #5	3"	2,800	4,200
3/4", #6	4"	3,700	5,000
7/8", #7	4 1/2"	3,700	5,000
1", #8	5"	4,800	6,100

4. ANCHORS AND DOWELS INSTALLED INTO UNREINFORCED BRICK MASONRY (URM): HILTI-HY 270 (ICC-ESR-4144), SIMPSON STRONG-TIE SET (ICC-ESR-1772), OR DEWALT AC100+ GOLD (ICC-ESR-4105). USE SCREENS AS SPECIFIED BY THE MANUFACTURER.
5. ANCHORS: ASTM A36 THREADED RODS WITH ASTM A563 GRADE A NUTS AND ANSI B18.22.1 TYPE A WASHERS, UNLESS OTHERWISE NOTED. ANCHORS DESIGNATED AS ASTM A193 GRADE B7 THREADED RODS TO USE ASTM A563 GRADE DH HEAVY HEX NUTS AND ASTM F436 WASHERS.
6. REBAR DOWELS: ASTM A615 GRADE 60 REINFORCING STEEL.
7. INSTALL ANCHORS IN ACCORDANCE WITH LATEST ICC-ESR REPORT AND MANUFACTURER INSTRUCTIONS.
8. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE DOWEL AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOWEL MAY NOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER WILL DETERMINE A NEW LOCATION.
9. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH ADHESIVE ANCHORS.

X. EROSION CONTROL NOTES

1. STORM WATER AND NON-STORM WATER DISCHARGE CONTROL: BEST MANAGEMENT PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO MANAGE STORM WATER AND NON-STORM WATER DISCHARGES FROM THE SITE AT ALL TIMES DURING EXCAVATION AND GRADING ACTIVITIES.
2. EROSION AND SEDIMENT CONTROL: EROSION PROTECTION SHALL BE EMPHASIZED AS THE MOST IMPORTANT MEASURE FOR KEEPING SEDIMENT ON SITE DURING EXCAVATION AND GRADING ACTIVITIES. SEDIMENT CONTROLS SHOULD BE USED AS A SUPPLEMENT TO EROSION PREVENTION FOR KEEPING SEDIMENT ON SITE.
3. THE TOPS OF ALL SLOPES SHALL BE DIKED OR TRENCHED TO PREVENT WATER FLOWING OVER CRESTS OF SLOPES.
4. THE CONTRACTOR SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE OFFICE OF THE CITY ENGINEER.
5. THE CONTRACTOR SHALL SWEEP ROADWAYS AND ENTRANCES TO AND FROM THE SITE ON A REGULAR BASIS TO KEEP THEM FREE OF SOIL ACCUMULATION AND AT ALL OTHER TIMES DIRECTED BY THE CITY ENGINEER.
6. THE CONTRACTOR SHALL WATER SITE ON A CONTINUOUS BASIS TO MINIMIZE AIR BORNE DUST CREATED FROM GRADING AND HAULING OPERATIONS OR EXCESSIVE WIND CONDITIONS, AND AT ALL TIMES DIRECTED BY THE CITY ENGINEER
7.
8. IN THE EVENT SILT THE DOES ENTER THE EXISTING PUBLIC STORM DRAIN SYSTEM, REMOVAL OF THE SILT FROM THE SYSTEM WILL BE AT THE CONTRACTOR'S EXPENSE.

Degenkolb
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San Diego, CA 92101
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DE Job Number: C1676031.00
Date: 3/22/2023

REGISTERED PROFESSIONAL ENGINEER — JEREMY T. CALLISTER — No. S 5646 — STRUCTURAL — STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	By: JEREMY T. CALLISTER Date: 3/22/2023	Description	No.	Date
		LH DRAWN BY	NAME: DEGENKOLB ENGINEERS		
			R.C.E. S.5646 EXP: _____		

RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
By: _____ Date: _____	By: _____ Date: _____	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)
By: _____ Date: _____		

CITY OF SOLANA BEACH	ENGINEERING DEPARTMENT	DRAWING NO.
GENERAL NOTES 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS PHASE 1		S-001 Sheet 3 of 18

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GENERAL NOTES CONT:

XI. PERMANENT TIEBACKS

1. PERMANENT TIEBACK RODS SHALL BE COLD STRETCHED HIGH STRENGTH ALLOY THREADED STEEL BARS (THREADBARS) FABRICATED FROM STEEL CONFORMING TO ASTM A722 WITH A MINIMUM ULTIMATE TENSILE STRENGTH OF 150,000 PSI (REGULAR GRADE DYWIDAG BARS). THE UNBONDED LENGTH SHALL BE COVERED IN A SMOOTH PLASTIC SHEATHING, SUCH AS PVC OR POLYETHYLENE, TO PREVENT BONDING. RODS SHALL BE FULL LENGTH WITHOUT SPLICES OR COUPLERS, UNKINKED, AND FREE FROM NICKS OR ABRASIONS.

2. PERMANENT TIEBACK STRANDS SHALL BE EPOXY COATED, EPOXY-FILLED IN THE INTERSTICES BETWEEN THE STRAND WIRES, GRIT-IMPREGNATED, 0.6-INCH NOMINAL DIAMETER LOW-RELAXATION STRAND, CONSISTING OF 7 STRESS-RELIEVED STEEL WIRES. THE STRAND SHALL BE IN ACCORDANCE WITH ASTM A882. THE STEEL STRAND BENEATH THE COATING SHALL HAVE A MINIMUM ULTIMATE TENSILE STRENGTH OF 270 KSI, IN ACCORDANCE WITH ASTM A416, PLUS SUPPLEMENTS FOR LOW-RELAXATION WIRE AND LOW-RELAXATION STRAND. WIRES SHALL BE FULL LENGTH WITHOUT SPLICES OR COUPLERS, UNKINKED, AND FREE FROM NICKS OR ABRASIONS. USE FLOFIL STRANDS, SUPPLIED BY INSTEEL INDUSTRIES, INC., OR APPROVED EQUIVALENT FOR PERMANENT TIEBACKS.

3. PERMANENT TIEBACK ASSEMBLIES SHALL BE DOUBLE CORROSION PROTECTED OVER THE ENTIRE LENGTH OF THE ANCHOR. DOUBLE CORROSION PROTECTION SHALL CONSIST OF EPOXY COATED BARS, OR EPOXY COATED/FILLED STRANDS, IN CONTINUOUS GROUT. OVER THE UNBONDED LENGTH THE BARS/STRANDS SHALL BE INDIVIDUALLY GREASED AND SHEATHED TO PREVENT BONDING. CORRUGATED PE SHEATHING SHALL BE PROVIDED OVER THE LENGTH OF THE TIEBACK.

4. ANCHORAGES SHALL BE CAPABLE OF DEVELOPING NO LESS THAN 95% OF THE MINIMUM ULTIMATE TENSILE STRENGTH OF THE TENDONS, AND SHALL CONFORM TO THE STATIC STRENGTH REQUIREMENTS OF THE PTI "GUIDE SPECIFICATION FOR POST-TENSIONING MATERIALS." AT BARS, ANCHOR HEADS SHALL BE DESIGNED TO ACCEPT THE BAR LOADS AND TRANSFER THE ENTIRE LOAD ONTO THE BEARING PLATE. AT STRANDS, ANCHOR HEADS SHALL BE DESIGNED TO ACCEPT INDIVIDUAL STRAND LOADS, SEAT THE WEDGES, AND TRANSFER THE ENTIRE TENDON LOAD ONTO THE BEARING PLATE.

5. WEDGES FOR STRAND TIEBACKS SHALL BE BITE-THROUGH WEDGES, SPECIFICALLY DESIGNED AND MANUFACTURED FOR EPOXY COATED STRAND. REMOVAL OF EPOXY COATING TO ACCOMMODATE CONVENTIONAL WEDGES IS NOT ALLOWED.

6. CENTRALIZERS AND SPACERS SHALL BE STEEL OR PLASTIC. WOOD SHALL NOT BE USED. CENTRALIZERS SHALL BE DESIGNED TO WITHSTAND LATERAL LOADS FROM THE BARS OR TENDONS. COMBINATION SPACER/CENTRALIZERS ARE ACCEPTABLE. SPACERS AND CENTRALIZERS SHALL NOT RESTRICT THE PASSAGE OF GROUT, AND SHALL BE ATTACHED SO THEY ARE RESTRAINED FROM MOVING UP OR DOWN THE BARS/STRANDS DURING INSTALLATION OR GROUTING.

   THE SPACERS AND CENTRALIZERS SHALL MEET THE FOLLOWING ADDITIONAL CRITERIA FOR STRAND TIEBACKS:

   A. SPACERS SHALL SEPARATE THE TENDON STRANDS SO THAT THE SURFACE OF EACH STRAND CAN BE SURROUNDED BY GROUT AND SO THAT INDIVIDUAL STRANDS HAVE CLEARANCES OF NO LESS THAN 0.5 INCHES FROM EACH OTHER.

   B. CENTRALIZERS SHALL PROVIDE A MINIMUM 0.5 INCHES OF GROUT COVER BETWEEN THE OUTER PERIMETER ROW OF TENDON STRANDS AND THE BOREHOLE WALL.

   C. WHERE PE SHEATHING IS PRESENT, CENTRALIZERS SHALL PROVIDE 0.5 INCHES OF GROUT COVER BETWEEN THE STRANDS AND THE SHEATHING AND AT LEAST 0.5 INCHES OF GROUT COVER BETWEEN THE PE SHEATHING AND THE BOREHOLE.

7. ALL METAL COMPONENTS OF THE BAR/STRAND ANCHORAGE SYSTEM SHALL BE COMPATIBLE WITH RESPECT TO THEIR CORROSION POTENTIAL AND THE SOLDIER BEAM CONNECTION.

8. HANDLING, SHIPPING, AND STORAGE SHALL BE CONDUCTED IN A MANNER THAT PROTECTS ALL BARS AND TENDON ASSEMBLIES AND HARDWARE FROM MECHANICAL DAMAGE, ABRASION, CORROSION, CHEMICAL ATTACK, AND DIRT. EACH BAR/TENDON SHALL BE TAGGED AND IDENTIFIABLE AT ALL TIMES. THE CONTRACTOR SHALL PROVIDE PROPER STORAGE FACILITIES ON SITE FOR THE TIME BETWEEN DELIVERY AND INSTALLATION OF BARS/STRANDS AND HARDWARE. STORAGE FACILITIES SHALL BE DRY AND SHALL PROTECT EPOXY-COATED BARS/STRAND FROM EXPOSURE TO SUNLIGHT. IMPROPER HANDLING, SHIPMENT, OR STORAGE WILL BE SUFFICIENT CAUSE FOR REJECTION OF TENDONS.

9. THE BARS/TENDONS SHALL BE HANDLED AND PROTECTED DURING THEIR INSERTION IN THE HOLES IN SUCH A MANNER THAT PREVENTS PHYSICAL DAMAGE AND SHARP BENDS AND PROTECTS THE EPOXY COATING AND OTHER CORROSION PROTECTION ELEMENTS. SPECIAL MEASURES SHALL BE TAKEN TO PREVENT ABRASION OF THE BARS/TENDONS AT THE BOREHOLE COLLAR. FOR STRAND TIEBACKS, EACH TENDON SHALL BE FITTED WITH A PROTECTIVE NOSE CONE PRIOR TO INSERTION TO KEEP INDIVIDUAL STRAND TIPS FROM CATCHING ON THE BOREHOLE WALLS.

10. THE CONTRACTOR SHALL CUT THE BAR/TENDON STRAND LENGTHS PROTRUDING BEYOND THE ANCHOR HEAD. CUTTING OF BAR/TENDON PROTRUSIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE PREFERRED METHOD IS BY ABRASIVE BLADES. USE OF A CUTTING TORCH IS NOT ACCEPTABLE. CARE SHALL BE TAKEN NOT TO DAMAGE THE ANCHOR HEAD HARDWARE PACKAGE. THE EXPOSED CUT ENDS OF THE BARS/TRANDS SHALL BE CORROSION PROTECTED WITH EPOXY MATERIALS PER MANUFACTURERS RECOMMENDATIONS.

11. STRUCTURAL GROUT FOR TIEBACK HOLES SHALL CONTAIN A MINIMUM OF 10 SACKS OF CEMENT PER CUBIC YARD AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI IN 7 DAYS. GROUT SHALL BE PUMPED INTO PLACE FROM THE BACK OF THE HOLE TOWARD THE FRONT. PERMANENT TIEBACKS SHALL BE FULLY GROUTED WITH STRUCTURAL GROUT FROM END TO END.

XII. TIEBACK INSTALLATION

1. TIEBACK DETAILS AND PERFORMANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL SELECT MATERIALS AND PROCEDURES SUITABLE FOR THE SITE AND THE PROJECT CONSISTENT WITH THE CONTRACT DOCUMENTS. THE BONDED TIEBACK LENGTHS INDICATED ON THE DRAWINGS ARE FOR GUIDANCE ONLY. THE INDICATED TIEBACK BONDED LENGTHS MAY BE ALTERNATIVELY DETERMINED BASED ON IN SITU TESTING. ULTIMATELY, THE BONDED LENGTHS SHALL BE SUFFICIENT TO DEVELOP THE INDICATED TEST LOADS, AND THE BOREHOLE DIAMETER, ANCHOR LENGTH, INSTALLATION PROCEDURES, CURING TIME, AND ADJUSTMENTS PER ACTUAL FIELD CONDITIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

2. TIEBACK HOLES SHALL BE EITHER DRILLED WITH CASING OR THE GEOTECHNICAL ENGINEER MAY PERMIT NO CASING BASED ON FIELD OBSERVATIONS. CONTRACTOR TO COORDINATE WITH GEOTECHNICAL ENGINEER REGARDING ALTERNATIVE DRILLING PROCEDURES AT ADVERSE CONDITIONS.

3. HOLES DRILLED FOR TIE-BACK ANCHORS SHALL BE DONE WITHOUT DETRIMENTAL LOSS OF GROUND, SLOUGHING OR CAVING OF MATERIALS, AND WITHOUT ENDANGERING PREVIOUSLY INSTALLED SHORING MEMBERS OR EXISTING FOUNDATIONS.

4. DRILLING SHALL BE PERFORMED WITH CARE IN VICINITY OF POTENTIAL OBSTRUCTIONS. CONTRACTOR SHALL USE CARE IN CONTROLLING AND MEASURING DRILL ANGLE. TIEBACK LENGTHS, ANGLES, AND LOCATIONS HAVE BEEN COORDINATED TO THE FULLEST EXTENT POSSIBLE TO AVOID OBSTRUCTIONS. HOWEVER, IF OBSTRUCTIONS ARE ENCOUNTERED PRIOR TO COMPLETION OF DRILLING, THE HOLE SHALL BE ABANDONED AND FILLED WITH NEAT CEMENT GROUT. NOTIFY THE SHORING ENGINEER FOR DIRECTION. A NEW HOLE WITH THE ANGLE ADJUSTED SHALL BE DRILLED.

5. ALL LOOSE MATERIAL SHALL BE REMOVED FROM THE HOLE PRIOR TO PLACEMENT OF THE TIEBACK. WHERE TIEBACKS EXTEND BELOW WATER TABLE, WATER MAY REMAIN IN THE CASED HOLD PROVIDED GROUT IS PLACED BY A GROUT TUBE EXTENDING TO THE BOTTOM OF THE HOLE.

6. DO NOT INSTALL TIEBACK ROD UNTIL INSPECTOR OF RECORD AND GEOTECHNICAL ENGINEER HAVE VIEWED AND APPROVED THE HOLE.

7. INSTALL GROUT OVER THE FULL LENGTH OF THE TIEBACK. GROUTING METHODS SHALL ENSURE THAT ALL VOIDS ARE FILLED AND THAT TIEBACKS MEET TESTING CRITERIA. ALL TIEBACKS SHALL BE EQUIPPED WITH POST GROUTING TUBES. POST GROUTING PROCEDURES SHALL BE USED AT ALL TIEBACKS.

8. GROUT MIXER SHALL PRODUCE GROUT FREE OF LUMPS AND INDISPENSED CEMENT. GROUTING EQUIPMENT SHALL BE SIZED TO ENABLE THE GROUT TO BE PUMPED IN A CONTINUOUS OPERATION. THE MIXER SHALL BE CAPABLE OF CONTINUOUSLY AGITATING THE GROUT.

9. CONTRACTOR SHALL RECORD GROUT PRESSURE AND QUANTITY OF GROUT PLACED.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REGROUTING, REDRILLING, OR REPLACEMENT OF TIEBACKS THAT FAIL TO MEET TEST CRITERIA.

11. TIEBACK TESTING MAY COMMENCE 3 DAYS AFTER POST-GROUTING OPERATIONS PROVIDED GROUT COMPRESSIVE STRENGTH HAS REACHED 3000 PSI.

12. AFTER THE HIGH STRENGTH GROUT HAS ACHIEVED 3000 PSI, THE TIEBACK SHALL BE STRESSED IN THE FOLLOWING MANNER:

    A. INSTALL ANCHORAGE.

    B. PERFORMANCE TEST SELECT TIEBACKS IN ACCORDANCE WITH THE TIEBACK TESTING SECTION OF THESE GENERAL NOTES.

    C. PROOF TEST EVERY TIEBACK BY STRESSING TO TEST LOAD SHOWN IN THE SCHEDULE ON S-541 AND MAINTAINING THAT LOAD FOR 30 MINUTES. PROOF TEST IS SUCCESSFUL IF THE CRITERIA FOR PERFORMANCE TESTS, FOUND IN THE TIEBACK TESTING SECTION OF THESE GENERAL NOTES, ARE MET.

    D. TEMPORARILY STRESS ANCHOR TO MAXIMUM 80% OF GROSS ULTIMATE TENSILE STRENGTH (GUTS) TO COMPENSATE FOR WEDGE SEATING LOSSES. ANCHOR SYSTEMS SUPPLIER TO PROVIDE STRESSING DATA SHEET PRIOR TO STRESSING.

    E. ADJUST LOAD TO THE LOCK LOAD SHOWN IN THE TIEBACK SCHEDULE AND SECURE ANCHORAGE DEVICES.

13. IF THE TIEBACK FAILS TO MAINTAIN THE TEST LOAD FOR TEN MINUTES, USE POST GROUTING PROCEDURES TO REPAIR TIEBACKS. A TUBE SHALL BE PROVIDED WITH THE TIEBACK FOR SUCH PURPOSES. AFTER POST GROUTING THE TIEBACKS SHALL BE RE-TESTED. IF THE TIEBACK STILL FAILS, AN ADDITIONAL TIEBACK SHALL BE ADDED AT THE DIRECTION OF THE SHORING ENGINEER AT THE CONTRACTOR'S EXPENSE.

14. THE MINIMUM PRESSURE FOR POST GROUTING SHALL BE 300 PSI, SUBJECT TO CONTROL TO PREVENT EXCESSIVE HEAVE OR FRACTURING. POST GROUTING SHALL TAKE PLACE AFTER INITIAL GROUT HAS SET FOR 24 HOURS. POST GROUTING SHALL OCCUR IN THE BONDED LENGTH ONLY. THE POST-GROUT PRESSURE SHALL BE SUFFICIENT TO FRACTURE THE INITIAL GROUT AND THEREAFTER SHALL BE REDUCED TO 300 PSI. THE CONTRACTOR SHALL DETERMINE THE QUANTITY OF GROUT TO BE PLACED AND THE NUMBER OF TIMES TO POST GROUT.

XIII. TIEBACK TESTING

1. REVIEW MILL CERTIFICATIONS FOR ALL TIEBACK STEEL.

2. PERFORM MATERIAL TESTING OF TIEBACKS. TWO SAMPLES OF EACH HEAT SHALL BE TENSION TESTED.

3. PERFORM COMPRESSION TESTS OF TIEBACK GROUT USED ON A GIVEN DAY. PREPARE 4 CYLINDERS OR CUBES AND TEST TWO SAMPLES AT 4 DAYS AND 1 SAMPLE AT 7 DAYS. ONE SPECIMEN SHALL BE RETAINED FOR LATER TESTING, IF REQUIRED.

4. VISUALLY INSPECT EACH TIEBACK ASSEMBLY IMMEDIATELY PRIOR TO INSERTION IN THE HOLE. THE PURPOSE OF THE INSPECTION WILL BE TO ASCERTAIN THE SUITABILITY AND ACCEPTABILITY OF THE ASSEMBLY FOR INSERTION INTO THE HOLE. THE PRESENCE OF ANY UNACCEPTABLE CONDITION OR DAMAGE SHALL BE SUFFICIENT CAUSE FOR REJECTION. A PARTIAL LIST OF UNACCEPTABLE CONDITIONS AND TYPES OF DAMAGE INCLUDES: ABRASIONS, KINDS, WELDS, WELD SPLATTERS, AND CUTS. ASSEMBLIES SHALL ALSO BE FREE OF DIRT, GREASE, OIL, DETRIMENTAL RUST, PITTING, AND ALL OTHER DELETERIOUS SUBSTANCES.

5. PROOF-TEST EVERY TIEBACK, UNLESS OTHERWISE NOTED. REFER TO TIEBACK INSTALLATION SECTION OF THESE GENERAL NOTES FOR ADDITIONAL INFORMATION AND PTI MANUAL FOR ADDITIONAL REQUIREMENTS.

6. PERFORMANCE-TEST TWO PERCENT OF THE TIEBACKS, OR A MINIMUM OF THREE TIEBACKS, WHICHEVER IS GREATER. THE FIRST PRODUCTION TIEBACK SHALL BE PERFORMANCE TESTED. THE ENGINEER SHALL SELECT THE REMAINING TIEBACKS TO BE PERFORMANCE TESTED. PERFORMANCE TESTING OF TIEBACKS SHALL BE IN ACCORDANCE WITH PTI (2004) AND THE FOLLOWING PROCEDURES:

   a. THE PERFORMANCE TEST SHALL BE MADE BY INCREMENTALLY LOADING AND UNLOADING THE TIEBACK IN ACCORDANCE WITH THE SCHEDULE ON S-541. THE LOAD SHALL BE RAISED FROM ONE INCREMENT TO ANOTHER IMMEDIATELY AFTER A DEFLECTION READING. DEFLECTION READINGS SHALL BE RECORDED TO THE NEAREST 0.001 INCHES WITH RESPECT TO AN INDEPENDENT FIXED REFERENCE POINT. THE FIXED REFERENCE FOR MOVEMENT RECORDING SHALL BE A FREE STANDING TRIPOD-MOUNTED DIAL GAUGE WITH A PRECISION OF 0.001 INCHES.

   b. THE MAXIMUM LOAD IN A PERFORMANCE TEST SHALL BE HELD FOR 10 MINUTES. THE LOAD-HOLD PERIOD SHALL START AS SOON AS THE MAXIMUM LOAD IS APPLIED AND THE TIEBACK MOVEMENT SHALL BE MEASURED AND RECORDED AT 1 MINUTE, 2, 3, 4, 5, 6, AND 10. IF THE ANCHOR MOVEMENT BETWEEN 1 MINUTE AND 10 MINUTES EXCEEDS 0.04 INCHES, THE MAXIMUM LOAD SHALL BE HELD FOR AN ADDITIONAL 50 MINUTES. IF THE LOAD HOLD IS EXTENDED, THE ANCHOR MOVEMENT SHALL BE RECORDED AT 15, 20, 30, 40, 50, AND 60 MINUTES. IF AN ANCHOR FAILS IN CREEP, RE-TESTING WILL NOT BE ALLOWED.

   c. A TIEBACK PERFORMANCE TEST WITH A 10 MINUTE LOAD HOLD IS ACCEPTABLE IF BOTH OF THE FOLLOWING ARE MET:

      1. THE TIEBACK CARRIES THE MAXIMUM LOAD WITH LESS THAN 0.04 INCHES OF MOVEMENT BETWEEN 1 AND 10 MINUTES.

      2. THE TOTAL MOVEMENT AT THE MAXIMUM LOAD EXCEEDS 80 PERCENT OF THE THEORETICAL ELASTIC ELONGATION OF THE TIEBACK UNBONDED LENGTH.

   d. IF THE LOAD HOLD IS EXTENDED, THE TEST IS ACCEPTABLE IF THE TIEBACK CARRIES THE MAXIMUM LOAD WITH LESS THAN 0.04 INCHES OF MOVEMENT BETWEEN 6 AND 60 MINUTES AND SATISFIES ITEM c.2. ABOVE.

7. LOCK OFF: SUCCESSFULLY TESTED TIEBACKS SHALL BE LOCKED OFF AT LEAST AT THE DESIGN LOAD OR GREATER (UNLESS OTHERWISE DIRECTED BY THE ENGINEER).

8. ANCHORS SHALL BE STRESSED STRAIGHT AND TRUE. KINKING OR SHARP CURVATURE IN THE ANCHORS UNDER TENSION SHALL BE CAUSE FOR REJECTION.

9. TIEBACKS THAT ULTIMATELY FAIL TO MEET THE TESTING CRITERIA MAY BE RETESTED AT A LOWER LOAD AND ASSIGNED A VALUE EQUAL TO THAT LOAD IF THE ENGINEER APPROVES SUCH AN APPROACH. AN ADDITIONAL TIEBACK SHALL BE INSTALLED TO MAKE UP THE LOAD DIFFERENCE. THE LOCATION OF THE ADDITIONAL TIEBACK WILL BE DETERMINED BY THE ENGINEER.

10. IF A TIEBACK CONTINUES TO FAIL A LOAD TEST, THE TIEBACK MY BE POST-GROUTED AND RETESTED. IF TIEBACK FAILS AFTER SECOND POST-GROUT, TIEBACK IS REJECTED AND SHALL BE REPLACED.

XIV. STRUCTURAL TESTS, INSPECTIONS, AND OBSERVATIONS

1. AN INDEPENDENT TESTING AGENCY AND SPECIAL INSPECTORS WILL BE RETAINED BY THE OWNER TO PERFORM TESTS AND INSPECTION.

2. THE FOLLOWING ITEMS REQUIRE TESTS AND INSPECTIONS IN ACCORDANCE WITH THE REQUIREMENTS OF THE CHAPTER "STRUCTURAL TESTS AND INSPECTIONS" OF THE APPLICABLE CODE. REQUIREMENTS FOR TESTS AND INSPECTIONS ARE IDENTIFIED IN THE SPECIFICATIONS.

   A. REINFORCING STEEL
   B. CAST-IN-PLACE CONCRETE
   C. POST-INSTALLED ANCHORS
   D. REPAIR MORTARS
   E. TIEBACKS

XV. MONITORING

1. ESTABLISH CONTROL POINTS ALONG THE EXISTING SEAWALL PRIOR TO START OF EXCAVATION OR CONSTRUCTION. MONITOR ANY MOVEMENT OF SEAWALL DURING TRENCHING OR EXCAVATIONS WORK NEAR THE SEAWALL. NOTIFY SEOR OF ANY MOVEMENT.

XVI. DESIGN CRITERIA

1. APPLICABLE CODE: 2022 CALIFORNIA BUILDING CODE

2. GRAVITY LOADS:
   A. DEAD LOADS - VARY BASED ON ACTUAL WEIGHTS
   B. LIVE LOADS:
      a. STAIRS: 100 PSF

3. SHORING DESIGN PARAMETERS (PER GEOTECH REPORT)
   A. TIEBACKS
      ALLOWABLE SKIN FRICTION: 21 PSI

4. DESIGN ASSUMPTIONS REGARDING SHARING OF LOAD BETWEEN NEW AND EXISTING TIEBACKS
   A. NEW TIEBACKS AT STRAIGHT WALL SEGMENTS ARE DESIGNED TO RESIST 75% OF THE LATERAL SOIL LOADS (WITH THE EXISTING TIEBACKS RESISTING 25%)
   B. NEW TIEBACKS AT THE CURVED WALL SEGMENT ARE DESIGNED TO RESIST 50% OF THE LATERAL SOIL LOADS (WITH EXISTING TIEBACKS RESISTING 50%).

XVII. PROJECT SEQUENCING

1. PRIOR TO ALL REPAIR WORK, CONTRACTOR TO
   A. BRACE WALL AS REQUIRED
   B. INSTALL ADEQUATE PROTECTION TO PREVENT SEA WATER FROM CONTACTING WALL DURING REPAIRS.

2. SEQUENCE OF WALL REPAIRS ARE AS FOLLOWS:

   A. DEMOLITION, REPAIR, AND INSTALLATION OF WALL REBAR PER DETAIL 6/S-511.
   B. CORE THROUGH (E) WALL AND INSTALL TIEBACK.
   C. SHOTCRETE INFILL EXCEPT FOR AREA OF TIEBACK BLOCKOUT PER DETAIL 7/S-541 OR 9/S-541.
   D. TEST TIEBACKS PER XIII OF GENERAL NOTES.
   E. INFILL TIE-BACK BLOCKOUT WITH CONCRETE OR NON-SHRINK GROUT
   F. CONTRACTOR MAY SUBMIT ALTERNATE SEQUENCE FOR EOR REVIEW.

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DE Job Number: C1676031.00

Date: 3/22/2023

REGISTERED PROFESSIONAL ENGINEER — JEREMY T. CALLISTER — No. S 5646 — STRUCTURAL — STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	JTB DRAWN BY	By: JEREMY T. CALLISTER Date: 3/22/2023 NAME: DEGENKOLB ENGINEERS R.C.E. S.5646 EXP: _____	Description / No.	Date

RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
By: _____ Date: _____ By: _____ Date: _____	By: _____ Date: _____	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

GENERAL NOTES
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-002

Sheet 4 of 18

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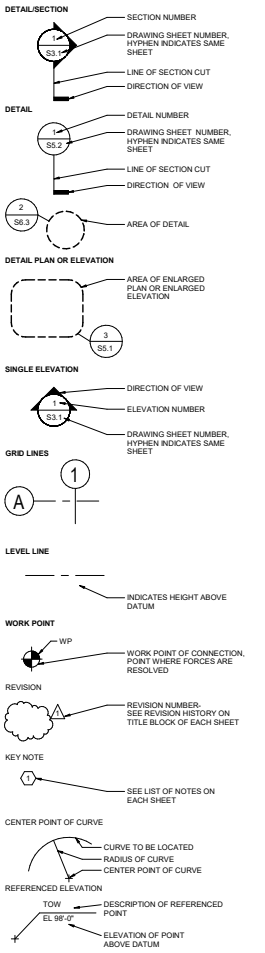
ABBREVIATIONS

(E)	EXISTING
#	NUMBER
&	AND
@	AT
Ø	DIAMETER OR ROUND
ld	DEVELOPMENT LENGTH
ldh	HOOK DEVELOPMENT LENGTH
ls	LAP SPLICE LENGTH
AA	ADHESIVE ANCHOR
AB	ANCHOR BOLT
ABV	ABOVE
AC	ASPHALT CONCRETE
ADDL	ADDITIONAL
ADJ	ADJACENT
AGGR	AGGREGATE
ALT	ALTERNATE
ALUM	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
AR	ANCHOR ROD
ARCH	ARCHITECTURAL / ARCHITECT
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY for TESTING and MATERIALS
AWG	AMERICAN WIRE GAUGE
B. O.	BOTTOM OF
BF	BOTH FACES
BF	BRACED FRAME
BLDG	BUILDING
BLK, BLKG	BLOCK OR BLOCKING
BLW	BELOW
BM, BMS	BEAM, BEAMS
BN	BOUNDARY NAILING
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BRBF	BUCKLING RESTRAINED BRACE FRAME
BRG	BEARING
BS	BOTH SIDES
BSMT	BASEMENT
BTWN	BETWEEN
BW	BOTH WAYS
C	CHANNEL
CIP	CAST IN PLACE
CJ	CONSTRUCTION JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CSK	COUNTERSINK
CTR	CENTER
d	PENNY (NAIL SIZE)
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DEMO	DEMOLITION
DET, DETS	DETAIL, DETAILS
DIA, DIAM	DIAMETER
DIAG	DIAGONAL
DIM, DIMS	DIMENSION, DIMENSIONS
DIST	DISTANCE
DK, DKG	DECK OR DECKING
DN	DOWN
DO	DITTO
DP	DEEP
DS	DIAGONAL SHEATHING
DSA	DIVISION OF THE STATE ARCHITECT
DWG, DWGS	DRAWING, DRAWINGS
DWL, DWLS	DOWEL, DOWELS
EA	EACH
EBF	ECCENTRIC BRACE FRAME
EF	EACH FACE
EJ	EXPENSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMBED	EMBEDMENT
EN	EDGE NAILING
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EW	EACH WAY
EXCAV	EXCAVATION
EXP	EXPANSION
EXT	EXTERIOR
FDN	FOUNDATION
FF	FAR FACE
FIN	FINISH
FLG	FLANGE
FLR, FLRS	FLOOR, FLOORS
FN	FIELD NAILING
FO	FACE OF
FOC	FACE OF CONCRETE
FOS	FACE OF STUD
FP	FIREPROOF
FRMG	FRAMING
FS	FAR SIDE
FT	FOOT OR FEET
FTG, FTGS	FOOTING, FOOTINGS
GA	GAUGE
GALV	GALVANIZED
GL	GLU-LAM
GLB	GLU-LAM BEAM
GR	GRADE
GRND	GROUND
GYP	GYPSUM
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HK, HKS	HOOK, HOOKS
HORIZ, (H)	HORIZONTAL
HP	HIGH POINT
HSB	HIGH STRENGTH BOLTS
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
ID	INSIDE DIAMETER/DIMENSION
INFO	INFORMATION
JH	JOIST HANGER
JST,JSTS	JOIST, JOISTS
JT	JOINT
KO	KNOCK-OUT
L	ANGLE
LEV	LEVEL
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONGIT	LONGITUDINAL
LP	LOW POINT
LT	LIGHT
LWC	LIGHTWEIGHT CONCRETE
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL, PLUMBING DOCUMENTS
MEZZ	MEZZANINE
MF	MOMENT FRAME
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTD	MOUNTED
MTL	METAL
NF	NEAR FACE
NIC	NOT IN CONTRACT
NOM	NOMINAL (DIAMETER)
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE
OBF	ORDINARY BRACED FRAMES
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
P-T	POST-TENSION
PC, PCS	PIECE, PIECES
PCC	PRECAST CONCRETE
PERP	PERPENDICULAR
PJP	PARTIAL JOINT PENETRATION
PL	PLATE
PLYWD	PLYWOOD
PT	PRESSURE TREATED
PTN	PARTITION
R	RADIUS
REBAR	REINFORCING BAR
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
REV	REVISION
RFG	ROOFING
RO	ROUGH OPENING
RSJ	ROLLED STEEL JOIST
S.A.D.	SEE ARCHITECTURAL DOCUMENTS/DRAWINGS
S.M.D.	SEE MECHANIAL DRAWINGS
SCHED	SCHEDULE
SECT	SECTION
SEOR	STRUCTURAL ENGINEER OF RECORD
SFRS	SEISMIC FORCE RESISTING SYSTEM
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SL	SLOPE
SMF	SPECIAL MOMENT FRAME
SMS	SHEET METAL SCREW
SOG	SLAB ON GRADE
SP	STRUCTURAL PLYWOOD
SPEC, SPECS	SPECIFICATION, SPECIFICATIONS
SPSW	SPECIAL PLATE SHEAR WALL
SQ	SQUARE
SS	STAINLESS STEEL
STAG	STAGGER or STAGGERED
STD	STANDARD
STIF	STIFFENER
STIR	STIRRUP OR STIRRUPS
STL	STEEL
STRUCT	STRUCTURAL
SUB	SUBSTITUTE
SUSP	SUSPENDED
SYMM	SYMMETRICAL
T&B	TOP AND BOTTOM
T&G	TONGUE and GROOVE
T.O.	TOP OF
THK	THICK
THRD	THREADED
THRU	THROUGH
TN	TOE NAIL
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TR	TREAD
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
URM	UNREINFORCED MASONRY
VENT	VENTILATE
VERT, (V)	VERTICAL
VIF	VERIFY IN FIELD
W or WF	WIDE FLANGE
W/	WITH
W/O	WITHOUT
WD	WOOD
WP	WORK POINT
WS	WOOD SCREW
WT	WEIGHT/TEE SECTION
WWM	WELDED WIRE MESH
X HVY	EXTRA HEAVY
X STR	EXTRA STRONG
XX HVY	DOUBLE EXTRA HEAVY
XX STR	DOUBLE EXTRA STRONG

REFERENCE SYMBOLS



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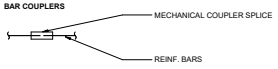

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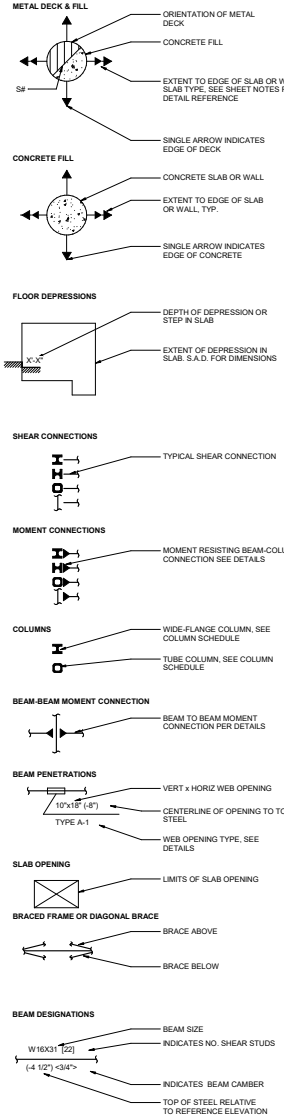
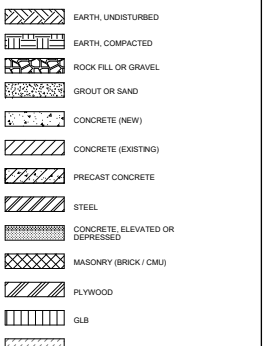


MATERIAL SYMBOLS



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DE Job Number: C1676031.00

Date: 3/22/2023

REGISTERED PROFESSIONAL ENGINEER JEREMY T. CALLISTER No. S 5646 STRUCTURAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	By: JEREMY T. CALLISTER Date: 3/22/2023 NAME: DEGENKOLB ENGINEERS R.C.E. S.5646 EXP: _____ DRAWN BY: LH	Description	No.	Date

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CITY OF SOLANA BEACH	ENGINEERING DEPARTMENT	DRAWING NO.
SYMBOLS AND ABBREVIATIONS 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS PHASE 1		S-003 Sheet 5 of 17

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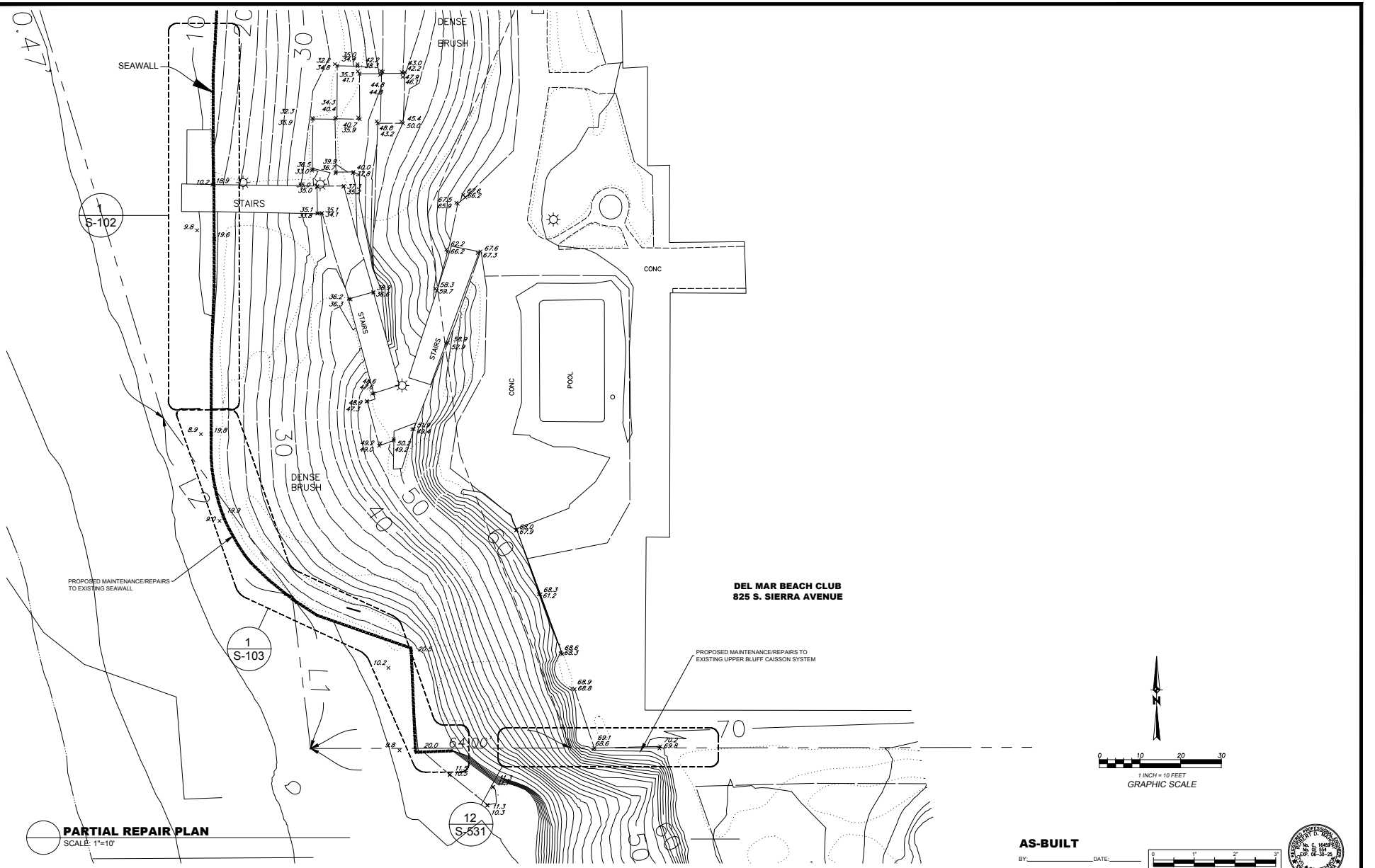


PARTIAL REPAIR PLAN

SCALE: 1"=10'

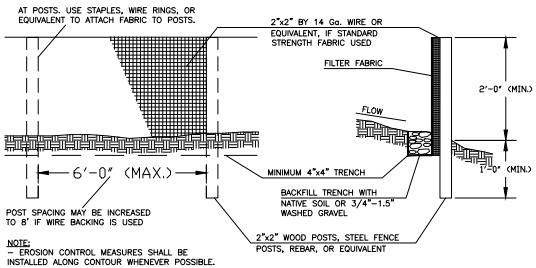
AS-BUILT

BY:_____ DATE:_____

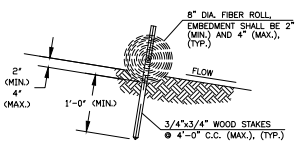
R.C.E.:_____ EXP:_____

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	By: ROBERT D. MAHONY Date: 04/03/23 NAME: SOIL ENGINEERING CONST. R.C.E. 16459 EXP: 06/30/25 JK DRAWN BY				By: _____ Date: _____ DAN GOLDBERG By: _____ Date: _____	By: _____ Date: _____ MOHAMMAD SAMMAK, CITY ENGINEER EXP: 6/30/24 R.C.E.: 37146	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)

CITY OF SOLANA BEACH	ENGINEERING DEPARTMENT	DRAWING REF. NO. C-101
PARTIAL REPAIR PLAN FOR: 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 SEAWALL AND UPPER BLUFF REPAIRS - PHASE 1		SBGR-
		Sheet 6 of 18



ALT. SECTION-SILT FENCE EROSION CONTROL (E/7)
SCALE: 1"=1'-0"

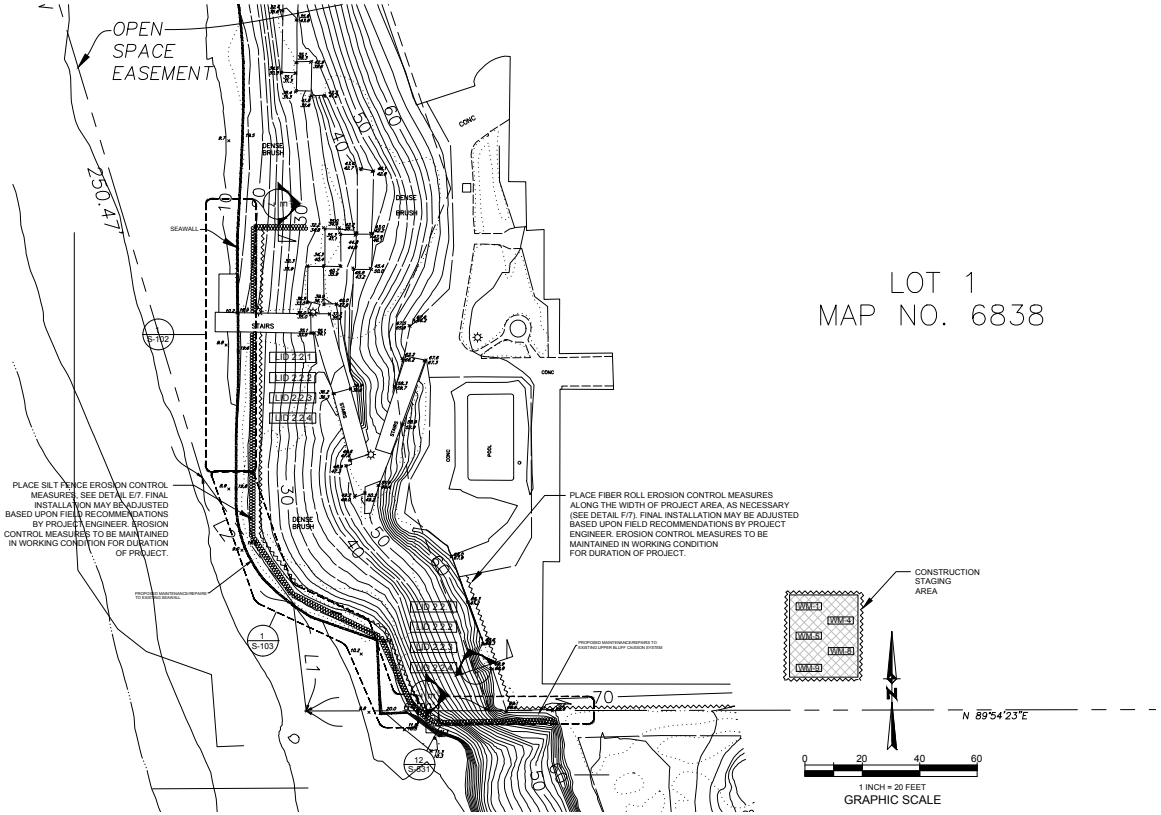


SECTION-FIBER ROLL (F/7)
SCALE: 1"=1'-0"

EROSION & SEDIMENT CONTROL NOTES

TEMPORARY EROSION/SEDIMENT CONTROL, PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR OR QUALIFIED PERSON AS INDICATED BELOW:

1. ALL REQUIREMENTS OF THE CITY OF SOLANA BEACH STORM WATER STANDARDS MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED GRADING/IMPROVEMENTS CONSISTENT WITH THE APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND/OR WATER POLLUTION CONTROL PLAN (WPCP) FOR CONSTRUCTION LEVEL BMP'S.
2. FOR STORM DRAIN INLETS, PROVIDE A GRAVEL BAG SILT BASIN IMMEDIATELY UPSTREAM OF INLET AS INDICATED ON DETAILS.
3. FOR INLETS LOCATED AT SUMPS ADJACENT TO TOP OF SLOPES, THE CONTRACTOR SHALL ENSURE THAT WATER DRAINING TO THE SUMP IS DIRECTED INTO THE INLET AND THAT A MINIMUM OF 1.00' FREEBOARD EXISTS AND IS MAINTAINED ABOVE THE TOP OF THE INLET. IF FREEBOARD IS NOT PROVIDED BY GRADING SHOWN ON THESE PLANS, THE CONTRACTOR SHALL PROVIDE IT VIA TEMPORARY MEASURES, I.E. GRAVEL BAGS OR DIKES.
4. THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEM DUE TO CONSTRUCTION ACTIVITY.
5. THE CONTRACTOR OR QUALIFIED PERSON SHALL CHECK AND MAINTAIN ALL LINED AND UNLINED DITCHES AFTER EACH RAINFALL.
6. THE CONTRACTOR SHALL REMOVE SILT DEBRIS AFTER EACH MAJOR RAINFALL
7. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ON SITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
8. THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER OR RESIDENT ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.
9. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY BE REQUIRED BY THE RESIDENT ENGINEER DUE TO UNCOMPLETED GRADING OPERATIONS OR UNFORESEEN CIRCUMSTANCES, WHICH MAY ARISE.
10. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATERS CREATE A HAZARDOUS CONDITION.
11. ALL EROSION/SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED GRADING PLAN SHALL BE INCORPORATED HEREON. ALL EROSION/SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER.
12. GRADED AREAS AROUND THE PROJECT PERIMETER MUST DRAIN AWAY FROM THE FACE OF THE SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
13. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT.
14. THE CONTRACTOR SHALL ONLY GRADE, INCLUDING CLEARING AND GRUBBING FOR THE AREAS FOR WHICH THE CONTRACTOR OR QUALIFIED PERSON CAN PROVIDE EROSION/SEDIMENT CONTROL MEASURES.
15. THE CONTRACTOR SHALL ARRANGE FOR WEEKLY MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER AND THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION/SEDIMENT CONTROL MEASURES AND OTHER RELATED CONSTRUCTION ACTIVITIES.



LOT 1
MAP NO. 6838

BMP LEGEND

DIRECTION OF LOT DRAINAGE ⟶

MATERIAL & WASTE MANAGEMENT CONTROL BMP'S:
- WM-1 MATERIAL DELIVERY & STORAGE
- WM-4 SPILL PREVENTION & CONTROL
- WM-5 SOLID WASTE MANAGEMENT
- WM-8 CONCRETE WASTE MANAGEMENT
- WM-9 SANITARY WASTE MANAGEMENT

TEMPORARY RUNOFF CONTROL BMP'S:
- SC-1 SILT FENCE
- SC-5 FIBER ROLL
- SC-6 GRAVEL BAGS
- SC-7 STREET SWEEPING DAILY, OR AS DIRECTED
- SC-10 STORM INLET PROTECTION, AS APPLICABLE

LOW IMPACT DEVELOPMENT BMP's:
- LID 2.2.1 CONSERVATION OF NATURAL DRAINAGES, WELL DRAINED SOILS AND SIGNIFICANT VEGETATION
- LID 2.2.2 MINIMIZE DISTURBANCES TO NATURAL DRAINAGES
- LID 2.2.3 MIINIMIZE AND DISCONNECT IMPERVIOUS SURFACES
- LID 2.2.4 MINIMIZE SOIL COMPACTION

0 20 40 60
1 INCH = 20 FEET
GRAPHIC SCALE

EROSION CONTROL PLAN
SCALE: 1"=20'

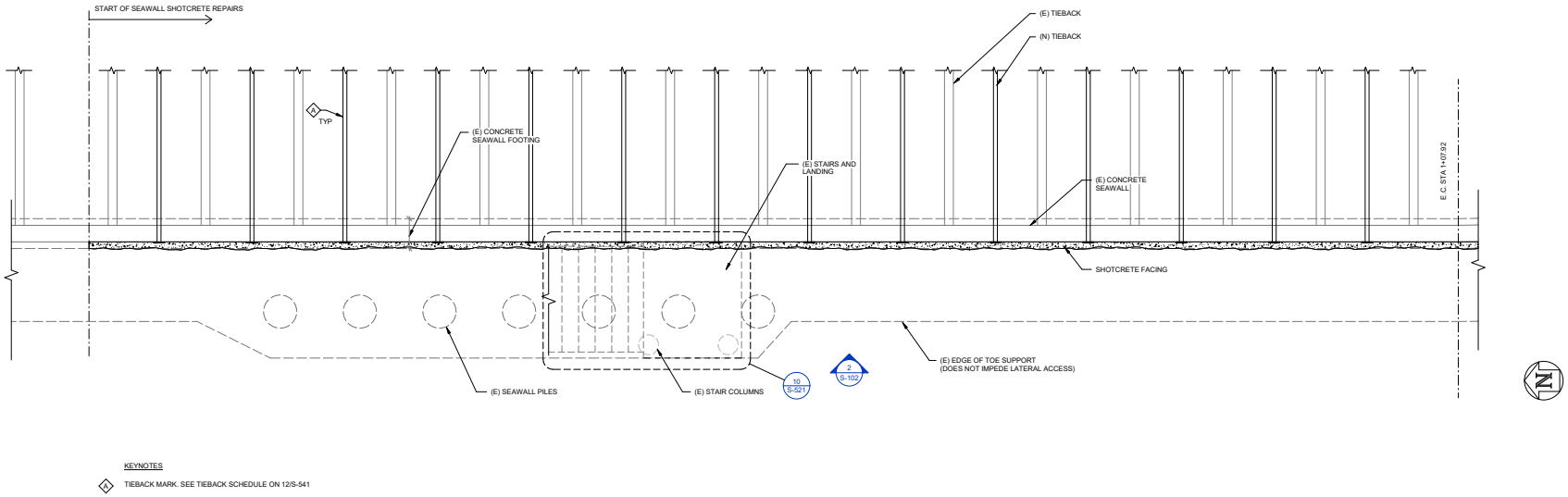
AS-BUILT
BY:_____ DATE:_____
R.C.E.:_____ EXP:_____

0 1" 2" 3"
ORIGINAL DRAWING MEASURE

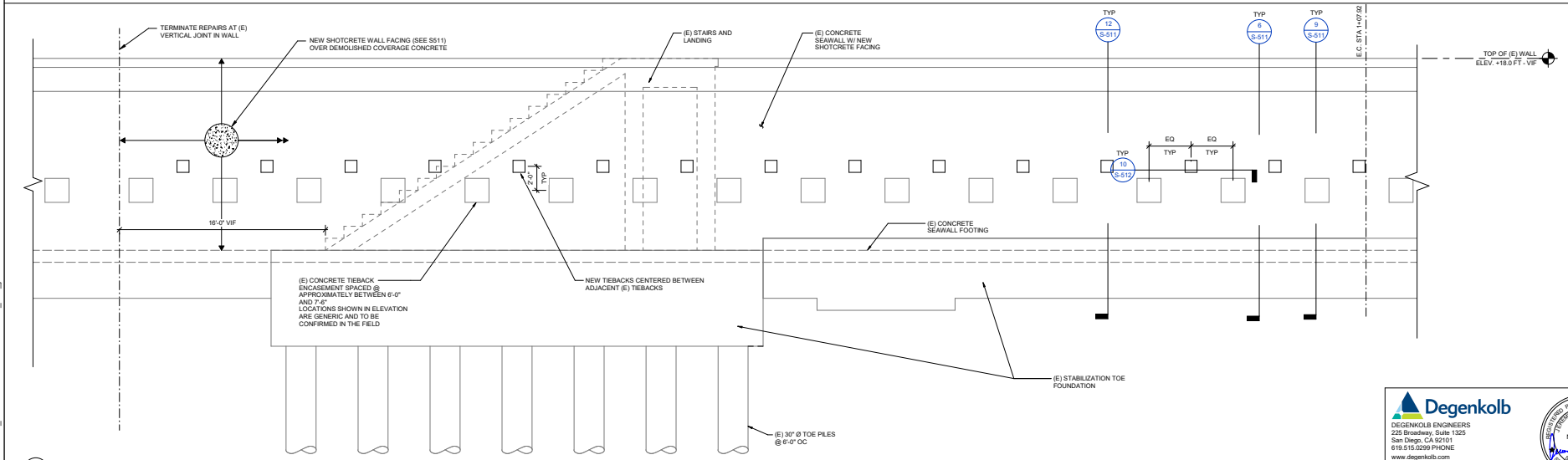
SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	JK DRAWN BY				By: _____ Date: _____ DAN GOLDBERG By: _____ Date: _____	By: _____ Date: _____ MOHAMMAD SAMMAK, CITY ENGINEER EXP: 6/30/24 R.C.E.: 37146	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2009" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)

By: ROBERT D. MAHONY Date: 04/03/23
NAME: SOIL ENGINEERING CONST.
R.C.E. 16459 EXP: 06/30/25

CITY OF SOLANA BEACH	ENGINEERING DEPARTMENT	DRAWING REF. NO. C-102
EROSION CONTROL PLAN FOR: 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 SEAWALL AND UPPER BLUFF REPAIRS - PHASE 1		SBGR- Sheet 7 of 18



1 SEAWALL PLAN SEGMENT 1
1/4" = 1'-0"



2 SEAWALL ELEVATION SEGMENT 1
1/4" = 1'-0"

Degenkolb
DEGENKOLB ENGINEERS
225 Broadway, Suite 1325
San Diego, CA 92101
619.515.0299 PHONE
www.degenkolb.com
DE Job Number: C1676031.00
Date: 3/22/2023

REGISTERED PROFESSIONAL ENGINEER JEREMY T. CALLISTER No. S 5646 STRUCTURAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	By: JEREMY T. CALLISTER Date: 3/22/2023	Description	No.	Date	By: Date:	By: Date:	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)
		NAME: DEGENKOLB ENGINEERS				By: Date:		
		DRAWN BY: LH R.C.E. S.5646 EXP:						

CITY OF SOLANA BEACH
ENGINEERING DEPARTMENT
SEAWALL PLAN AND ELEVATION
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-102
Sheet 8 of 18

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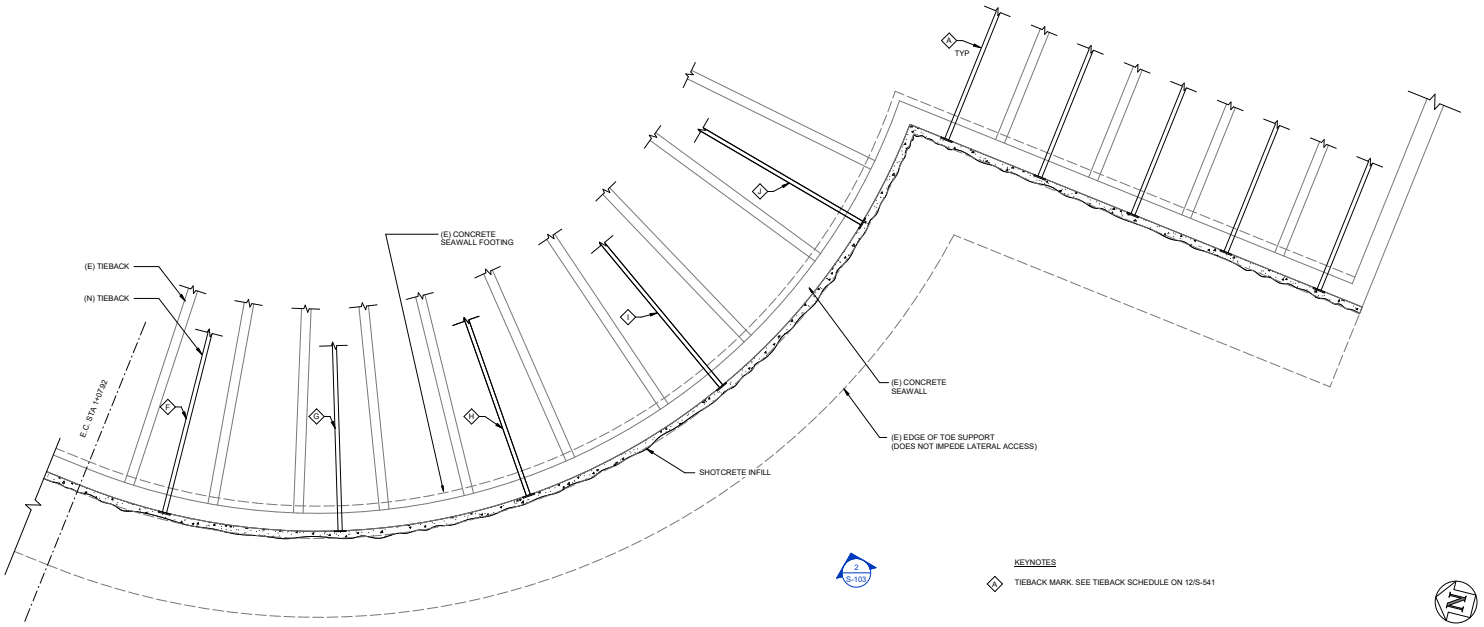
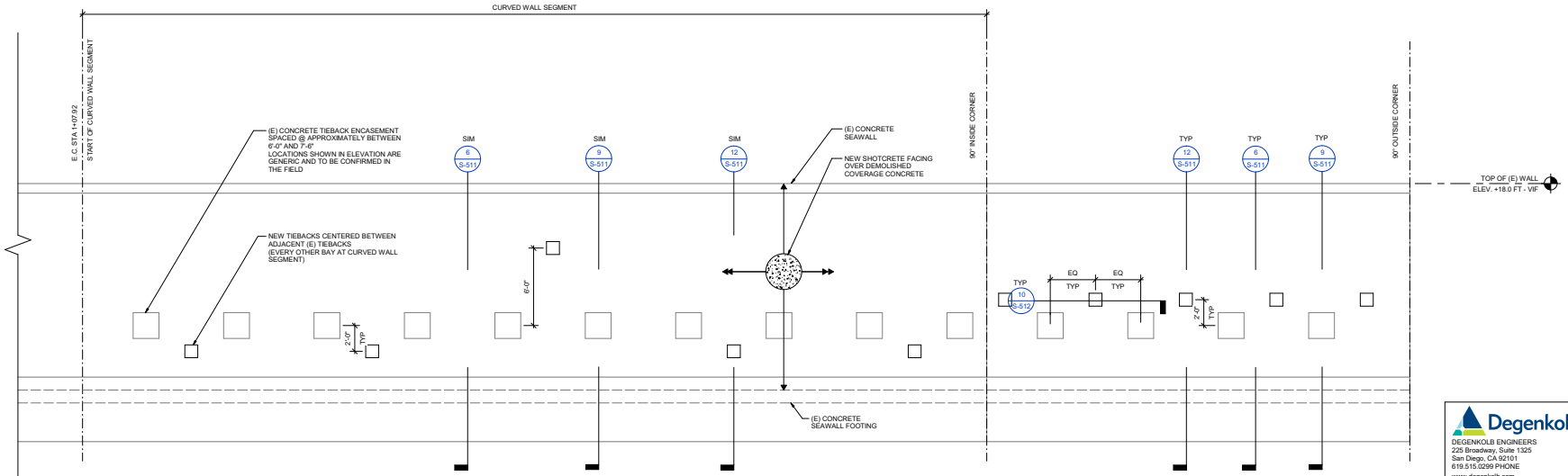


1 SEAWALL PLAN SEGMENT 2
1/4" = 1'-0"



2 SEAWALL ELEVATION SEGMENT 2
1/4" = 1'-0"

Degenkolb
DEGENKOLB ENGINEERS
225 Broadway, Suite 1325
San Diego, CA 92101
619.515.0299 PHONE
www.degenkolb.com

DE Job Number: C1676031.00

Date: 3/22/2023

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SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	LH DRAWN BY	By: JEREMY T. CALLISTER Date: 3/22/2023 NAME: DEGENKOLB ENGINEERS R.C.E. S.5646 EXP:	Description / No.	Date

RECOMMENDED FOR APPROVAL
By: Date:
By: Date:

APPROVED FOR CONSTRUCTION
By: Date:

BENCH MARK
DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE.
ELEVATION: 71.450 FEET (NAVD88)

CITY OF SOLANA BEACH
ENGINEERING DEPARTMENT

SEAWALL PLAN AND ELEVATION
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-103
Sheet 9 of 18

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CONCRETE REPAIR NOTES

REPAIR CRITERIA

1. THE CRACKS AND SPALLS IDENTIFIED IN THESE DRAWINGS REPRESENT THE MAJORITY OF THE SIGNIFICANT CRACKS/SPALLS OBSERVED; HOWEVER, IT IS NOT MEANT TO BE A COMPREHENSIVE AND COMPLETE PORTRAYAL OF ITEMS REQUIRING MITIGATION. IN ADDITION, THEIR LENGTH & LOCATION ARE APPROXIMATE IN NATURE.

MATERIALS AND PRODUCTS

1. BONDING AGENTS:
   A. EPOXY-MODIFIED, CEMENTITIOUS BONDING AND ANTICORROSION AGENT: MANUFACTURED PRODUCT THAT CONSISTS OF WATER-INSENSITIVE EPOXY ADHESIVE, PORTLAND CEMENT, AND WATER-BASED SOLUTION OF CORROSION-INHIBITING CHEMICALS THAT FORMS A PROTECTIVE FILM ON STEEL REINFORCEMENT. ACCEPTABLE PRODUCTS INCLUDE:
      a. EUCLID CHEMICAL COMPANY; DURALPREP A.C.
      b. SIKA CORPORATION; ARMATEC 110 EPOCEM.
2. MORTAR SCRUB COAT- MIX CONSISTING OF 1 PART PORTLAND CEMENT AND 1 PART FINE AGGREGATE COMPLYING WITH ASTM C 144 EXCEPT 100 PERCENT PASSING A NO. 16 (1.18-MM) SIEVE.
3. PATCHING MORTAR:
   A. GENERAL:
      a. ONLY USE PATCHING MORTARS THAT ARE RECOMMENDED BY MANUFACTURER FOR EACH APPLICABLE HORIZONTAL, VERTICAL, OR OVERHEAD USE ORIENTATION.
      b. COARSE AGGREGATE FOR PATCHING MORTAR: ASTM C 33, WASHED AGGREGATE, SIZE NO. 8, CLASS 5S. ADD TO PATCHING-MORTAR MIX ONLY AS PERMITTED BY PATCHING-MORTAR MANUFACTURER.
   B. CEMENTITIOUS PATCHING MORTAR: PACKAGED, DRY MIX FOR REPAIR OF CONCRETE.
      a. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT INDICATED ON DRAWINGS OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
         - BASF CONSTRUCTION CHEMICALS - BUILDING SYSTEMS
         - DAYTON SUPERIOR CORPORATION
         - EUCLID CHEMICAL COMPANY
         - SIKA CORPORATION; CONSTRUCTION PRODUCT DIVISION
      a. COMPRESSIVE STRENGTH: NOT LESS THAN 5000 PSI AT 28 DAYS WHEN TESTED ACCORDING TO ASTM C 109/C 109M
   C. POLYMER-MODIFIED, CEMENTITIOUS PATCHING MORTAR: PACKAGED, DRY MIX FOR REPAIR OF CONCRETE AND THAT CONTAINS A NON-REDISPERSIBLE LATEX ADDITIVE AS EITHER A DRY POWDER OR A SEPARATE LIQUID THAT IS ADDED DURING MIXING.
      a. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT INDICATED ON DRAWINGS OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
         - BASF CONSTRUCTION CHEMICALS - BUILDING SYSTEMS
         - DAYTON SUPERIOR CORPORATION
         - EUCLID CHEMICAL COMPANY
         - SIKA CORPORATION; CONSTRUCTION PRODUCT DIVISION
      a. COMPRESSIVE STRENGTH: NOT LESS THAN 5000 PSI AT 28 DAYS WHEN TESTED ACCORDING TO ASTM C 109/C 109M
4. EPOXY CRACK INJECTION MATERIALS
   A. EPOXY CRACK-INJECTION ADHESIVE: ASTM C 881/C 881M, TYPE IV AT STRUCTURAL LOCATIONS AND WHERE NOT INDICATED.
   B. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT INDICATED ON DRAWINGS OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
      a. EUCLID CHEMICAL COMPANY
      b. SIKA CORPORATION; CONSTRUCTION PRODUCT DIVISION
      c. SIMPSON STRONG TIE, INC
   A. CAPPING ADHESIVE: PRODUCT MANUFACTURED FOR USE WITH CRACK INJECTION ADHESIVE BY SAME MANUFACTURER

SURFACE PREPARATION FOR PATCH LOCATIONS (WHERE CORROSION NOT OBSERVED

1. LOCATION AND MARKING OF WORK
   A. WITHIN THE REGIONS IDENTIFIED IN THE ELEVATIONS, CONTRACTOR TO LOCATE SPALLS DELAMINATIONS HONEYCOMBS, ROCK POCKETS AND VOIDS MORE THAN 1 INCH IN ANY DIMENSION TO SOLID CONCRETE BY VISUAL INSPECTION AND CONCRETE SOUNDING AND MARK THEIR BOUNDARIES WITH CHALK OR PAINT.
   B. AREAS TO BE REMOVED SHALL BE AS STRAIGHT AND RECTANGULAR AS PRACTICAL TO ENCOMPASS THE REPAIR AND PROVIDE A NEAT PATCH.
   C. CONTRACTOR TO LOCATE ALL EMBEDDED POST-TENSIONING TENDONS AND REINFORCEMENT IN THE REPAIR AREA AND MARK THESE LOCATIONS FOR REFERENCE DURING THE CONCRETE REMOVAL IN CONCRETE SLAB.
2. CONCRETE REMOVAL
   A. FOR VERTICAL AND OVERHEAD SURFACES THE MARKED BOUNDARY MAY BE SAWCUT TO A DEPTH OF 1/4 INCH INTO THE EXISTING CONCRETE, MEASURED FROM THE ORIGINAL SURFACE. EXTRA CAUTION SHALL BE EXERCISED DURING THE SAWCUTTING OPERATIONS TO AVOID DAMAGING EXISTING REINFORCEMENT.
   B. ALL CONCRETE SHALL BE REMOVED FROM WITHIN THE MARKED BOUNDARY TO A MINIMUM DEPTH OF 1/2 INCH USING CHIPPING HAMMERS LESS THAN 15 LBS AT SLABS AND LESS THAN 30 LBS AT COLUMNS AND WALLS. IF UNSOUND CONCRETE EXISTS BEYOND THE MINIMUM REMOVAL DEPTH, THEN CHIPPING SHALL CONTINUE UNTIL ALL UNSOUND CONCRETE HAS BEEN REMOVED FROM THE CAVITY.
   C. WHERE EMBEDDED REINFORCEMENT IS EXPOSED BY CONCRETE REMOVAL, EXTRA CAUTION SHALL BE EXERCISED TO AVOID DAMAGING IT DURING REMOVAL OF ADDITIONAL UNSOUND CONCRETE. IF BOND BETWEEN EXPOSED EMBEDDED REINFORCEMENT AND ADJACENT CONCRETE IS IMPAIRED BY THE CONTRACTOR'S REMOVAL OPERATIONS, THEN THE CONTRACTOR SHALL PERFORM ADDITIONAL REMOVAL AROUND AND BEYOND THE PERIMETER OF THE REINFORCEMENT FOR A MINIMUM OF 3/4 INCH ALONG THE ENTIRE LENGTH AFFECTED.
3. PREPARATION OF CAVITY FOR PATCH PLACEMENT
   A. THOROUGHLY CLEAN REMOVAL AREAS OF LOOSE CONCRETE, DUST AND DEBRIS. VERIFY FRACTURED PROFILE OF AT LEAST 1/8 INCH OCCURS AT PATCH LOCATION.
   B. PERFORM ADDITIONAL PREPARATION AND CLEANING OF THE SPALL CAVITY AS REQUIRED BY THE PATCHING MATERIAL MANUFACTURER. NOTIFY ENGINEER OF COMPLETION OF PREPERATION OF CAVITY.

SURFACE PREPARATION FOR PATCH LOCATIONS (WHERE CORROSION IS OBSERVED)

1. LOCATION AND MARKING OF WORK
   A. CONTRACTOR TO LOCATE SPALLS AND DELAMINATIONS BY VISUAL INSPECTION AND CONCRETE SOUNDING AND MARK THEIR BOUNDARIES WITH CHALK OR PAINT.
   B. AREAS TO BE REMOVED SHALL BE AS STRAIGHT AND RECTANGULAR AS PRACTICAL TO ENCOMPASS THE REPAIR AND PROVIDE A NEAT PATCH.
   C. CONTRACTOR TO LOCATE ALL EMBEDDED POST-TENSIONING TENDONS AND REINFORCEMENT IN THE REPAIR AREA AND MARK THESE LOCATIONS FOR REFERENCE DURING THE CONCRETE REMOVAL IN CONCRETE SLAB.
2. CONCRETE REMOVAL
   A. DELAMINATED, SPALLED, AND UNSOUND CONCRETE FLOOR AREAS SHALL HAVE THEIR MARKED BOUNDARIES SAWCUT TO A DEPTH OF 1/4 INCH INTO THE FLOOR SLAB, UNLESS OTHERWISE NOTED. FOR VERTICAL AND OVERHEAD SURFACES THE MARKED BOUNDARY MAY BE SAWCUT, GROUND OR CHIPPED TO A DEPTH OF 1/4 INCH INTO EXISTING CONCRETE, MEASURED FROM THE ORIGINAL SURFACE. EXTRA CAUTION SHALL BE EXERCISED DURING THE SAWCUTTING OPERATIONS TO AVOID DAMAGING EXISTING REINFORCEMENT (ESPECIALLY POST-TENSIONING TENDONS AND SHEATHS).
   B. ALL CONCRETE SHALL BE REMOVED FROM WITHIN THE MARKED BOUNDARY TO A MINIMUM DEPTH OF 1/2 INCH USING CHIPPING HAMMERS LESS THAN 15 LBS AT SLABS AND LESS THAN 30 LBS AT COLUMNS AND WALLS. IF UNSOUND CONCRETE EXISTS BEYOND THE MINIMUM REMOVAL DEPTH, THEN CHIPPING SHALL CONTINUE UNTIL ALL UNSOUND CONCRETE HAS BEEN REMOVED FROM THE CAVITY.
   C. WHERE EMBEDDED REINFORCEMENT IS EXPOSED BY CONCRETE REMOVAL, EXTRA CAUTION SHALL BE EXERCISED TO AVOID DAMAGING IT DURING REMOVAL OF ADDITIONAL UNSOUND CONCRETE. IF BOND BETWEEN EXPOSED EMBEDDED REINFORCEMENT AND ADJACENT CONCRETE IS IMPAIRED BY THE CONTRACTOR'S REMOVAL OPERATIONS, THEN THE CONTRACTOR SHALL PERFORM ADDITIONAL REMOVAL AROUND AND BEYOND THE PERIMETER OF THE REINFORCEMENT FOR A MINIMUM OF 3/4 INCH ALONG THE ENTIRE LENGTH AFFECTED.
   D. IF RUST IS PRESENT ON EMBEDDED REINFORCEMENT WHERE IT ENTERS SOUND CONCRETE, THEN ADDITIONAL REMOVAL OF CONCRETE ALONG AND BENEATH THE REINFORCEMENT WILL BE REQUIRED. SUCH ADDITIITONL REMOVAL SHALL CONTINUE UNTIL NONRUSTED REINFORCMENT IS EXPOSED, OR AS DIRECTED BY THE ENGINEER.
3. REINFORCEMENT IN REPAIR AREA
   A. ALL EMBEDDED REINFORCEMENT EXPOSED DURING SURFACE PREPARATION THAT HAS LOST MORE THAN **20%** OF THE ORIGINAL CROSS-SECTIONAL AREA DUE TO CORROSION SHALL BE CONSIDERED DEFECTIVE, AND WILL REQUIRE REMOVAL AND REPLACEMENT. CONTRACTOR TO NOTIFY ENGINEER OF THESE CONDITIONS.
   B. CONCRETE SHALL BE REMOVED TO PROVIDE A MINIMUM OF 3/4 INCH CLEARANCE ON ALL SIDES OF DEFECTIVE OR DAMAGED EXPOSED EMBEDDED REINFORCEMENT THAT IS LEFT IN PLACE. A MINIMUM OF 1 1/2 INCH CONCRETE COVER SHALL BE PROVIDED OVER ALL NEW AND EXISTING REINFORCEMENT. CONCRETE COVER OVER REINFORCEMENT MAY BE REDUCED TO 3/4 INCH WITH THE ENGINEER'S APPROVAL IF COATED WITH AN APPROVED EPOXY RESIN.
4. CLEANING OF REINFORCING
   A. ALL EXPOSED STEEL SHALL BE CLEANED OF RUST TO BARE METAL BY SANDBLASTING OR WIRE BRUSHING.
5. PREPARATION OF CAVITY FOR PATCH PLACEMENT
   A. THOROUGHLY CLEAN REMOVAL AREAS OF LOOSE CONCRETE, DUST AND DEBRIS. VERIFY FRACTURED PROFILE OF AT LEAST 1/8 INCH OCCURS AT PATCH LOCATION.
   B. PERFORM ADDITIONAL PREPARATION AND CLEANING OF THE SPALL CAVITY AS REQUIRED BY THE PATCHING MATERIAL MANUFACTURER.
   C. COAT REBAR AND CAVITY WITH SIKA ARMATEC 110 PER MANUFACTURER RECOMMENDATIONS.

APPLICATION OF PATCH MATERIALS

1. APPLICATION OF PATCHING MORTAR: PLACE AS FOLLOWS UNLESS OTHERWISE RECOMMENDED IN WRTING BY MANUFACTURER: BASIS OF DESIGN FOR SHALLOW SURFACE REPAIRS IS SIKATOP 122 PLUS.
   A. PROVIDE FORMS WHERE NECESSARY TO CONFINE PATCH TO REQUIRED SHAPE.
   B. WET SUBSTRATE AND FORMS THOROUGHLY AND THEN REMOVE STANDING WATER.
   C. APPLY BONDING AGENT PER MANUFACTURER RECOMMENDATIONS.
   D. GENERAL PLACEMENT: PLACE PATCHING MORTAR BY TROWELING TOWARD EDGES OF PATCH TO FORCE INTIMATE CONTACT WITH EDGE SURFACES. FOR LARGE PATCHES, FILL EDGES FIRST AND THEN WORK TOWARD CENTER, ALWAYS TROWELING TOWARD EDGES OF PATCH. AT FULLY EXPOSED REINFORCING BARS, FORCE PATCHING MORTAR TO FILL SPACE BEHIND BARS BY COMPACTING WITH TROWEL FROM SIDES OF BARS.
   E. VERTICAL PATCHING: PLACE MATERIAL IN LIFTS OF NOT MORE THAN 1-1/2 INCHES NOR LESS THAN 1/8 INCH. DO NOT FEATHER EDGE.
   F. OVERHEAD PATCHING: PLACE MATERIAL IN LIFTS OF NOT MORE THAN 1-1/2 INCHES NOR LESS THAN 1/8 INCH. DO NOT FEATHER EDGE.
   G. CONSOLIDATION: AFTER EACH LIFT IS PLACED, CONSOLIDATE MATERIAL AND SCREED SURFACE.
   H. FINISHING: ALLOW SURFACES OF LIFTS THAT ARE TO REMAIN EXPOSED TO BECOME FIRM AND THEN FINISH TO A SURFACE MATCHING ADJACENT CONCRETE.
   I. CURING: WET-CURE CEMENTITIOUS PATCHING MATERIALS, INCLUDING POLYMER-MODIFIED CEMENTITIOUS PATCHING MATERIALS, FOR NOT LESS THAN SEVEN DAYS BY WATER-FOG SPRAY OR WATER-SATURATED ABSORPTIVE COVER. ALTERNATIVELY, USE CURING COMPOUND APPROVED BY THE EOR AND REPAIR MORTAR/GROUT MANUFACTURER.
2. APPLICATION OF DRY PACK MORTAR: USE FOR DEEP CAVITIES AND WHERE INDICATED. PLACE AS FOLLOWS UNLESS OTHERWISE RECOMMENDED IN WRITING BY MANUFACTURER.
   A. PROVIDE FORMS WHERE NECESSARY TO CONFINE PATCH TO REQUIRED SHAPE.
   B. WET SUBSTRATE AND FORMS THOROUGHLY AND THEN REMOVE STANDING WATER.
   C. APPLY BONDING AGENT PER MANUFACTURER RECOMMENDATIONS.
   D. PLACE DRY-PACK MORTAR INTO CAVITY BY HAND, AND COMPACT TIGHTLY INTO PLACE. DO NOT PLACE MORE MATERIAL AT A TIME THAN CAN BE PROPERLY COMPACTED. CONTINUE PLACING AND COMPACTING UNTIL PATCH IS APPROXIMATELY LEVEL WITH SURROUNDING SURFACE.
   E. AFTER CAVITY IS FILLED AND PATCH IS COMPACTED, TROWEL SURFACE TO MATCH PROFILE AND FINISH OF SURROUNDING CONCRETE. A THIN COAT OF PATCHING MORTAR MAY BE TROWELED INTO THE SURFACE OF PATCH TO HELP OBTAIN REQUIRED FINISH.
   F. WET-CURE PATCH FOR NOT LESS THAN SEVEN DAYS BY WATER-FOG SPRAY OR WATER-SATURATED ABSORPTIVE COVER. ALTERNATIVELY, USE CURING COMPOUND APPROVED BY THE EOR AND REPAIR MORTAR/GROUT MANUFACTURER.
3. PLACEMENT OF CONCRETE PATCH: BASIS OF DESIGN FOR FORM AND POUR REPAIRS IS SIKACRETE 211 SCC PLUS
   A. APPLY BONDING AGENT PER MANUFACTURER RECOMMENDATIONS.
   B. STANDARD PLACEMENT:
      a. PROVIDE FORMS WHERE NECESSARY TO CONFINE PATCH TO REQUIRED SHAPE.
      b. WET SUBSTRATE AND FORMS THOROUGHLY AND THEN REMOVE STANDING WATER.
      c. APPLY BONDING AGENT PER MANUFACTURER RECOMMENDATIONS.
      d. PLACE MATERIAL PER MANUFACTURER'S RECOMMENDATIONS
   C. WET-CURE CONCRETE FOR NOT LESS THAN SEVEN DAYS BY LEAVING FORMS IN PLACE OR KEEPING SURFACES CONTINUOUSLY WET BY WATER-FOG SPRAY OR WATER-SATURATED ABSORPTIVE COVER. ALTERNATIVELY, USE CURING COMPOUND APPROVED BY THE EOR AND REPAIR MORTAR/GROUT MANUFACTURER.
   D. FILL PLACEMENT CAVITIES WITH DRY-PACK MORTAR AND REPAIR VOIDS WITH PATCHING MORTAR. FINISH TO MATCH SURROUNDING CONCRETE.

EPOXY CRACK INJECTION

1. EPOXY CRACK INJECTION: BASIS OF DESIGN IS SIKADUR 35
   A. CLEAN AREAS TO RECEIVE CAPPING ADHESIVE OF OIL, DIRT, AND OTHER SUBSTANCES THAT WOULD INTERFERE WITH BOND, AND CLEAN CRACKS WITH OIL-FREE COMPRESSED AIR OR LOW-PRESSURE WATER TO REMOVE LOOSE PARTICLES.
   B. PLACE INJECTION PORTS AS RECOMMENDED BY EPOXY MANUFACTURER, SPACING NO FARTHER APART THAN THICKNESS OF MEMBER BEING INJECTED. SEAL INJECTION PORTS IN PLACE WITH CAPPING ADHESIVE.
   C. SEAL CRACKS AT EXPOSED SURFACES WITH A RIBBON OF CAPPING ADHESIVE AT LEAST 1/4 INCH (6 MM) THICK BY 1 INCH (25 MM) WIDER THAN CRACK.
   D. INJECT EPOXY ADHESIVE, BEGINNING AT WIDEST PART OF CRACK AND WORKING TOWARD NARROWER PARTS. INJECT ADHESIVE INTO PORTS TO REFUSAL, CAPPING ADJACENT PORTS WHEN THEY EXTRUDE EPOXY. CAP INJECTED PORTS AND INJECT THROUGH ADJACENT PORTS UNTIL CRACK IS FILLED.
   E. AFTER EPOXY ADHESIVE HAS SET, REMOVE INJECTION PORTS AND GRIND SURFACES SMOOTH

FIELD QUALITY CONTROL

1. PERFORM THE FOLLOWING TESTS AND INSPECTIONS:
   A. PACKAGED, CEMENTITIOUS PATCHING MORTAR: 2 RANDOMLY SELECTED SETS OF SAMPLES FOR EACH TYPE OF MORTAR REQUIRED, TESTED ACCORDING TO ASTM C 928.
   B. JOB-MIXED PATCHING MORTAR: 2 RANDOMLY SELECTED SETS OF SAMPLES FOR EACH TYPE OF MORTAR REQUIRED, TESTED FOR COMPRESSIVE STRENGTH ACCORDING TO ASTM C 109/C 109M.
2. PRODUCT WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.
3. PREPARE TEST AND INSPECTION REPORTS.

PROJECT SEQUENCING

SEE SECTION XVII OF GENERAL NOTES ON S-002 FOR CONCRETE REPAIR AND TIEBACK INSTALLATION WORK SEQUENCING.

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DE Job Number: C1676031.00
Date: 3/22/2023

REGISTERED PROFESSIONAL ENGINEER JEREMY T. CALLISTER No. S 5646 STRUCTURAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK	CITY OF SOLANA BEACH	ENGINEERING DEPARTMENT	DRAWING NO.
BY: _____ FIRE CHIEF DATE: _____	REVIEWED BY: _____ DISTRICT REP. DATE: _____	LH DRAWN BY	Description	No.	Date	By: _____ Date: _____	By: _____ Date: _____	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)	CONCRETE REPAIR GENERAL NOTES 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS PHASE 1	**S-501**
		By: JEREMY T. CALLISTER Date: 3/22/2023 NAME: DEGENKOLB ENGINEERS R.C.E. S.5646 EXP: _____				By: _____ Date: _____					Sheet 10 of 18

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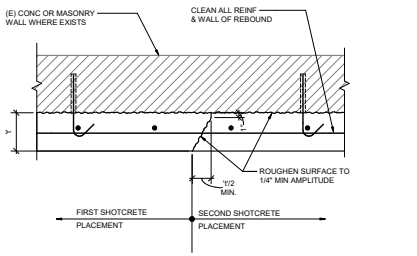
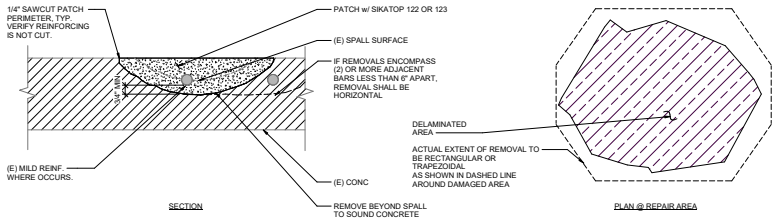
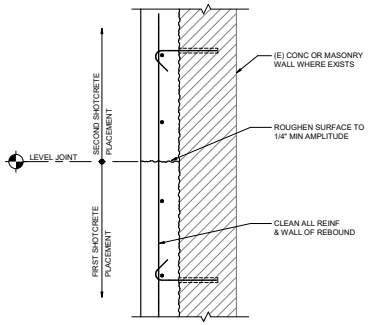


10 PLAN AT VERTICAL CONSTRUCTION JOINT
1" = 1'-0"



NOTES:
1. SEE THE CONCRETE REPAIR GENERAL NOTES (S-501) FOR REQUIREMENTS REGARDING THE REMOVAL OF UNSOUND CONCRETE, SURFACE PREPARATION, AND PLACEMENT OF PATCH MATERIALS.

4 LARGE CRACK, SPALL, OR DELAMINATION REPAIR
3" = 1'-0"



11 SECTION AT HORIZONTAL CONSTRUCTION JOINT
1" = 1'-0"

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JEREMY T. CALLISTER No. S 5646 STRUCTURAL STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEER

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	LH DRAWN BY	By: JEREMY T. CALLISTER Date: 3/22/2023 NAME: DEGENKOLB ENGINEERS R.C.E. S.5646 EXP:	Description / No.	Date

RECOMMENDED FOR APPROVAL
By: Date:
By: Date:

APPROVED FOR CONSTRUCTION
By: Date:

BENCH MARK
DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE.
ELEVATION: 71.450 FEET (NAVD88)

CITY OF SOLANA BEACH
ENGINEERING DEPARTMENT
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
CONCRETE REPAIR DETAILS
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-502
Sheet 11 of 18

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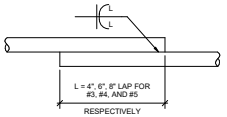
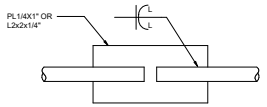
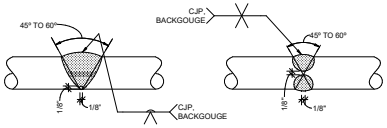
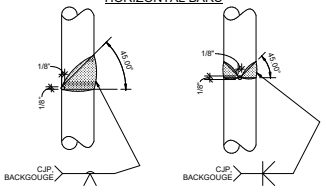




DIRECT LAP JOINT OR INDIRECT BUTT JOINT (#3 TO #5 BARS)



HORIZONTAL BARS

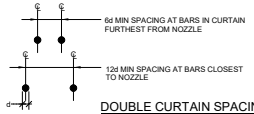


VERTICAL BARS

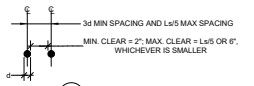
DIRECT BUTT JOINTS (#6 TO #11, #14, #18 BARS)

NOTES:
1. CONFORM TO AWS D1.4 FOR ALL REINFORCEMENT WELDING.
2. USE THIS DETAIL ONLY WHERE WELDED SPLICES ARE SPECIFICALLY NOTED ON THE DRAWINGS.
3. SEE SPECIFICATIONS FOR TESTING REQUIREMENTS ON COMPLETE JOINT PENETRATION WELDS.
4. DETAIL APPLIES ONLY TO BARS DESIGNATED GRADE A706. FOR ALL OTHER BARS, WELDING IS NOT ALLOWED UNLESS THE REQUIREMENTS OF AWS D1.4 SECTION 1.3.4 ARE MET.

11 WELDED REINFORCEMENT BAR SPLICE
6" = 1'-0"



A BAR SPACING AT NON-LAPPED BARS, U.O.N.



B LAPPED BAR SPACING

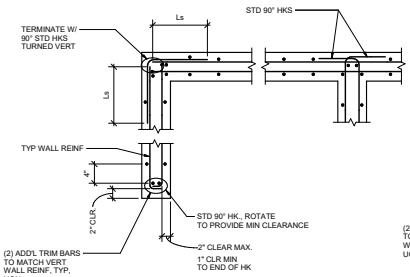
WHERE d = DIAMETER OF LARGER BAR

8 BAR SPACING IN SHOTCRETE
1" = 1'-0"

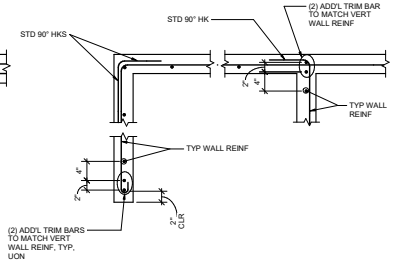
CONCRETE REINFORCING DEVELOPMENT & SPLICE LENGTHS																														
BAR LOCATION	CONCRETE		BAR SIZE																											
	TYPE	STRENGTH	#3			#4			#5			#6			#7			#8			#9			#10			#11		
			Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh	Ld	Ls	Ldh
VERT WALL BARS	NWC	f'c ≥ 4ksi	12	16	6	14	18	8	18	23	12	21	27	15	38	49	23	43	56	29	49	63	54	58	75	65	71	92	76
HORIZ WALL BARS	NWC	f'c ≥ 4ksi	14	18	6	18	24	8	23	29	12	27	35	15	43	56	23	49	63	29	55	71	54	66	85	65	81	105	76
VERT COL BARS	NWC	f'c ≥ 4ksi	12	16	6	14	18	8	18	23	12	21	27	15	38	49	23	43	56	29	49	63	54	58	75	65	71	92	76

NOTES:
1. Ld = DEVELOPMENT LENGTH
Ls = TYPE 'B' LAP SPLICE LENGTH
Ldh = HK DEVELOPMENT LENGTH
2. WHEN SPLICING BARS OF DIFFERENT SIZE, USE LAP SPLICE LENGTH OF LARGER BAR, UON
3. STAGGER SPLICES AS INDICATED ON DRAWINGS.
COUPLER OR WELDED SPLICE
2'-0" CLR.
4. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS. FOR GRADES GREATER THAN 60, UP TO GRADE 80, MULTIPLY THE ABOVE LENGTHS BY THE RATIO OF THE PROPOSED GRADE AND 60.
5. FOR LIGHTWEIGHT AGGREGATE CONCRETE, MULTIPLY THE TABULATED VALUES FOR 'NWC' TYPE CONCRETE BY 1.33.
6. TABLES INCLUDE INCREASED DEVELOPMENT AND SPLICE LENGTHS DUE TO EPOXY COATING.

4 REINFORCING DEVELOPMENT & SPLICE LENGTHS
1" = 1'-0"

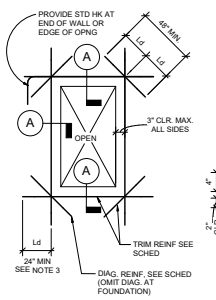


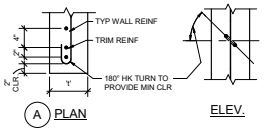
A DOUBLE CURTAIN REINF. AT WALL



B SINGLE CURTAIN REINF. AT WALL

5 WALL REINFORCING AT CORNERS AND INTERSECTIONS
1" = 1'-0"



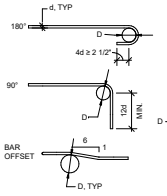


TRIM REINFORCING SCHEDULE		
WALL THICKNESS 't'	MIN TRIM REINF	DIAGONAL REINF
6" ≤ t ≤ 9"	(2) #5	#5
9" ≤ t ≤ 12"	(2) #6	#5
12" ≤ t ≤ 16"	(2) #7	#5
t > 16"	(2) #8	#7

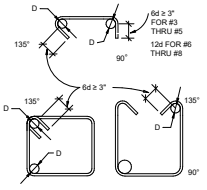
NOTES:
1. SCHED REINF APPLIES TO ALL OPENINGS, UNLESS OTHERWISE HOWN.
2. MIN TRIM REINF TO BE LARGER OF TYP WALL REINF OR SIZE SHOWN IN SCHED
3. AT SERIES OF OPENINGS WHERE PIER OR SPANDEREL IS NARROWER THAN THREE TIMES d, RUN TRIM REINF CONT.
4. MAY OMIT DIAGONALS IF THE LARGEST OPNG DIMENSION IS LESS THAN 2'-0"
5. DETAILS IS NOT REQUIRED FOR OPENINGS SMALLER THAN THE WALL THICKNESS OF 12", WHICHEVER IS SMALLER.
6. COORDINATE OPNG LOCATIONS AND SIZES W/ OTHER TRADES INCLUDING BUT NOT LIMITED TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING.

12 WALL REINFORCING AT OPENINGS
1" = 1'-0"

STD HKS & BENDS



STIRRUPS, TIES & HOOKS



BEND DIAMETER, D		
BAR SIZE	STD HKS & BENDS	STIRRUPS, TIES & HOOPS
#3 THRU #5	6d	4d
#6 THRU #8	6d	6d
#9 THRU #11	8d	NA
#14 THRU #18	10d	NA

NOTE:
1. DO NOT FIELD BEND REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE.

6 HOOKS & BENDS
1" = 1'-0"

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DE Job Number: C1676031.00
Date: 3/22/2023

REGISTERED PROFESSIONAL ENGINEER JEREMY T. CALLISTER No. S 5646 STRUCTURAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	By: JEREMY T. CALLISTER Date: 3/22/2023	Description	No.	Date	By: Date:	By: Date:	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)
		NAME: DEGENKOLB ENGINEERS				By: Date:		
		DRAWN BY: LH R.C.E. S.5646 EXP:						

CITY OF SOLANA BEACH ENGINEERING DEPARTMENT
TYPICAL CONCRETE DETAILS
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS PHASE 1

DRAWING NO. S-503
Sheet 12 of 18

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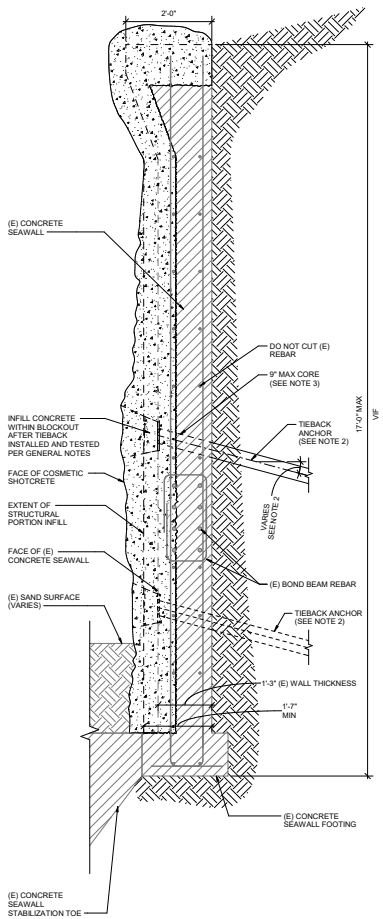
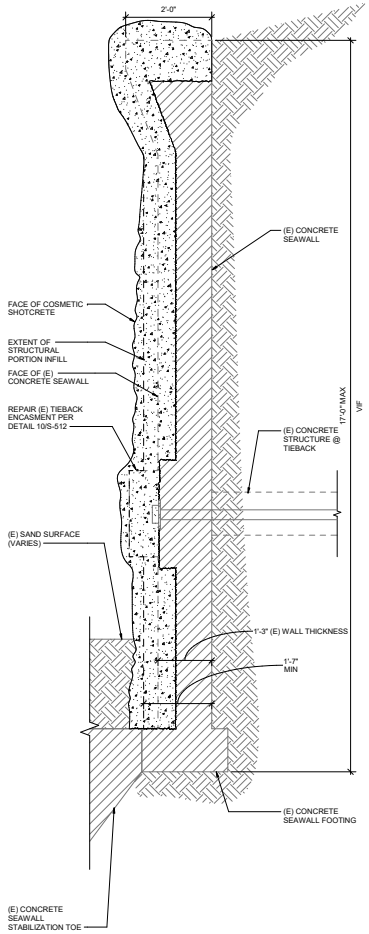


NOTES:

1. SEE DETAIL 6/- FOR INFORMATION NOT SHOWN. NEW REINFORCEMENT AND DOWELS NOT SHOWN FOR CLARITY.
2. SEE 10/S-512 FOR REPAIR DETAIL. SEE SEAWALL ELEVATION ON S-102 AND S-103 FOR TIEBACK ANCHOR HEIGHT. SEE 12/S-541 FOR TIEBACK SCHEDULE
3. (E) REBAR SHALL NOT BE DAMAGED AT CORE LOCATIOINS

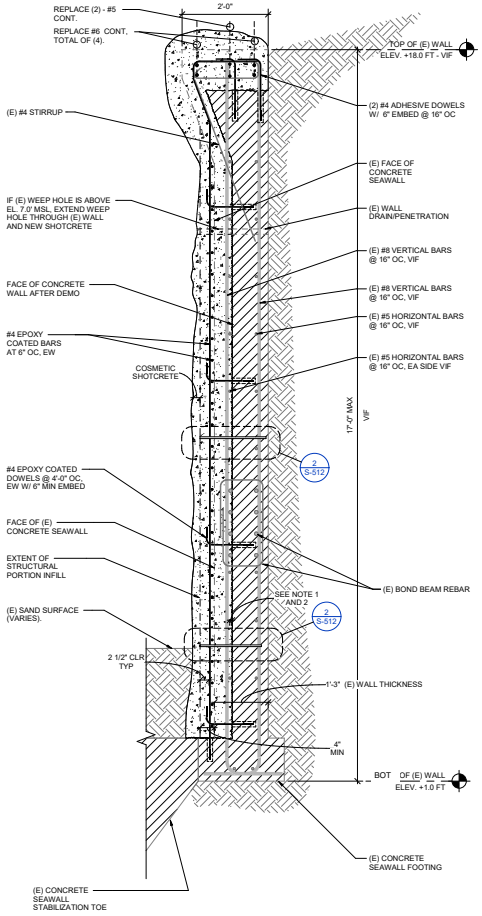
12 SECTION AT NEW SEAWALL TIEBACK
3/4" = 1'-0"



NOTES:

1. SEE DETAIL 6/- FOR INFORMATION NOT SHOWN. REINFORCEMENT AND DOWELS NOT SHOWN FOR CLARITY.

9 SECTION AT (E) SEAWALL TIEBACK
3/4" = 1'-0"



NOTES:

1. EXTERIOR CONCRETE COVER TO BE REMOVED TO EXPOSE THE FIRST LAYER OF EXISTING STEEL REINFORCEMENT. IF THE EXPOSED REINFORCEMENT HAS LOST **MORE THAN 50%** OF ITS CROSS SECTIONAL AREA, THEN THE EXTENTS OF THE DEMO SHALL EXTEND 3/4" BEYOND THE REINFORCEMENT. THEN, NEW SUPPLEMENTAL BARS SHALL BE SPLICED TO THE EXISTING CORRODED STEEL WITH A MINIMUM SPLICE LENGTH OF Ls ON BOTH SIDES OF THE CORRODED STEEL.
2. IF IT IS DETERMINED THAT THE REINFORCEMENT HAS LOST **LESS THAN 50%** OF ITS CROSS SECTIONAL AREA, THEN NO FURTHER DEMO IS REQUIRED BEYOND THE CENTERLINE OF THE REINFORCEMENT. THE EXPOSED STEEL SHALL THEN BE CLEANED OF RUST TO BARE METAL BY SANDBLASTING OR WIRE BRUSHING.
3. SEE THE CONCRETE REPAIR GENERAL NOTES (S-501) FOR REQUIREMENTS REGARDING THE REMOVAL OF UNSOUND CONCRETE, SURFACE PREPARATION, AND PROTECTION OF EXISTING REINFORCEMENT WITH SIKA COATING.
4. CONTRACTOR TO BRACE WALL AS REQUIRED DURING DEMOLITION, WALL REPAIRS, AND PLACEMENT OF SHOTCRETE.
5. PRIOR TO SHOTCRETE INSTALLATION, RINSE WALL WITH CLEAN POTABLE WATER
6. CONTRACTOR SHALL PREVENT SEA WATER FROM CONTACTING WALL DURING CONSTRUCTION.
7. ALL NEW STEEL REINFORCEMENT IS TO BE EPOXY COATED.

6 TYPICAL SEAWALL SHOTCRETE REPAIR DETAIL
3/4" = 1'-0"

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DE Job Number: C1676031.00

Date: 3/22/2023

JEREMY T. CALLISTER — No. S 5646 — STRUCTURAL — STATE OF CALIFORNIA — PROFESSIONAL ENGINEER

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	By: JEREMY T. CALLISTER Date: 3/22/2023	Description	No.	Date	By: Date:	By: Date:	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)
		NAME: DEGENKOLB ENGINEERS				By: Date:		
	DRAWN BY: LH	R.C.E. S.5646 EXP:						

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

SEAWALL REPAIR DETAILS
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-511

Sheet 13 of 18

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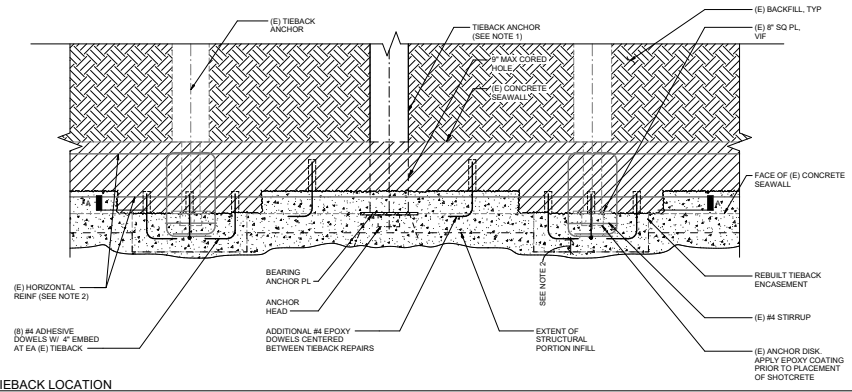
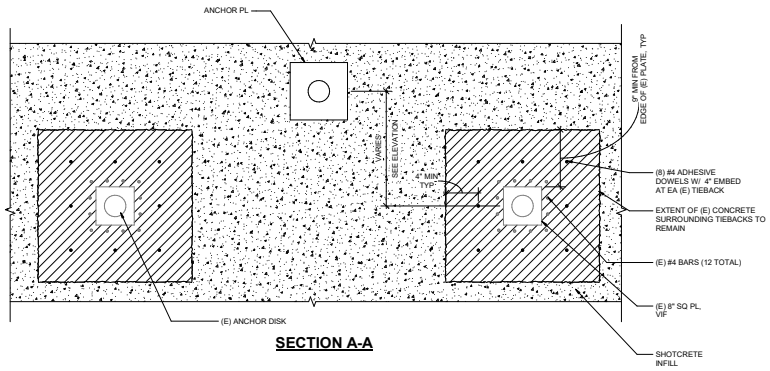


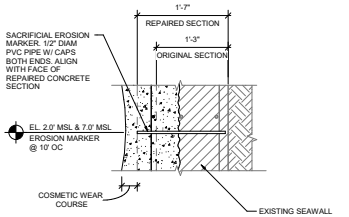
NOTES:

1. SEE S-541 FOR TIEBACK SCHEDULE AND DETAILS
2. SEE 6/S-511 FOR WALL REPAIR DETAIL
3. ALL NEW STEEL REINFORCEMENT IS TO BE EPOXY COATED.
4. NEW SHOTCRETE WALL REINF NOT SHOWN FOR CLARITY

10 SEAWALL SECTION REPAIR AT TIEBACK LOCATION
1" = 1'-0"



SECTION A-A



2 MARKER DETAIL
1" = 1'-0"

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Date: 3/22/2023

JEREMY T. CALLISTER No. S 5646 STRUCTURAL PROFESSIONAL ENGINEER STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	JEL DRAWN BY	Description	No.	Date
		By: JEREMY T. CALLISTER Date: 3/22/2023			
		NAME: DEGENKOLB ENGINEERS			
		R.C.E. S.5646 EXP:			

RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK
By: Date:	By: Date:	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)
By: Date:		

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

SEAWALL REPAIR DETAILS
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-512

Sheet 14 of 18

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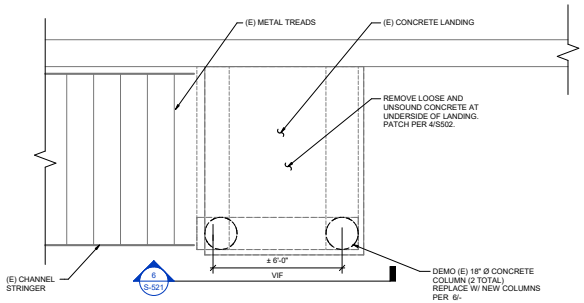
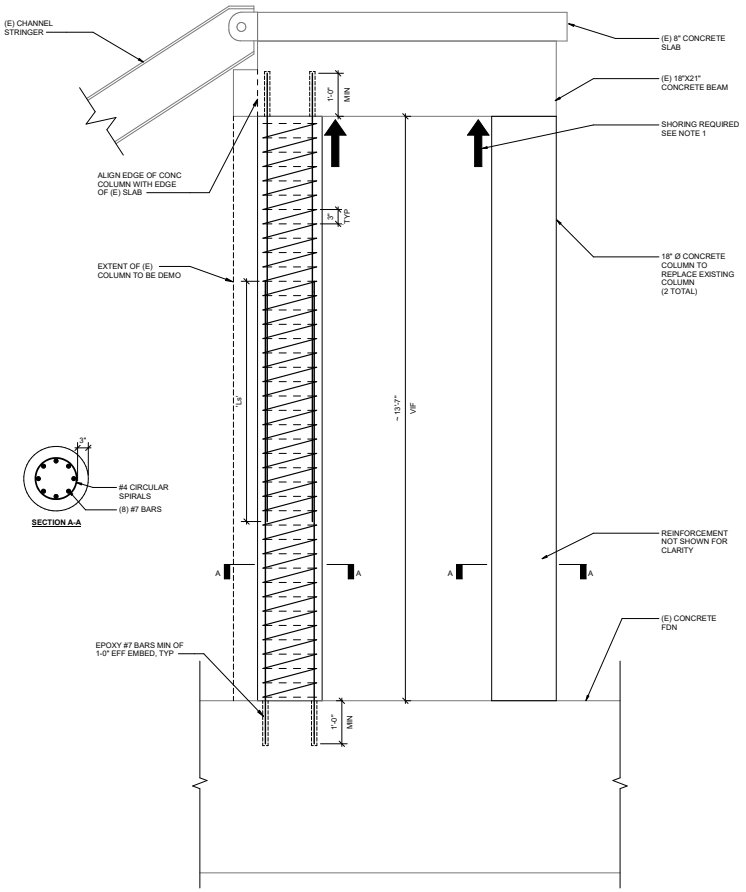


10 CONCRETE STAIRS LANDING PLAN VIEW
3/8" = 1'-0"



NOTES:
1. PRIOR TO ANY DEMO ACTIVITY, RESTRICT STAIR ACCESS AND SHORE BEAM PER SHORING ENGINEER REQUIREMENTS.
2. ALL NEW STEEL REINFORCEMENT IS TO BE EPOXY COATED.

6 CONCRETE STAIRS LANDING SECTION
3/4" = 1'-0"

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SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	LH DRAWN BY	Description	No.	Date
		By: JEREMY T. CALLISTER Date: 3/22/2023			
		NAME: DEGENKOLB ENGINEERS			
		R.C.E. S.5646 EXP:			

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By: Date:		

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

CONCRETE STAIR COLUMN REPAIR DETAILS
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-521

Sheet 15 of 18

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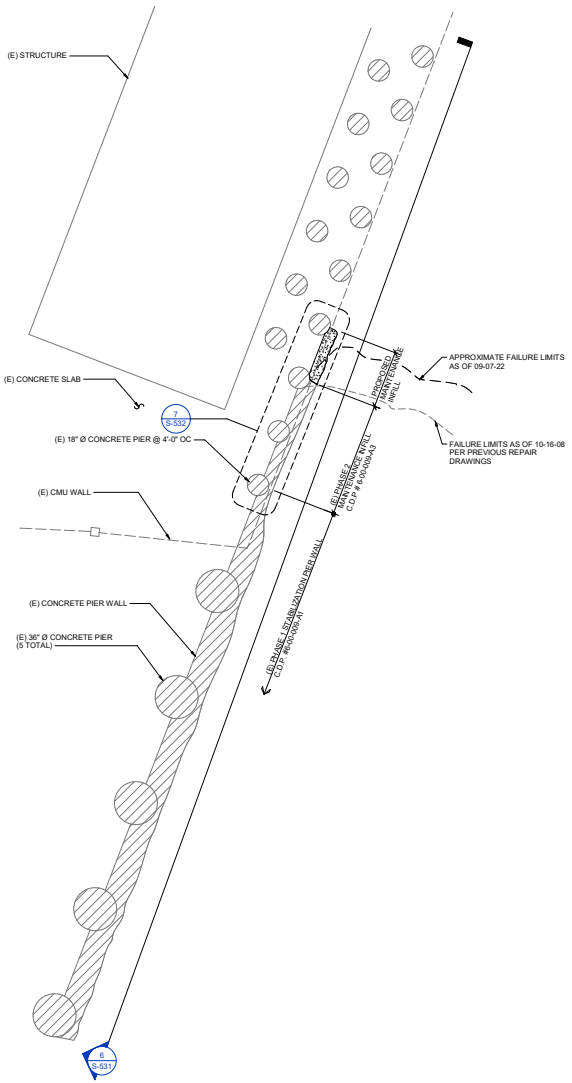
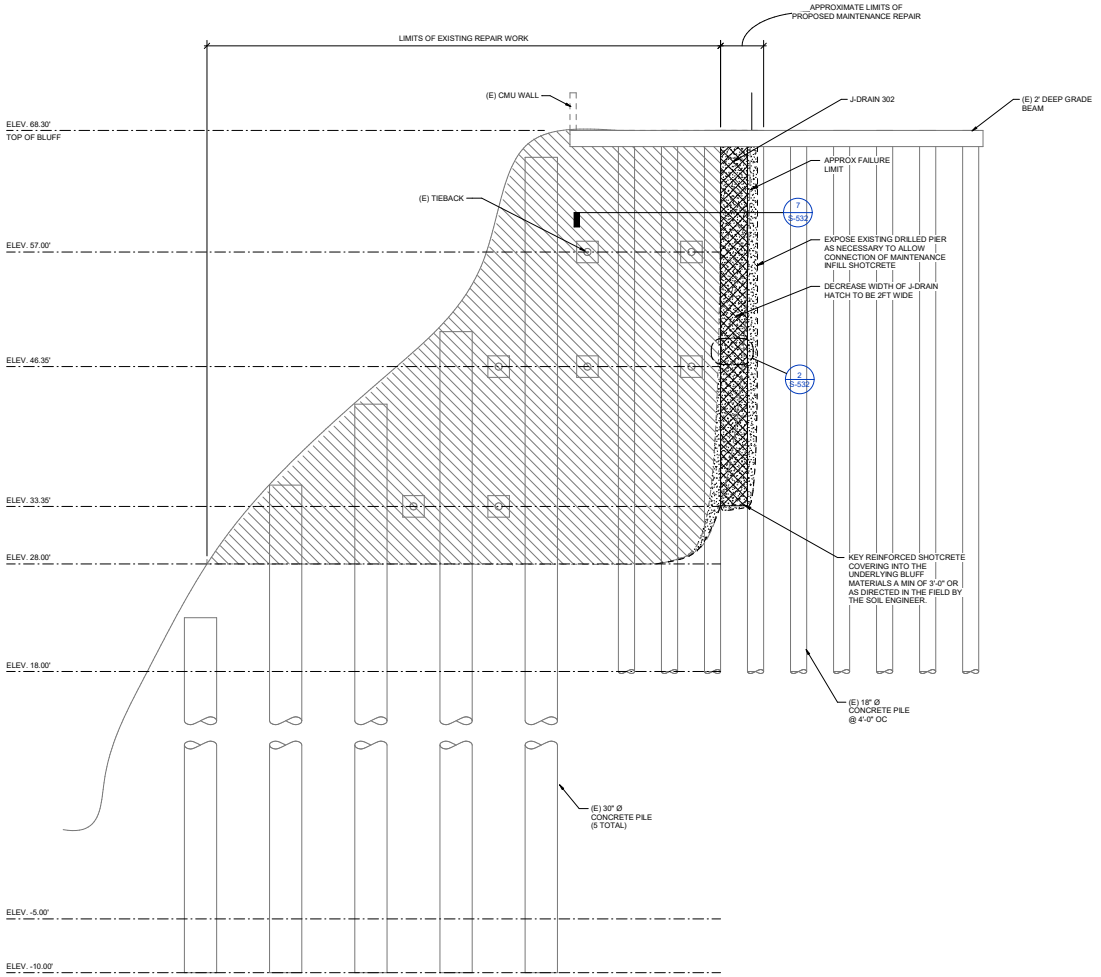


12 SITE PLAN VIEW
1/4" = 1'-0"



6 UPPER BLUFF PIER WALL REPAIRS
3/16" = 1'-0"

NOTES:

1. EXISTING PIER AND TIEBACK LOCATIONS AND SIZES ARE PER AVAILABLE RECORD DRAWINGS. CONTRACTOR TO VIF AS REQUIRED.

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REGISTERED PROFESSIONAL ENGINEER JEREMY T. CALLISTER No. S 5646 STRUCTURAL STATE OF CALIFORNIA

SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE	RECOMMENDED FOR APPROVAL	APPROVED FOR CONSTRUCTION	BENCH MARK	CITY OF SOLANA BEACH	ENGINEERING DEPARTMENT	DRAWING NO.
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	LH DRAWN BY	Description	No.	Date	By: Date:	By: Date:	DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE. ELEVATION: 71.450 FEET (NAVD88)	UPPER BLUFF REPAIR DETAILS 825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075 DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS PHASE 1		S-531
		By: JEREMY T. CALLISTER Date: 3/22/2023 NAME: DEGENKOLB ENGINEERS R.C.E. S.5646 EXP:				By: Date:	By: Date:				Sheet 16 of 18

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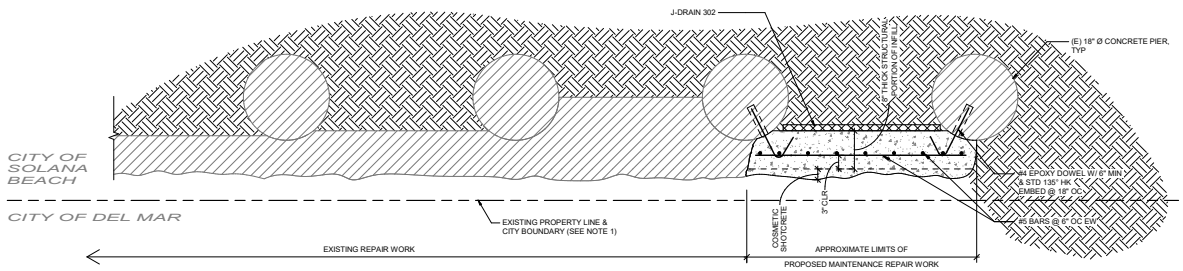
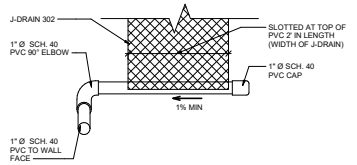


NOTES:

1. CONCRETE INFILL SHALL NOT EXTEND PAST EXISTING PROPERTY LINE.
2. KEY REINFORCED SHOTCRETE COVERING INTO THE UNDERLYING BLUFF MATERIALS A MIN OF 3'-0" OR AS DIRECTED IN THE FIELD BY THE SOIL ENGINEER.
3. ALL STEEL REINFORCEMENT IS TO BE EPOXY COATED.

7 UPPER BLUFF PIER PLAN VIEW
1" = 1'-0"



WALL DRAINAGE NOTES:

PROVISIONS FOR WALL DRAINAGE WILL CONSIST OF 2-FOOT WIDE GECOMPOSITE DRAIN BOARDS, CENTERED BETWEEN ADJACENT PILES. J-DRAIN 302 SHALL BE USED FOR ALL VERTICAL CHIMNEY DRAINS. CHIMNEY DRAINS WILL THEN BE MANIFOLDED AND EXTENDED THROUGH THE BASE OF EACH SECTION OF THE STRUCTURAL SHOTCRETE INFILL AS NEW INFILLS ARE PLACED. CHIMNEY DRAIN EXTENSIONS SHALL BE ATTACHED TO THE OVERLYING IN-PLACE CHIMNEY DRAIN, WITH NEW MANIFOLDED OUTLET INSTALLED AT THE BOTTOM OF THE NEW INFILL SECTION.

2 WALL DRAINAGE DETAIL
1/2" = 1'-0"

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SOLANA BEACH FIRE DEPARTMENT	SANTA FE IRRIGATION DISTRICT	ENGINEER OF WORK	CITY APPROVED CHANGES	APP'D	DATE
BY: FIRE CHIEF DATE:	REVIEWED BY: DISTRICT REP. DATE:	JEL DRAWN BY	By: JEREMY T. CALLISTER Date: 3/22/2023 NAME: DEGENKOLB ENGINEERS R.C.E. S.5646 EXP:	Description / No.	Date

RECOMMENDED FOR APPROVAL
By: Date:
By: Date:

APPROVED FOR CONSTRUCTION
By: Date:

BENCH MARK
DESCRIPTION: CITY OF SOLANA BEACH SURVEY CONTROL POINT NO. 2001 PER RECORD OF SURVEY MAP NO. 18971. 2.5" CITY OF SOLANA BEACH BRASS DISK STAMPED "SOLB-1, LS 7322, 2005" SET ON CONCRETE DRAINAGE INLET ON THE EAST SHOULDER OF HIGHWAY 101, 0.1 MILE SOUTH OF LOMAS SANTA FE DRIVE.
ELEVATION: 71.450 FEET (NAVD88)

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT
UPPER BLUFF REPAIR DETAILS
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

DRAWING NO. S-532
Sheet 17 of 18

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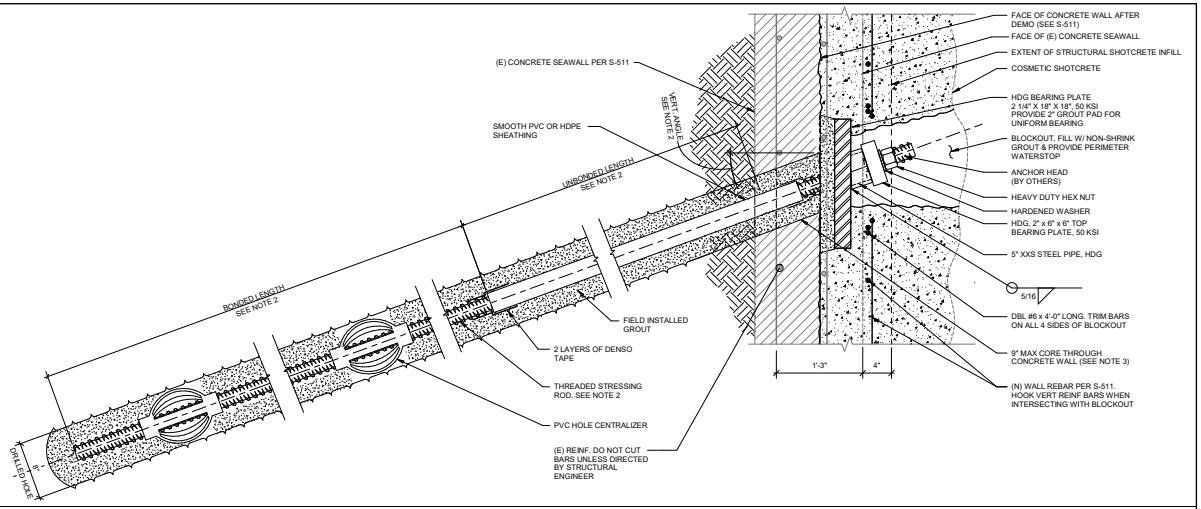
TIEBACK PERFORMANCE TEST			
LOAD	RECORD TOTAL MOVEMENT	RECORD RESIDUAL MOVEMENT	LOAD HOLD TIME
AL	X		N/A
0.25 DL	X		LESS THAN 1 MINUTE
AL		X	N/A
0.25 DL	X		< 1 MIN.
0.50 DL	X		< 1 MIN.
AL		X	N/A
0.25 DL	X		< 1 MIN.
0.50 DL	X		< 1 MIN.
0.75 DL	X		< 1 MIN.
AL		X	N/A
0.25 DL	X		N/A
0.50 DL	X		N/A
0.75 DL	X		N/A
1.00 DL	X		10 MINUTES
AL		X	N/A
0.25 DL	X		< 1 MIN.
0.50 DL	X		< 1 MIN.
0.75 DL	X		< 1 MIN.
1.00 DL	X		< 1 MIN.
1.25 DL	X		10 MINUTES
AL		X	N/A
0.25 DL	X		< 1 MIN.
0.50 DL	X		< 1 MIN.
0.75 DL	X		< 1 MIN.
1.00 DL	X		< 1 MIN.
1.50 DL = TEST LOAD	X		10 MINUTES

NOTES:
1. AL = ALIGNMENT LOAD, DL = DESIGN LOAD = LOCK LOAD
2. SEE GENERAL NOTES FOR TESTING PROCEDURES.

10 TIEBACK PERFORMANCE TEST

NOTES:
1. SEE GENERAL NOTES FOR CORROSION PROTECTION, INSTALLATION, AND TESTING REQUIREMENTS.
2. SEE 12/- FOR TIEBACK SCHEDULE
3. (E) REBAR SHALL NOT BE DAMAGED AT CORE LOCATIOINS



7 ROD TIEBACK AT SEAWALL
N.T.S

TIEBACK PROOF TEST	
LOAD	LOAD HOLD TIME
AL	N/A
0.25 DL	N/A
0.50 DL	N/A
0.75 DL	N/A
1.00 DL	N/A
1.25 DL	N/A
1.33 DL	10 MINUTES

NOTES:
1. AL = ALIGNMENT LOAD, DL = DESIGN LOAD = LOCK LOAD
2. SEE GENERAL NOTES FOR TESTING PROCEDURES.

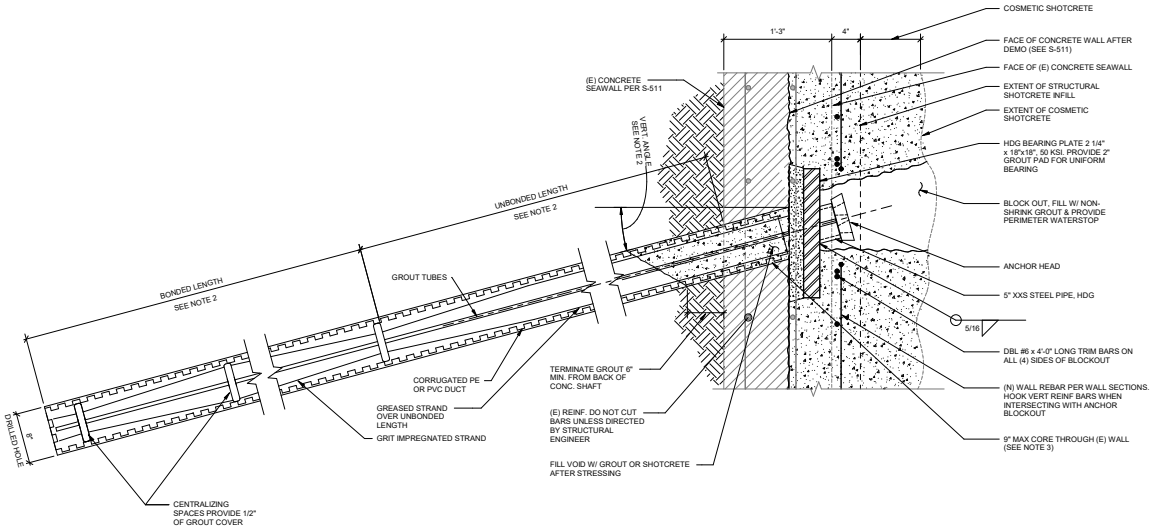
11 TIEBACK PROOF TEST

MARK	VERT. ANGLE [DEGREE]	# OF 0.6" Ø STRANDS[3]	ROD Ø [INCH][2]	LOCK LOAD (DESIGN LOAD) [KIP]	PROOF TEST LOAD [KIP]	UNBONDED LENGTH [FEET]	BONDED LENGTH [FEET][4]	TOTAL LENGTH [FEET][4]
A	10	3	1-5/8	123.2	164	30	20	50
B	15	3	1-5/8	126.4	168	30	20	50
C	20	3	1-5/8	131.1	174	30	21	51
D	25	3	1-5/8	137.4	183	30	22	52
E	30	4	1-5/8	145.7	194	30	23	53
F	10	4	1-3/4	166.0	221	30	27	57
G	15	4	1-3/4	172.4	229	30	28	58
H	20	4	1-3/4	181.7	242	30	29	59
I	25	5	1-3/4	194.3	258	30	31	61
J	30	5	1-7/8	210.8	280	30	34	64

TABLE NOTES:
1. SEE SEAWALL PLANS ON S-101 AND S-102 FOR TIEBACK MARK.
2. SEE DETAILS 7/- AND 9/- FOR TIEBACK DETAILS. TIEBACKS DRILLED HOLES SHALL BE 8"Ø MIN.
3. SUBSTITUTION OF STRAND FOR ROD IS ACCEPTABLE FOR TIEBACKS. CONTRACTOR SHALL SELECT STRAND APPROPRIATE TO ACHIEVE THE DESIGN LOADS AND TEST LOADS REQUIRED. SEE GENERAL NOTES FOR MORE INFORMATION.
4. TIEBACK BONDED LENGTH AND TOTAL LENGTH VALUES ARE BASED ON ESTIMATED GEOTECHNICAL PARAMETERS. THESE LENGTHS REPRESENT THE MAXIMUM LENGTHS TO WHICH THE TIEBACKS HAVE BEEN COORDINATED FOR CONFLICTS WITH OTHER TIEBACKS AND EXISTING ELEMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TIEBACK LENGTHS THAT WILL ACHIEVE THE REQUIRED DESIGN AND TEST LOADS. SEE GENERAL NOTES.
5. SEE GENERAL NOTES FOR TIEBACK INSTALLATION AND TESTING REQUIREMENTS.
6. SEE DETAILS 10/- AND 11/- FOR TIEBACK PERFORMANCE AND PROOF TESTS REQUIREMENTS.
7. NEW TIEBACKS AT STRAIGHT WALL SEGMENTS ARE DESIGNED TO RESIST 75% OF THE LATERAL SOIL LOADS (WITH THE EXISTING TIE-BACKS RESISTING 25%), AT THE CURVED PORTION OF THE WALLS, THE NEW TIEBACKS ARE DESIGNED TO RESIST 50% OF THE LATERAL SOIL LOADS (WITH EXISTING TIEBACKS RESISTING 50%).

12 TIEBACK SCHEDULE

NOTES:
1. SEE GENERAL NOTES FOR CORROSION PROTECTION, INSTALLATION, AND TESTING REQUIREMENTS.
2. SEE 12/- FOR TIEBACK SCHEDULE
3. (E) REBAR SHALL NOT BE DAMAGED AT CORE LOCATIOINS



9 STRAND TIEBACK AT SEAWALL
1 1/2" = 1'-0"

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		NAME: DEGENKOLB ENGINEERS				By: Date:		
	DRAWN BY: JEL	R.C.E. S.5646 EXP:						

CITY OF SOLANA BEACH — ENGINEERING DEPARTMENT

TIEBACK DETAILS
825 SOUTH SIERRA AVENUE, SOLANA BEACH, CA 92075
DEL MAR BEACH CLUB SEAWALL AND UPPER BLUFF REPAIRS
PHASE 1

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Sheet 18 of 18

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