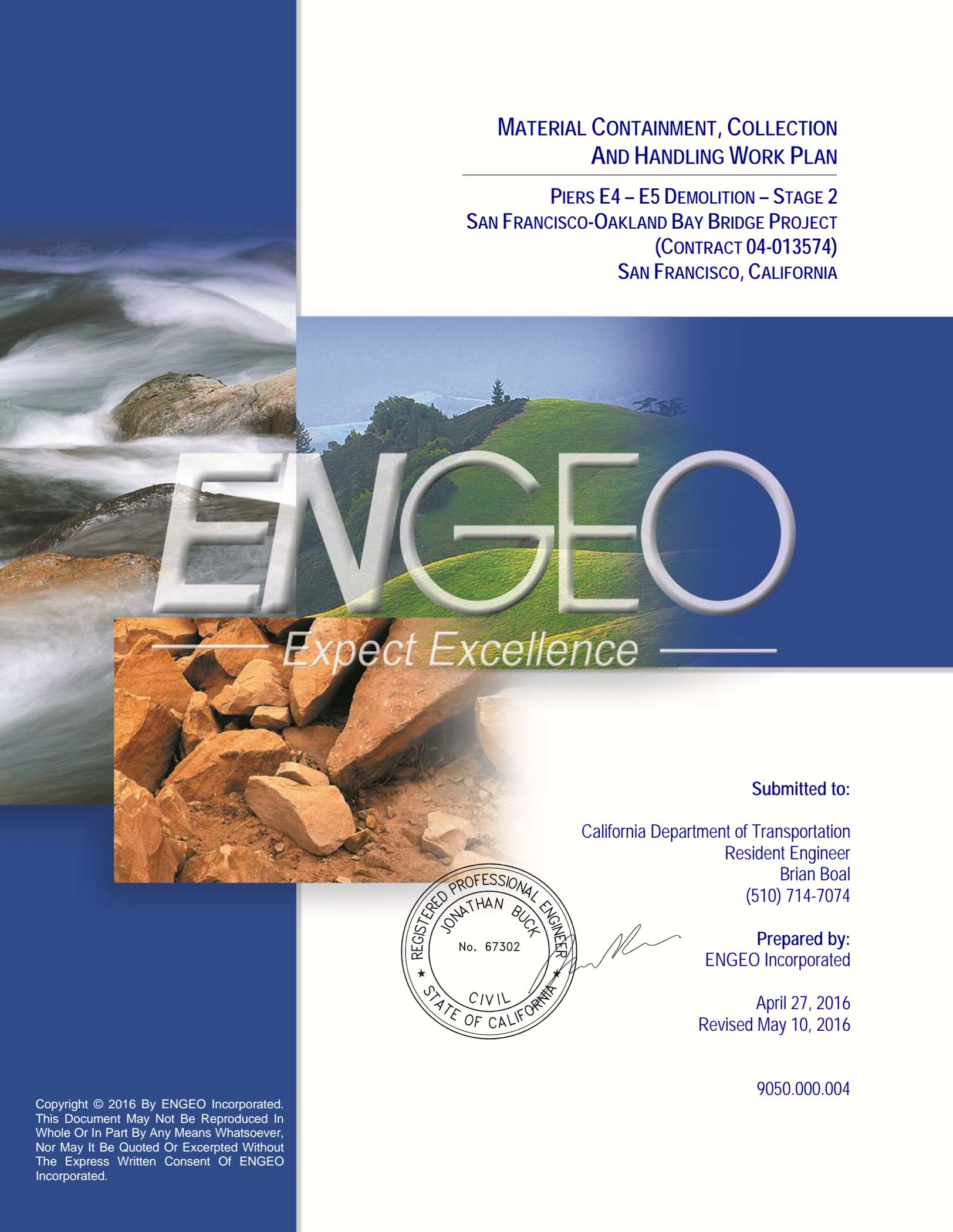


**MATERIAL CONTAINMENT, COLLECTION
AND HANDLING WORK PLAN**

**PIERS E4 – E5 DEMOLITION – STAGE 2
SAN FRANCISCO-OAKLAND BAY BRIDGE PROJECT
(CONTRACT 04-013574)
SAN FRANCISCO, CALIFORNIA**



ENGEO

Expect Excellence

Submitted to:

California Department of Transportation
Resident Engineer
Brian Boal
(510) 714-7074

Prepared by:
ENGEO Incorporated

April 27, 2016
Revised May 10, 2016

9050.000.004



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Project No.
9050.000.004

April 27, 2016
Revised May 10, 2016

Mr. Frederick Lausier
Kiewit/Manson Joint Venture
4650 Business Center Drive
Fairfield, CA 94534

Subject: Piers E4 – E5 Demolition (Contract 04-013574)
San Francisco, California

MATERIAL CONTAINMENT, COLLECTION, AND HANDLING WORK PLAN

Dear Mr. Lausier:

As requested by you, we prepared the following Material Containment, Collection and Handling Work Plan (MCCHWP) for the Piers E4 – E5 Demolition (Caltrans Contract No. 04-013574), which is part of the San Francisco-Oakland Bay Bridge project in San Francisco County, California. The intent of the MCCHWP is to provide a guidance document for implementation of effective handling, storage, usage and disposal practices to control material pollution and manage waste and non-stormwater at the job site that is in general conformance with National Discharge Pollution Elimination System (NPDES) requirements in order to protect receiving waters. This MCCHWP is also intended to meet any additional requirements for the project as requested by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). An additional MCCHWP will be prepared for the subsequent demolition of Piers E6 – E18 at a later date and will be submitted as an amendment to this document.

1.0 DESCRIPTION OF RELATED CONSTRUCTION ACTIVITIES

The California Department of Transportation, as part of the dismantling of the original East Span of the San Francisco-Oakland Bay Bridge (SFOBB) for the SFOBB East Span Seismic Safety Project (SFOBB Project), is planning a project for the controlled blasting of the in-water concrete caissons supporting Piers E4 and E5. Removal of the original span, including its marine foundations, is required to satisfy regulatory requirements of the SFOBB Project. Piers E4 and E5 are located approximately 2,300 feet east of Yerba Buena Island (YBI), in San Francisco County.

The first phase of the project intends to demolish the above-water portion of Piers E4 and E5. The project contractor, Kiewit/Manson JV, will perform the demolition and stage the project from a portion of Wharf 6 located within the Port of Oakland, as shown on Figure 1. As shown

on Figure 2, Pier 96 at the Port of San Francisco will be used as both an equipment and material staging area to off-load, sort and process any construction demolition debris from barges prior to transporting it via trucks to its ultimate disposal destination.

For Piers E4 and E5, based on existing Federal and State permits for the project, Kiewit/Manson JV intends to demolish the existing above-ground pier system in place. To the maximum extent possible, concrete rubble will be placed in the existing hollow caisson structure below the pier in lieu of off-hauling the debris. Although considered unlikely, material may be subsequently off-hauled if the hollow caisson structures do not allow complete onsite disposal of post-blast debris.

2.0 REMOVAL AND DEMOLITION SEQUENCE

Note that elevations included in this section are referenced to the National Geodetic Vertical Datum (NGVD) 29 datum where - 2.9 NGVD is equal to Mean Lower Low Water (MLLW).

2.1 CONVENTIONAL ABOVE-WATER DEMOLITION

Sequencing of the conventional above-water portion of the pier demolition project is generally as follows:

1. Mobilization of contractor, including barge and land operations at Wharf 6 and Pier 96 (Figures 1 and 2). Note that the project schedule indicates that the conventional demolition of Pier E4 will be occur first, followed by Pier E5. In terms of the conventional demolition operation, the Piers are largely the same.
2. The fender of the piers will then be removed, including timber, plastic and metal framework. It is expected that cutting and torching of the steel framework that supports the fender will be conducted and it will be removed in panels. Small flatbed containment barges with bulkheads around their outside edge will be positioned beneath the areas to be disassembled to contain the timber and steel panes as they are removed from the greater pier structure as shown on Figures 3 and 12. To avoid creating a fire hazard during disassembly of the fender structure, the flat bed barges will have a steel surface to suppress sparks generated from the torching operations. All metal, timber and plastic stockpiled on barges will be disposed of offsite after the fender is completely removed. Material to be off-hauled will be transported by barge to Pier 96 at the Port of San Francisco where the fender panels will be cut using mechanical shears; fender panels will then be off-hauled by trucks. The area of Pier 96 where the activities are to be performed is paved with concrete and has several drainage inlets that will be protected with BMPs.
3. Support barges will then be used to move two hydraulic excavators to Piers E4 and E5; the excavators will be equipped with hoe rams and shearing attachments and other equipment needed for dismantling, including cutting lances and torches. The excavators and other equipment will be lifted onto the top of Piers E4 and E5 with a barge-mounted derrick crane. The dismantling process of the piers will commence with the use of divers to plug the

external weep holes that allow water in the caisson voids to exchange with Bay water. Once the weep holes are plugged, handrails will be installed along the top edges of the pier for worker safety. Flexi float rafts with filter fabric-covered fences will be installed on the water surface around the perimeter of the pier to contain any concrete debris from falling into the Bay. After the debris containment is installed, the contractor will provide a support platform over the pier structure that will be drilled into place to stage the excavators. After the support beams are in place, the contractor will remove the concrete cap area covering the inner cells of the pier using a hoe-ram-equipped excavator (Figures 4 and 13).

4. All concrete debris from the Pier Cap will fall or be placed into the caisson voids. Once these cells are opened, they will be covered by the support platform to allow the excavators to begin dismantling of the platform pedestals. Each pedestal will then be demolished using a hoe ram (Figures 5 and 14). The concrete rubble from the cell caps and the pedestals will be disposed of in the exposed caisson voids.
5. Additional steel beam support platforms will then be installed with drilled rebar pins connected to the pier structure on the overhang section of the fender slab. These will provide a working surface for the hoe rams to dismantle the inner walls of Piers E4 and E5 to an elevation of +9.1 feet (Figures 6 and 15). Temporary flexi float rafts will be relocated as necessary along the outside of the pier to prevent concrete debris from falling into the Bay (Figures 7, 9, 16 and 18). The flexi floats will be pinned together, which will make the system very stable. The open inner cells will then be covered by support platforms and the equipment will be moved to the center of the pier; dismantling of the support blocks will occur down to an elevation of +9.1 feet (Figures 8 and 17) as referenced to 1929 National Geodetic Vertical Datum. On Pier E4 only, additional concrete will be removed from the end cells of the caisson down to an elevation of +5.1 feet (Figure 10). A boom will be placed around the operation as the dismantling reaches elevation +5.1 feet. Concrete rubble will be disposed of inside the caisson voids.
6. Hand rails and flexi float rafts will be removed from the pier using a crane. The baker tanks located on the dewatering barge and described in the Discharge and Dewatering Plan will be disassembled and brought to shore. The temporary steel platforms will be removed.

2.2 IN-WATER BLASTING AND POST-BLAST OPERATIONS

Sequencing of the blasting and post-blast operations of the pier demolition project is outlined below:

1. A new steel and wood platform will be installed on the top of the piers to specifically guide and support a drill rig that will drill into the existing pier and buttress walls to install explosive charges (Figures 11, 19, 20). For Pier E5, drilling into the buttress walls will also require cantilevering of the drill rig using an excavator over the side of the pier, as the walls extend approximately 10 feet beyond the rim of the above-water pier. The platform will also serve as a cover to prevent any concrete from being ejected into the air during the controlled blasting. The contractor intends to employ a Sandvik 500 or equivalent drill rig (Appendix E)

with a vacuum dust collection system to capture concrete spoils during drilling into the portions of the pier below the pier cap, where drilling in the dry is anticipated. For in-water drilling, a casing will be employed around the drill bit to capture and vacuum concrete spoils as the drill bit advances. The casing will extend from above water into the pier buttress walls to the drill bit at all times during the operation. During the drilling operation, an integrated dust collection system (IDCS) will be connected to each drill rig. Drilling slurry will be stored in secondary containment to prevent discharge into the San Francisco Bay.

2. After placing and testing two frames of the Blast Attenuation System (BAS) in the first stage of the project on the Bay floor, the contractor shall install two BAS systems on the Bay floor that will surround Piers E4 and E5 during blasting activities and contain blast debris at the time of detonation (Figure 21). The BAS will be installed with two barges, each with approximately seven 1,600 cubic feet per minute (cfm) compressors positioned on opposite sides of each pier. The BAS will be installed in its planned position using Geographic Positioning System (GPS) coordinates at the tip of the crane boom. Plywood will be attached to the bottom of each BAS frame to prevent the frame from sinking into the bay mud. Each BAS frame will have a 1,600 cfm. compressor attached. Once the entire system is completely installed, the BAS will be tested to ensure uniform airflow. A recording system will be attached to each air compressor to track airflow and pressures
3. Vertical drilling of the required boreholes will be conducted to allow for the placement of explosives in the designed locations. Drilling equipment will be equipped with electronic inclinometers to confirm and control the vertical alignment of the drill boom. During drilling activities, the contractor intends to install a group pad to help secure the formwork on which the drill rigs will be mounted. The formwork will be removed prior to commencement of the blasting activities. A watertight formwork to prevent grout (Sika 328) leaks into the Bay will be provided. In addition, the contractor will use a sealant as necessary to prevent/minimize leaks. The sealant will be Aquaplug™, which is a rapid-setting cement mortar mix designed to seal leaks and joints to prevent water leakage. Once drilling has been completed, the drill rig will be removed from the pier.
4. After drilling is completed, the explosives will be installed (Figure 21). The explosives consist of extra gelatin nitroglycerin dynamite, as well as electronic wiring and detonators. Casings will remain in place for in-water work for installation of explosives.
5. Before the start of dismantling operations, a pre-demolition hydrographic survey, accurate to 0.1 foot, will be performed to determine existing conditions inside the caisson cells and within a 50-foot radius the caisson perimeter.
6. Wire-rope blast mats will be installed around the above-water portions of the pier prior to demolition to contain any debris that may launch upwards during the demolition (Figure 22). The blast mats will be Mazzella Blast Mats or equivalent (Appendix E), which are designed to withstand the force of the blasting. The blast mats will be secured at the base of the pier with a rope and buoy system and will be affixed to the pier using steel pins, which will be drilled in place.

7. Once the final dismantling preparations have been completed and all required attenuation systems, monitoring equipment and personnel are in place, the marine controlled blasting safety zone will be secured. Traffic on the new east span of the SFOBB will then be stopped, warning signals will be sounded and the blasting detonated. A debris boom (Appendix E) will be anchored between the two barges on the downstream side, depending on the tides at the time of the demolition (Figure 22). Note that based on a combination of nautical and biological studies, November is considered to be the optimal month to perform the work, when tidal forces are minimal and sensitive species are least at risk. However, an all-clear shall also be given by biological monitors before the controlled blasting can occur.
8. The blaster will perform a visual check of post-blast conditions and then give the “all clear” signal allowing traffic to resume on the new east span as well as project personnel to re-enter the controlled blasting zone.
9. Immediately after the controlled blasting, the BAS will continue to operate as long as practical until verification that Dissolved Oxygen meets Water Quality Objectives outside of the controlled blasting zone.
10. After the blast has occurred, a debris collection vessel will be employed to collect any visible floating blast debris. The vessel will consist of a tugboat pushing several flexi-float rafts connected to a partially submerged debris collection frame. Small material will be removed from the collection frame and placed in a debris bin and off-hauled as practical. The debris collection frame will also be able to be hoisted from the debris collection vessel with a crane to lift collected large material and place it in a debris containment system for off-haul (Figure 23).
11. A post-demolition hydrographic survey of the Bay floor to assess site conditions will be performed for the same areas as the pre-demolition survey. After comparing pre- and post-surveys, Caltrans will identify any debris to be removed inside and outside of the caisson perimeter, noting that elevation -51 (feet) is the San Francisco Bay mudline, as follows.
 - Controlled blasting debris within the caisson perimeter and above elevation -51 (feet) must be pushed down or dropped below elevation -51 (feet).
 - Controlled blasting retrievable debris outside the caisson perimeter and above elevation -51 (feet) must be retrieved and disposed of within the caisson if it can be dropped or lowered below elevation -51 (feet).
 - Controlled blasting retrievable debris that cannot be practicably lowered to below elevation -51 (feet) must be removed.
12. The goal of the project is to avoid off-hauling of post-blasting debris to the maximum extent practicable for Piers E4 and E5. However, a barge will be employed to separate sediment, water and debris to be off-hauled that is retrieved from the Bay floor as necessary using a crane with a clam-shell bucket. (Figure 24-264). Water and soil sediments will be separated

from recovered material on the barge either mechanically or through gravity means. Sea water will be evaporated on geotextile mats. Soil material shall be placed in watertight containers and off-hauled. Concrete debris will be placed into the caisson cavity after the sediment and water have been separated. If a rain event occurs, stockpiled materials shall be covered and collection containers covered. Off-haul of material may also occur if insufficient void space is available in the post-blast caisson hole to dispose of material. An Amendment will be filed with the Stormwater Pollution Prevention Plan (SWPPP) to discuss a post-blast strategy to off-haul any concrete to Pier 96 that may not be disposed onsite, if such a contingency plan is needed.

13. Recovery of construction materials shall be as follows:

- Blast mats are expected to be held together by the rope and buoy system after the blasting and will be hoisted to the surface using a crane if they are not buoyant.
- The BAS will be hoisted from the mudline using a crane with the use of rigging and buoys.
- The steel and wood platform is expected to float after the blasting. Skimmers will collect any small pieces of wood that break off from the platform system during the controlled blasting.
- The project site will be inspected for oil sheens or other signs of discoloration after the controlled blasting and contractor will employ booms or skimmers to remove as appropriate.

14. The contractor will also perform a post cleanup hydrographic survey to confirm debris has been removed to the required removal limit. The survey will show that areas of debris removal are complete to the satisfaction of the California Department of Transportation and other Federal and State Agencies.

Because the project is intending to demolish the majority of the structure in-place, off-haul of material will be limited to the following items from the fender installation around the perimeter of Piers E4 and E5:

- Creosote-treated timber.
- Steel or iron, including bolts, walers, plates, tie-rods and anchors.
- Plastic sheeting.

Project Plans are furnished in Appendix C.

In addition, some minor off-haul of concrete is anticipated either in the form of concrete dust captured during dust suppression activities, or small pieces of pulverized concrete intercepted during the fender demolition at the perimeter of the pier by the small containment barges. Concrete that is not pulverized will be disposed of in the pier structure.

3.0 MEANS AND METHODS OF MATERIAL CONTAINMENT

Means and methods of material containment can be summarized as follows per each phase.

1. For the portions involving the demolition of the interior of Piers E4 – E5 using hoe-rams, flexi float rafts with filter-fabric-covered fences will be placed on the water surface around the operation to contain demolition materials that fall outside of the pier (Figures 15 through 20), as shown in the project Stormwater Pollution Prevention Plan (SWPPP). The intent of the demolition is that concrete will be broken, but not pulverized in the operation. All mechanical equipment will be equipped with bibs to prevent leaking of hydraulic fluid into the receiving water including hoe-rams and cranes to mount hoe-rams.
2. Dewatering activities are discussed in the project Dewatering and Discharge Plan (DDWP) including containment of excess non-stormwater.
3. As described in the project SWPPP, fueling will be conducted from a station on the Operations Barge. The barge contains a double-walled fuel tank capable of fueling all construction activities without demobilizing it from the project. Cross fueling of equipment from barge to barge will only be conducted by transferring of fuel in airtight containers with secondary containment tubs from the main fueling area. This process is not anticipated. In general, equipment will be brought onto the Barge and fueled at the location of the fueling station.
4. For portions of the project related to the demolition of the fender, the following means and methods will be used.
 - A containment barge will be placed underneath the fender as shown on the Water Pollution Control Drawing in the project Stormwater Pollution Prevention Plan during all demolition operations where practicable (Figure 3).
 - Portions of the metal framework, which connect the fender to the pier, will be cut using lances and/or torches from the flat containment barge. Metal pieces will be transferred from the containment barge to the operations barge sorted and off-hauled. Sweeping of the flat barge shall occur immediately after cutting/torching operations cease. Any metal pieces shall be disposed of in water-tight containers and off-hauled.
 - The Creosote-treated wood waste (TWW) and plastic that are part of the pier fender system are expected to be broken off using a hoe-ram or pulled off. They will be placed on the containment barge, transferred to a flat deck operations barge using the excavator, sawed into small pieces while on the barge, and off-hauled to an appropriate offsite facility for disposal. It is anticipated that creosote-treated wood will be off-hauled once, based on the small quantity of material compared to the large size of the containment Barge. However, a SWPPP Amendment shall be filed once final operations on board the stockpiling barge are verified. TWW shall be stockpiled on an impervious surface and

covered and bermed during rain events in accordance with Section 14-11.09C(3) of the project Special Provisions.

Although unlikely, long-term storage of TWW can occur onsite before disposal using the following methods:

1. Elevate on blocks above a foreseeable run-on elevation and protect from precipitation for no more than 90 days.
 2. Place on a containment surface or pad protected from run-on and precipitation for no more than 180 days.
 3. Place in-water resistant containers designed for shipping or solid waste collection for no more than 1 year.
 4. Place in a storage building as defined in 22 CA Code of Regs, Div. 4.5, Chp. 34, §67386.6(a)(2)(C).
- No long-term stockpiling of material is expected at Wharf 9 where the barges will dock. The stockpiled material will be transferred to truck and off-hauled from the site.
 - Concrete rubble from the fender will be carefully placed into the caisson using the excavator. The excavator will only perform this operation when it is located over an area where the containment barge is located. Concrete rubble will be broken up into pieces small enough so that splashing inside the inner walls of the caisson is minimized.
 - As noted above, all mechanical equipment will contain plastic bibs to prevent leaking of hydraulic fluid into the receiving water that cover the bottom side of the equipment.

Prior to the start of bridge and/or fender removal, the Water Pollution Control Manager (WPCM) shall inspect the site and confirm that the means and methods described in Section 3.0 are in place. A trained construction site monitor will provide daily monitoring using forms provided in Appendix A. The WPCM or representative will provide a weekly inspection. Training records will be furnished in Appendix D after training takes place.

4.0 MATERIALS AND EQUIPMENT TO BE USED

- Two hydraulic excavators with hoe ram and shearing attachments.
- Several cutting lances and torches.
- Three support barges with spud anchors.
- One barge-mounted derrick crane.
- Small barges to catch fender overhang debris.
- Flexi float rafts for containment during pier demolition.
- 10-mil plastic for containment of material on barges and to cover any hydraulic equipment parts.
- 2" x 4" wood, or other similar material for edge protection with plastic sheeting.

- Vacuum for residual concrete as a result of dust suppression activities.
- Off-haul drums for residual concrete.
- Dewatering tanks, pumps and valves as described in the project DDWP.
- Plastic bibs for cranes and excavators to prevent hydraulic fuel leaks.
- Secondary containment tubs for hazardous materials.
- Debris booms.
- Tugboat and skimmers for floating debris retrieval.

5.0 CLEANING MEASURES AND METHODS

Cleaning Measures and Methods are summarized as follows:

1. All equipment to be brought onsite shall be cleaned before mobilization, including storage equipment. A trained construction site monitor will provide daily oversight of the operation and will be trained by the project WPCM. The site monitor shall verify that equipment is sufficiently clean prior to mobilization efforts such that discharges to Waters of the State shall be minimized.
2. For all portions of the project, hydraulic equipment shall be checked daily for any oil leaks. If oil leaks persist, the site monitor or WPCM may ask the Kiewit/Manson project manager to remove equipment and replace with equipment that does not pose a high risk to Waters of the State. The contractor shall have training to discuss leak/spill issues prior to the start of construction.
3. For portions of the pier removal not associated with the fender removal, vacuuming of the area at the end of each daily shift shall occur. Vacuuming will be continuous if dust suppression waters are being applied. Any spoils or residual concrete collected by the vacuuming system shall be contained in drums and off-hauled at the end of each day.
4. For the fender removal, sweeping and/or vacuuming of the barge shall occur a minimum of once per day depending on the forward progress of the operation. It is expected that during lancing and/or torching operations that vacuuming of any metal debris will occur immediately after operations have ceased or as soon as practicable. Any spoils or residual concrete collected by the vacuuming or sweeping operations shall be contained in drums and off-hauled at the end of each day. Drums shall be secured using rope tie-downs if high winds are present.
5. The operations and flexi-float barges shall be swept a minimum of once per day when stockpiling and/or sorting activities are taking place. No material shall be swept into the San Francisco Bay.
6. The site monitor shall visually inspect the dewatering operations barge and direct sweeping operations daily.

7. Cleaning of any equipment onsite shall be performed using rags and water only. Rags shall be disposed of in drums and off-hauled. The hoe-ram excavators may also be vacuumed prior to removal of piers to remove dust debris or loose material using Ermator S36 HEPA Concrete Dust Extractor or equivalent.

6.0 DUST SUPPRESSION

Dust suppression waters will be applied if pulverization of concrete is occurring. However, the use of dust suppression waters will be minimized during the operations. The contractor will apply dust suppression water and vacuum any residue during demolition operations and at the end of each shift if dust suppression water is used. Any residue will be contained in watertight drums and off-hauled at the end of each shift. Drums will be stored onsite in secondary containment.

7.0 CONCRETE DISPOSAL

The intent of the project is to dispose of as much of the Piers E4 and E5 concrete in the pier itself. As noted in Section 6.0, dust suppression waters will be applied if pulverization of concrete is occurring and residue accordingly off-hauled. It is possible that during the fender removal portion of the project, concrete pulverization may occur or that small pieces of concrete may be impractical to place in the caisson structure. If this occurs, the pieces will be swept and/or vacuumed and off-hauled into drums at the end of each shift. Concrete dust can be removed from the filter in the vacuum using 3.5-gallon plastic recovery/disposal bag and placed inside a watertight drum before off-hauling.

During the drilling operation for installation of the explosives, an integrated dust collection system (IDCS) will be connected to each drill rig. This system captures any concrete dust that is conveyed to bins connected to the IDCS. The collected concrete dust is then placed in a covered bin in a secondary containment system and off-hauled in a watertight container.

An Amendment will be filed with the Stormwater Pollution Prevention Plan (SWPPP) to discuss additional concrete containment and disposal for Pier E5 after a formal blasting plan for the project has been developed. Pier E5 contains below-water buttress walls that may need a containment system to capture water that may come out of the top of the casing during drilling operations.

An Amendment will be filed with the Stormwater Pollution Prevention Plan (SWPPP) to discuss a detailed post-blast strategy to off-haul any concrete that may not be disposed of onsite, if such a contingency plan is needed.

8.0 SCHEDULE

A schedule for the project is included in Appendix B.

9.0 FLOATING DEBRIS

Given the list of materials to be demolished, floating debris is unlikely in the above-water demolition operation with the exception of the fender wood and associated plastic. It is expected that some floating debris will occur after the controlled blasting operation. Any floating debris shall be skimmed using a basket and stockpiled as necessary as described in Section 2.2 and on Figure 23. The contractor shall exercise great care to secure plastic sheeting and gravel bags in the operation so that they are not blown into the receiving water by wind activity.

10.0 CONTINGENCY RECOVERY WORK PLAN

For the above-water demolition work, it is not anticipated that recovery of items lost from barge operations into the receiving water will take place until after blasting has occurred, when a project recovery effort will be made by the project with a diving team.

Sufficient amounts and applicable types of spill/leak response equipment and Personal Protective Equipment (PPE) are required to be staged on the vessels, barges, and work platforms to immediately deploy, contain, and prevent further discharge or spread of a polluting contaminant.

Responsible parties assigned onsite to operate equipment used to perform the demolition of project piers will possess the requisite training and knowledge to deploy, and contain the spilled material prior to arrival of professional clean-up services.

At the end of each month, a log must be submitted to the Resident Engineer of all incidental discharges of pier component materials that were not reported in a Notice of Discharge Report. Incidental discharges include fly rock, chips, and fragments of pier foundation concrete generated during mechanical demolition. The log must include dates of discharge, quantity/volume of discharge, and any corrective actions performed to prevent a recurrence or minimize quantity of subsequent discharges.

However, if any large mechanical failures or spills occur, or an unexpected collapse of the structure arises such that the concrete structure does not fall within the center of the caisson where disposal is intended, the following shall occur.

1. The Project Manager, Fredric Lausier, shall be immediately notified as the Recovery Manager (1-206-746-8565).
2. The Water Pollution Control Manager, Jonathan Buck, shall be immediately notified and is on-call 24 hours, 7 days per week (1-925-570-7980).
3. The Resident Engineer, Brian Boal, shall be immediately notified (1-510-714-7074).
4. Any recovery work will be closely coordinated with the United States Coast Guard, Eleventh District Coast Guard Island, Alameda, 94501 (1-510-437-2983).

For every occurrence, the Project/Recovery Manager shall immediately consult with the Resident Engineer and WPCM regarding the safest way to proceed with recovery of the discharged material. A Caltrans Representative shall notify the Regional Water Quality Control Board by e-mail or telephone within 48 hours of the discharge occurring.

The WPCM shall file an official Notice of Discharge with project Resident Engineer within 24 hours of the incident. The San Francisco Bay Regional Water Quality Control Board will be notified subsequently within 14 days of the occurrence. A notice of discharge form has been included in Appendix A.

Typical responses for the second stage of the project are:

1. Structure Collapse

For any structure collapse, the Resident Engineer and Recovery Manger shall assess damage where practical and emergency services called out as necessary. More information regarding emergency response can be found in the project's Health and Safety Plan (HASP). If possible, the structure collapse assessment shall be performed in conformance with a Caltrans structural engineer. If the collapse causes the project to proceed in a manner outside the scope of the current suite of project state and federal permits, consultation with resource agency officials will take place. The following listing describes various specialty service providers, which may be called out to work with project crews in the event of such a loss. The listing includes the following categories:

- i. Marine vessel supplied who can provide tugs, barges, work and crew boats:
 - Westar, Pier 50 – Building C, San Francisco 94107 (1-415-495-0683). Work and crew boats, tugs, barges, oil and turbidity booms.
 - C & W Diving Solutions, 375 Burma Road, Oakland 94607 (1-510-444-5335). Work and crew boats, tugs, barges, oil and turbidity booms.
- ii. Diving services provider who can provide divers, underwater equipment for cutting and lifting and remotely operated vehicles (ROVs) to support in-water work:
 - C & W Diving Solutions, 375 Burma Road, Oakland 94607 (1-510-444-5335). Diving services, ROVs, underwater support and construction equipment.
 - Ballard Diving and Salvage, 377 Oyster Point Blvd, Suite 11, San Francisco 94080 (1-415-238-5041). Divers, ROVs, underwater support and construction.
 - Global Diving & Salvage, Inc., 1080 Nimitz Avenue, Suite 440, Vallejo 94592 (1-510-280-3575). Divers, ROVs, underwater support and construction.

2. Liquid Spill or Discharge

Consult WPCM, Recovery Manager and Resident Engineer. Immediately contain the spill with booms and collect it from the water surface using skimmer equipment. The Recovery Manager will determine appropriate means and methods for securing the site and safely recovering the material. The following list includes various specialty service providers, who may be called out to work with project crews in the event of a liquid spill or discharge.

- i. Marine vessel supplies who can provide tugs, barges, work and crew boats:
 - Westar, Pier 50 – Building C, San Francisco 94107 (1-415-495-0683). Work and crew boats, tugs, barges, oil and turbidity booms.
 - C & W Diving Solutions, 375 Burma Road, Oakland 94607 (1-510-444-5335). Work and crew boats, tugs, barges, oil and turbidity booms.
 - Global Diving & Salvage, Inc., 1080 Nimitz Avenue, Suite 440, Vallejo 94592 (1-510-280-3575), Divers, ROVs, underwater support and construction.
 - ii. Containment and collection provider for all oil and debris booms, skimmers and other equipment to retrieve floating debris:
 - C & W Diving Solutions, 375 Burma Road, Oakland 94607 (1-510-444-5335). Oil and turbidity booms.
 - National Response Corporation, 1605 Ferry Point, Alameda, 94501 (1-510-749-1390). Oil and debris booms, skimmers, marine spill response support equipment.
 - Global Diving & Salvage, Inc., 1080 Nimitz Avenue, Suite 440, Vallejo 94592 (1-510-280-3575), Divers, ROVs, underwater support and construction.
3. Equipment Loss into Water
Consult the WPCM and Resident Engineer immediately. If an item is small and poses no harm to marine environment, it may be recovered at the end of the blasting operation. Large items may be recovered using the Derrick Crane and cable with the assistance of a dive team. Any large item will need to be brought to Wharf 6 to be cleaned. Excess sea water from the recovered item should be off-hauled or pumped into empty storage tanks on the dewatering operations barge and tested appropriately if it is to be discharged into the San Francisco Bay.
4. Vessel Sinkage or Capsize
Inform the United States Coast Guard (USCG) immediately for emergency operation at 1 Yerba Buena Road, San Francisco, CA 94130, (1-415-399-3530). Assess any discharges associated with vessel sinkage and recovery with United States Coast Guard. Specialty service providers will be called out as needed as described above to work with project crews in the event of such a loss. The Project Resident Engineer and Dragomir Bogdanic from the Construction Environmental Engineering Support (CEES) will also be immediately contacted.

11.0 REPORTING

A daily inspection shall be performed identifying all containment, collection, and handling controls used during the pier removal; the inspection form is included in Appendix A. A quarterly report shall also be submitted on the 10th day before the end of each quarter. The report shall include:

1. Update of material containment, collection and handling used, and effectiveness.
2. Update of cleaning measures and methods used and effectiveness.
3. Detailed report of any incident and corrective measures taken.

12.0 AMENDMENTS

This MCCHWP shall be amended when:

- Changes in demolition activities affect the turbidity or water quality in receiving water.
- Turbidity controls are not effective
- The permit amendment is obtained for blasting.
- The Engineer determines the MCCHWP requires revision due to lack of detail. Missing information, or change of operations.

All subsequent revisions and addendums must be prepared by a State registered civil engineer. Addenda will be filed in Attachment AA of the project SWPPP.

If you have any questions, please contact us.

Sincerely,

ENGEO Incorporated


Jonathan Buck, PE, QSD
jb/pcg/jf





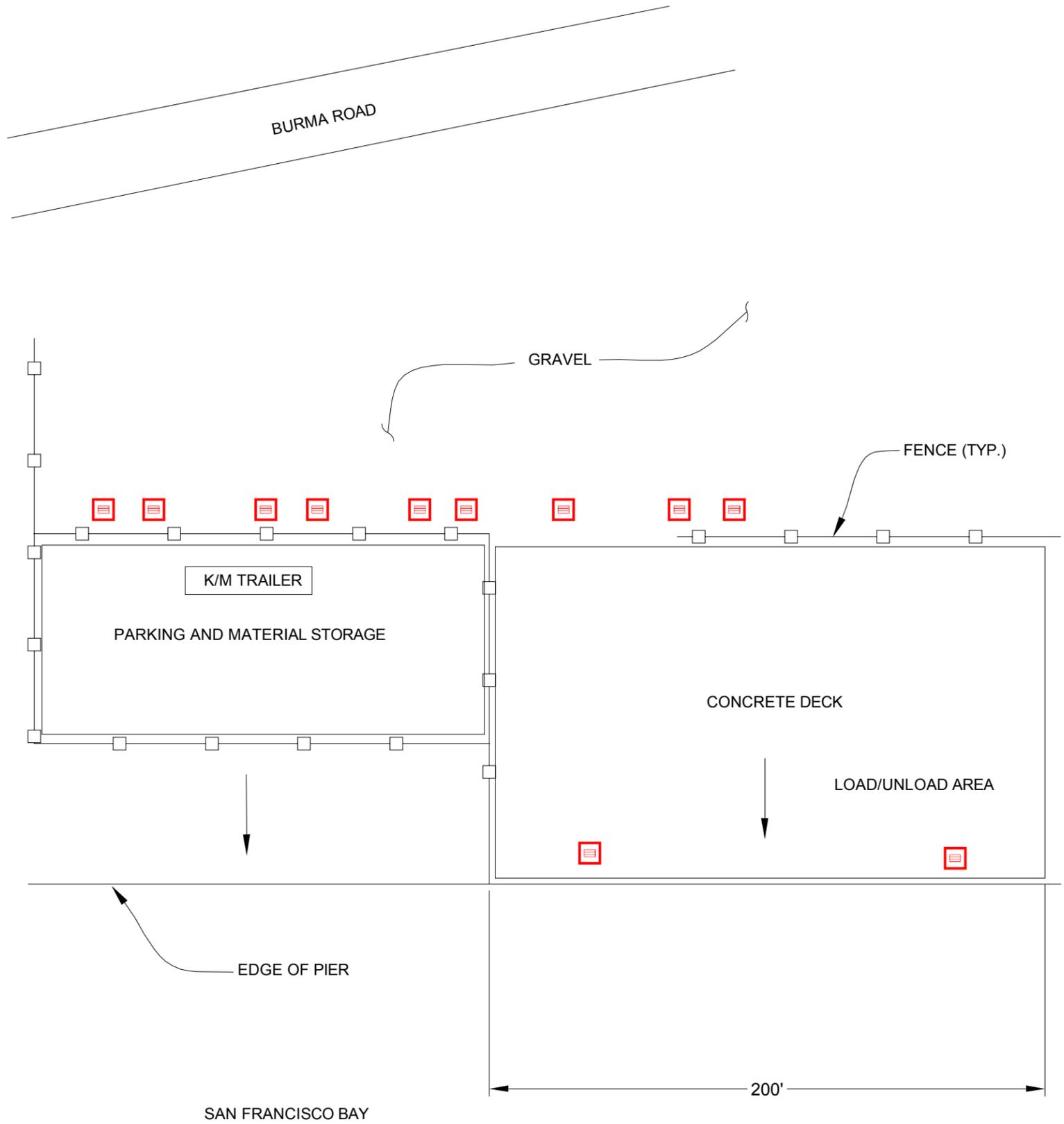
Mark Gilbert, GE

FIGURES

Figures 1 through 28 – Materials Handling Plan

C:\Drafting\DRAWINGS\DWG\9050\000\PIERS E4-E18 DEMO\9050000004-1-Wharf6-0416.dwg Plot Date: 8-09-16 spotters

WHARF 6 LEASE AREA



EXPLANATION (BMP's)

- TEMPORARY DRAIN INLET PROTECTION (SC-10)
- STREET SWEEPING (SC-7)
- VEHICLE AND EQUIPMENT MAINTENANCE (NS-10)
- MATERIAL DELIVERY AND STORAGE (WM-1)
- MATERIAL USE (WM-2)
- SPILL PREVENTION AND CONTROL (WM-4)
- SANITARY SEPTIC WASTE MANAGEMENT (WM-9)
- SCHEDULING (SS-1)

EXPLANATION

- DRAINAGE INLET PROTECTION (SC-10)
- DIRECTION OF FLOW



MATERIALS HANDLING PLAN WHARF 6
PIERS E4-E18 DEMOLITION
OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.004	
SCALE: NO SCALE	
DRAWN BY: DLB	CHECKED BY: JB

FIGURE NO.
1

SAN FRANCISCO PIER 96 STAGING AND OFFLOAD AREA

SAN FRANCISCO BAY

STOCK PILE AREA

OFFLOAD AREA

EXPLANATION - BMP

- | | | | |
|---|--|---|------------------------------------|
|  | STOCKPILE MANAGEMENT (WM-3) |  | HAZARDOUS WASTE MANAGEMENT (WM-6) |
|  | STORMDRAIN INLET WITH PROTECTION (SC-10) (TYPICAL) |  | CONTAMINATED SOIL MANAGEMENT (WM7) |
| | SOLID WASTE MANAGEMENT (WM-5) | | CONCRETE WASTE MANAGEMENT (WM-8) |
| | SWEEPING (SC-7) | | SPILL RETENTION AND CONTROL (WM-7) |
| | SCHEDULING (SS-1) | | |

NOTES:
 PIER 96 STAGING AND OFFLOAD AREA WILL BE USED FOR EQUIPMENT AND MATERIALS STAGING AND STORAGE, VEHICLE OFF-HAUL AND TRANSFER, AND SORTING OF PIER DEMOLITION DEBRIS. MATERIAL CONTAINED WITHIN STOCKPILE AREA WILL BE SORTED AND STORED WITHIN KRAIL BARRIERS COVERED WITH FILTER FABRIC TO MANAGE RUNOFF.

BASE MAP SOURCE: GOOGLE EARTH PRO



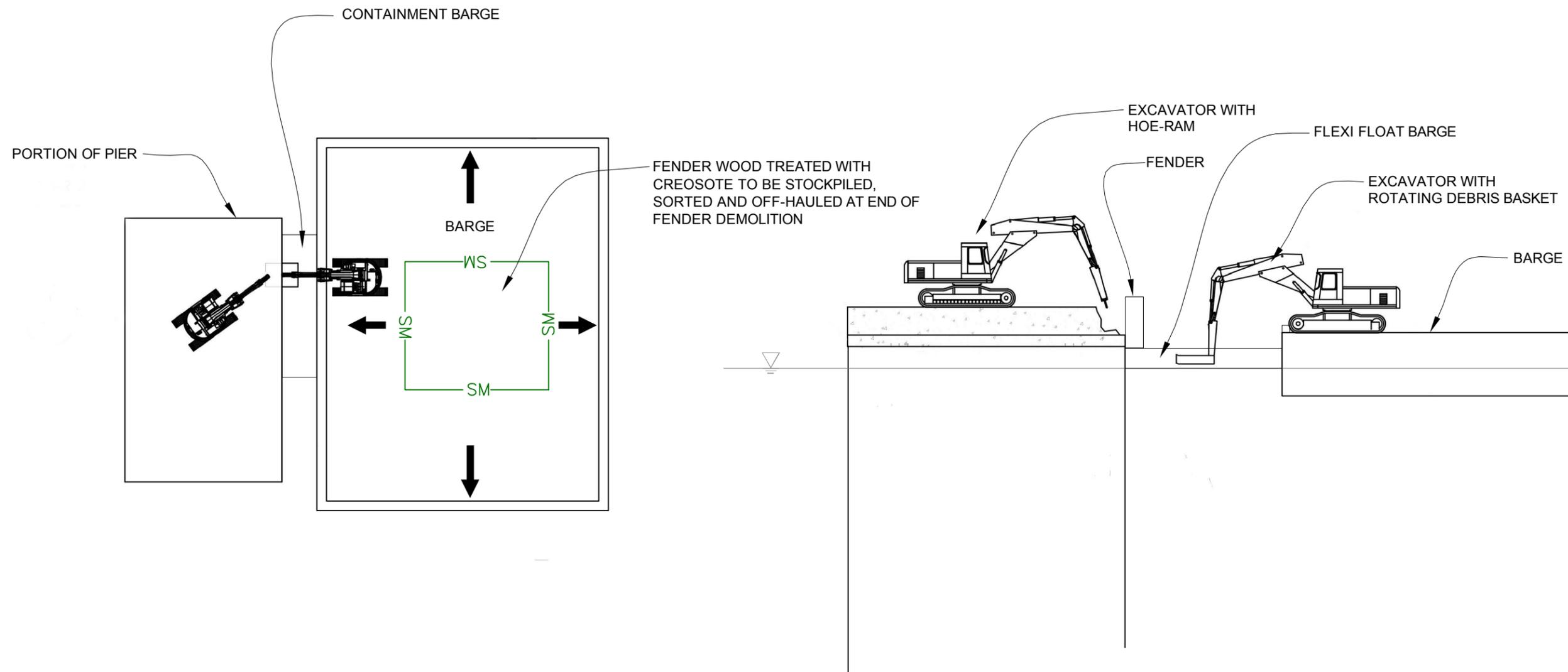
MATERIALS HANDLING PLAN PIER 96
 PIER E4 - E18 DEMOLITION
 OAKLAND, CALIFORNIA

PROJECT NO.: 6050.000.004	FIGURE NO.
SCALE: AS SHOWN	2
DRAWN BY: SRP	

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REMOVAL OF FENDER AND PORTION OF PIER ADJACENT TO WATER (TYP.)



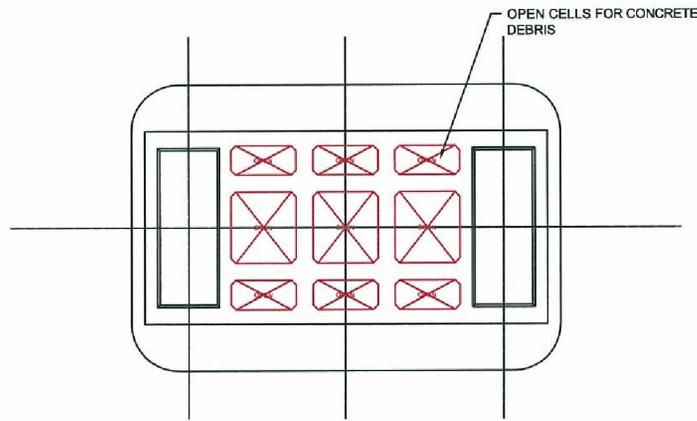
EXPLANATION (BMP's)

— SM — STOCKPILE MANAGEMENT (WM-3)
WIND EROSION CONTROL (WE-1)

← DIRECTION OF FLOW

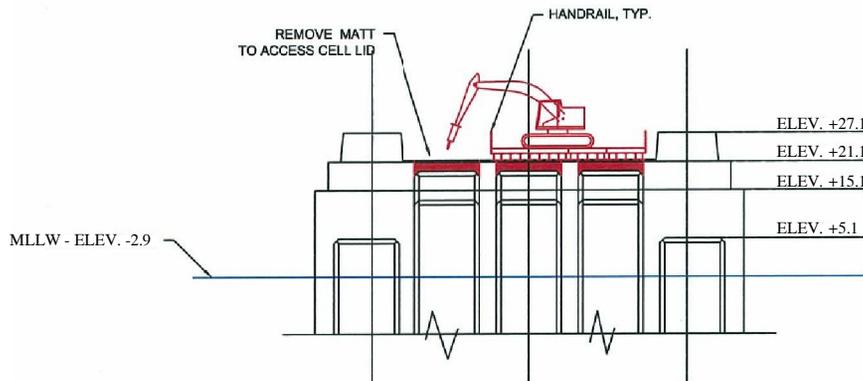
	MATERIALS HANDLING PLAN PIER E4	PROJECT NO.: 9050.000.004	FIGURE NO
	PIERS E4-E18 DEMOLITION	SCALE: NO SCALE	3
	OAKLAND, CALIFORNIA	DRAWN BY: DLB	CHECKED BY: JB

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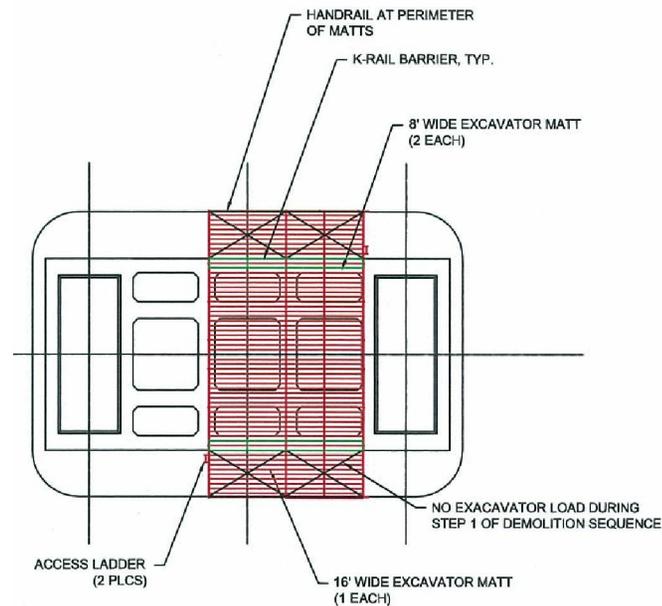


PLAN

NOTE:
 ELEVATIONS SHOWN HEREON ARE REFERENCED TO
 NGVD 29
 -2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW
 WATER (MLLW)



ELEVATION



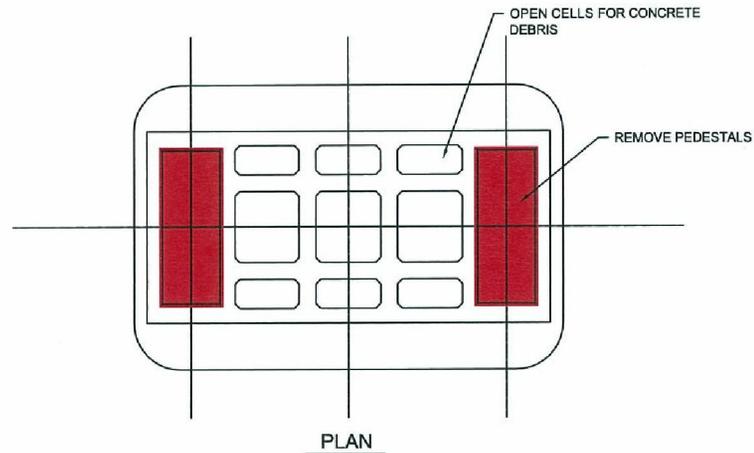
CRANE MATT PLAN

STEP 1: OPEN CELL LIDS.
 SEE FIGURE 7 FOR TYPICAL BMP's

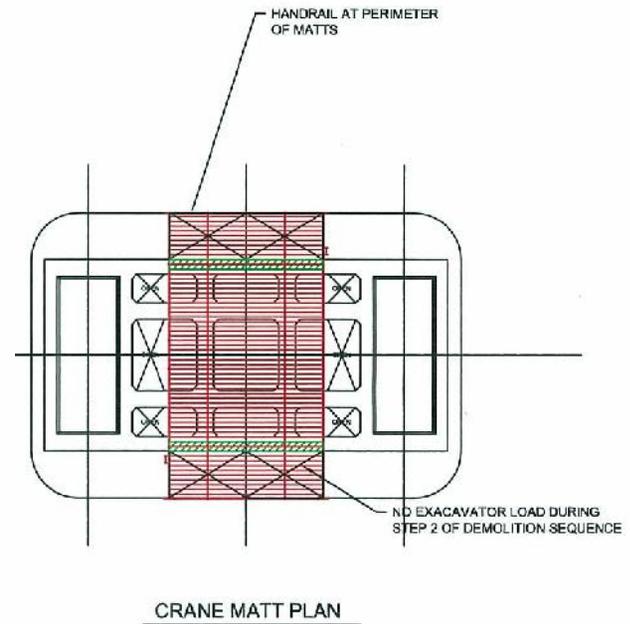
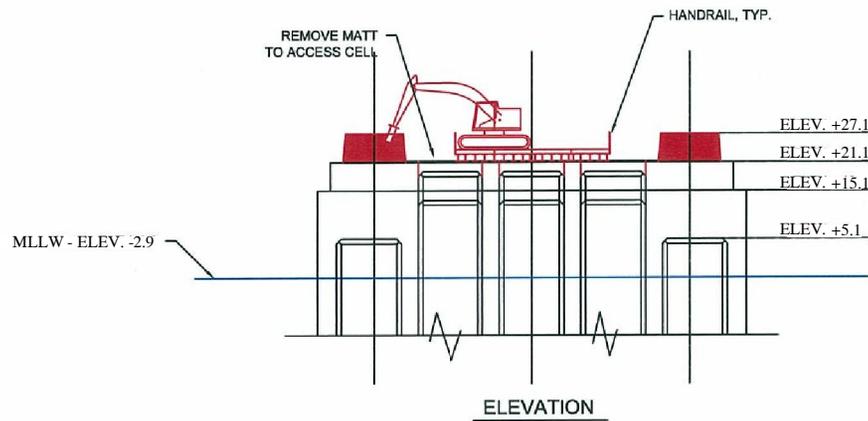
BASE MAP SOURCE: UNKNOWN

	MATERIALS HANDLING PLAN PIER E4 PIERS E4-E18 DEMOLITION OAKLAND, CALIFORNIA		PROJECT NO.: 9050.000.004	FIGURE NO. 4
			SCALE: NO SCALE	
	DRAWN BY: DLB	CHECKED BY: JB		

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NOTE:
 ELEVATIONS SHOWN HEREON ARE REFERENCED TO
 NGVD 29
 -2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW
 WATER (MLLW)



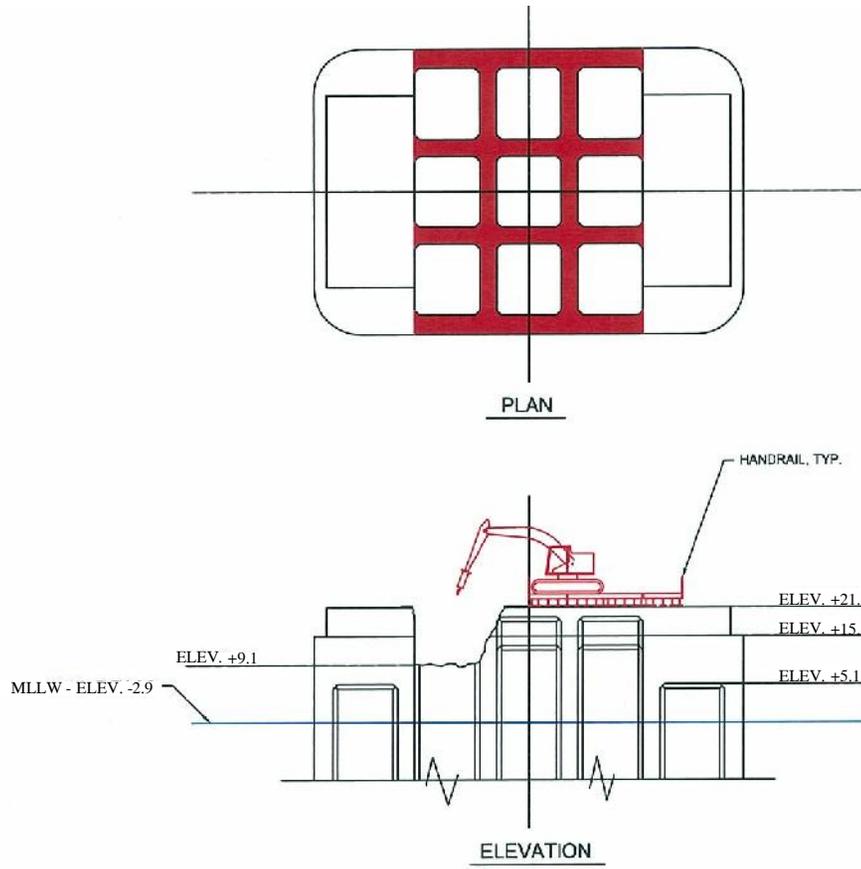
STEP 2: REMOVE PEDESTALS.

SEE FIGURE 7 FOR TYPICAL BMP's

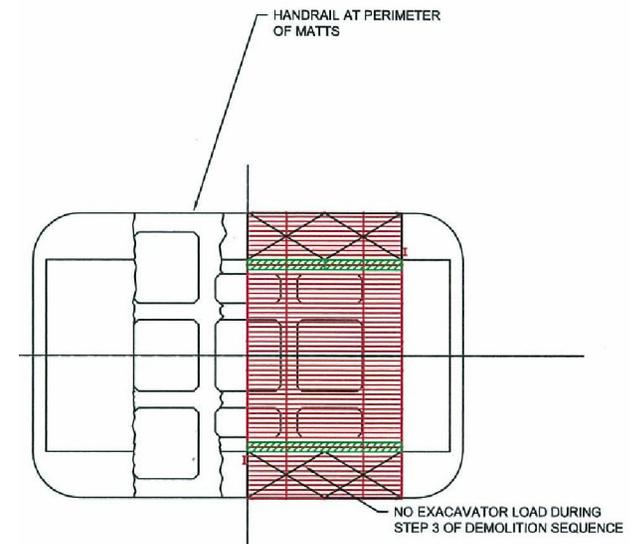
BASE MAP SOURCE: UNKNOWN

	MATERIALS HANDLING PLAN PIER E4 PIERS E4-E18 DEMOLITION OAKLAND, CALIFORNIA	PROJECT NO.: 9050.000.004	FIGURE NO. 5
		SCALE: NO SCALE	
DRAWN BY: DLB	CHECKED BY: JB		

C:\Drafting\DRAWING2\Draw\9050\000\Phase4-E18 Demo\9050000004-6-Pier4 Demo-0416.dwg Plot Date: 5-09-16 spotlars



NOTE:
 ELEVATIONS SHOWN HEREON ARE REFERENCED TO
 NGVD 29
 -2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW
 WATER (MLLW)



STEP 3: REMOVE WALLS TO ELEV. +9.1

SEE FIGURE 7 FOR TYPICAL BMP's

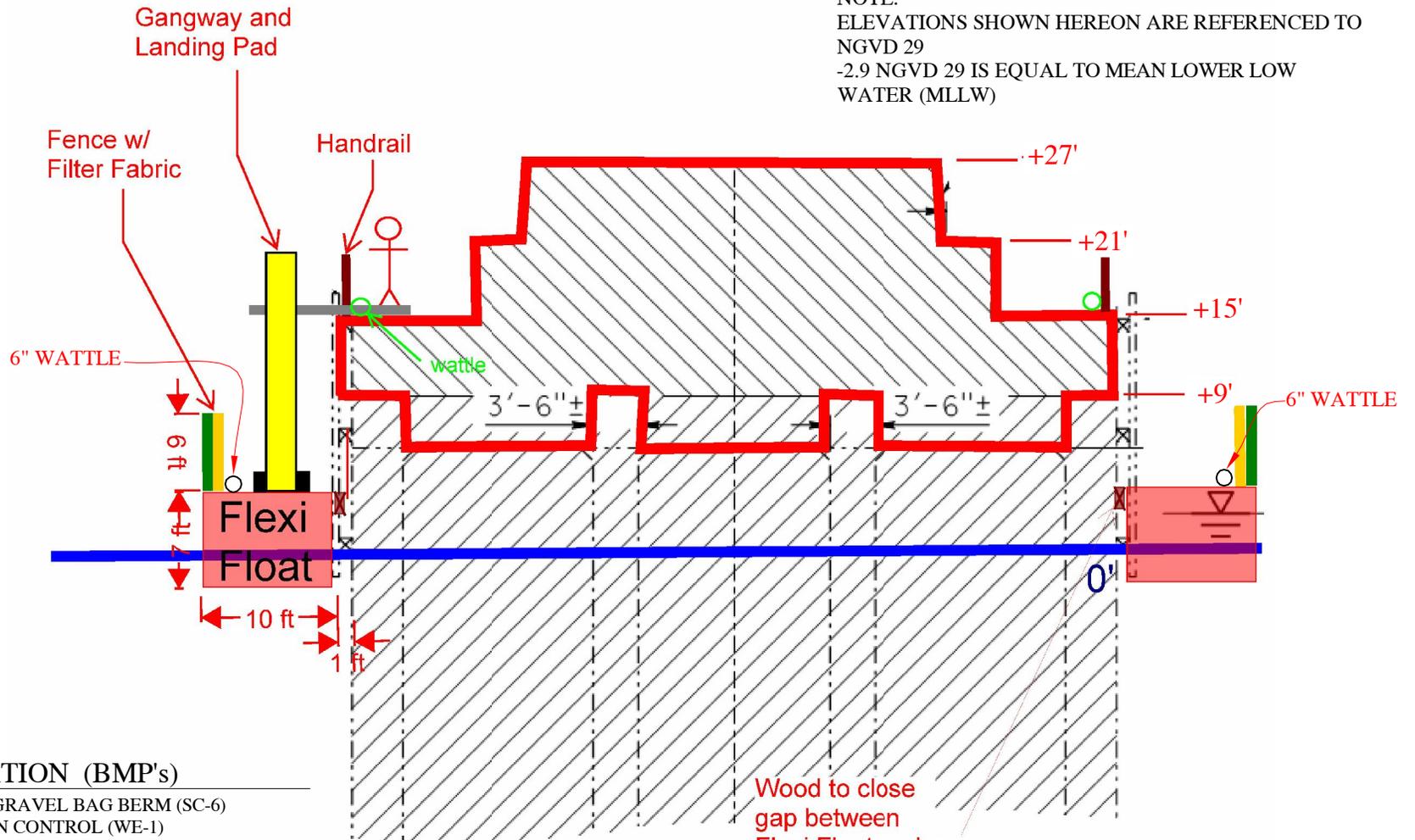
BASE MAP SOURCE: UNKNOWN

	MATERIALS HANDLING PLAN PIER E4 CONVENTIONAL DEMOLITION PIERS E4-E18 DEMOLITION OAKLAND, CALIFORNIA	PROJECT NO.: 9050.000.004	FIGURE NO. 6
		SCALE: NO SCALE	
		DRAWN BY: DLB CHECKED BY: JB	

G:\Dorling\DRATING2\DWG\9050\000\PierE4-E18_Demo\905000004-7-Pier4_Demo-0416.dwg Plot Date: 5-09-16 spatters

Pier E4 Flexi Float @ 0' Tide (MLLW)

NOTE:
 ELEVATIONS SHOWN HEREON ARE REFERENCED TO
 NGVD 29
 -2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW
 WATER (MLLW)



EXPLANATION (BMP's)

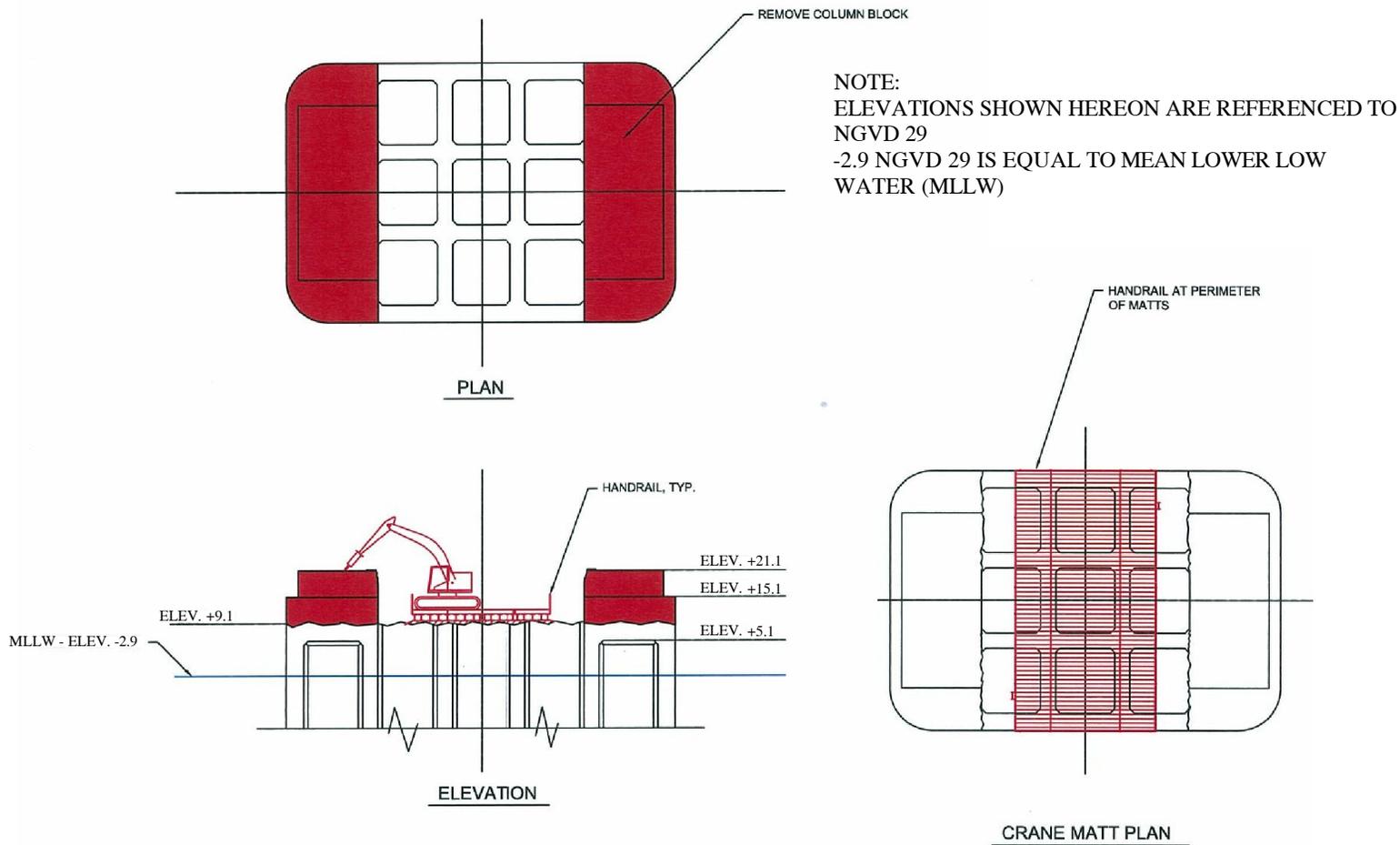
- TEMPORARY GRAVEL BAG BERM (SC-6)
- WIND EROSION CONTROL (WE-1)
- VEHICLE AND EQUIPMENT MAINTENENCE (NS-10)
- MATERIAL AND EQUIPMENT USED OVER WATER (NS-13)
- STRUCTURE DEMOLITION / REMOVAL OVER OR ADJACENT TO WATER (NS-15)
- SPILL PREVENTION AND CONTROL (WM-4)
- SOLID WASTE MANAGEMENT (WM-5)
- FIBER ROLL (SC-5)
- SCHEDULING (SS-1)

BASE MAP SOURCE: UNKNOWN

Wood to close
 gap between
 Flexi Float and
 Pier

	MATERIALS HANDLING PLAN PIER E4 PIERS E4-E18 DEMOLITION OAKLAND, CALIFORNIA		PROJECT NO.: 9050.000.004	7
	SCALE: NO SCALE		DRAWN BY: DLB CHECKED BY: JB	

G:\Drafting\DEPARTING2\DLB\9050\000\PierE4-E18 Demo\9050000004-8-Pier4 Demo-0416.dwg Plot Date: 5-09-16 spotters



STEP 4: REMOVE UPPER AND LOWER BLOCK TO ELEV. +9.1

SEE FIGURE 7 FOR TYPICAL BMP'S

BASE MAP SOURCE: UNKNOWN



MATERIALS HANDLING PLAN PIER E4
 PIERS E4-E18 DEMOLITION
 OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.004

SCALE: NO SCALE

DRAWN BY: DLB

CHECKED BY: JB

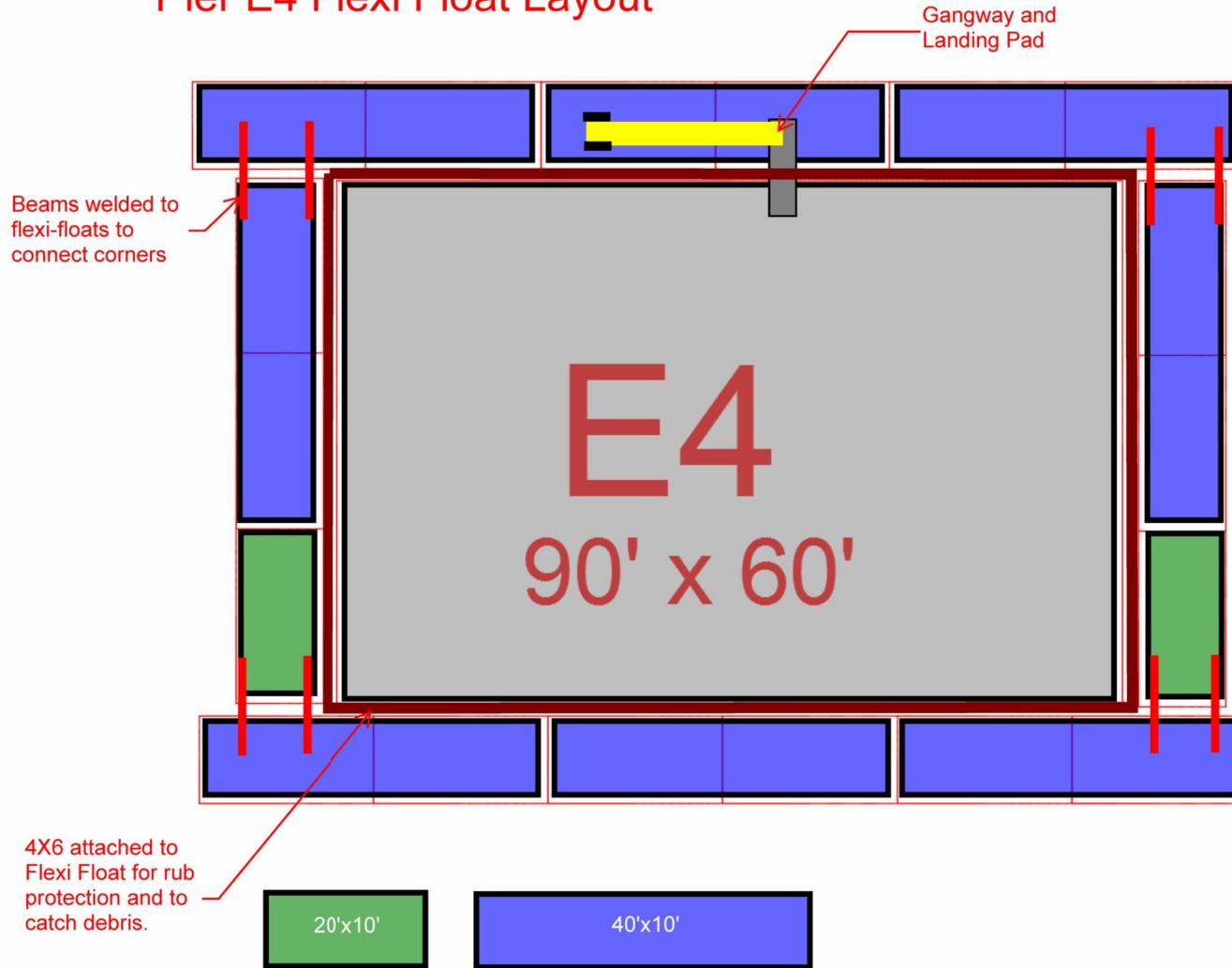
FIGURE NO.

8

ORIGINAL FIGURE PRINTED IN COLOR

G:\Drafting\DRAWINGS\Draw\9050\000\PiersE4-E18 Demo\9050000004-9-Pier4 Debris-0416.dwg Plot Date: 5-09-16 spatters

Pier E4 Flexi Float Layout



BASE MAP SOURCE: UNKNOWN



MATERIALS HANDLING PLAN PIER E4
PIERS E4-E18 DEMOLITION
OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.004

SCALE: NO SCALE

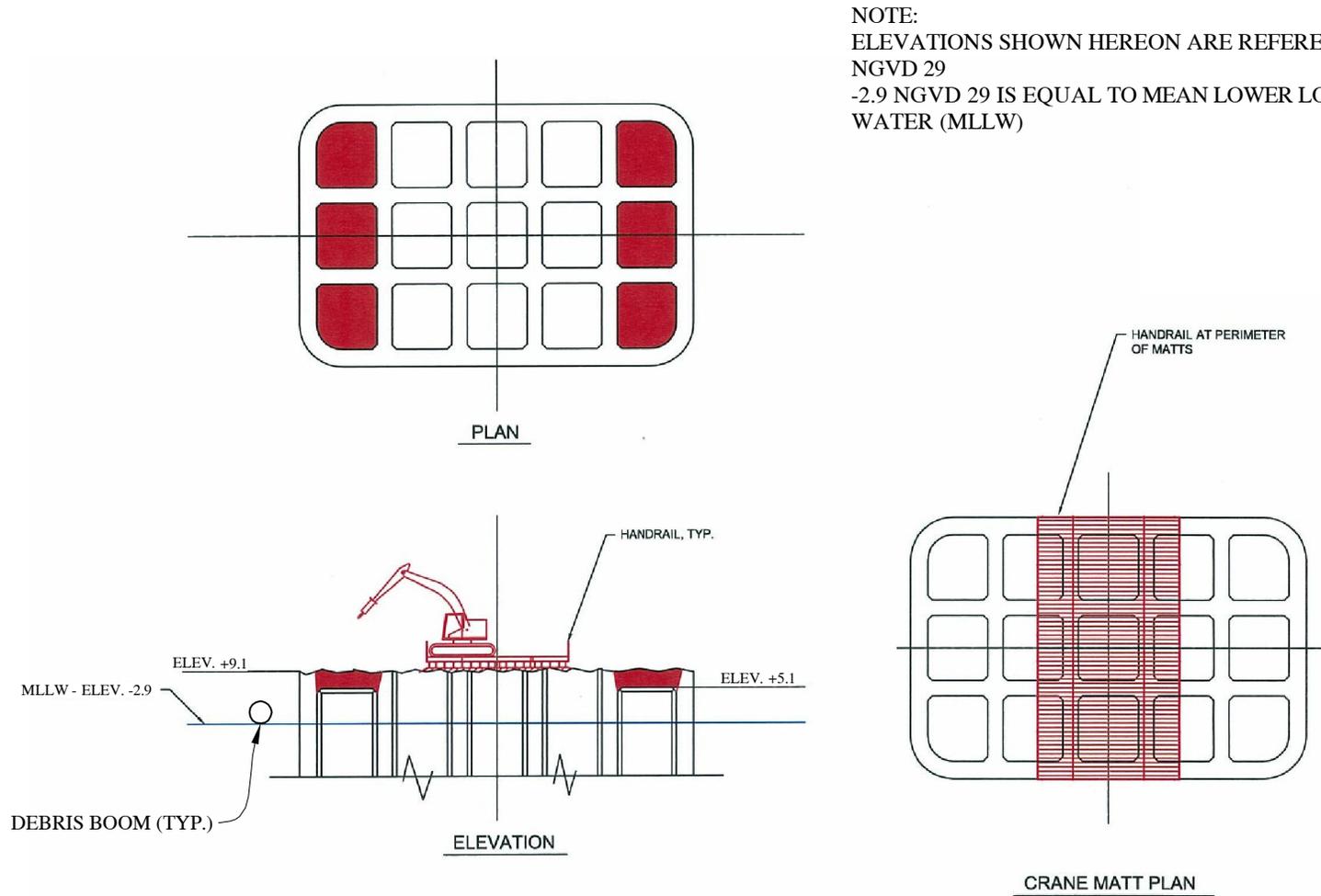
DRAWN BY: DLB

CHECKED BY: JB

FIGURE NO.

9

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NOTE:
 ELEVATIONS SHOWN HEREON ARE REFERENCED TO
 NGVD 29
 -2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW
 WATER (MLLW)

STEP 5: REMOVE CONCRETE TO ELEV. +5.1 AT END CELLS OF CAISSON

*DEBRIS BOOMS WILL BE EMPLOYED IF DEMOLITION OF STRUCTURE OCCURS
 BELOW LEVEL OF FLEX FLOAT BARGE

BASE MAP SOURCE: UNKNOWN



MATERIALS HANDLING PLAN PIER E4
 PIERS E4-E18 DEMOLITION
 OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.004

SCALE: NO SCALE

DRAWN BY: DLB

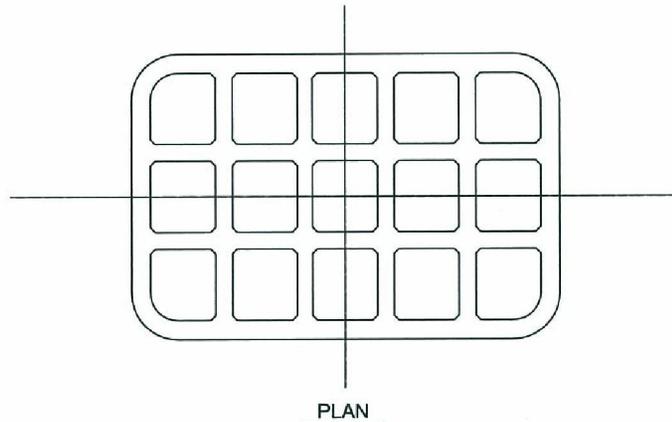
CHECKED BY: JB

FIGURE NO.

10

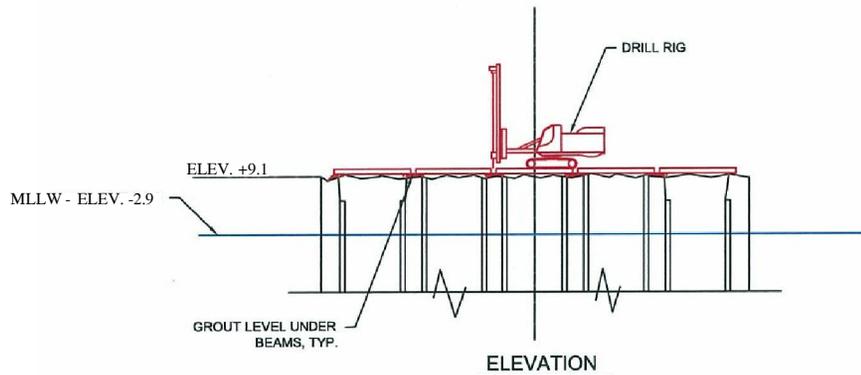
ORIGINAL FIGURE PRINTED IN COLOR

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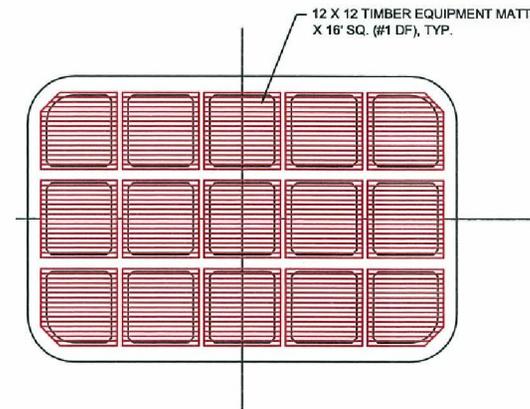


PLAN

NOTE:
ELEVATIONS SHOWN HEREON ARE REFERENCED TO NGVD 29
-2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW WATER (MLLW)



ELEVATION



DRILL MATT PLAN

STEP 6: PLACE DRILL RIG MATTS OVER OPEN CELLS

SEE FIGURE 20 FOR TYPICAL BMP'S

BASE MAP SOURCE: UNKNOWN



MATERIALS HANDLING PLAN PIER E4
PIERS E4-E18 DEMOLITION
OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.004

SCALE: NO SCALE

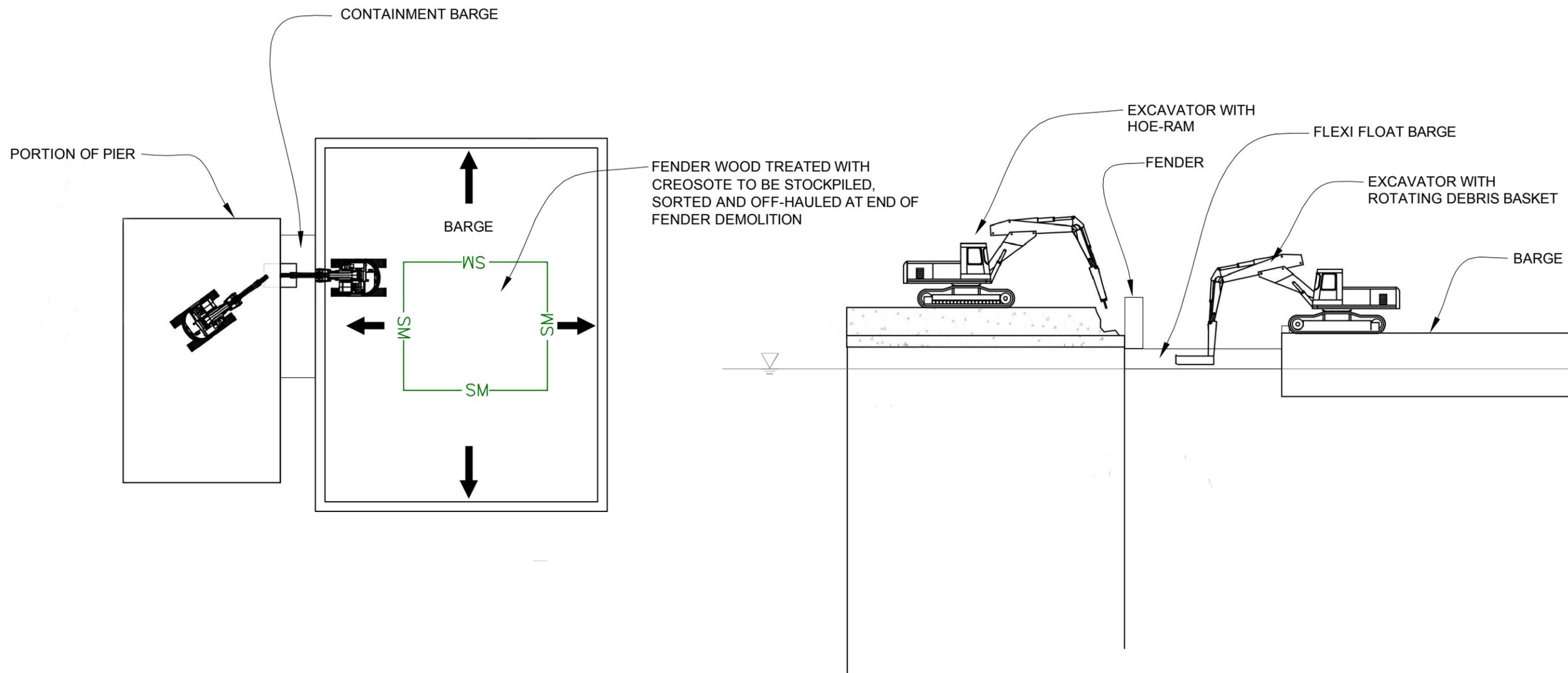
DRAWN BY: DLB

CHECKED BY: JB

FIGURE NO.

11

REMOVAL OF FENDER AND PORTION OF PIER ADJACENT TO WATER (TYP.)



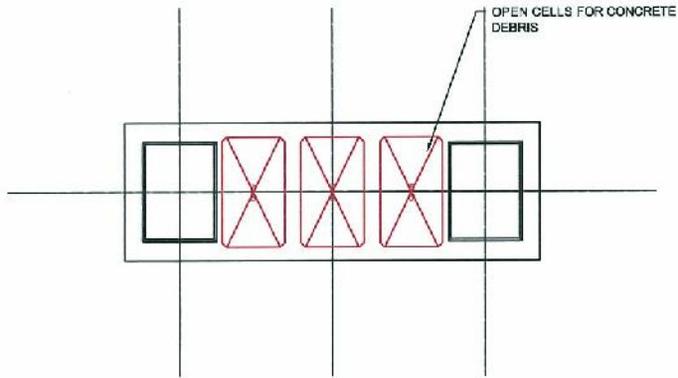
EXPLANATION (BMP's)

- SM — STOCKPILE MANAGEMENT (WM-3)
WIND EROSION CONTROL (WE-1)
- ← DIRECTION OF FLOW

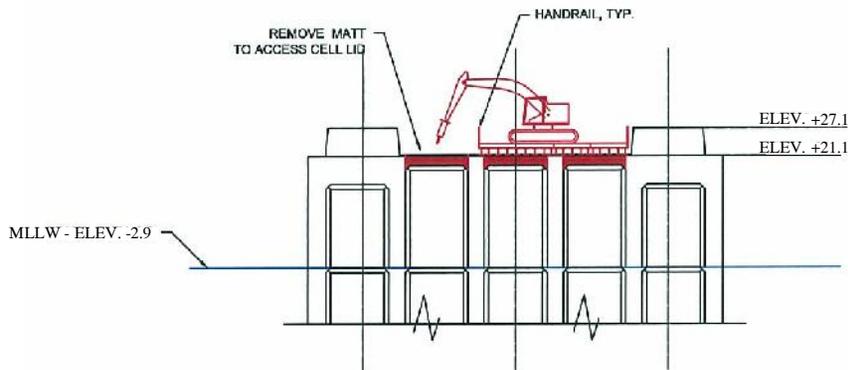
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	MATERIALS HANDLING PLAN PIER E5	PROJECT NO.: 9050.000.004	FIGURE NO
	PIERS E4-E18 DEMOLITION	SCALE: NO SCALE	12
	OAKLAND, CALIFORNIA	DRAWN BY: DLB CHECKED BY: JB	

G:\Drafting\DRAWING2\Draw\9050.000\PierE4-E18 Demo\905000004-13-Piers Demo-0416.dwg Plot Date: 5-09-16 spattara

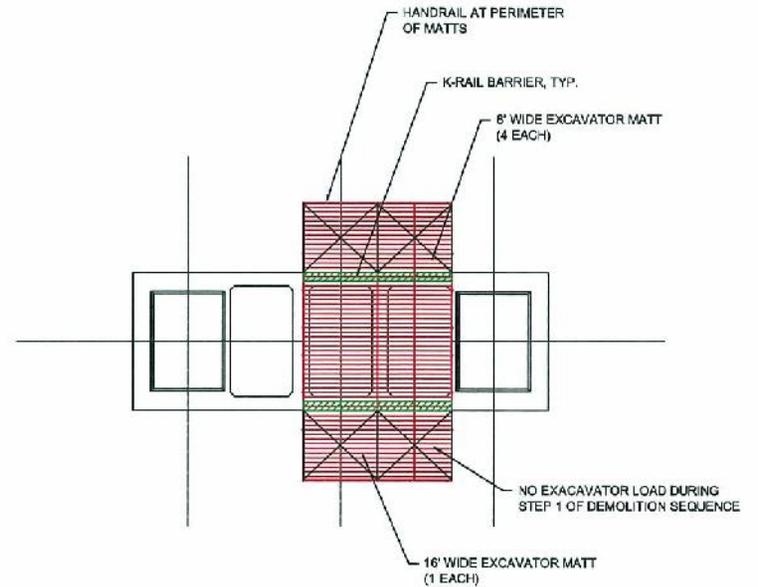


PLAN



ELEVATION

NOTE:
ELEVATIONS SHOWN HEREON ARE REFERENCED TO
NGVD 29
-2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW
WATER (MLLW)



CRANE MATT PLAN

STEP 1: OPEN CELL LIDS.

SEE FIGURE 16 FOR TYPICAL BMP's

BASE MAP SOURCE: UNKNOWN



MATERIALS HANDLING PLAN PIER E5
PIERS E4-E18 DEMOLITION
OAKLAND, CALIFORNIA

PROJECT NO: 9050.000.004

SCALE: NO SCALE

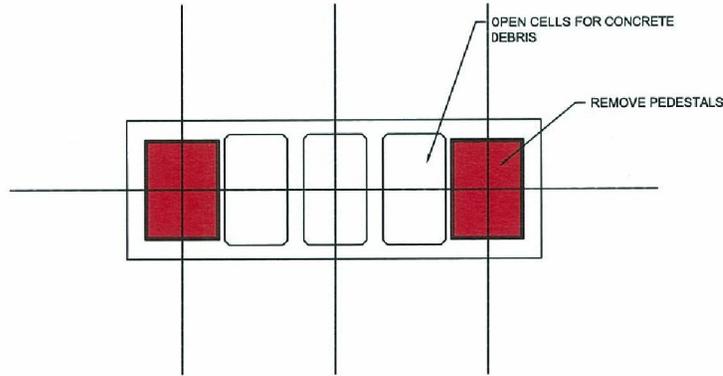
DRAWN BY: DLB

CHECKED BY: JB

FIGURE NO.

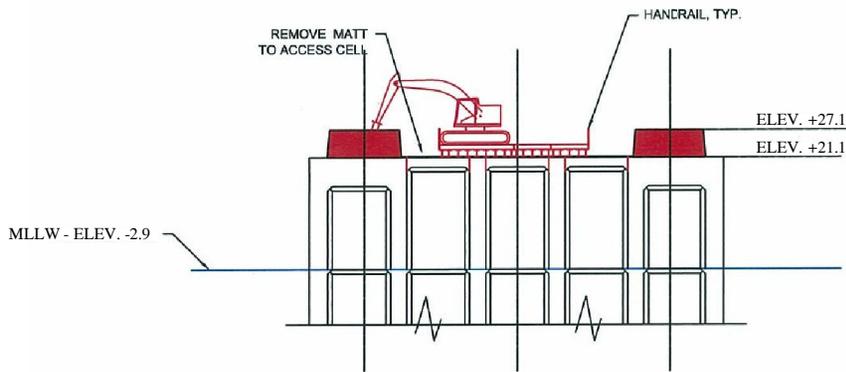
13

C:\pdring\DRAWINGZ\Draw\9050\000\ParaE-18 Demo\9050000004-14-Par5 Demo-0416.dwg Plt Date: 5-09-16 spatters

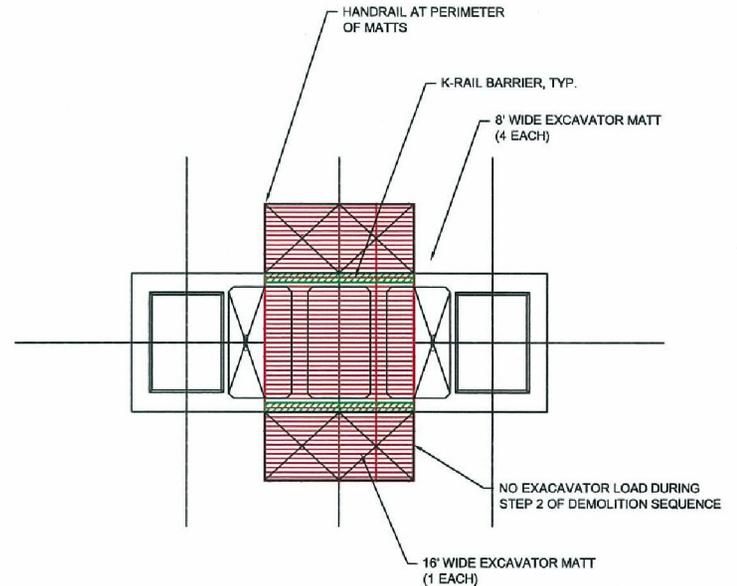


PLAN

NOTE:
ELEVATIONS SHOWN HEREON ARE REFERENCED TO NGVD 29
-2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW WATER (MLLW)



ELEVATION



CRANE MATT PLAN

STEP 2: REMOVE PEDESTALS.

SEE FIGURE 16 FOR TYPICAL BMP'S

BASE MAP SOURCE: UNKNOWN



MATERIALS HANDLING PLAN PIER E5
PIERS E4-E18 DEMOLITION
OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.004

SCALE: NO SCALE

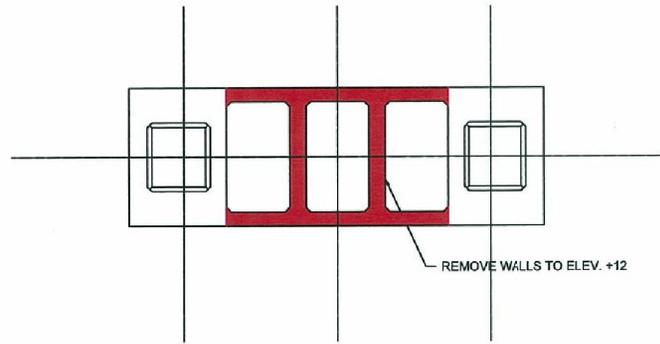
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CHECKED BY: JB

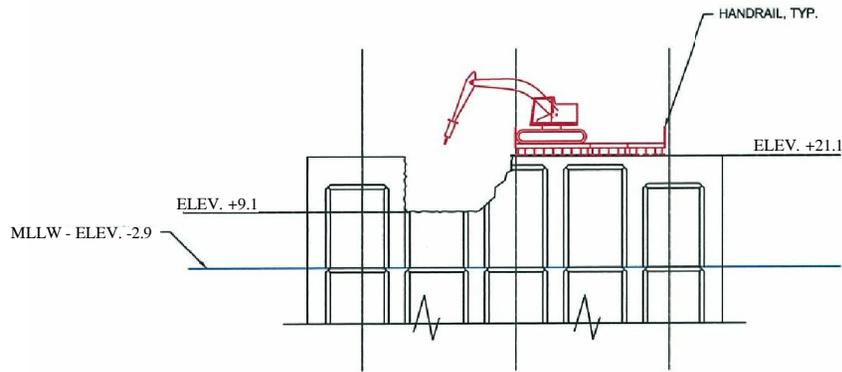
FIGURE NO.

14

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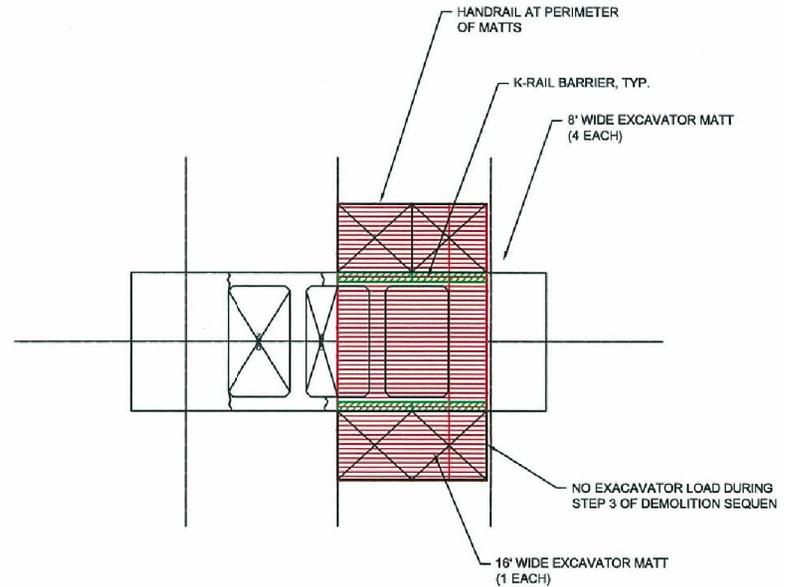


PLAN



ELEVATION

NOTE:
 ELEVATIONS SHOWN HEREON ARE REFERENCED TO
 NGVD 29
 -2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW
 WATER (MLLW)



CRANE MATT PLAN

STEP 3: REMOVE WALLS TO ELEV. +9.1

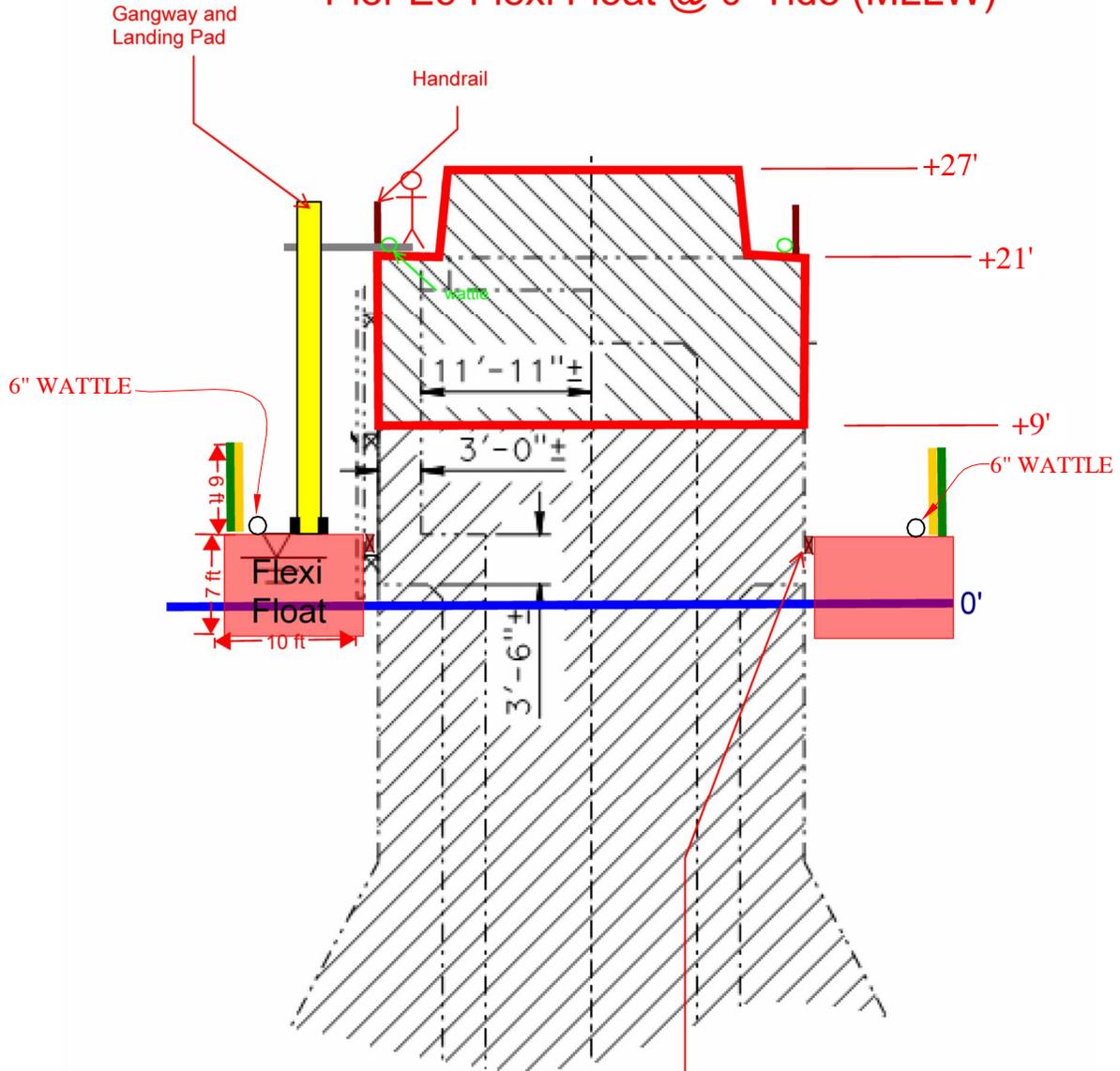
SEE FIGURE 16 FOR TYPICAL BMP's

BASE MAP SOURCE: UNKNOWN

	MATERIALS HANDLING PLAN PIER E5 PIERS E4-E18 DEMOLITION OAKLAND, CALIFORNIA	PROJECT NO.: 9050.000.004	FIGURE NO. 15
		SCALE: NO SCALE	
		DRAWN BY: DLB CHECKED BY: JB	

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Pier E5 Flexi Float @ 0' Tide (MLLW)



Wood to close gap between Flexi Float and Pier

EXPLANATION (BMP's)

- TEMPORARY GRAVEL BAG BERM (SC-6)
- WIND EROSION CONTROL (WE-1)
- VEHICLE AND EQUIPMENT MAINTENANCE (NS-10)
- MATERIAL AND EQUIPMENT USED OVER WATER (NS-13)
- STRUCTURE DEMOLITION / REMOVAL OVER OR ADJACENT TO WATER (NS-15)
- SPILL PREVENTION AND CONTROL (WM-4)
- SOLID WASTE MANAGEMENT (WM-5)
- FIBER ROLL (SC-5)
- SCHEDULING (SS-1)

NOTE:
 ELEVATIONS SHOWN HEREON ARE REFERENCED TO NGVD 29
 -2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW WATER (MLLW)

BASE MAP SOURCE: UNKNOWN



MATERIALS HANDLING PLAN PIER E5
 PIERS E4-E18 DEMOLITION
 OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.004

SCALE: NO SCALE

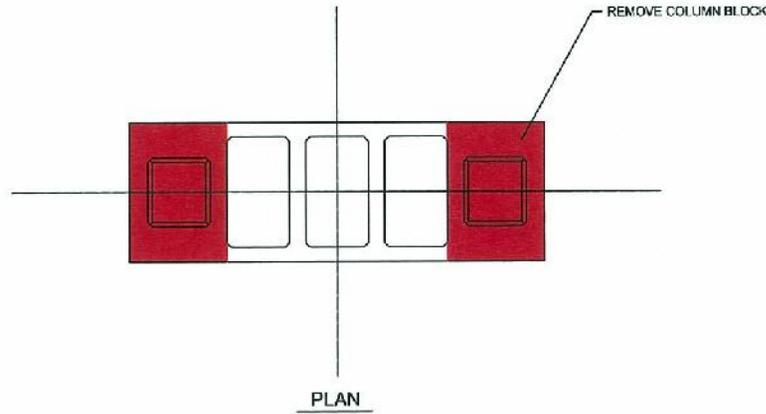
DRAWN BY: DLB

CHECKED BY: JB

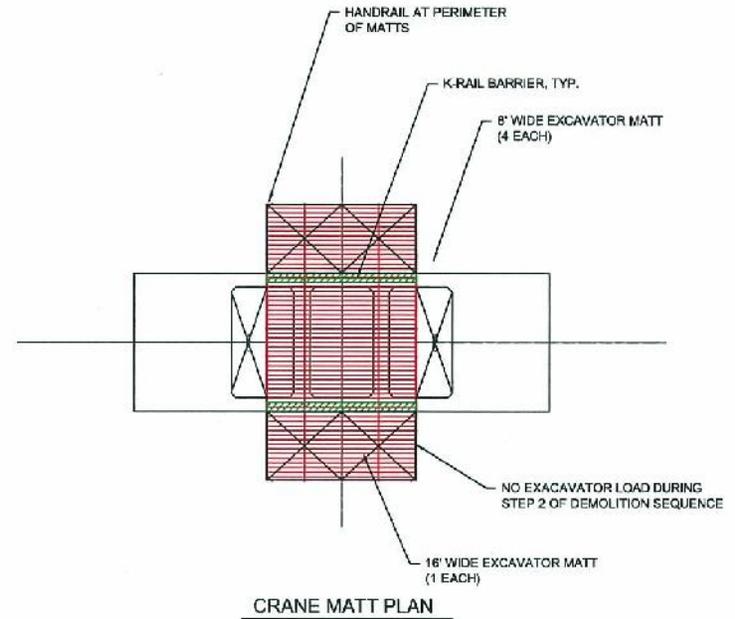
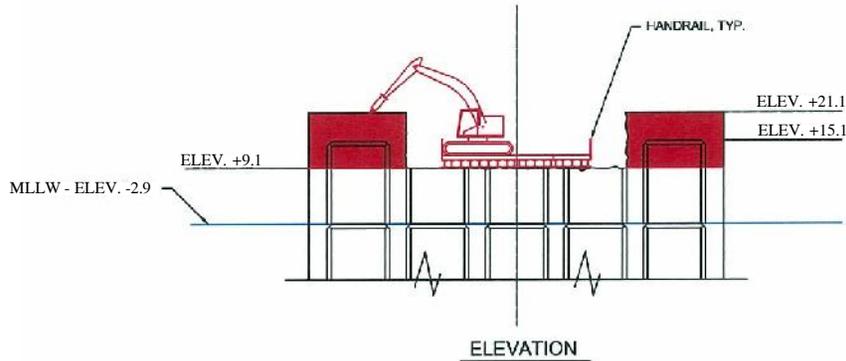
FIGURE NO.

16

G:\Drafting\DRAWINGZ\DWG\9050\000\PiersE4-E18 Demo\905000004-17-Pier5 Demo-0416.dwg Plot Date: 5-09-16 spotters



NOTE:
 ELEVATIONS SHOWN HEREON ARE REFERENCED TO
 NGVD 29
 -2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW
 WATER (MLLW)



STEP 4: REMOVE COLUMN BLOCK AND WALLS TO ELEV. +9.1

SEE FIGURE 16 FOR TYPICAL BMP'S

BASE MAP SOURCE: UNKNOWN



MATERIALS HANDLING PLAN PIER E5
 CONVENTIONAL DEMOLITION
 PIERS E4-E18 DEMOLITION
 OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.004

SCALE: NO SCALE

DRAWN BY: DLB

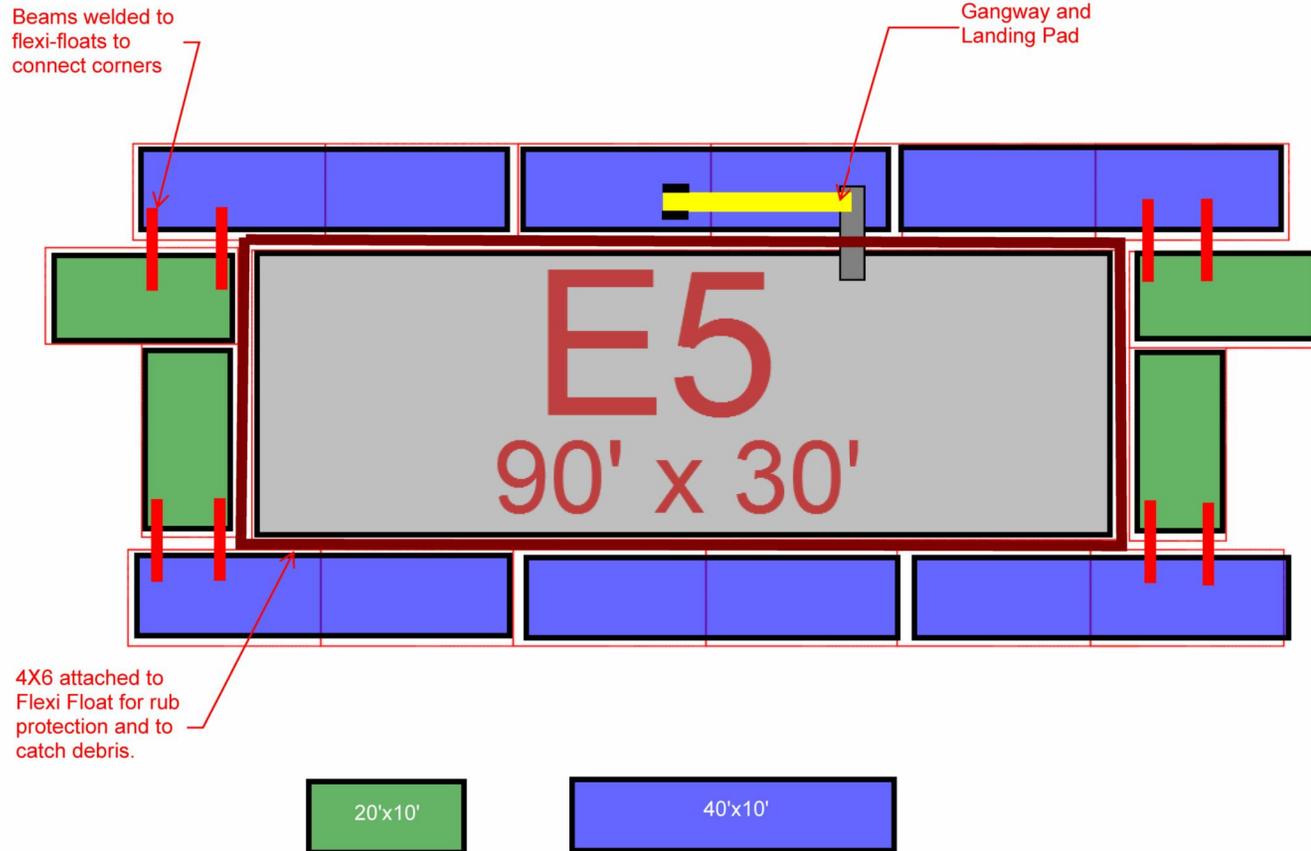
CHECKED BY: JB

FIGURE NO.

17

G:\Drafting\DRAWINGS2\DWG\9050\000\PierE4-E18 Demo\9050000004-18-Pier5 Debris-0416.dwg Plot Date: 5-09-16 spotters

Pier E5 Flexi Float Layout



BASE MAP SOURCE: UNKNOWN



MATERIALS HANDLING PLAN PIER E5
DEBRIS CONTAINMENT
PIERS E4-E18 DEMOLITION
OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.004

SCALE: NO SCALE

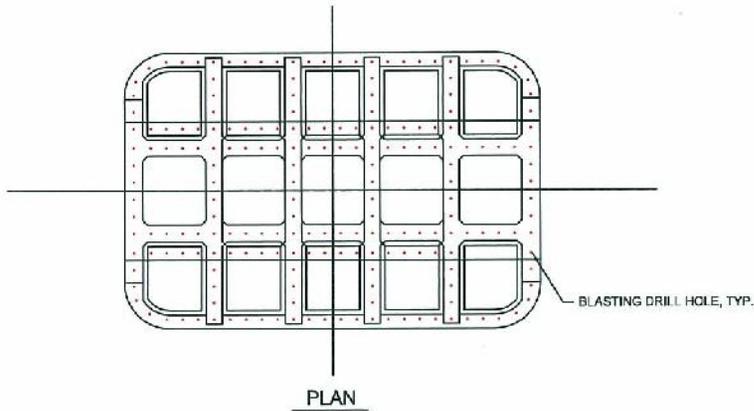
DRAWN BY: DLB

CHECKED BY: JB

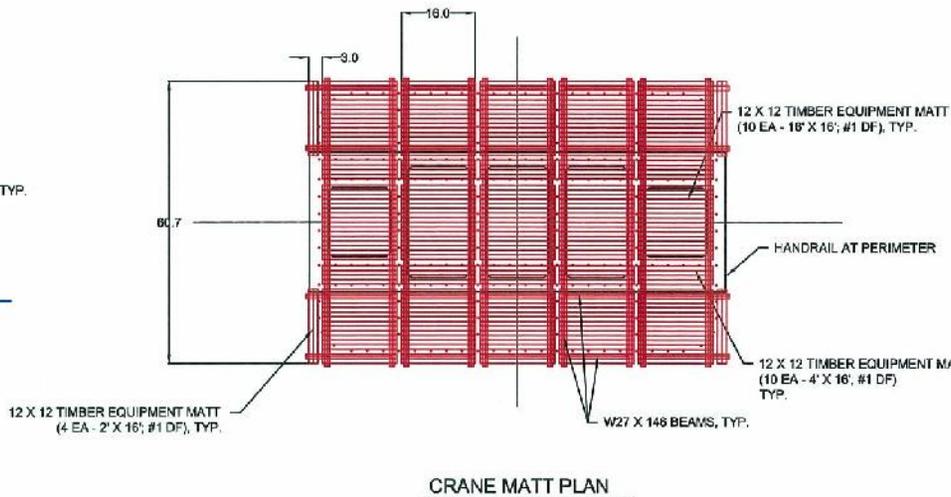
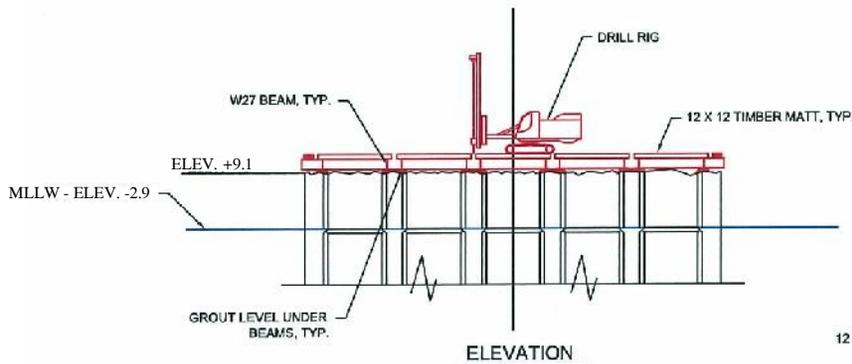
FIGURE NO.

18

C:\Drawing\DRAWING\Drawg\9050\000\PiersE4-E18 Demo\9050000004-19-Piers Demo-0416.dwg Plot Date: 5-09-16 spatters



NOTE:
 ELEVATIONS SHOWN HEREON ARE REFERENCED TO
 NGVD 29
 -2.9 NGVD 29 IS EQUAL TO MEAN LOWER LOW
 WATER (MLLW)



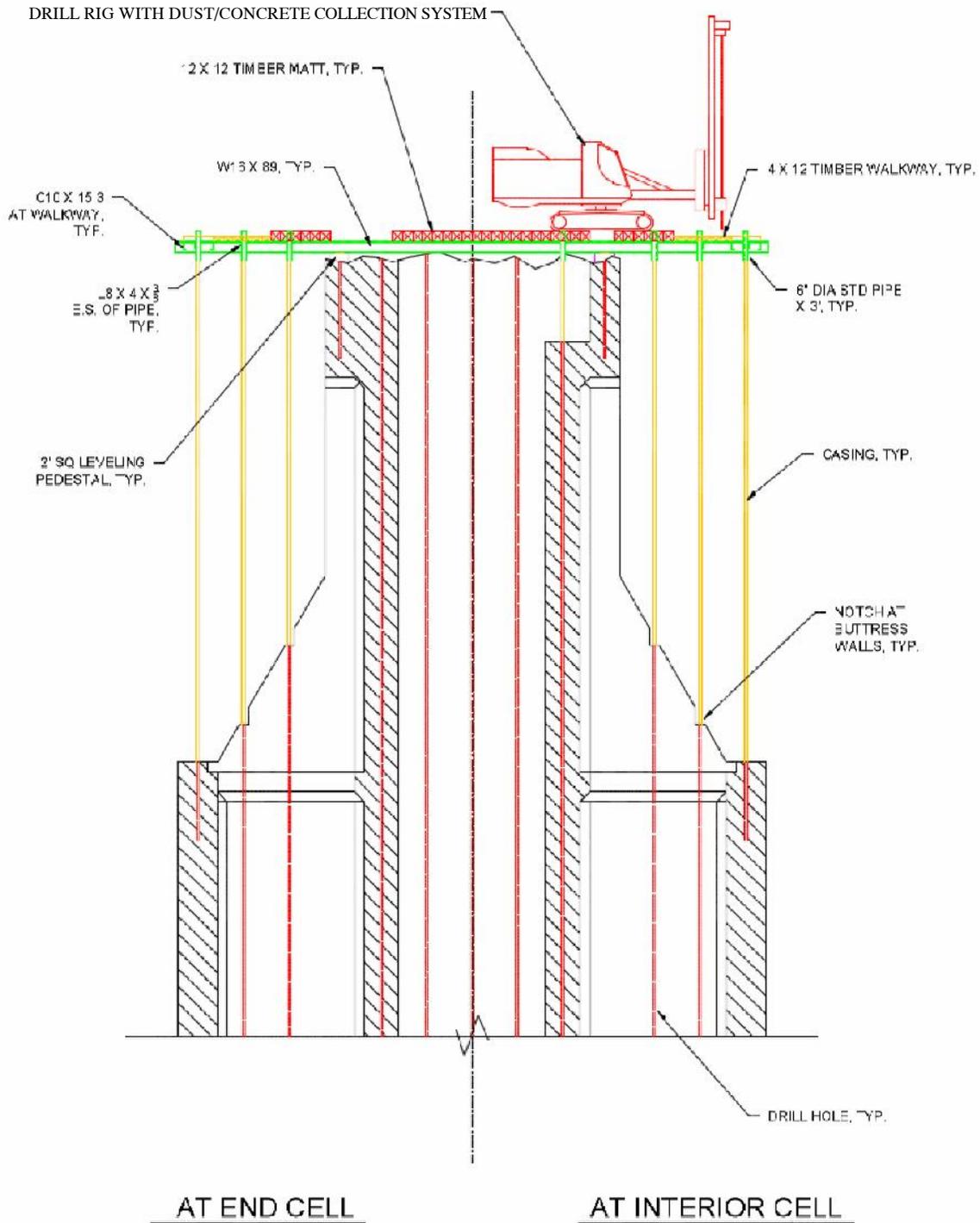
STEP 5: INSTALL MATTS & TEMPLATES FOR DRILLING BELOW WATER

SEE FIGURE 20 FOR TYPICAL BMP's

BASE MAP SOURCE: UNKNOWN

	MATERIALS HANDLING PLAN PIER E5 CONVENTIONAL DEMOLITION PIERS E4-E18 DEMOLITION OAKLAND, CALIFORNIA		PROJECT NO.: 9050.000.004	FIGURE NO. 19
			SCALE: NO SCALE	
		DRAWN BY: DLB	CHECKED BY: JB	

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EXPLANATION (BMP's)

- WIND EROSION CONTROL (WE-1)
- MATERIAL AND EQUIPMENT USED OVER WATER (NS-13)
- STRUCTURE DEMOLITION / REMOVAL OVER OR ADJACENT TO WATER (NS-15)
- SPILL PREVENTION AND CONTROL (WM-4)
- SOLID WASTE MANAGEMENT (WM-5)
- SWEEPING AND VACUUMING (SC-07)
- SCHEDULING (SS-1)
- CONCRETE WASTE MANAGEMENT (WM-08)

BASE MAP SOURCE: UNKNOWN



MATERIALS HANDLING PLAN PIERS E4 & E5
PIERS E4-E18 DEMOLITION
OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.004

SCALE: NO SCALE

DRAWN BY: DLB

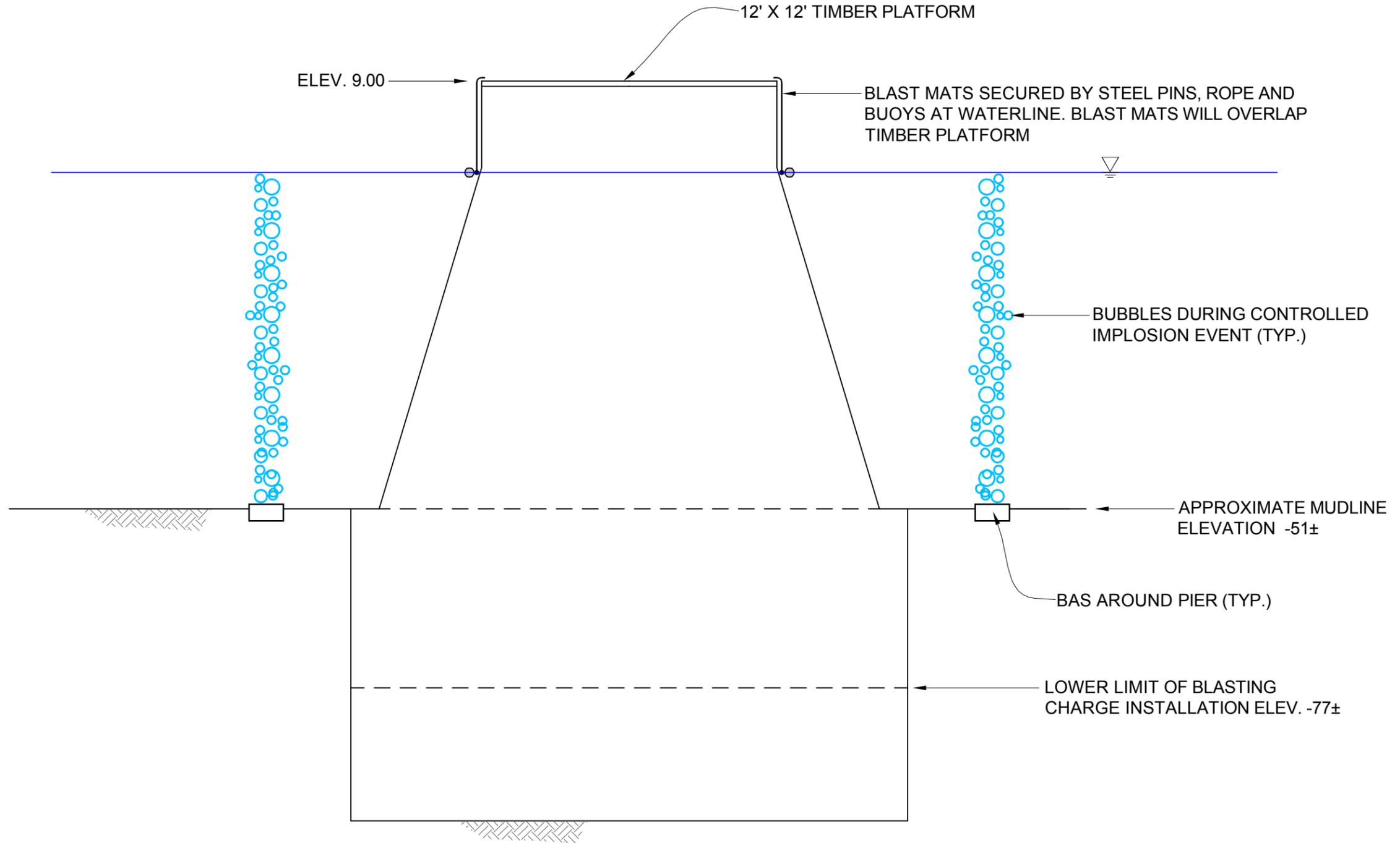
CHECKED BY: JB

FIGURE NO.

20

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CONTROLLED IMPLOSION LAYOUT



EXPLANATION (BMP's)

- MATERIAL AND EQUIPMENT USED OVER WATER (NS-13)
- STRUCTURE DEMOLITION / REMOVAL OVER OR ADJACENT TO WATER (NS-15)
- SOLID WASTE MANAGEMENT (WM-5)
- SCHEDULING (SS-1)

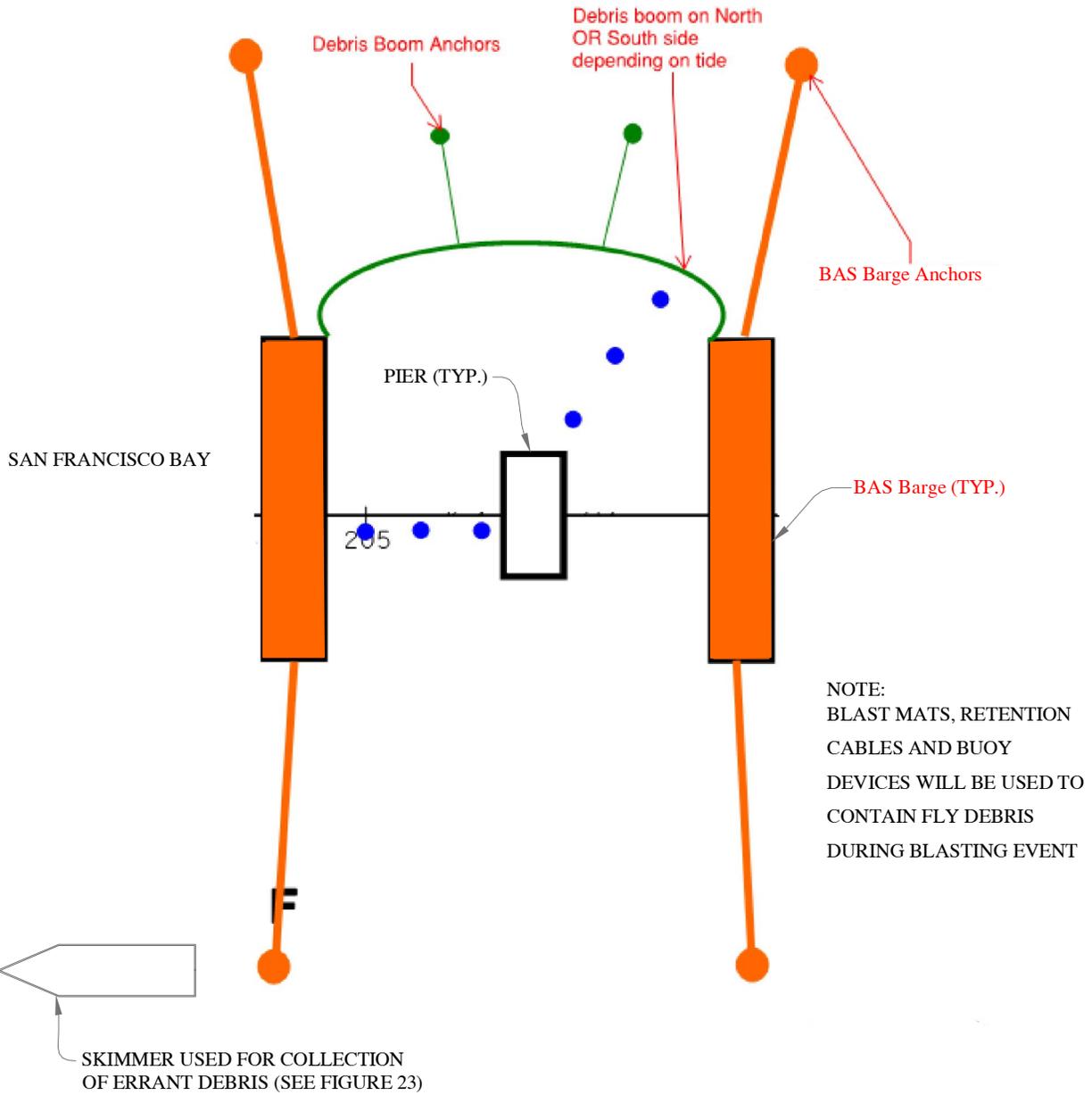


MATERIALS HANDLING PLAN PIERS E4 & E5
 PIERS E4-E18 DEMOLITION
 OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.004	FIGURE NO.
SCALE: NO SCALE	21
DRAWN BY: SRP	

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Pier E4/E5 Blast Day Containment Plan



EQUIPMENT SPECIFICATIONS:
ACME 18" PERMA BOOM

EXPLANATION (BMP's)

SCHEDULING (SS-1)



MATERIALS HANDLING PLAN PIERS E4 AND E5
PIERS E4-E18 DEMOLITION
OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.000

SCALE: NO SCALE

DRAWN BY: DLB

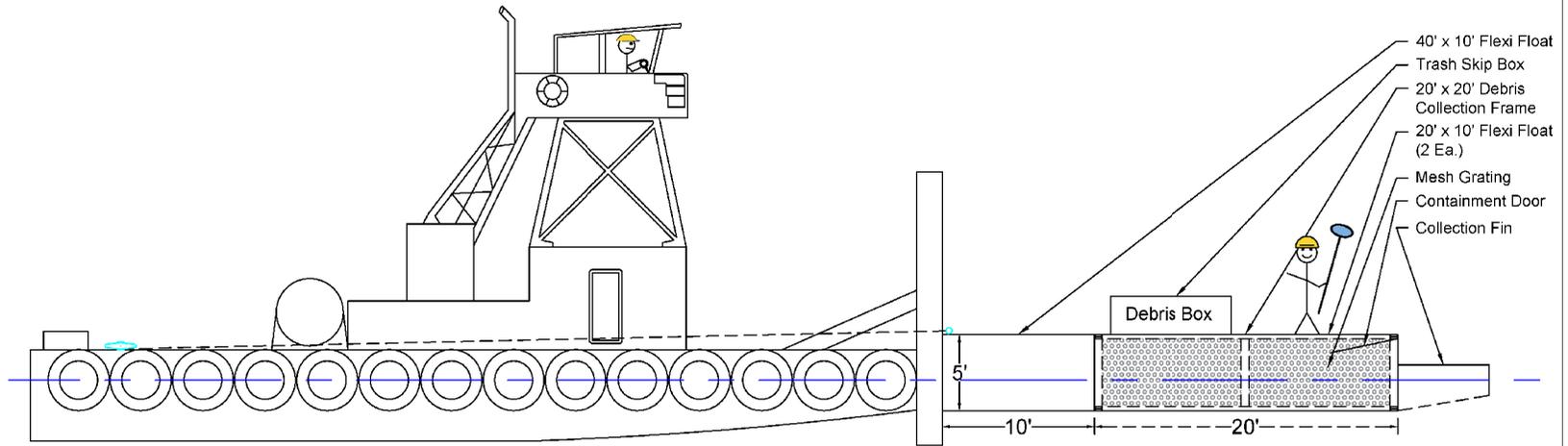
CHECKED BY: JB

FIGURE NO.

22

G:\Drafting\DRAWINGS2\DWG\9050\000\PiersE4-E18 Demo\9050000004-23-DebrisCollectionPlan-0416.dwg Plot Date: 5-09-16 spotters

POST - BLAST DEBRIS COLLECTION VESSEL



Elevation View

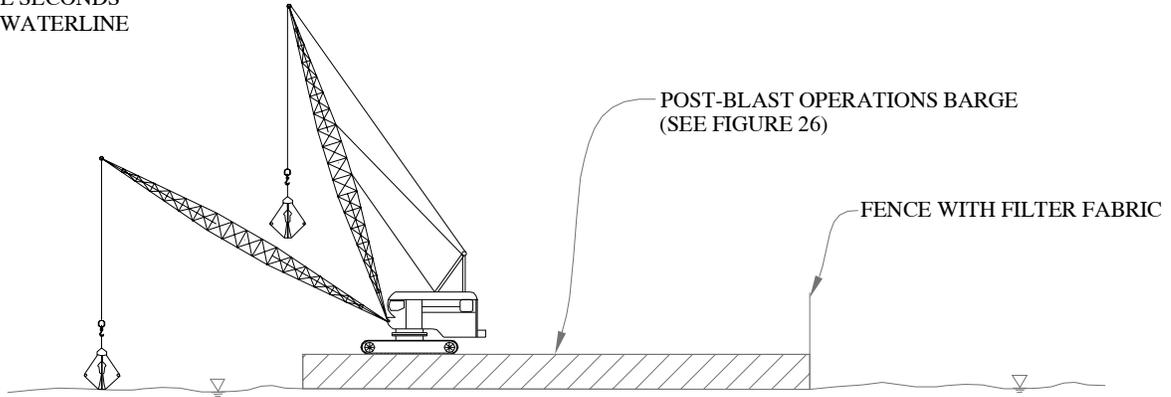
EXPLANATION (BMP's)

- SPILL PREVENTION AND CONTROL (WM-4)
- SOLID WASTE MANAGEMENT (WM-5)
- SWEEPING AND VACUUMING (SC-07)

	POST - BLAST DEBRIS COLLECTION VESSEL PLAN PIERS E4 AND E5 PIERS E4-E18 DEMOLITION OAKLAND, CALIFORNIA	PROJECT NO.: 9050.000.000		FIGURE NO. 23
		SCALE: NO SCALE		
		DRAWN BY: SRP		CHECKED BY: JB

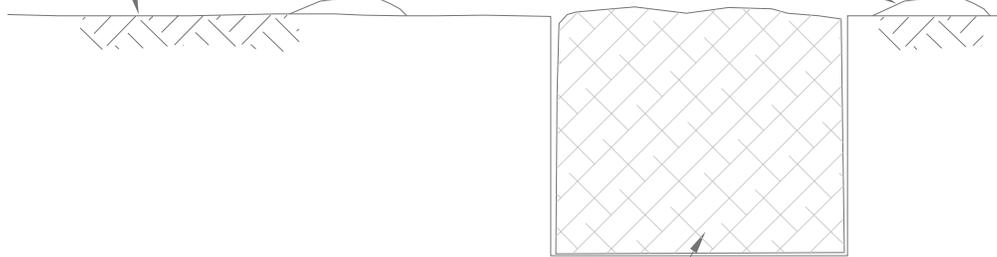
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CONTRACTOR TO HOLD CLAMSHELL
BUCKET A MINIMUM OF
FIVE SECONDS
AT WATERLINE



BAY FLOOR

LOOSE CONCRETE DEBRIS TO BE
COLLECTED BY CLAMSHELL BUCKET
ATTACHED TO CRANE



FILLED HOLLOW CASSION AFTER DEMOLITION

EXPLANATION (BMP's)

- WIND EROSION CONTROL (WE-1)
- MATERIAL AND EQUIPMENT USED OVER WATER (NS-13)
- STRUCTURE DEMOLITION / REMOVAL OVER OR ADJACENT TO WATER (NS-15)
- SPILL PREVENTION AND CONTROL (WM-4)
- SOLID WASTE MANAGEMENT (WM-5)
- SWEEPING AND VACUUMING (SC-07)
- SCHEDULING (SS-1)
- CONCRETE WASTE MANAGEMENT (WM-08)



MATERIALS HANDLING PLAN PIERS E4 AND E5
PIERS E4-E18 DEMOLITION
OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.000

SCALE: NO SCALE

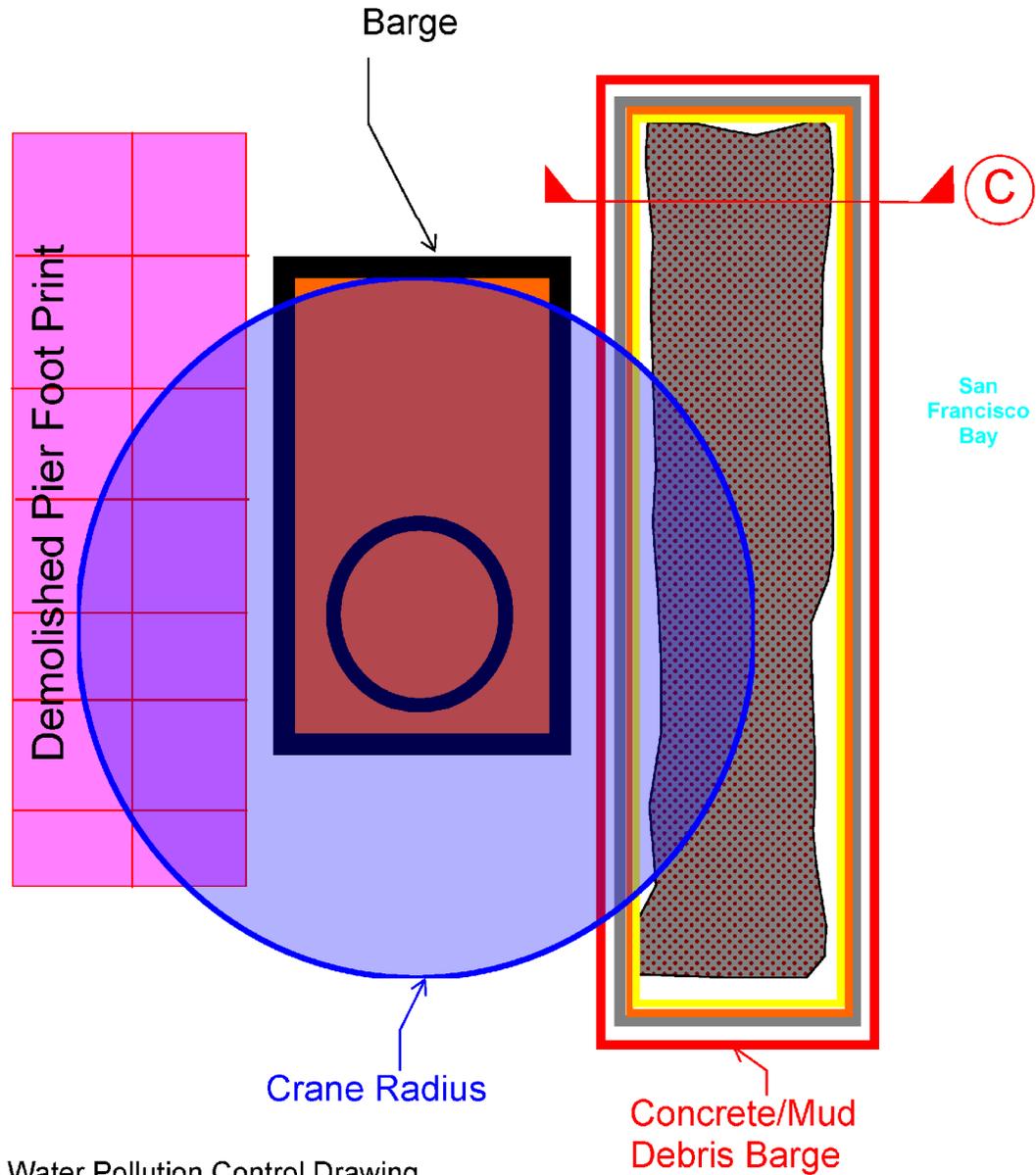
DRAWN BY: DLB

CHECKED BY: JB

FIGURE NO.

24

Debris Removal Layout Not Scaled - Informational Only



Water Pollution Control Drawing

EXPLANATION (BMP's)

- WIND EROSION CONTROL (WE-1)
- MATERIAL AND EQUIPMENT USED OVER WATER (NS-13)
- STRUCTURE DEMOLITION / REMOVAL OVER OR ADJACENT TO WATER (NS-15)
- SPILL PREVENTION AND CONTROL (WM-4)
- SOLID WASTE MANAGEMENT (WM-5)
- SWEEPING AND VACUUMING (SC-07)
- SCHEDULING (SS-1)
- CONCRETE WASTE MANAGEMENT (WM-08)



DEBRIS REMOVAL PLAN PIERS E4 AND E5
PIERS E4-E18 DEMOLITION
OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.000

SCALE: NO SCALE

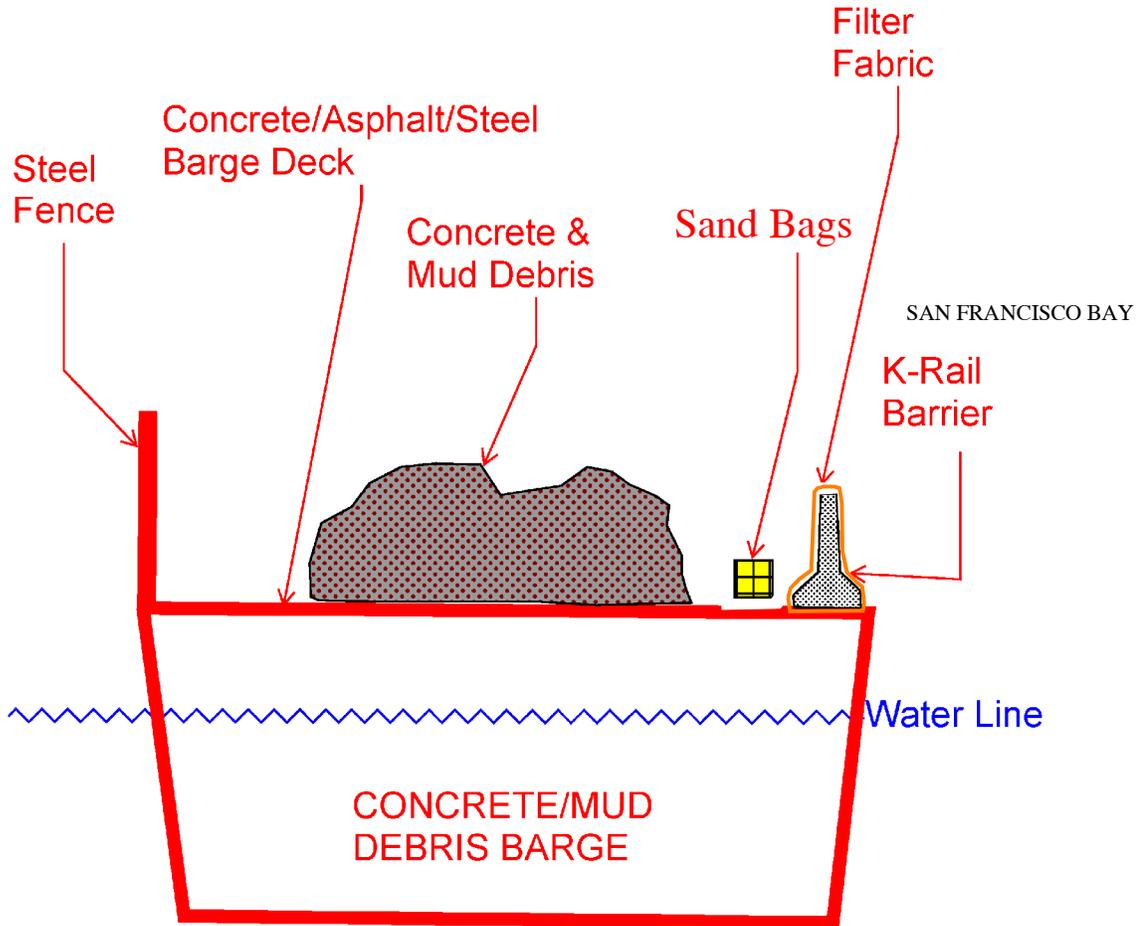
DRAWN BY: SRP

CHECKED BY: JB

FIGURE NO.

25

Concrete/Mud Debris Barge Cross Section



**Note: Perimeter of barge will have either Steel fence
OR K-Rail barrier w/sand bags and filter fabric**

EXPLANATION (BMP's)

- WIND EROSION CONTROL (WE-1)
- MATERIAL AND EQUIPMENT USED OVER WATER (NS-13)
- STRUCTURE DEMOLITION / REMOVAL OVER OR ADJACENT TO WATER (NS-15)
- SPILL PREVENTION AND CONTROL (WM-4)
- SOLID WASTE MANAGEMENT (WM-5)
- SWEEPING AND VACUUMING (SC-07)
- SCHEDULING (SS-1)
- CONCRETE WASTE MANAGEMENT (WM-08)
- TEMPORARY SAND BAG BARRIER (SC-8)
- SEDIMENT TRAPS (SC-3)



CONCRETE/MUD DEBRIS BARGE CROSS SECTION PIERS E4 AND E5
PIERS E4-E18 DEMOLITION
OAKLAND, CALIFORNIA

PROJECT NO.: 9050.000.000

SCALE: NO SCALE

DRAWN BY: SRP

CHECKED BY: JB

FIGURE NO.

26

APPENDIX A

Daily Inspection Form

**PIERS E4 AND E5 DEMOLITION
MATERIALS CONTAINMENT COLLECTION AND HANDLING PROGRAM**

DAILY MONITORING REPORT FORM

When describing conditions and corrective actions, please be specific about which area of the project you are describing.

Inspector Name: _____

Title: _____

Date of Inspection: _____

Date of Last Inspection: _____

Approximate wind direction and velocity: _____

Temperature: _____

Atmospheric Conditions (cloudy, clear, rainy, foggy etc.): _____

Construction Staging Area (check during every inspection):

Are good housekeeping measure in place? Yes No

Are drainage inlets blocked? Yes No

Are materials (if any) stored on pallets or in containment facilities? Yes No

Describe Conditions:

Corrective Actions (if needed):

Operation Barge (check during every inspection):

Are good housekeeping measures in place? Yes No

Is hazardous material being stored on site and in secondary containment? Yes No

9050.000.004

April 27, 2016

Revised May 10, 2016

Is creosote treated wood or plastic stockpiled and if so on impermeable liner with either gravel bag or weighted fiber roll around perimeter?

Yes No

Are liners being cleaned of debris before removing from work area?

Yes No

Is barge provided with appropriate containment BMPs

Yes No

Describe Conditions: _____

Corrective Actions (if needed):

Debris Barge (check during every inspection when fender operations are taking place):

Are good housekeeping measures in place?

Yes No

Is hazardous material being stored on site and in secondary containment?

Yes No

Is creosote treated wood or plastic stockpiled and if so on impermeable liner with either gravel bag or weighted fiber roll around perimeter?

Yes No

Are liners being cleaned of debris before removing from work area?

Yes No

Is barge provided with appropriate containment BMPs

Yes No

Describe Conditions: _____

Corrective Actions (if needed):

Demolition Area (check during every inspection while demolition occurs):

- Are good housekeeping measures in place? Yes No
- Are perimeter controls in place (K-rail/gravel bags etc.)? Yes No
- Is visible concrete dust leaving the area? Yes No
- Are dust suppression waters being applied? Yes No
- For demo work over/near Bay, is a debris basket being employed? Yes No

Describe Conditions: _____

Corrective Actions (if needed): _____

Receiving Water and Pier Foundation Void Spaces (check before beginning in-water work, 4 times daily during in-water work activities, and after unauthorized discharges):

- Did you observe floating and suspended materials, sheen, discoloration, turbidity, or odors? Yes No
- Did you observe any unauthorized discharges (e.g., soil, sawdust, debris, concrete, oil)? Yes No
- Did you observe any spills or leaks in the work area? Yes No

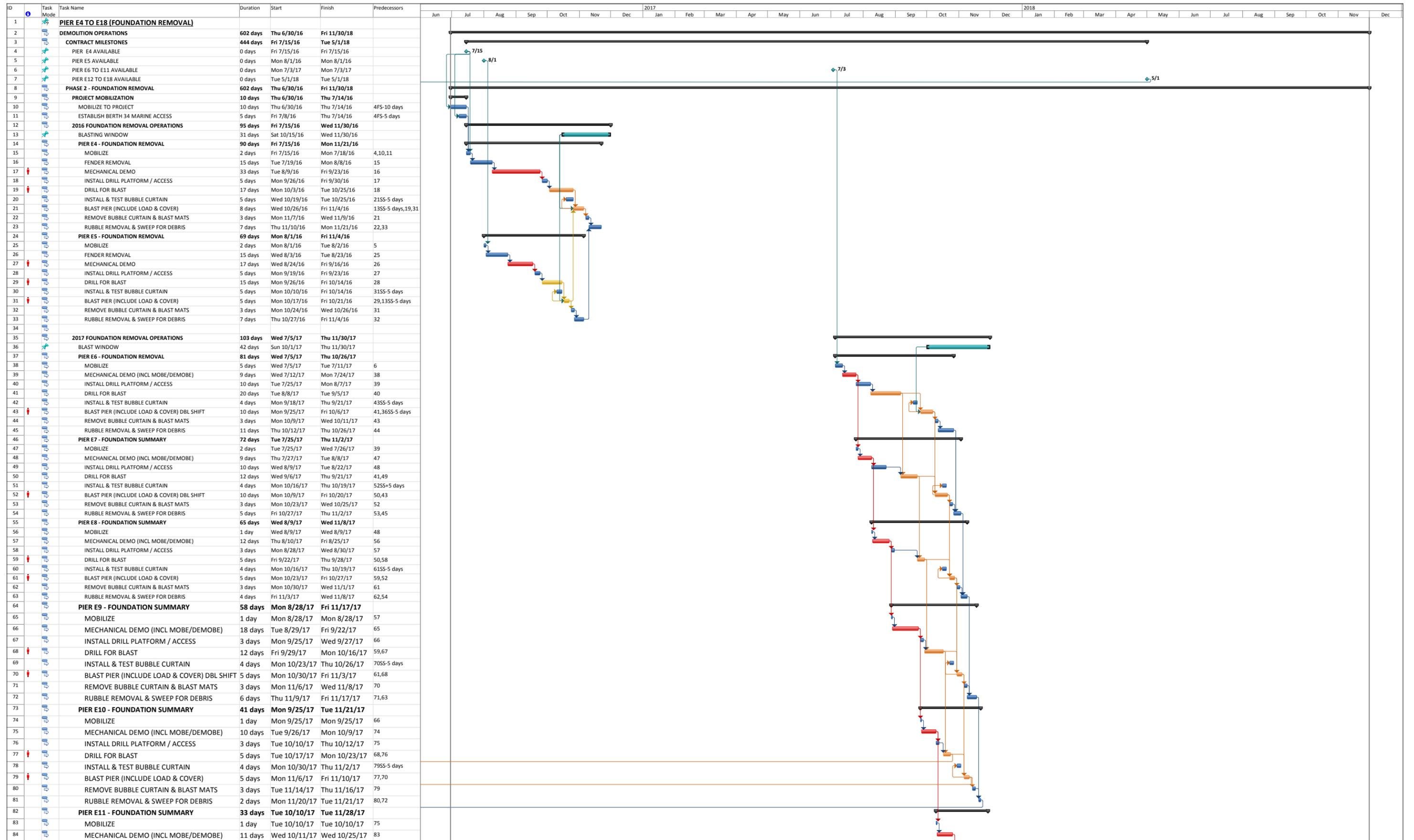
Describe Conditions: _____

Corrective Actions (if needed): _____

APPENDIX B

Project Schedule

9050.000.004
April 27, 2016
Revised May 10, 2016



Preliminary Water Pollution Control Implementation Schedule – Piers E4 and E5 Demolition

Phase 1 – Project Startup Training and Prep Work

Dates 4/1/2016 – 7/8/2016

Phase 2 – Mobilization of Wharf and Pier 96

Dates 6/29/2016 – 7/15/2016

Install Stormdrain Inlet Protection (SC-10)

Begin Street Sweeping (SC-07)

Phase 3 – Mobilization of Barge and Pier E4

Dates 7/15/2016 – 7/18/2016

Mobilize Flexi Float Rafts

Install Fence with Filter Fabric and Handrails (SS-7), (WS-1)

Phase 4 – E4 Fender Removal

Dates 7/15/2016 – 8/11/2016

Stockpile Management on Debris Barge and Pier 96 (WM-8)

Flexi Float Rafts

Sweeping and Vacuuming (SC-07)

Solid Waste Management (WM-3) at Pier 96 and on Barge

Phase 5 – E4 Mechanical Demolition

Dates 7/18/2016 – 9/9/2016

Mobilize Flexi Float Rafts

Install Fence with Filter Fabric on Flexifloat barge with straw wattle. (SS-7), (SC-5)

Install Handrail

Sweeping and Vacuuming (SC-07)

Apply Dust Suppression Water as Necessary (WE-1), (WM-8)

Phase 6 – E4 Dewatering Operation (WPCDs 2A, 2B)

Dates 7/18/2016 – 9/12/2016

Mobilize Barges and Dewatering Tanks (NS-2)

Sweeping and Vacuuming (SC-07)

Phase 7 – E5 Mobilization and Mech Demo

Dates 7/21/2016 – 10/13/2016

Mobilize Flexi Float Rafts

Install Fence with Filter Fabric on Flexifloat barge with straw wattle. (SS-7), (SC-5)

Install Handrail

Sweeping and Vacuuming (SC-07)

Apply Dust Suppression Water as Necessary (WE-1), (WM-8)

Phase 8 – E5 Dewatering Operation

Dates 7/22/2016 – 10/19/2016

Mobilize Barges and Dewatering Tanks (NS-2)

Sweeping and Vacuuming (SC-07)

Phase 9 – E5 Fender Removal

Dates 8/10/2016 – 9/2/2016

Stockpile Management on Debris Barge and Pier 96 (WM-8)

Flexi Float Rafts

Sweeping and Vacuuming (SC-07)

Solid Waste Management (WM-3) at Pier 96 and on Barge

Phase 10 – E5 Blast Demolition, including BAS Installation

Dates 9/9/2016 – 11/17/2016

Containment of Drill Rig Slurry/Cuttings (WM – 8)

Sweeping and Vacuuming (SC-07)

Skimmers and Buoys (WM-5)

Phase 11 – E4 Blast Demolition, including BAS Installation

Dates 9/12/2016 – 10/26/2016

Containment of Drill Rig Slurry/Cuttings (WM - 8)

Sweeping and Vacuuming (SC-07)

Skimmers and Buoys (WM-5)

Phase 12 – E4 Rubble Cleanup Dates 10/26/2016 – 11/3/2016

Mobilize Debris Barge and Crane with Clam Shell Bucket

Install Fiber Rolls at Perimeter of Debris Barge (SC-5)

Install Straw Bale Barrier (SC-9)

Install Sediment Trap with Filter Fabric (SC-3)

Stockpile Management (WM-8)

Sweeping and Vacuuming (SC-07)

Phase 13 – E5 Rubble Cleanup (WPCDs 2B, 4B, 5A)

Dates 11/16/2016 – 11/30/2016

Mobilize Debris Barge and Crane with Clam Shell Bucket

Install Fiber Rolls at Perimeter of Debris Barge (SC-5)

Install Straw Bale Barrier (SC-9)

Install Sediment Trap with Filter Fabric (SC-3)

Stockpile Management (WM-8)

Sweeping and Vacuuming (SC-07)

Phase 14 – Demobilization of Barges and Wharf (WPCDs 5, 5A)

Dates 11/29/2016 – 12/7/2016

Sweeping and Vacuuming (SC-07)

End Piers E4 and E5 Demolition

APPENDIX C

Project Plans

SHEET No.	DESCRIPTION
1	TITLE SHEET AND LOCATION MAP
2 - 4	LAYOUT
5 - 6	CONSTRUCTION DETAILS
7	REVISED STANDARD PLAN
STRUCTURE PLANS	
8 - 28	MARINE FOUNDATION DEMOLITION
29 - 129	LOG OF TEST BORINGS PLAN

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN THE CITY AND COUNTY OF SAN FRANCISCO
AND IN ALAMEDA COUNTY IN OAKLAND
ON THE OLD BAY BRIDGE FOUNDATION
FROM PM 8.65R TO PM 0.80R

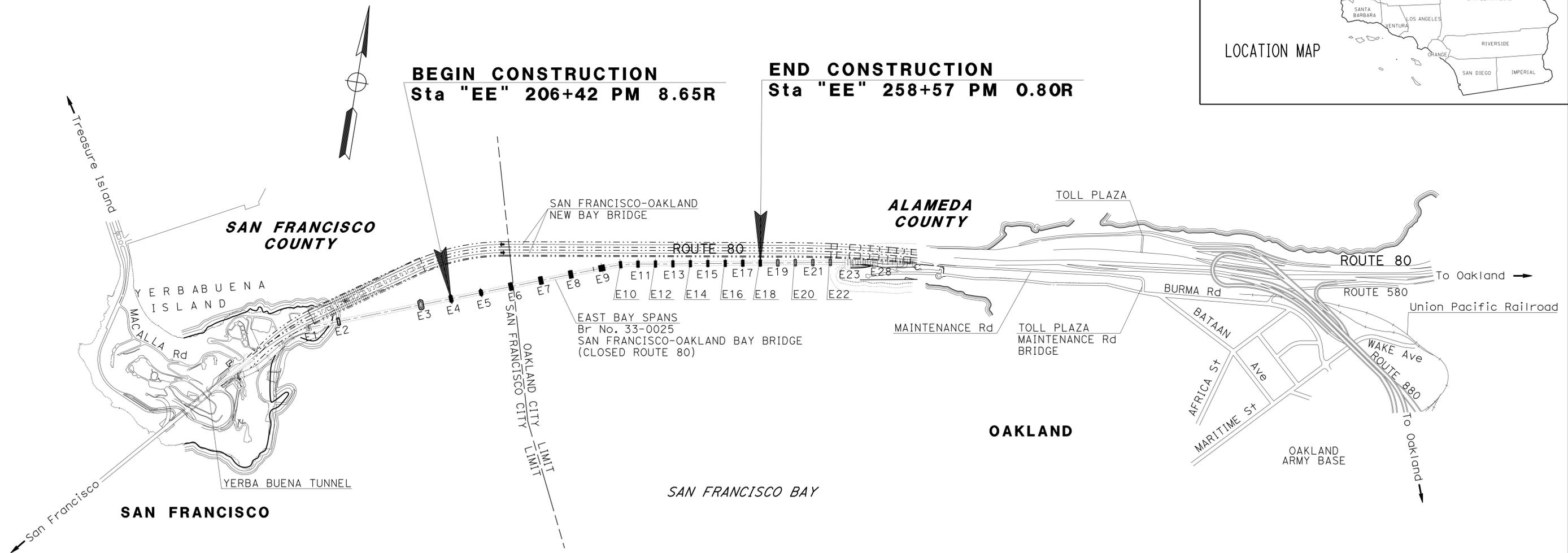
TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Alca	80	8.65R/8.85R, 0.00/0.80R	1	129





LOCATION MAP



PROJECT MANAGER
BRIAN MARONEY
 DESIGN MANAGER
MATTHEW HUNTER

Matthew R. Hunter 3-15-16
 PROJECT ENGINEER DATE
 REGISTERED CIVIL ENGINEER
March 15, 2016
 PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

NO SCALE

RELATIVE BORDER SCALE 0 1 2 3
 IS IN INCHES
 USERNAME => s130888
 DGN FILE => 0416000287ab001.dgn

CONTRACT No.	04-013574
PROJECT ID	0416000287

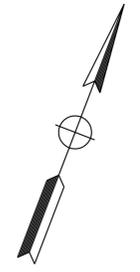
DATE PLOTTED => 14-MAR-2016
 TIME PLOTTED => 12:26
 01-27-18

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN

FUNCTIONAL SUPERVISOR: MATTHEW HUNTER
 MATTHEW HUNTER
 REVISIONS: SH 1-27-16
 REVISIONS: DATE REVISIONS

NOTE:
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

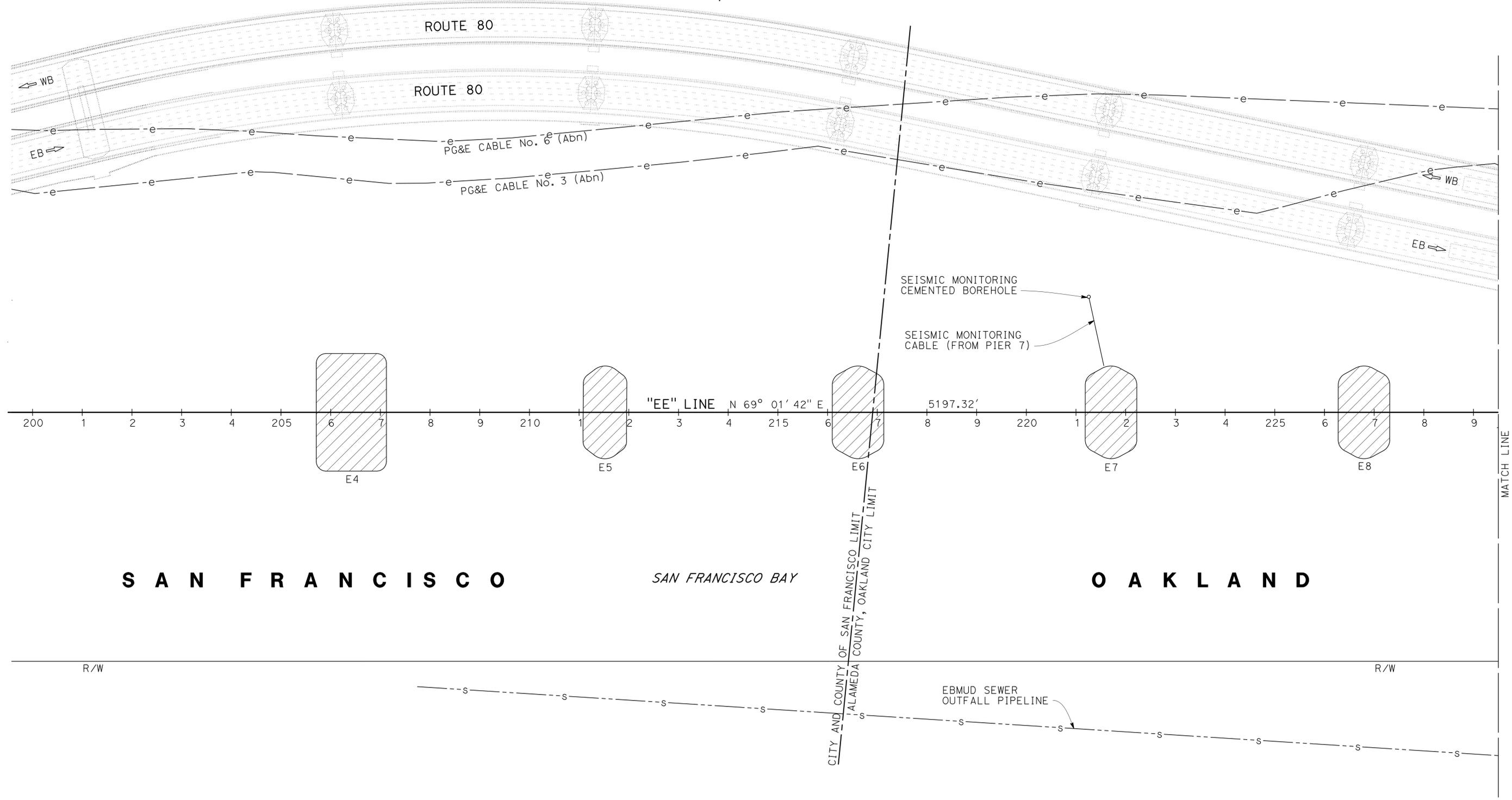
LEGEND:
 REMOVE EXISTING EAST BAY
 FOUNDATIONS (Br No. 33-0025)
 (SEE STRUCTURE PLANS)



NOTE:
 1. FOR DATUM INFORMATION, SEE STRUCTURE PLAN.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R, 0.00/0.80R	2	129

Matthew R. Hunter 3-15-16
 REGISTERED CIVIL ENGINEER DATE
 3-15-16
 PLANS APPROVAL DATE
 Matthew R. Hunter
 No. 55675
 Exp. 2-31-16
 CIVIL
 STATE OF CALIFORNIA
 REGISTERED PROFESSIONAL ENGINEER
 THE STATE OF CALIFORNIA OR ITS OFFICERS
 OR AGENTS SHALL NOT BE RESPONSIBLE FOR
 THE ACCURACY OR COMPLETENESS OF SCANNED
 COPIES OF THIS PLAN SHEET.

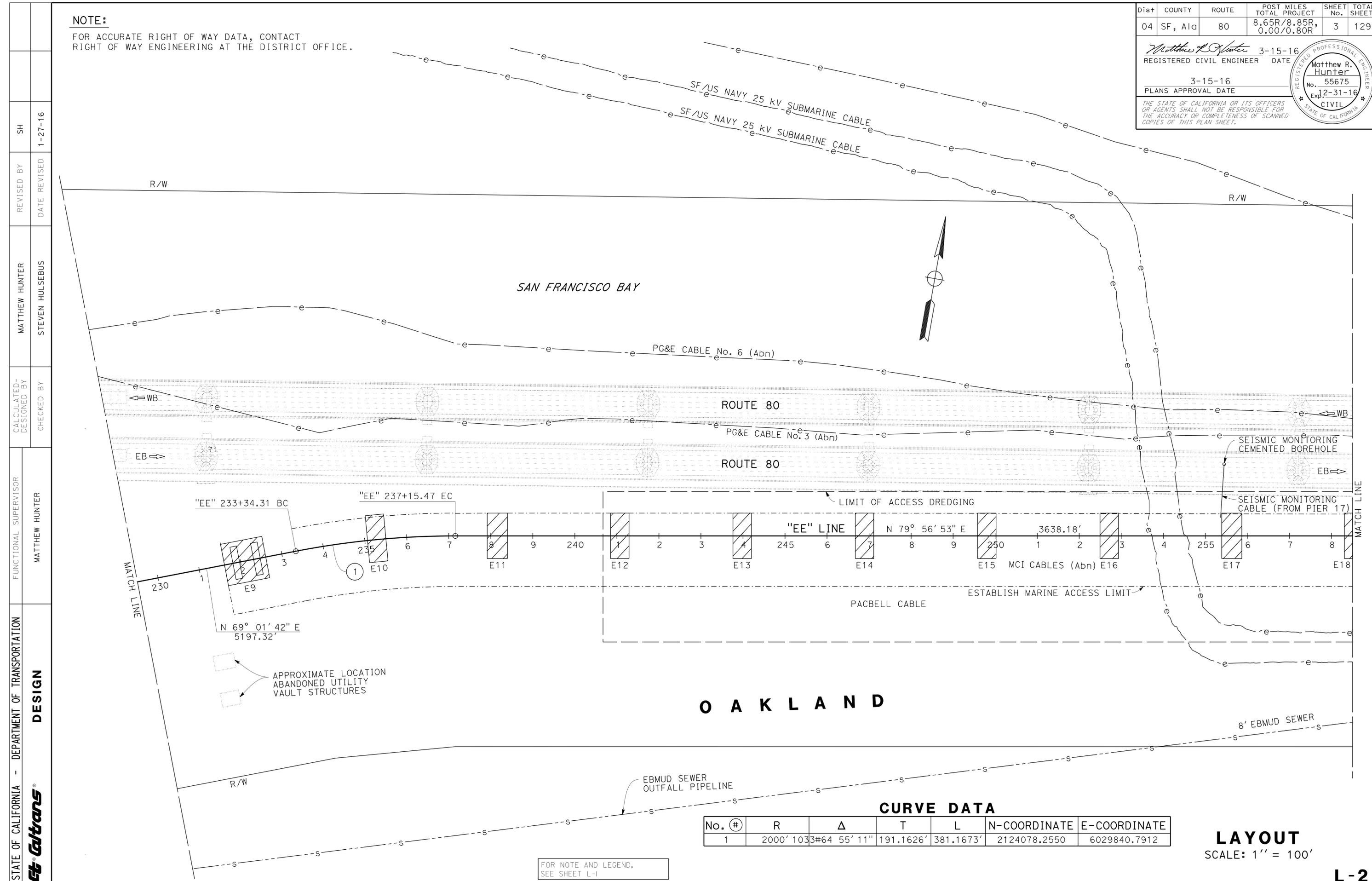


LAYOUT
 SCALE: 1" = 100'

L-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R, 0.00/0.80R	3	129
<i>Matthew R. Hunter</i> 3-15-16 REGISTERED CIVIL ENGINEER DATE			REGISTERED PROFESSIONAL ENGINEER Matthew R. Hunter No. 55675 Exp. 2-31-16 CIVIL STATE OF CALIFORNIA		
3-15-16			PLANS APPROVAL DATE		
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NOTE:
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

No. (#)	R	Δ	T	L	N-COORDINATE	E-COORDINATE
1	2000'	103.3#64	55' 11"	191.1626'	381.1673'	2124078.2550 6029840.7912

FOR NOTE AND LEGEND,
 SEE SHEET L-1

LAYOUT
 SCALE: 1" = 100'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN

FUNCTIONAL SUPERVISOR: MATTHEW HUNTER
 CALCULATED/DESIGNED BY: MATTHEW HUNTER
 CHECKED BY: STEVEN HULSEBUS
 REVISIONS:
 SH: 1-27-16
 REVISED BY: DATE REVISED

LAST REVISION DATE PLOTTED => 14-MAR-2016
 01-27-16 TIME PLOTTED => 12:26

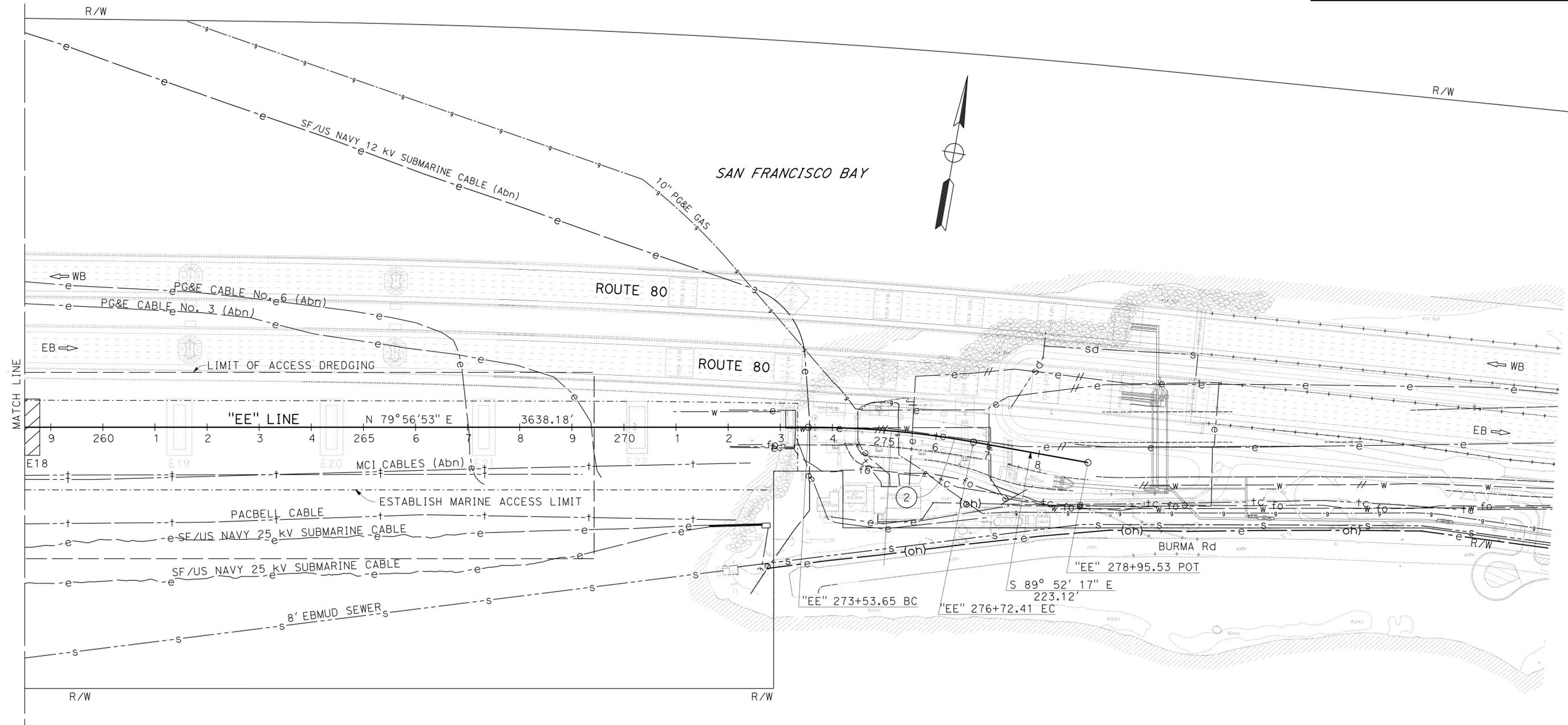
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Alameda	80	8.65R/8.85R, 0.00/0.80R	4	129

REGISTERED CIVIL ENGINEER DATE 3-15-16
 REGISTERED CIVIL ENGINEER DATE 3-15-16
 PLANS APPROVAL DATE 3-15-16

Matthew R. Hunter
 No. 55675
 Exp. 2-31-16
 CIVIL

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTE:
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

No. (#)	R	Δ	T	L	N-COORDINATE	E-COORDINATE
2	1794'	10° 10' 50"	159.8024'	318.7634'	2124916.1103	6033387.1625

FOR NOTE AND LEGEND,
 SEE SHEET L-1

LAYOUT
 SCALE: 1" = 100'

L-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 MATTHEW HUNTER
 MATTHEW HUNTER
 REVISIONS BY DATE
 SH 1-27-16

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN

NOTE:
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Alameda	80	8.65R/8.85R, 0.00/0.80R	6	129

Matthew R. Hunter 3-15-16
 REGISTERED CIVIL ENGINEER DATE

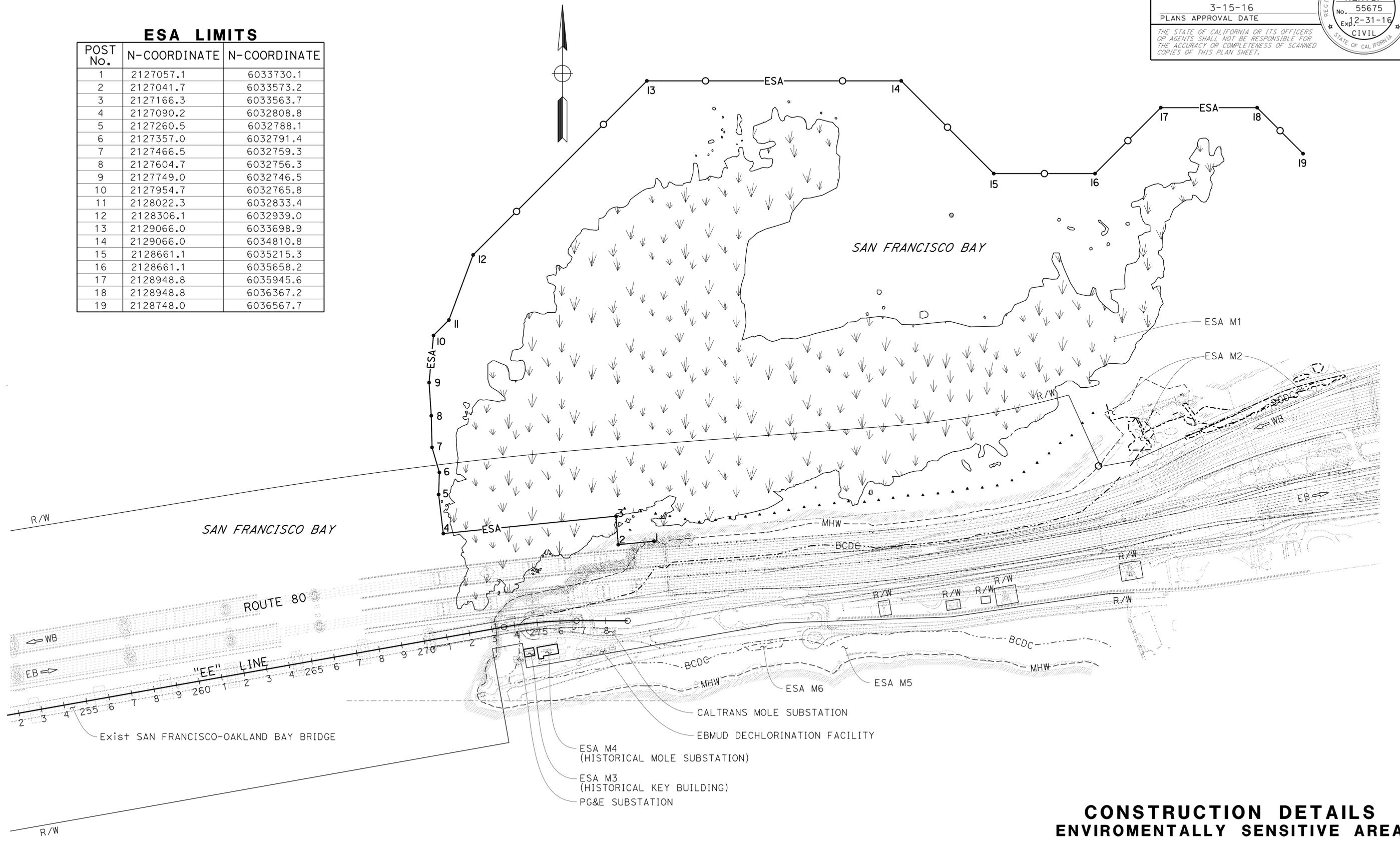
3-15-16
 PLANS APPROVAL DATE

Matthew R. Hunter
 No. 55675
 Exp. 2-31-16
 CIVIL
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

ESA LIMITS

POST No.	N-COORDINATE	N-COORDINATE
1	2127057.1	6033730.1
2	2127041.7	6033573.2
3	2127166.3	6033563.7
4	2127090.2	6032808.8
5	2127260.5	6032788.1
6	2127357.0	6032791.4
7	2127466.5	6032759.3
8	2127604.7	6032756.3
9	2127749.0	6032746.5
10	2127954.7	6032765.8
11	2128022.3	6032833.4
12	2128306.1	6032939.0
13	2129066.0	6033698.9
14	2129066.0	6034810.8
15	2128661.1	6035215.3
16	2128661.1	6035658.2
17	2128948.8	6035945.6
18	2128948.8	6036367.2
19	2128748.0	6036567.7



CONSTRUCTION DETAILS
ENVIRONMENTALLY SENSITIVE AREA
 SCALE: 1" = 200'

FOR NOTE AND LEGEND,
 SEE SHEET C-1

LAST REVISION DATE PLOTTED => 14-MAR-2016
 01-27-16 TIME PLOTTED => 12:27

	M
Maint	MAINTENANCE
Max	MAXIMUM
MB	METAL BEAM
MBB	METAL BEAM BARRIER
MBGR	METAL BEAM GUARD RAILING
Med	MEDIAN
MGS	MIDWEST GUARDRAIL SYSTEM
MH	MANHOLE
Min	MINIMUM
Misc	MISCELLANEOUS
Misc I & S	MISCELLANEOUS IRON AND STEEL
Mkr	MARKER
Mod	MODIFIED, MODIFY
Mon	MONUMENT
MP	METAL PLATE
MPGR	METAL PLATE GUARD RAILING
MR	MOVEMENT RATING
MSE	MECHANICALLY STABILIZED EMBANKMENT
M+	MOUNTAIN, MOUNT
M+I	MATERIAL
MVP	MAINTENANCE VEHICLE PULLOUT
	N
N	NORTH
NB	NORTHBOUND
No.	NUMBER (MUST HAVE PERIOD)
Nos.	NUMBERS (MUST HAVE PERIOD)
NPS	NOMINAL PIPE SIZE
NS	NEAR SIDE
NSP	NEW STANDARD PLAN
NTS	NOT TO SCALE
	O
Obir	OBLITERATE
OC	OVERCROSSING
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OG	ORIGINAL GROUND
OGAC	OPEN GRADED ASPHALT CONCRETE
OGFC	OPEN GRADED FRICTION COURSE
OH	OVERHEAD
OHWM	ORDINARY HIGH WATER MARK
O-O	OUT TO OUT
Opp	OPPOSITE
OSD	OVERSIDE DRAIN
	P
p	PAGE
PAP	PERFORATED ALUMINUM PIPE
PB	PULL BOX
PC	POINT OF CURVATURE, PRECAST
PCC	POINT OF COMPOUND CURVE, PORTLAND CEMENT CONCRETE
PCMS	PORTABLE CHANGEABLE MESSAGE SIGN
PCP	PERFORATED CONCRETE PIPE, PRESTRESSED CONCRETE PIPE
PCVC	POINT OF COMPOUND VERTICAL CURVE
PEC	PERMIT TO ENTER AND CONSTRUCT
Ped	PEDESTRIAN
Ped OC	PEDESTRIAN OVERCROSSING
Ped UC	PEDESTRIAN UNDERCROSSING
Perm M+I	PERMEABLE MATERIAL

	P continued
PG	PROFILE GRADE
PI	POINT OF INTERSECTION
PJP	PARTIAL JOINT PENETRATION
Pkwy	PARKWAY
P, PL	PLATE
P/L	PROPERTY LINE
PM	POST MILE, TIME FROM NOON TO MIDNIGHT
PN	PAVING NOTCH
POC	POINT OF HORIZONTAL CURVE
POT	POINT OF TANGENT
POVC	POINT OF VERTICAL CURVE
PP	PIPE PILE, PLASTIC PIPE, POWER POLE
PPL	PREFORMED PERMEABLE LINER
PPP	PERFORATED PLASTIC PIPE
PRC	POINT OF REVERSE CURVE
PRF	PAVEMENT REINFORCING FABRIC
PRVC	POINT OF REVERSE VERTICAL CURVE
PS&E	PLANS, SPECIFICATIONS AND ESTIMATES
PS, P/S	PRESTRESSED
PSP	PERFORATED STEEL PIPE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
Pvmt	PAVEMENT
	Q
Qty	QUANTITY
	R
R	RADIUS
R & D	REMOVE AND DISPOSE
R & S	REMOVE AND SALVAGE
R/C	RATE OF CHANGE
RCA	REINFORCED CONCRETE ARCH
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RCPA	REINFORCED CONCRETE PIPE ARCH
Rd	ROAD
Reinf	REINFORCED, REINFORCEMENT, REINFORCING
Rel	RELOCATE
Repl	REPLACEMENT
Ret	RETAINING
Rev	REVISED, REVISION
Rdwy	ROADWAY
RHMA	RUBBERIZED HOT MIX ASPHALT
Riv	RIVER
RM	ROAD-MIXED
RP	RADIUS POINT, REFERENCE POINT
RR	RAILROAD
RSP	ROCK SLOPE PROTECTION, REVISED STANDARD PLAN
R+	RIGHT
Rte	ROUTE
RW	REDWOOD, RETAINING WALL
R/W	RIGHT OF WAY
Rwy	RAILWAY

	S
S	SOUTH, SUPPLEMENT
SAE	STRUCTURE APPROACH EMBANKMENT
Salv	SALVAGE
SAPP	STRUCTURAL ALUMINUM PLATE PIPE
SB	SOUTHBOUND
SC	SAND CUSHION
SCSP	SLOTTED CORRUGATED STEEL PIPE
SD	STORM DRAIN
Sec	SECOND, SECTION
Sep	SEPARATION
SG	SUBGRADE
Shld	SHOULDER
Sht	SHEET
Sim	SIMILAR
£	STATION LINE
SM	SELECTED MATERIAL
Spec	SPECIAL, SPECIFICATIONS
SPP	SLOTTED PLASTIC PIPE
SS	SLOPE STAKE
SSBM	STRAP AND SADDLE BRACKET METHOD
SSD	STRUCTURAL SECTION DRAIN
SSPA	STRUCTURAL STEEL PLATE ARCH
SSPP	STRUCTURAL STEEL PLATE PIPE
SSPPA	STRUCTURAL STEEL PLATE PIPE ARCH
SSRP	STEEL SPIRAL RIB PIPE
St	STREET
Sta	STATION
STBB	SINGLE THRIE BEAM BARRIER
Std	STANDARD
Str	STRUCTURE
Surf	SURFACING
SW	SIDEWALK, SOUND WALL
Swr	SEWER
Sym	SYMMETRICAL
S4S	SURFACE 4 SIDES
	T
T	SEMI-TANGENT
Tan	TANGENT
TBB	THRIE BEAM BARRIER
Tbr	TIMBER
TC	TOP OF CURB
TCB	TRAFFIC CONTROL BOX
TCE	TEMPORARY CONSTRUCTION EASEMENT
TeI	TELEPHONE
Temp	TEMPORARY
TG	TOP OF GRADE
Tot	TOTAL
TP	TELEPHONE POLE
TPB	TREATED PERMEABLE BASE
TPM	TREATED PERMEABLE MATERIAL
Trans	TRANSITION

	T continued
TS	TRANSVERSE, TRAFFIC SIGNAL, TUBULAR STEEL
Typ	TYPICAL
	U
UC	UNDERCROSSING
UD	UNDERDRAIN
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UP	UNDERPASS
	V
V	VALVE, DESIGN SPEED
Var	VARIABLE, VARIES
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
Vert	VERTICAL
Via	VIADUCT
Vol	VOLUME
	W
W	WEST, WIDTH
WB	WESTBOUND
WH	WEEP HOLE
WM	WIRE MESH
WS	WATER SURFACE
WSP	WELDED STEEL PIPE
W+	WEIGHT
WV	WATER VALVE
WW	WINGWALL
WWLOL	WINGWALL LAYOUT LINE
	X
X Sec	CROSS SECTION
Xing	CROSSING
	Y
Yr	YEAR
Yrs	YEARS

DISTRICT COUNTY ROUTE	POST MILES	SHEET TOTAL SHEETS
04 SF, Ala 80	8.65R/8.85R, 0.00/0.80R	7 129
<i>Grace M. Tsushima</i>		
REGISTERED CIVIL ENGINEER		
July 19, 2013 PLANS APPROVAL DATE		

TO ACCOMPANY PLANS DATED 3-11-16

UNIT OF MEASUREMENT SYMBOLS:

Some of the symbols used in the project plan quantity tables and in the Bid Item List are:

TABLE A	
SYMBOL USED	DEFINITIONS
ACRE	ACRE
CF	CUBIC FOOT
CY	CUBIC YARD
EA	EACH
GAL	GALLON
LB	POUND
LF	LINEAR FOOT
SQFT	SQUARE FOOT
SQYD	SQUARE YARD
STA	100 FEET
TAB	TABLET
TON	2,000 POUNDS

Some of the symbols used in the plans other than in the project plan quantity tables are:

TABLE B	
SYMBOL USED	DEFINITIONS
ksi	KIPS PER SQUARE INCH
ksf	KIPS PER SQUARE FOOT
psi	POUNDS PER SQUARE INCH
psf	POUNDS PER SQUARE FOOT
lb/ft ³ , pcf	POUNDS PER CUBIC FOOT
tsf	TONS PER SQUARE FOOT
mph, MPH *	MILES PER HOUR
ø	NOMINAL DIAMETER
oz	OUNCE
lb	POUND
kip	1,000 POUNDS
cal	CALORIE
ft	FOOT OR FEET
gal	GALLON

* For use on a sign panel only

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ABBREVIATIONS
(SHEET 2 OF 2)**

NO SCALE

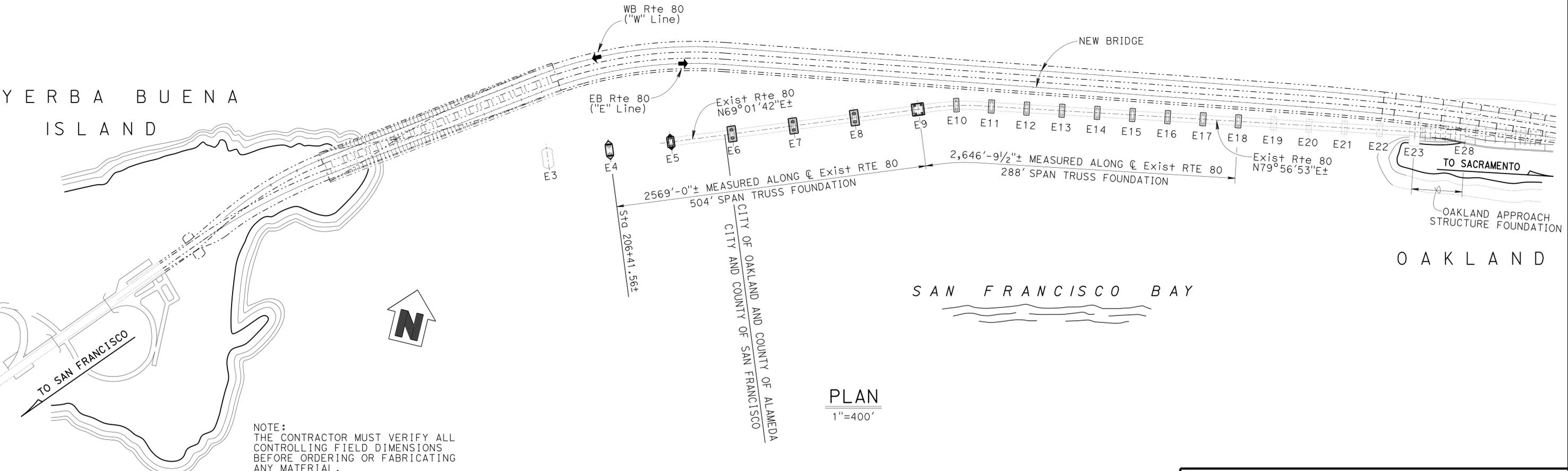
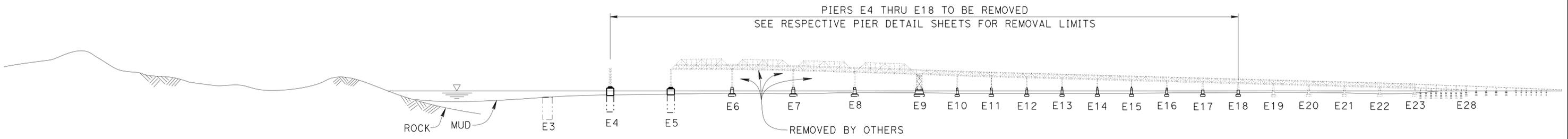
RSP A10B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A10B
DATED MAY 20, 2011 - PAGE 2 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP A10B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Alameda	80	8.65R/8.85R 0.00/0.80R	8	129

Y.P. Kim 03-09-16
 REGISTERED CIVIL ENGINEER DATE
 3-11-16
 PLANS APPROVAL DATE
 YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LEGEND:
 - - - - - Indicates existing
 ——— Indicates removal limit (top portion only)
 3 foot below mudline (Typ)
 Indicates removed by others



NOTE:
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

HØGNI SETBERG
 DESIGN ENGINEER

DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall

LOAD & RESISTANCE FACTOR DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
LAYOUT	BY Steve Margaris	CHECKED Steve Margaris
SPECIFICATIONS	BY Steve Margaris	CHECKED Steve Margaris

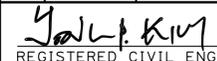
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH 8

BRIDGE NO.	33-0025
POST MILE	8.6/1.2

SAN FRANCISCO-OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT
MARINE FOUNDATION DEMOLITION
GENERAL PLAN

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	9	129

 03-09-16
 REGISTERED CIVIL ENGINEER DATE

3-11-16
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA

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INDEX TO PLANS

SHEET NO.	TITLE	SHEET NO.	TITLE
1	GENERAL PLAN	71	LOG OF TEST BORINGS 34 OF 47
2	INDEX TO PLANS	72	LOG OF TEST BORINGS 35 OF 47
3	FOUNDATION PLAN NO. 1	73	LOG OF TEST BORINGS 36 OF 47
4	FOUNDATION PLAN NO. 2	74	LOG OF TEST BORINGS 37 OF 47
5	FOUNDATION PLAN NO. 3	75	LOG OF TEST BORINGS 38 OF 47
6	FOUNDATION PLAN NO. 4	76	LOG OF TEST BORINGS 39 OF 47
7	PIER E4 - FENDER DETAILS	77	LOG OF TEST BORINGS 40 OF 47
8	PIER E4 - DEMOLITION LIMITS	78	LOG OF TEST BORINGS 41 OF 47
9	PIER E5 - FENDER DETAILS	79	LOG OF TEST BORINGS 42 OF 47
10	PIER E5 - DEMOLITION LIMITS	80	LOG OF TEST BORINGS 43 OF 47
11	PIER E6 - DEMOLITION LIMITS	81	LOG OF TEST BORINGS 44 OF 47
12	PIER E7 - DEMOLITION LIMITS	82	LOG OF TEST BORINGS 45 OF 47
13	PIER E8 - DEMOLITION LIMITS	83	LOG OF TEST BORINGS 46 OF 47
14	PIER E9 - DEMOLITION LIMITS	84	LOG OF TEST BORINGS 47 OF 47
15	PIER E10 - DEMOLITION LIMITS	85	LOG OF TEST BORINGS 1 (SAS)
16	PIER E11 - DEMOLITION LIMITS	86	LOG OF TEST BORINGS 2
17	PIER E12 AND E13 - DEMOLITION LIMITS	87	LOG OF TEST BORINGS 3
18	PIER E14 - DEMOLITION LIMITS	88	LOG OF TEST BORINGS 4
19	PIER E15 AND E16 - DEMOLITION LIMITS	89	LOG OF TEST BORINGS 5
20	PIER E17 - DEMOLITION LIMITS	90	LOG OF TEST BORINGS 6
21	PIER E18 - DEMOLITION LIMITS	91	LOG OF TEST BORINGS 7
22	LOG OF TEST BORINGS 1 (OAKLAND TOUCHDOWN)	92	LOG OF TEST BORINGS 8
23	LOG OF TEST BORINGS 2	93	LOG OF TEST BORINGS 9
24	LOG OF TEST BORINGS 3	94	LOG OF TEST BORINGS 10
25	LOG OF TEST BORINGS 4	95	LOG OF TEST BORINGS 11
26	LOG OF TEST BORINGS 5	96	LOG OF TEST BORINGS 12
27	LOG OF TEST BORINGS 6	97	LOG OF TEST BORINGS 13
28	LOG OF TEST BORINGS 7	98	LOG OF TEST BORINGS 14
29	LOG OF TEST BORINGS 8	99	LOG OF TEST BORINGS 15
30	LOG OF TEST BORINGS 9	100	LOG OF TEST BORINGS 16
31	LOG OF TEST BORINGS 10	101	LOG OF TEST BORINGS 17
32	LOG OF TEST BORINGS 11	102	LOG OF TEST BORINGS 18
33	LOG OF TEST BORINGS 12	103	LOG OF TEST BORINGS 19
34	LOG OF TEST BORINGS 13	104	LOG OF TEST BORINGS 20
35	LOG OF TEST BORINGS 14	105	LOG OF TEST BORINGS 21
36	LOG OF TEST BORINGS 15	106	LOG OF TEST BORINGS 22
37	LOG OF TEST BORINGS 16	107	LOG OF TEST BORINGS 23
38	LOG OF TEST BORINGS 1 OF 47 (SKYWAY)	108	LOG OF TEST BORINGS 24
39	LOG OF TEST BORINGS 2 OF 47	109	LOG OF TEST BORINGS 25
40	LOG OF TEST BORINGS 3 OF 47	110	LOG OF TEST BORINGS 26
41	LOG OF TEST BORINGS 4 OF 47	111	LOG OF TEST BORINGS 27
42	LOG OF TEST BORINGS 5 OF 47	112	LOG OF TEST BORINGS 28
43	LOG OF TEST BORINGS 6 OF 47	113	LOG OF TEST BORINGS 29
44	LOG OF TEST BORINGS 7 OF 47	114	LOG OF TEST BORINGS 30
45	LOG OF TEST BORINGS 8 OF 47	115	LOG OF TEST BORINGS 31
46	LOG OF TEST BORINGS 9 OF 47	116	LOG OF TEST BORINGS 32
47	LOG OF TEST BORINGS 10 OF 47	117	LOG OF TEST BORINGS 33
48	LOG OF TEST BORINGS 11 OF 47	118	LOG OF TEST BORINGS 34
49	LOG OF TEST BORINGS 12 OF 47	119	LOG OF TEST BORINGS 35
50	LOG OF TEST BORINGS 13 OF 47	120	LOG OF TEST BORINGS 36
51	LOG OF TEST BORINGS 14 OF 47	121	LOG OF TEST BORINGS 37
52	LOG OF TEST BORINGS 15 OF 47	122	LOG OF TEST BORINGS 38
53	LOG OF TEST BORINGS 16 OF 47		
54	LOG OF TEST BORINGS 17 OF 47		
55	LOG OF TEST BORINGS 18 OF 47		
56	LOG OF TEST BORINGS 19 OF 47		
57	LOG OF TEST BORINGS 20 OF 47		
58	LOG OF TEST BORINGS 21 OF 47		
59	LOG OF TEST BORINGS 22 OF 47		
60	LOG OF TEST BORINGS 23 OF 47		
61	LOG OF TEST BORINGS 24 OF 47		
62	LOG OF TEST BORINGS 25 OF 47		
63	LOG OF TEST BORINGS 26 OF 47		
64	LOG OF TEST BORINGS 27 OF 47		
65	LOG OF TEST BORINGS 28 OF 47		
66	LOG OF TEST BORINGS 29 OF 47		
67	LOG OF TEST BORINGS 30 OF 47		
68	LOG OF TEST BORINGS 31 OF 47		
69	LOG OF TEST BORINGS 32 OF 47		
70	LOG OF TEST BORINGS 33 OF 47		

GENERAL DEMOLITION NOTES

- DATUM: Elevation referenced to 1929 National Geodetic Vertical Datum (NGVD29).
- Blast attenuation systems are to be placed around the caisson.
- Demolition Sequence:
 - Remove top portion of the caisson with mechanical means to the elevation indicated on the respective pier detail sheet.
 - Blast holes are drilled downward from the exposed caisson top after the mechanical removal.
 - Explosives will be loaded into the bore holes.
 - Blasting mats will be placed.

AS-BUILT PILE INFORMATION TABLE

	INTERIOR	AVERAGE LENGTH	BATTERED	AVERAGE LENGTH	TOTAL QUANTITY
PIER E6	-127.9	85 ft	-127.9	85 ft	544
PIER E7	-127.9	85 ft	-127.9	85 ft	544
PIER E8	-127.9	85 ft	-127.9	85 ft	544
PIER E9	-125.1	85 ft	-125.1	50 ft	625
PIER E10	-121.9	85 ft	-91.7	50 ft	308
PIER E11	-118.8	85 ft	-91.9	50 ft	324
PIER E12	-117.7	85 ft	-89.0	50 ft	297
PIER E13	-122.1	85 ft	-89.0	50 ft	297
PIER E14	-122.4	85 ft	-92.0	50 ft	297
PIER E15	-119.3	85 ft	-91.5	50 ft	297
PIER E16	-116.4	85 ft	-91.2	50 ft	297
PIER E17	-122.9	85 ft	-119.9	85 ft	324
PIER E18	-123.9	85 ft	-93.9	50 ft	324

STANDARD PLANS 2010 EDITION

PLAN NO.	PLAN TITLE
A10A	ABBREVIATIONS (SHEET 1 OF 2)
RSP A10B	ABBREVIATIONS (SHEET 2 OF 2)
A10C	LINES AND SYMBOLS (SHEET 1 OF 3)
A10D	LINES AND SYMBOLS (SHEET 2 OF 3)
A10E	LINES AND SYMBOLS (SHEET 3 OF 3)

- NOTES:
- "LOG OF TEST BORINGS NO. 1 TO NO. 16" (sheet no. 22 to 37) is for Oakland Approach / Oakland Touchdown (OTD).
 - "LOG OF TEST BORINGS NO. 1 TO NO. 47" (sheet no. 38 to 84) is for Skyway.
 - "LOG OF TEST BORINGS NO. 1 TO NO. 38" (sheet no. 85 to 122) is for Self-Anchored Suspension Bridge (SAS).
 - All "LOG OF TEST BORINGS" sheets are As-Builts.

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN		BY Yong Pil Kim	CHECKED Mary Beall	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO. 33-0025	SAN FRANCISCO-OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT MARINE FOUNDATION DEMOLITION INDEX TO PLANS
DETAILS		BY Carlo Cancino	CHECKED Mary Beall			POST MILE 8.6/1.2	
QUANTITIES		BY Nora Kyo	CHECKED Mary Beall				

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3 UNIT: 3593 PROJECT NUMBER & PHASE: 0416000287, 1 CONTRACT NO.: 04-013574 DISREGARD PRINTS BEARING EARLIER REVISION DATES

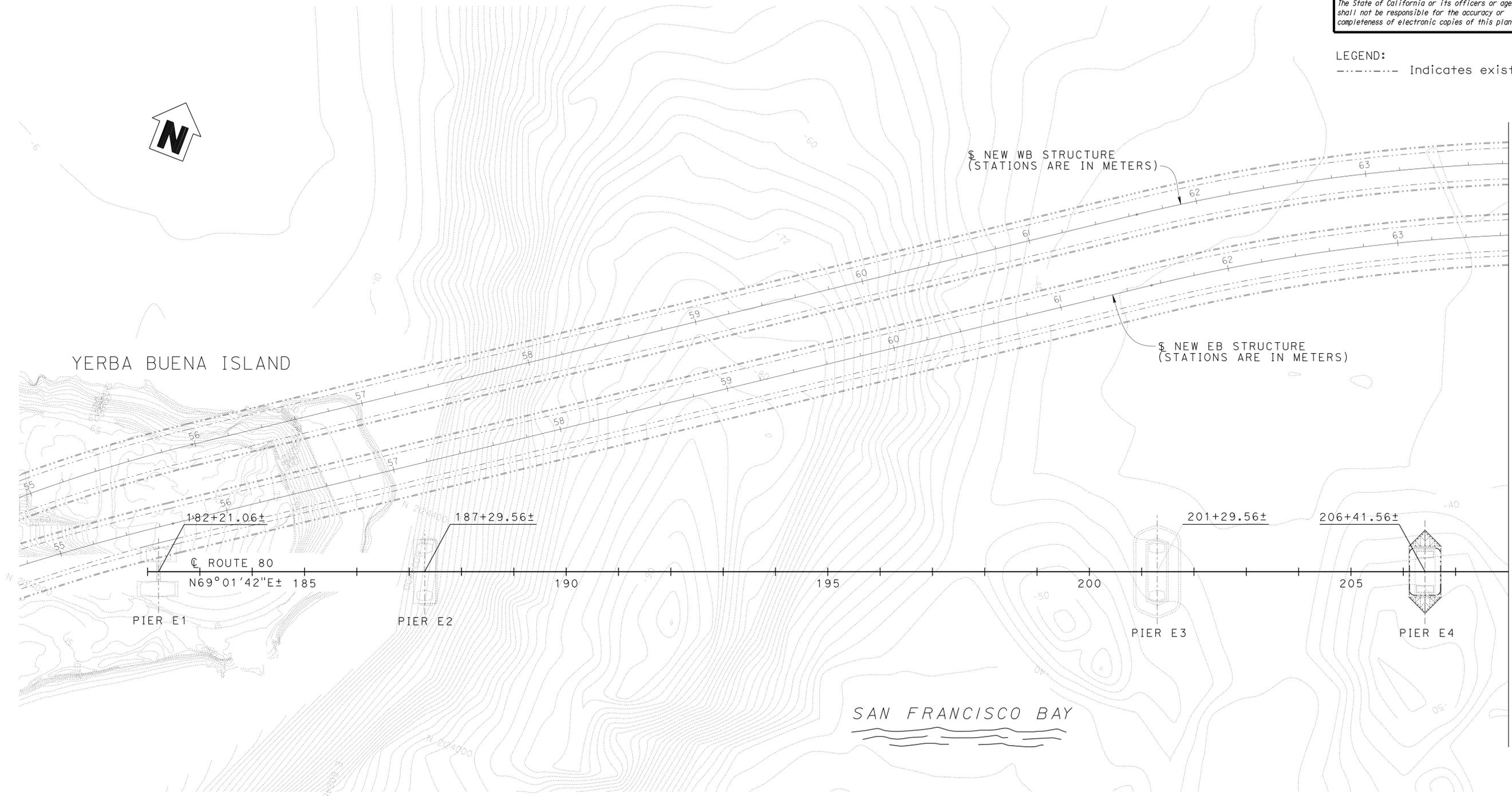
REVISION DATES	SHEET	OF
05/07/13	2	21

FILE => 33-0025-b-1+p.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	10	129

Y.P. Kim 03-09-16
 REGISTERED CIVIL ENGINEER DATE
 3-11-16
 PLANS APPROVAL DATE
 YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA
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LEGEND:
 ----- Indicates existing



NOTE:
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PLAN
 1" = 100'

NOTE:
 MUDLINE CONTOURS ARE ACCORDING TO SOUNDINGS TAKEN DURING JANUARY, 1998.

DESIGN BY Yong Pil Kim CHECKED Mary Beall DETAILS BY Carlo Cancino CHECKED Mary Beall QUANTITIES BY Nora Kyo CHECKED Mary Beall			STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO. 33-0025 POST MILE 8.6/1.2	SAN FRANCISCO-OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT MARINE FOUNDATION DEMOLITION FOUNDATION PLAN NO. 1
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)			ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	UNIT: 3593 PROJECT NUMBER & PHASE: 0416000287, 1	CONTRACT NO.: 04-013574	DISREGARD PRINTS BEARING EARLIER REVISION DATES
				0 1 2 3	REVISION DATES: 05/17/13, 04/02/14, 02/22/16	SHEET 3 OF 21

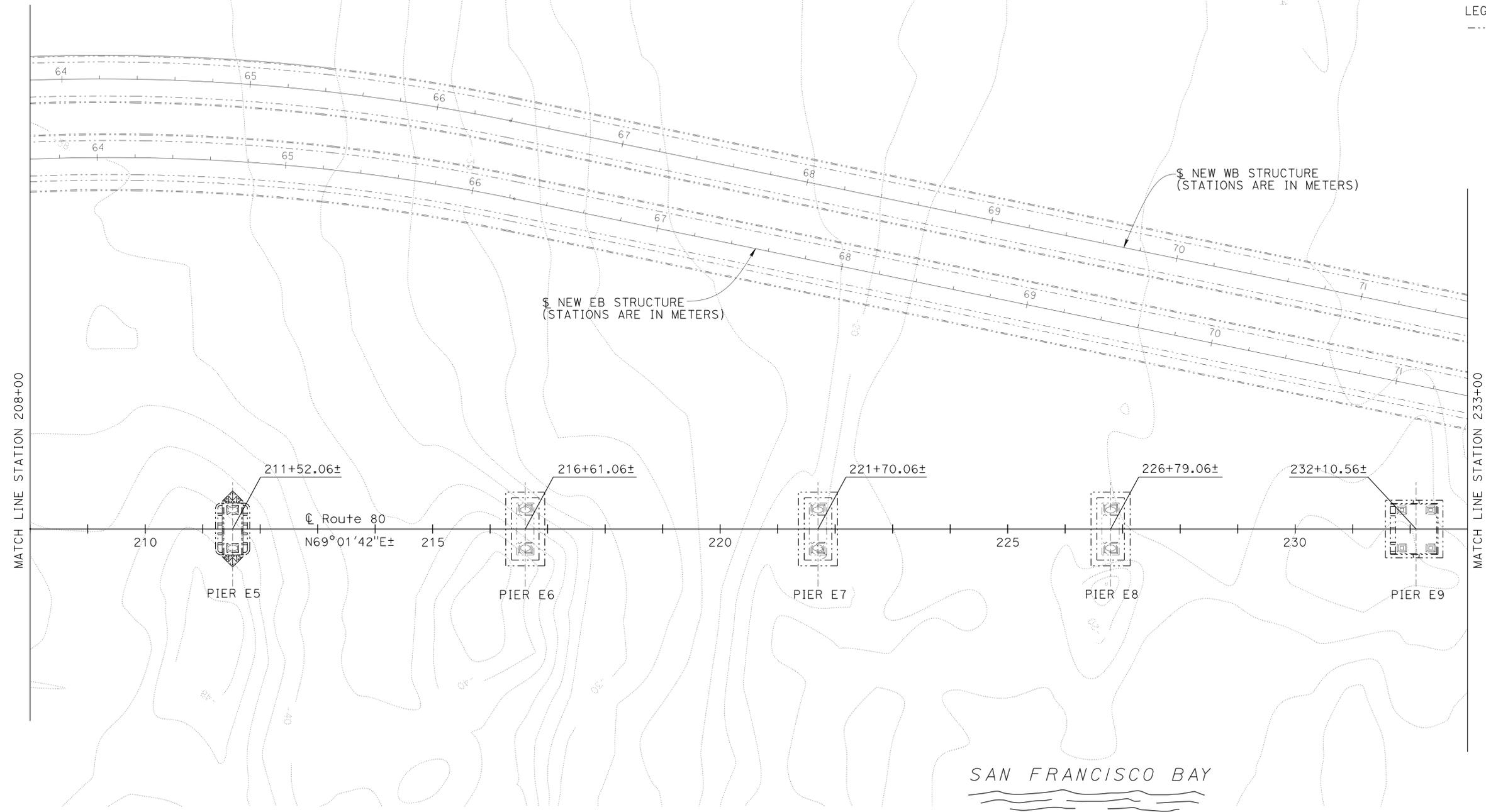
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	11	129

Y.P. Kim 03-09-16
 REGISTERED CIVIL ENGINEER DATE
 3-11-16
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA

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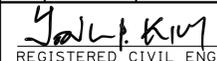
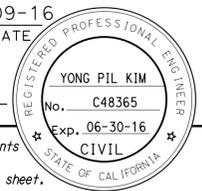
LEGEND:
 ----- Indicates existing

PLAN
 1" = 100'

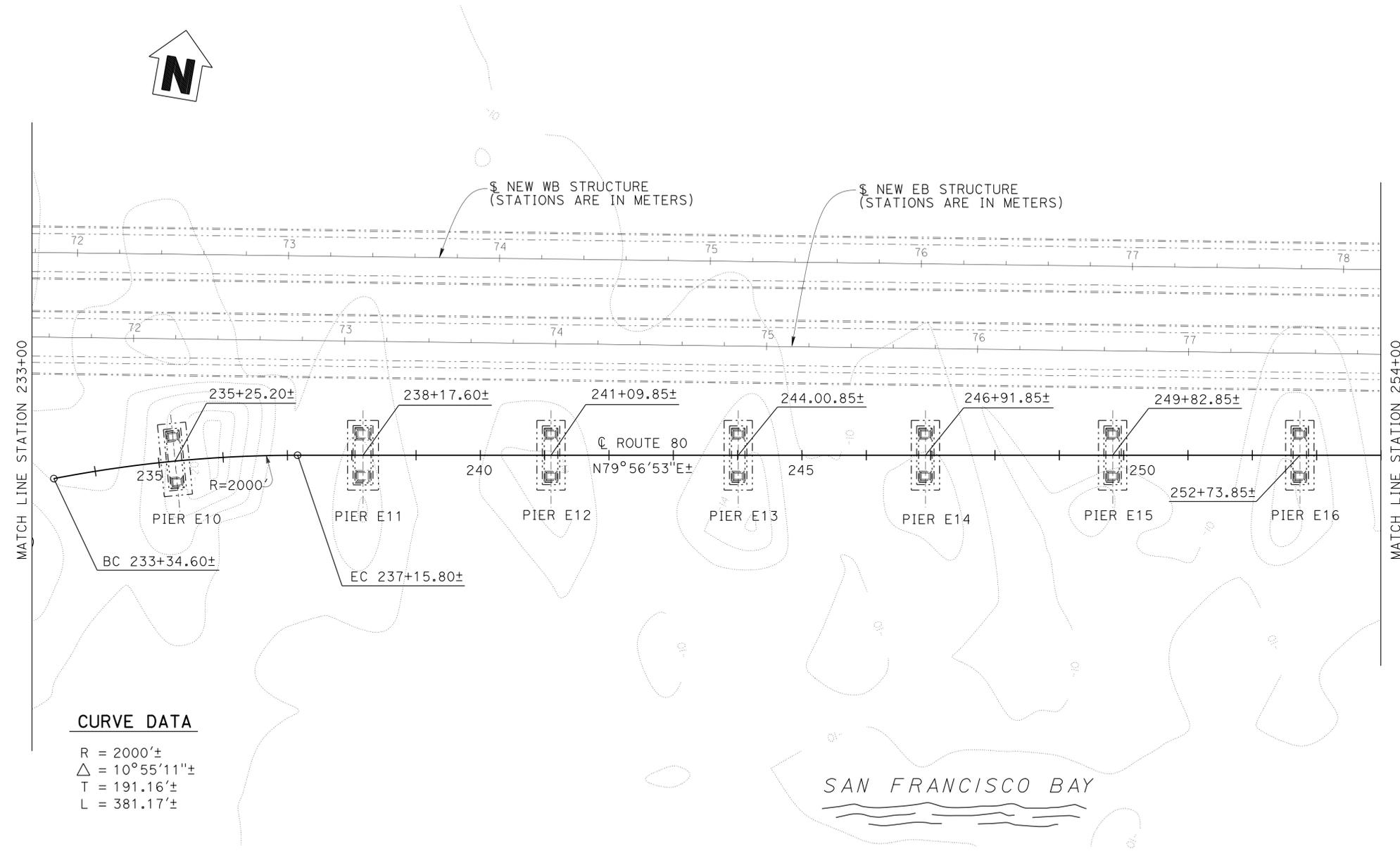
NOTE:
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NOTE:
 MUDLINE CONTOURS ARE ACCORDING TO SOUNDINGS TAKEN DURING JANUARY, 1998.

DESIGN BY Yong Pil Kim CHECKED Mary Beall DETAILS BY Carlo Cancino CHECKED Mary Beall QUANTITIES BY Nora Kyo CHECKED Mary Beall			STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO. 33-0025 POST MILE 8.6/1.2	SAN FRANCISCO-OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT MARINE FOUNDATION DEMOLITION FOUNDATION PLAN NO. 2
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)			ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	UNIT: 3593 PROJECT NUMBER & PHASE: 0416000287, 1	CONTRACT NO.: 04-013574	DISREGARD PRINTS BEARING EARLIER REVISION DATES
				REVISION DATES	SHEET OF	4 21

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	12	129
 REGISTERED CIVIL ENGINEER			03-09-16	DATE	
PLANS APPROVAL DATE 3-11-16					
					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					

LEGEND:
 ----- Indicates existing



CURVE DATA
 R = 2000'±
 Δ = 10°55'11"±
 T = 191.16'±
 L = 381.17'±

NOTE:
 MUDLINE CONTOURS ARE ACCORDING TO SOUNDINGS TAKEN DURING JANUARY, 1998.

PLAN
 1" = 100'

NOTE:
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

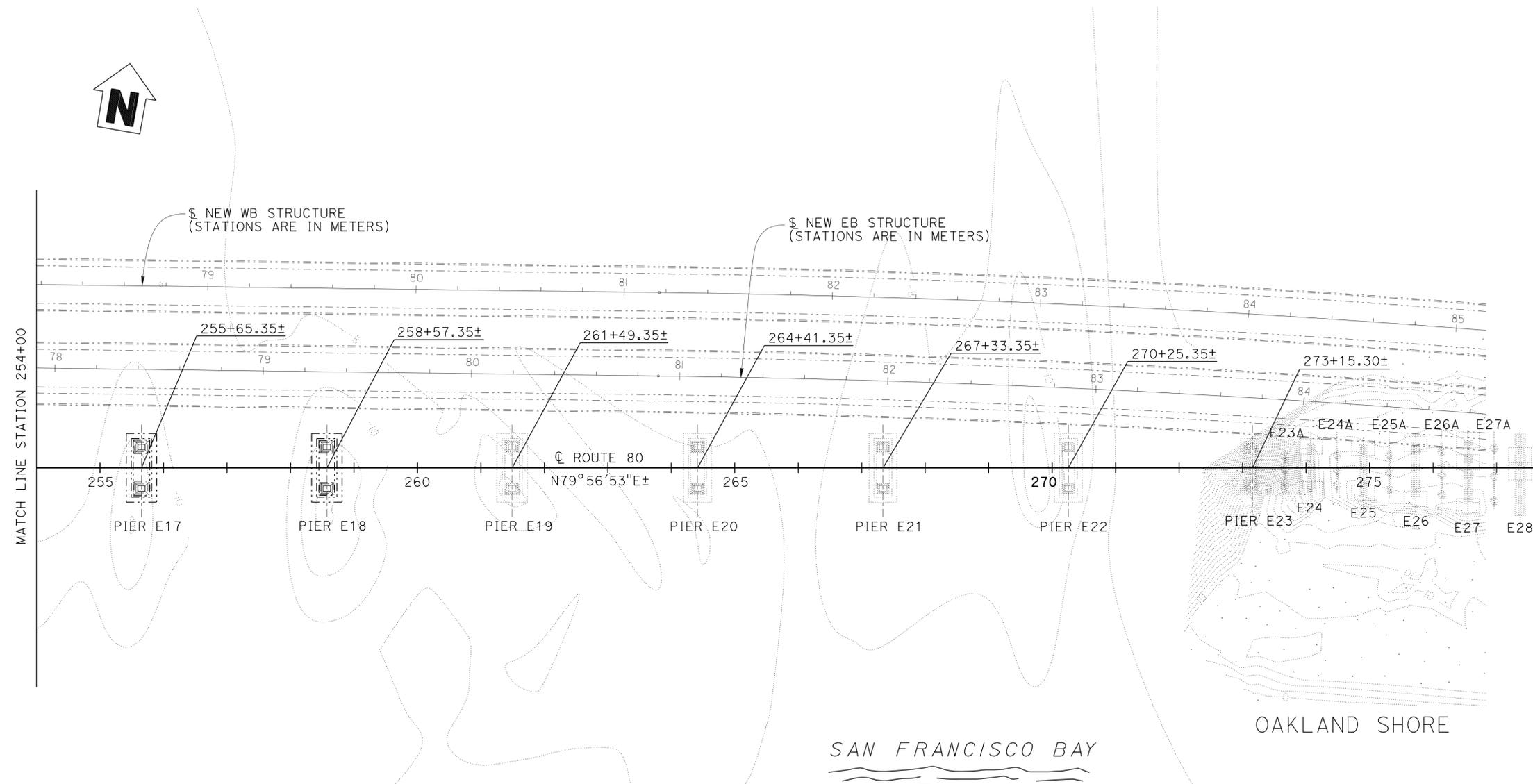
DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO.	33-0025
POST MILE	8.6/1.2

SAN FRANCISCO-OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
MARINE FOUNDATION DEMOLITION
FOUNDATION PLAN NO. 3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	13	129
Y.P. Kim REGISTERED CIVIL ENGINEER			03-09-16 DATE		
3-11-16 PLANS APPROVAL DATE					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					

LEGEND:
 ----- Indicates existing



NOTE:
 MUDLINE CONTOURS ARE ACCORDING TO SOUNDINGS TAKEN DURING JANUARY, 1998.

PLAN
 1" = 100'

NOTE:
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH 8

BRIDGE NO.	33-0025
POST MILE	8.6/1.2

SAN FRANCISCO-OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT
MARINE FOUNDATION DEMOLITION
FOUNDATION PLAN NO. 4

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



UNIT: 3593
 PROJECT NUMBER & PHASE: 0416000287, 1 CONTRACT NO.: 04-013574

DISREGARD PRINTS BEARING EARLIER REVISION DATES

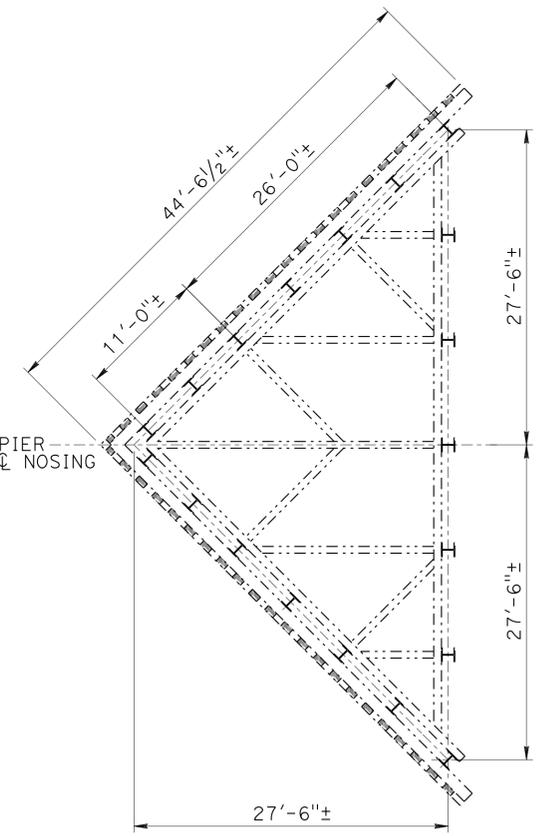
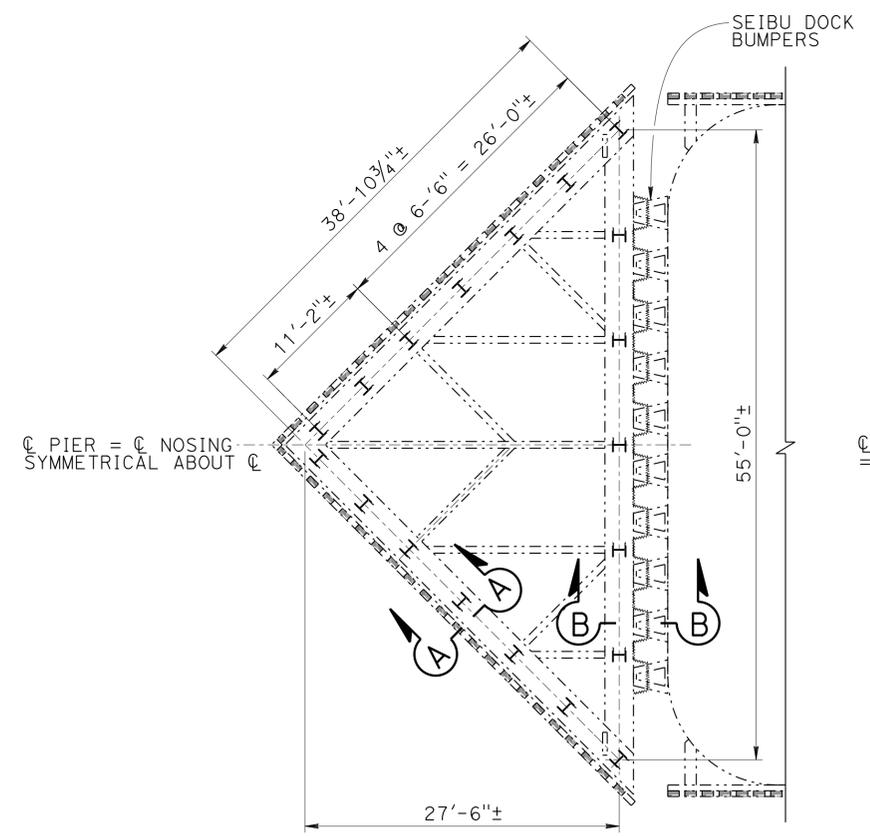
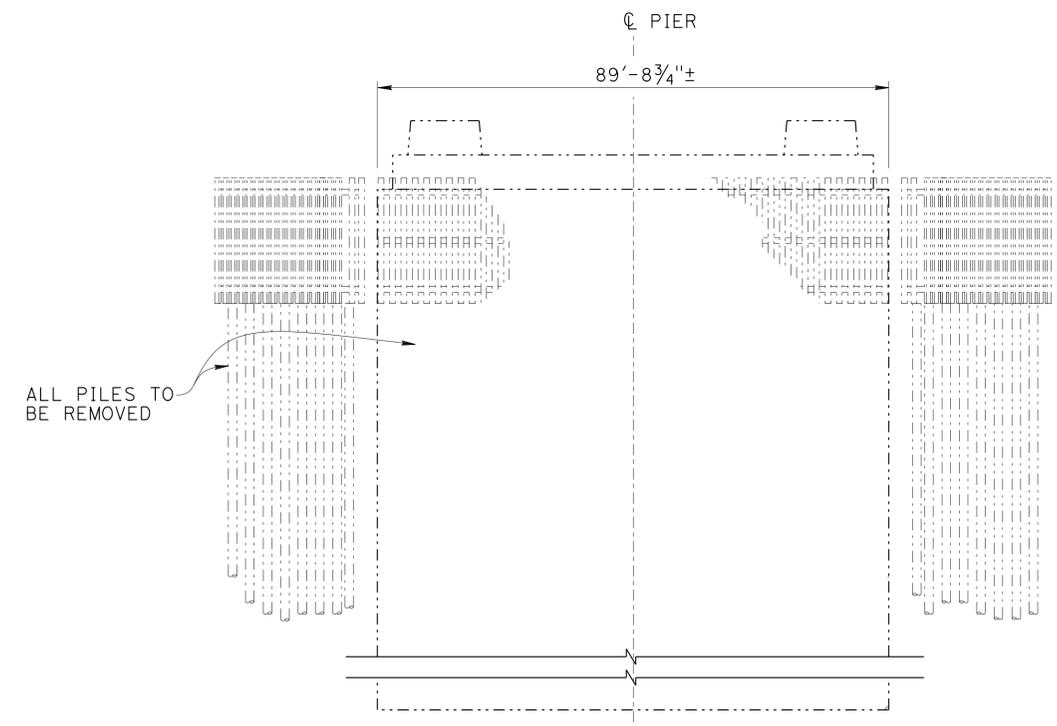
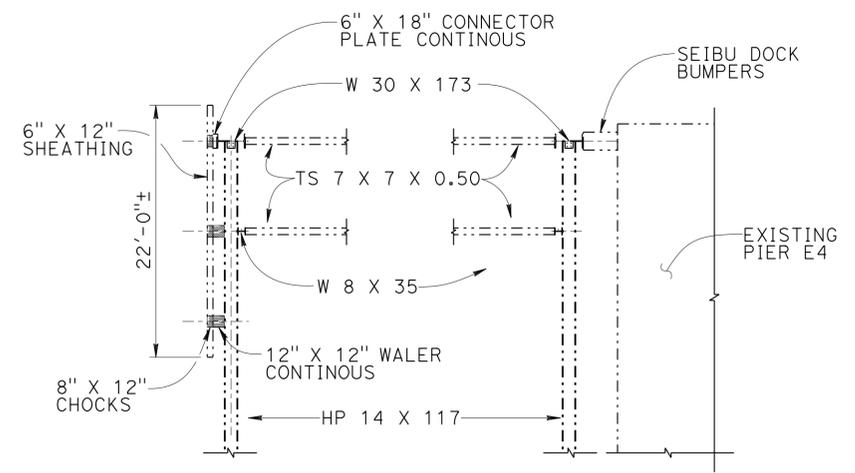
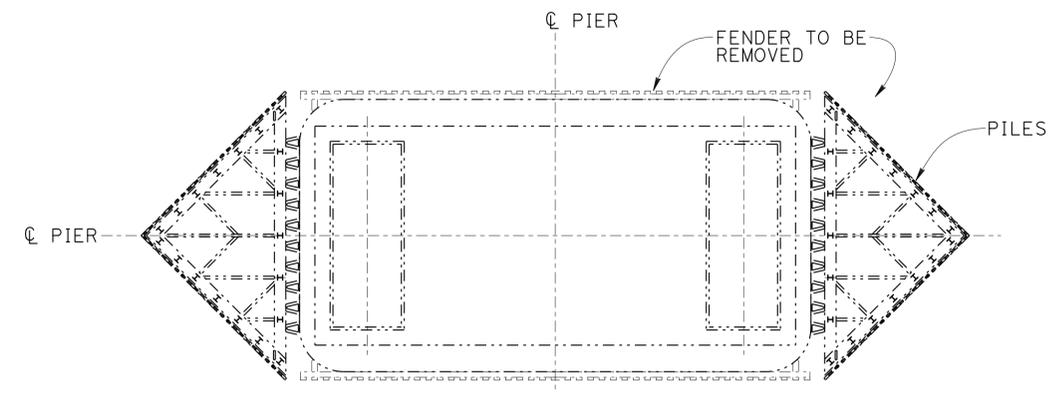
REVISION DATES	SHEET	OF
05/17/13 03/02/14 02/22/16	6	21

USERNAME => s130888 DATE PLOTTED => 14-MAR-2016 TIME PLOTTED => 12:27

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	14	129
Yong Pil Kim			03-09-16	REGISTERED CIVIL ENGINEER DATE	
3-11-16			PLANS APPROVAL DATE		
REGISTERED PROFESSIONAL ENGINEER YONG PIL KIM No. C48365 Exp. 06-30-14 CIVIL STATE OF CALIFORNIA					
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					

LEGEND:
 ----- Indicates existing

NOTE:
 For PIER E4 dimensions and demolition limits, see "PIER E4 - DEMOLITION LIMITS" sheet.



FENDER NOSING DETAILS

NOTE:
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY	Yong Pil Kim	CHECKED	Mary Beall	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO.	33-0025	
	DETAILS	BY	Carlo Cancino	CHECKED			Mary Beall	POST MILE	8.6/1.2
	QUANTITIES	BY	Nora Kyo	CHECKED			Mary Beall		

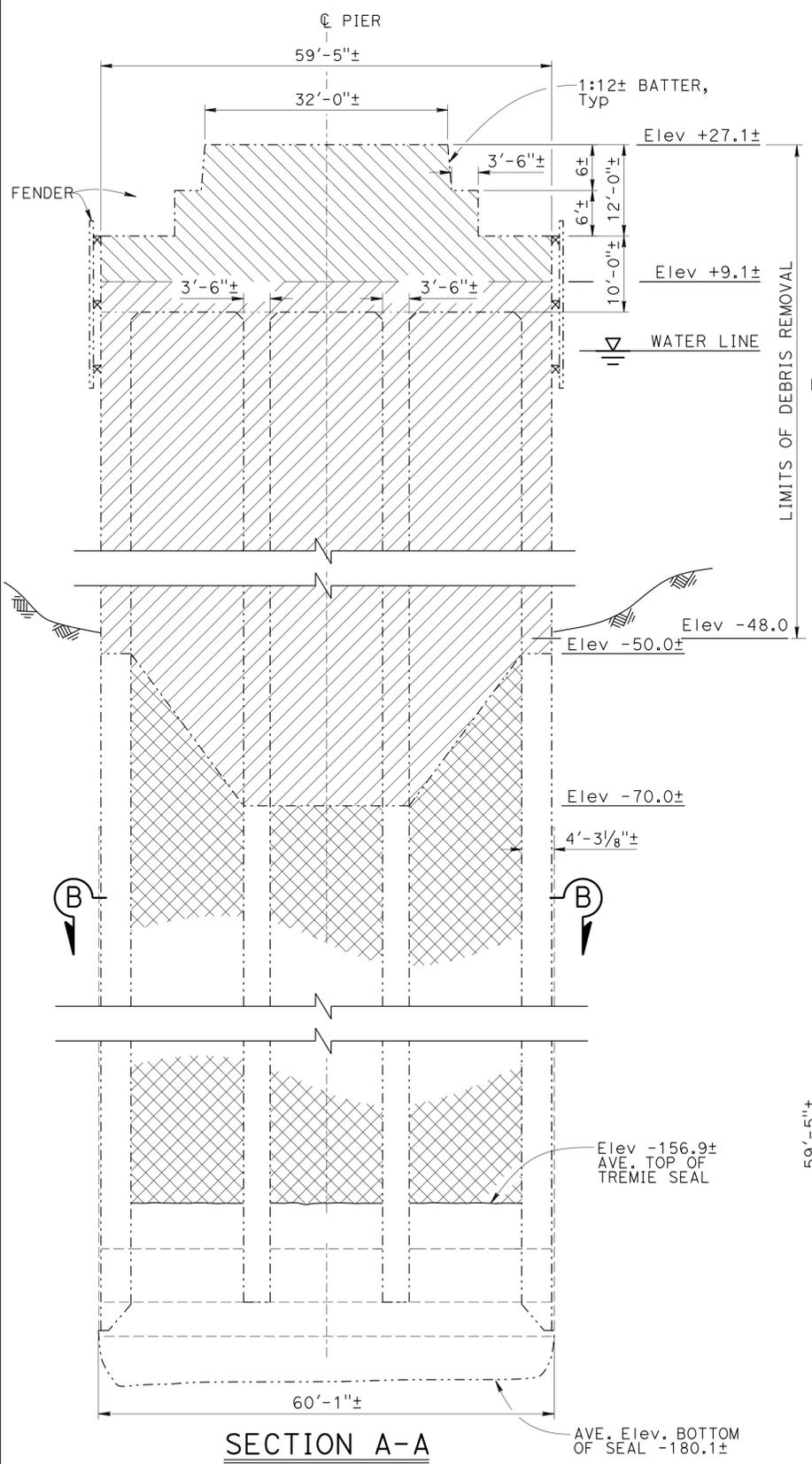
SAN FRANCISCO-OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT			
MARINE FOUNDATION DEMOLITION PIER E4 - FENDER DETAILS			
REVISION DATES	SHEET	OF	
03/20/13	07/07/16	02/22/16	7 21

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	15	129

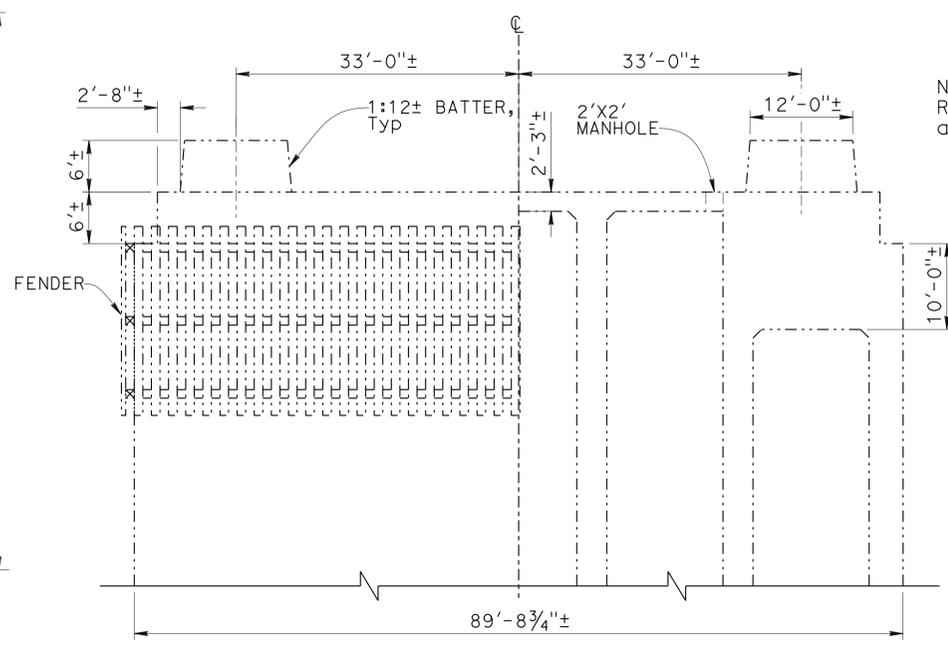
Y.P. Kim 03-09-16
 REGISTERED CIVIL ENGINEER DATE
 3-11-16
 PLANS APPROVAL DATE
 YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

- LEGEND:
- Indicates existing
 - ▨ Indicates limits of removal using mechanical means
 - ▩ Indicates limits of breaking down into debris by blasting
 - ▧ Indicates space available for disposal of debris

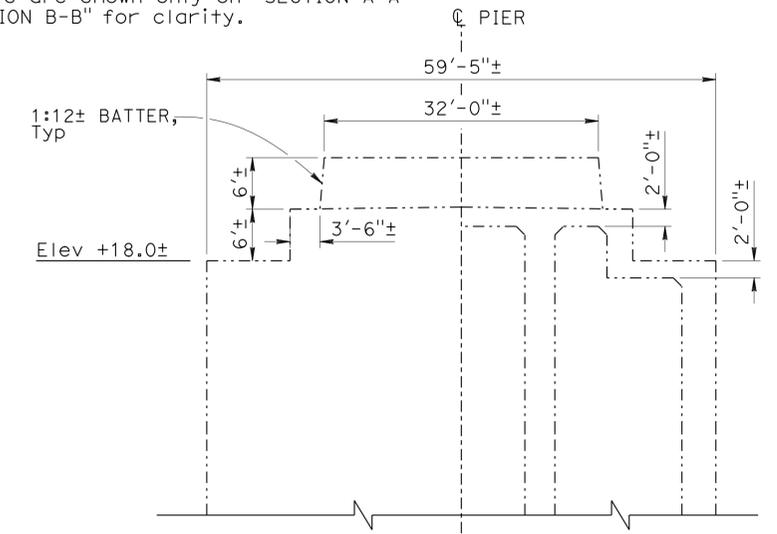
NOTE:
Removal limits are shown only on "SECTION A-A" and on "SECTION B-B" for clarity.



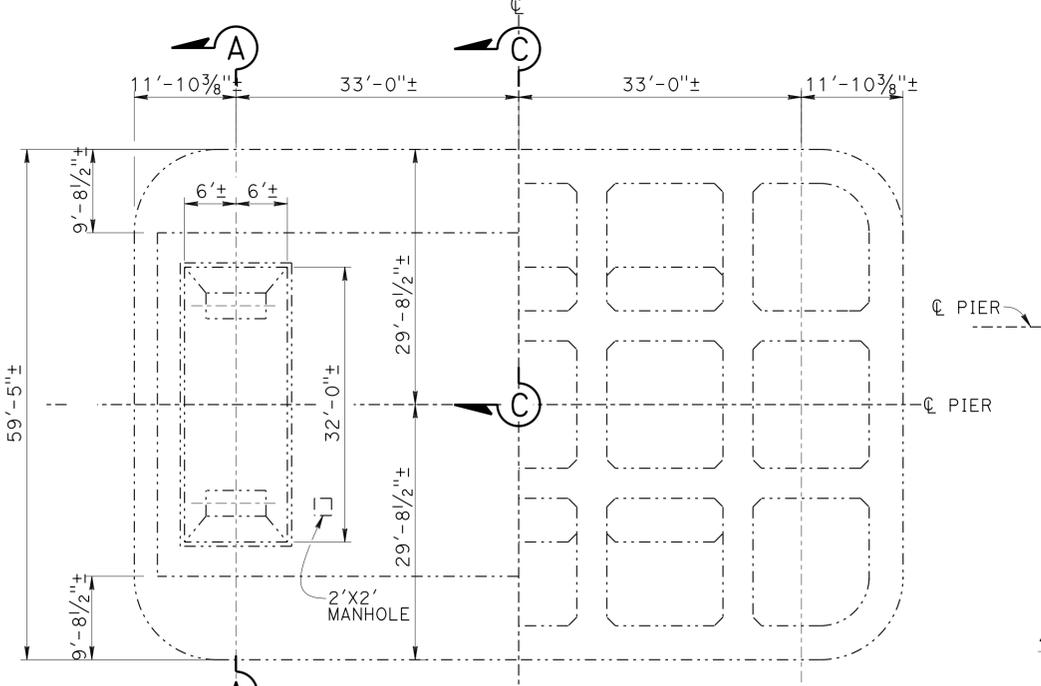
SECTION A-A
No Scale



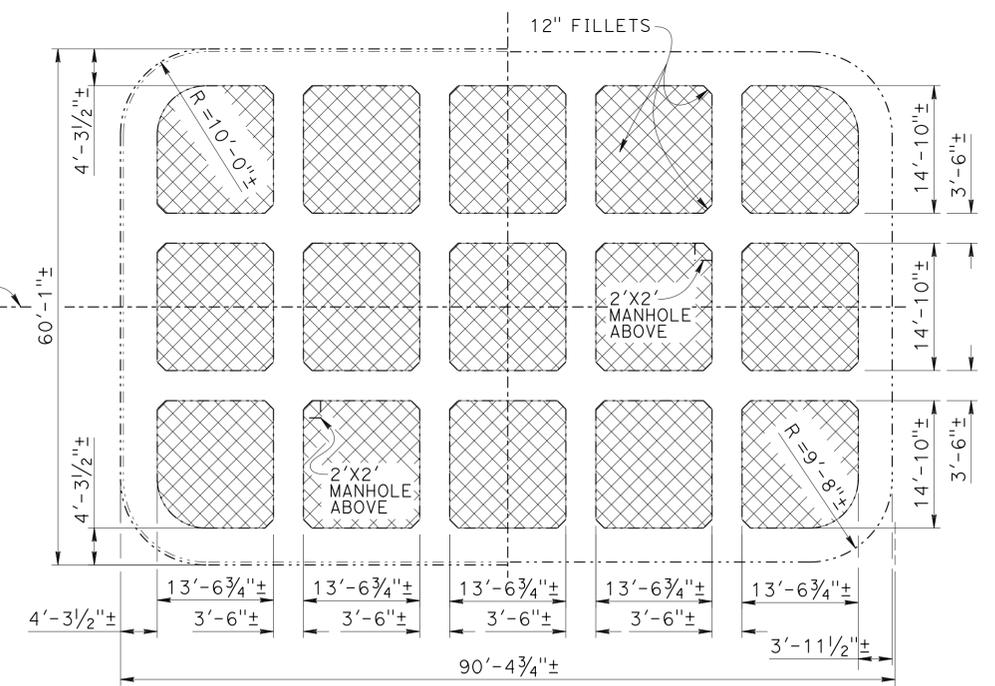
HALF SIDE ELEVATION HALF SECTION ON C
No Scale



HALF END ELEVATION SECTION C-C
No Scale



HALF TOP PLAN HALF PLAN AT ELEV +19.0±
No Scale

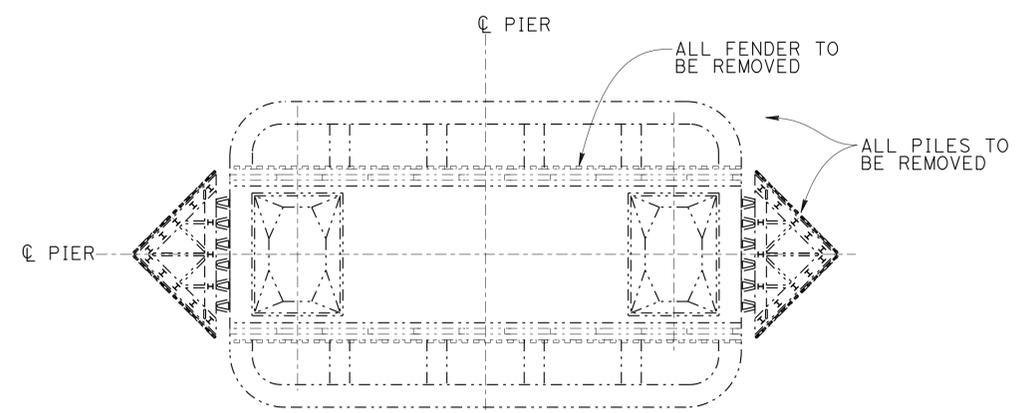


SECTION B-B
No Scale

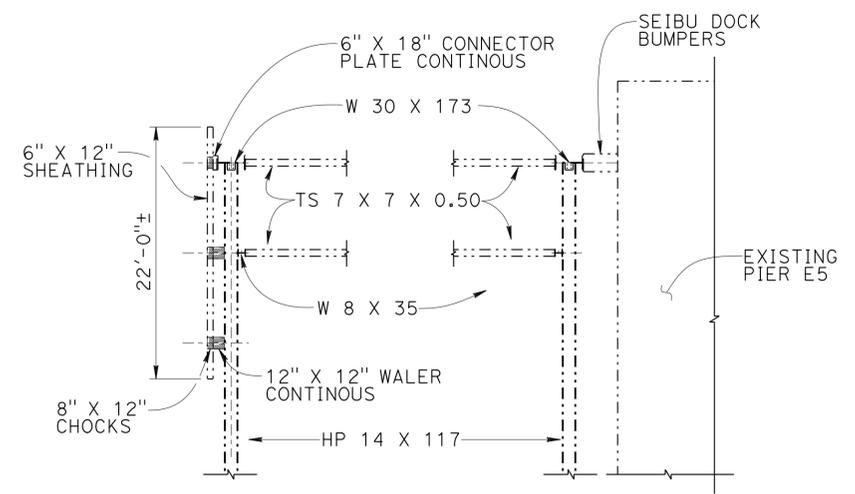
NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY Yong Pil Kim	CHECKED Mary Beall	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO.	33-0025
DETAILS	BY Carlo Cancino	CHECKED Mary Beall			POST MILE	8.6/1.2
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall			MARINE FOUNDATION DEMOLITION PIER E4 - DEMOLITION LIMITS	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Alq	80	8.65R/8.85R 0.00/0.80R	16	129
Yong Pil Kim			03-09-16	REGISTERED CIVIL ENGINEER DATE	
3-11-16			PLANS APPROVAL DATE		
REGISTERED PROFESSIONAL ENGINEER YONG PIL KIM No. C48365 Exp. 06-30-16 CIVIL STATE OF CALIFORNIA					
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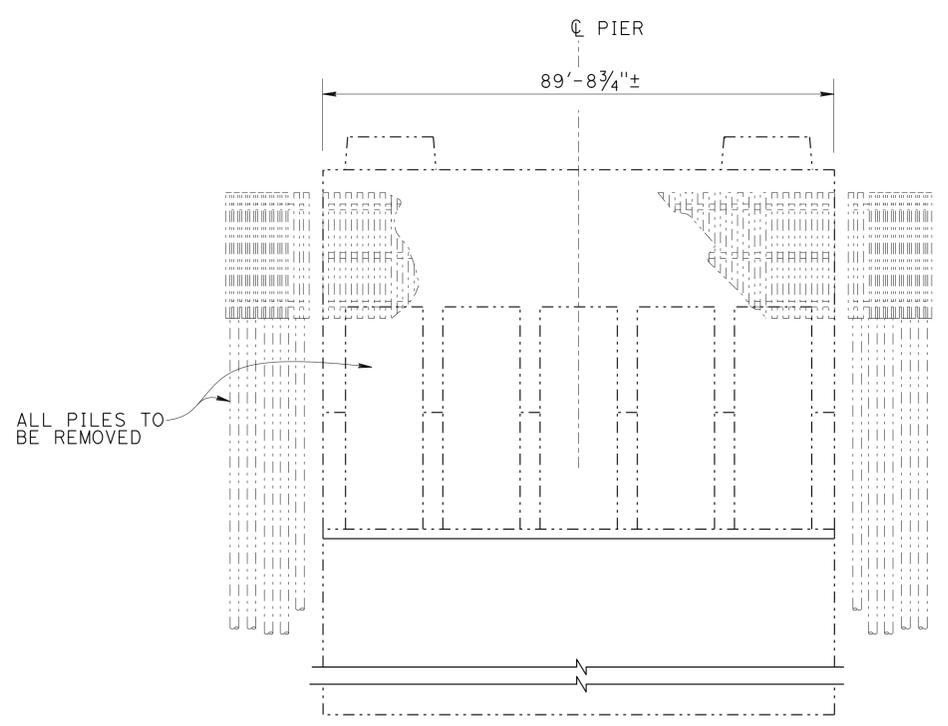
PLAN
No Scale



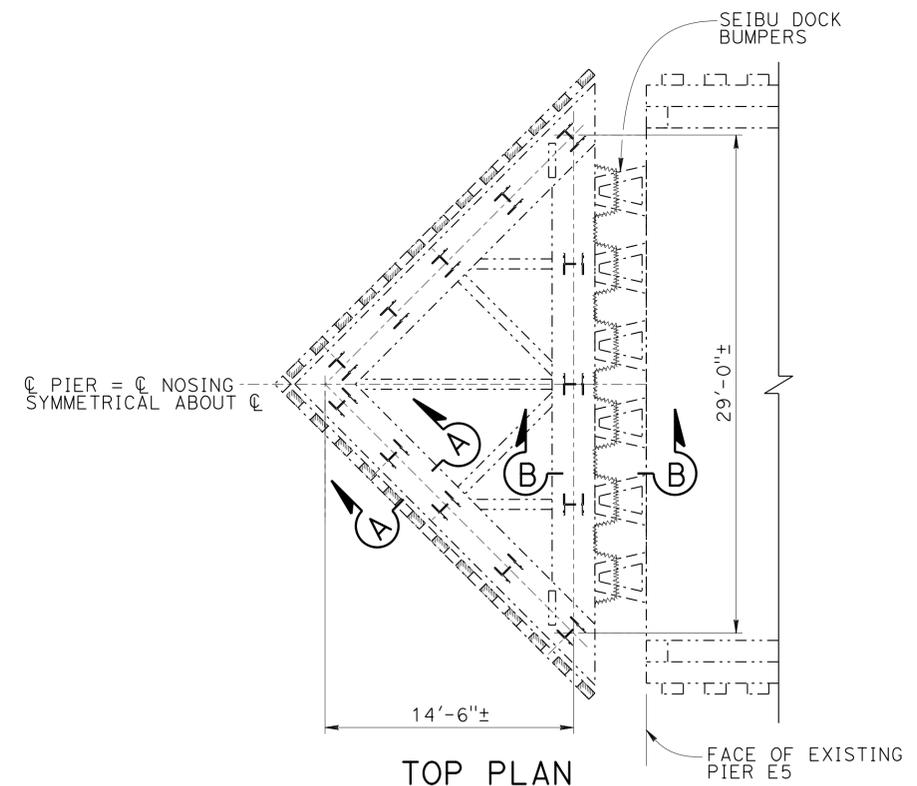
SECTION A-A **SECTION B-B**
No Scale No Scale

LEGEND:
----- Indicates existing

NOTE:
For PIER E5 dimensions and demolition limits, see "PIER E5 - DEMOLITION LIMITS" sheet.



ELEVATION
No Scale



TOP PLAN
No Scale

PLAN SECTION
No Scale

FENDER NOSING DETAILS

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO.	33-0025
POST MILE	8.6/1.2

**SAN FRANCISCO-OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT**
MARINE FOUNDATION DEMOLITION
PIER E5 - FENDER DETAILS

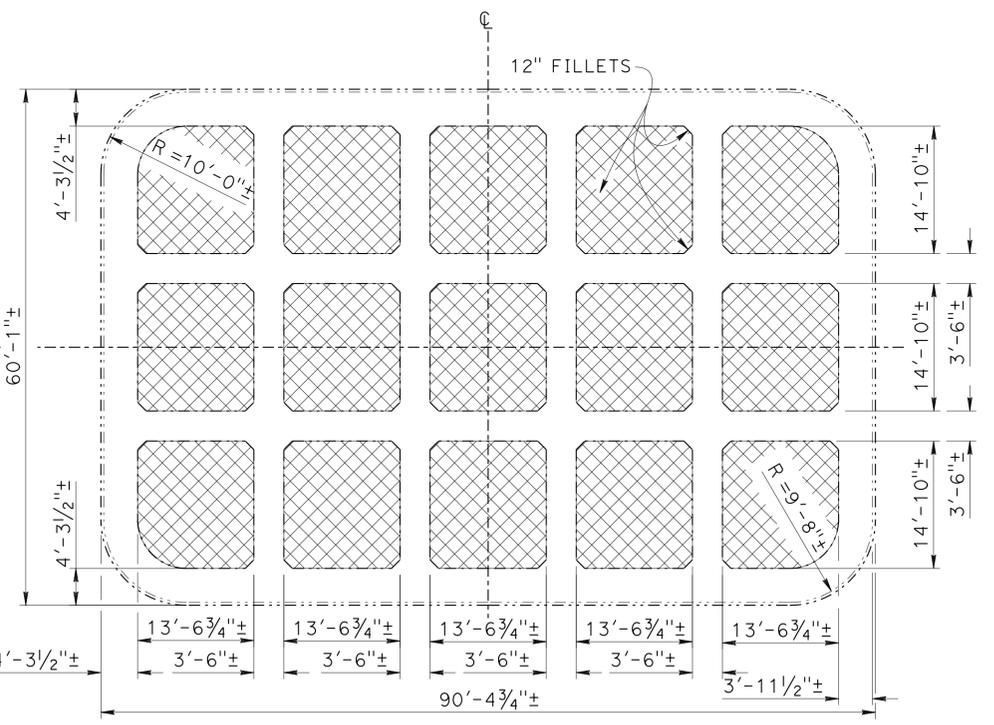
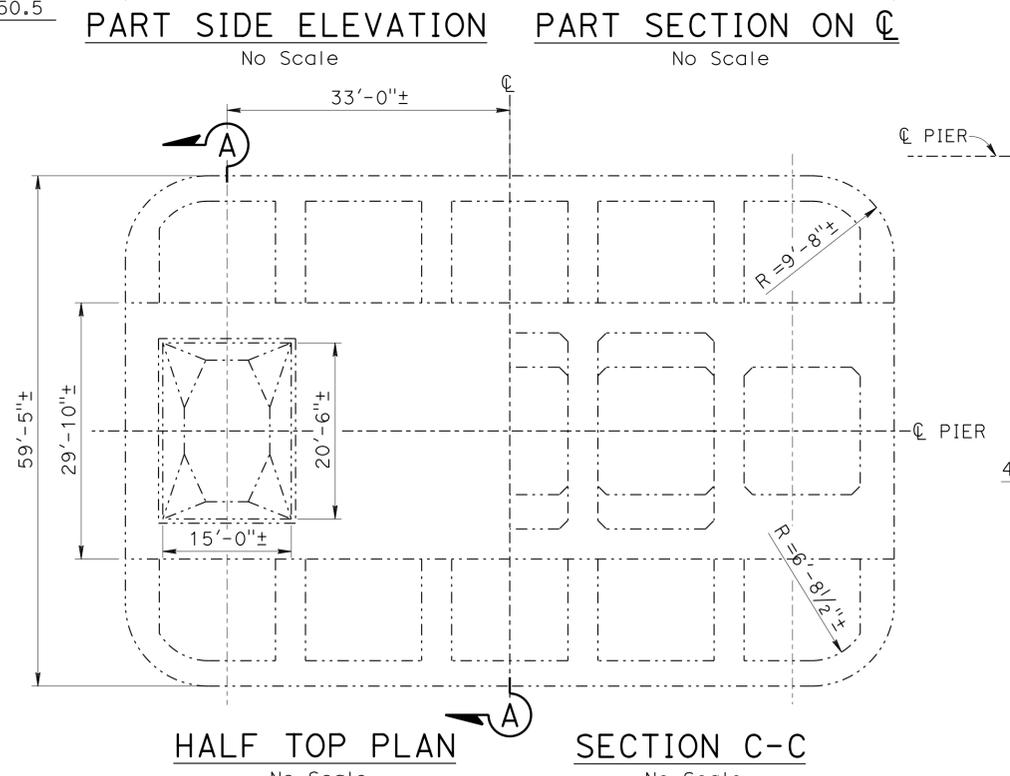
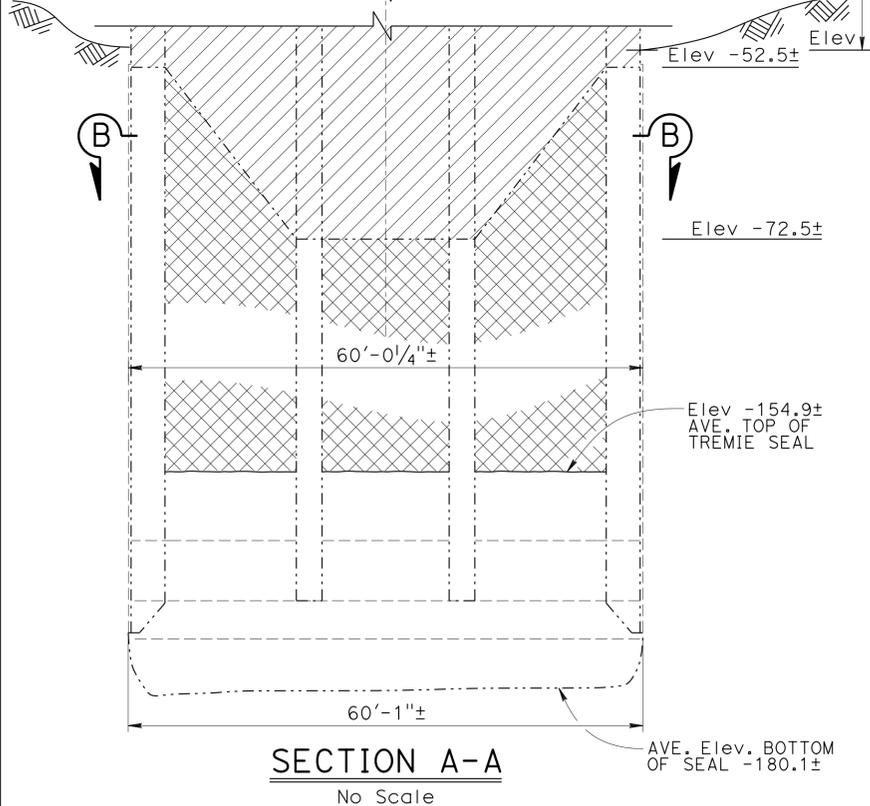
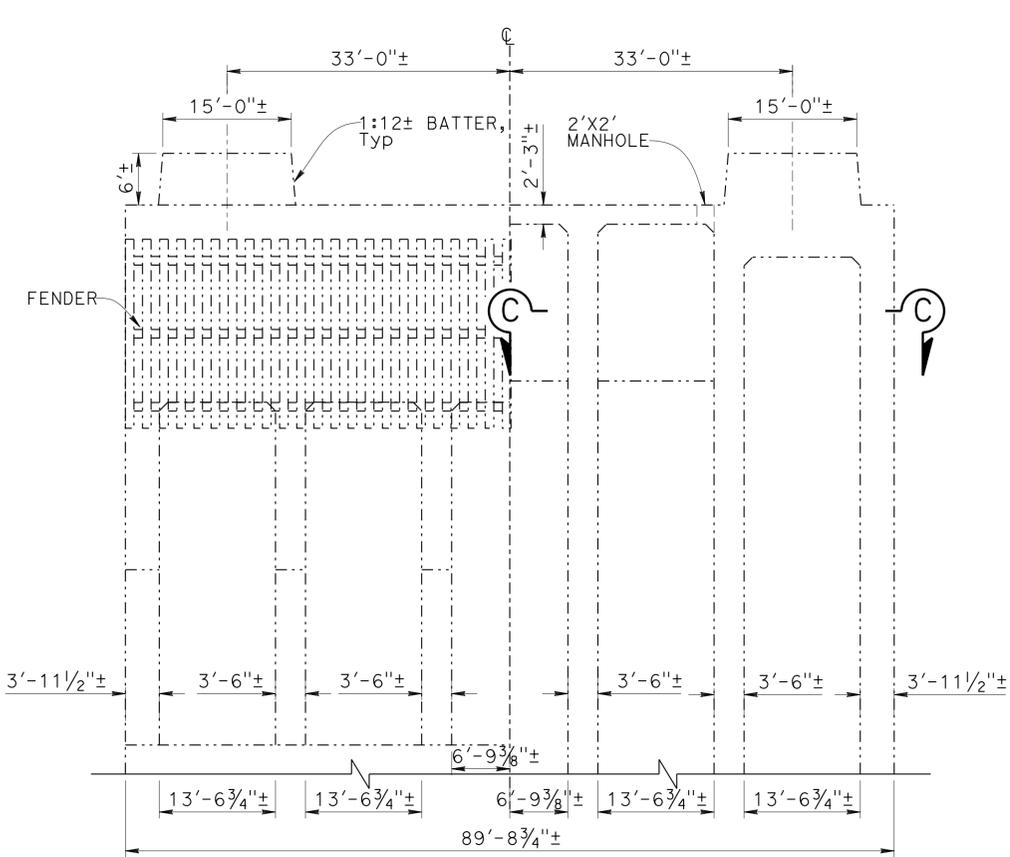
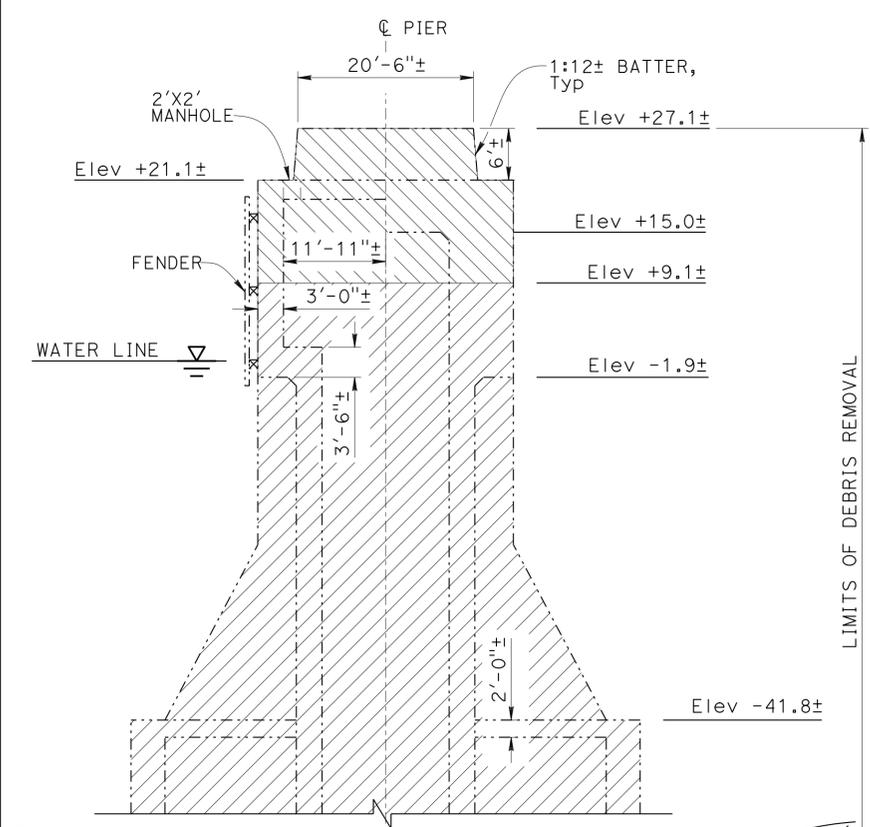
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	17	129

Yong Pil Kim 03-09-16
 REGISTERED CIVIL ENGINEER DATE

3-11-16
 PLANS APPROVAL DATE

YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA

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- LEGEND:
- Indicates existing
 - ▨ Indicates limits of removal using mechanical means
 - ▧ Indicates limits of breaking down into debris by blasting
 - ▩ Indicates space available for disposal of debris

NOTE:
 Removal limits are shown only on "SECTION A-A" and on "SECTION B-B" for clarity.

NOTE:
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

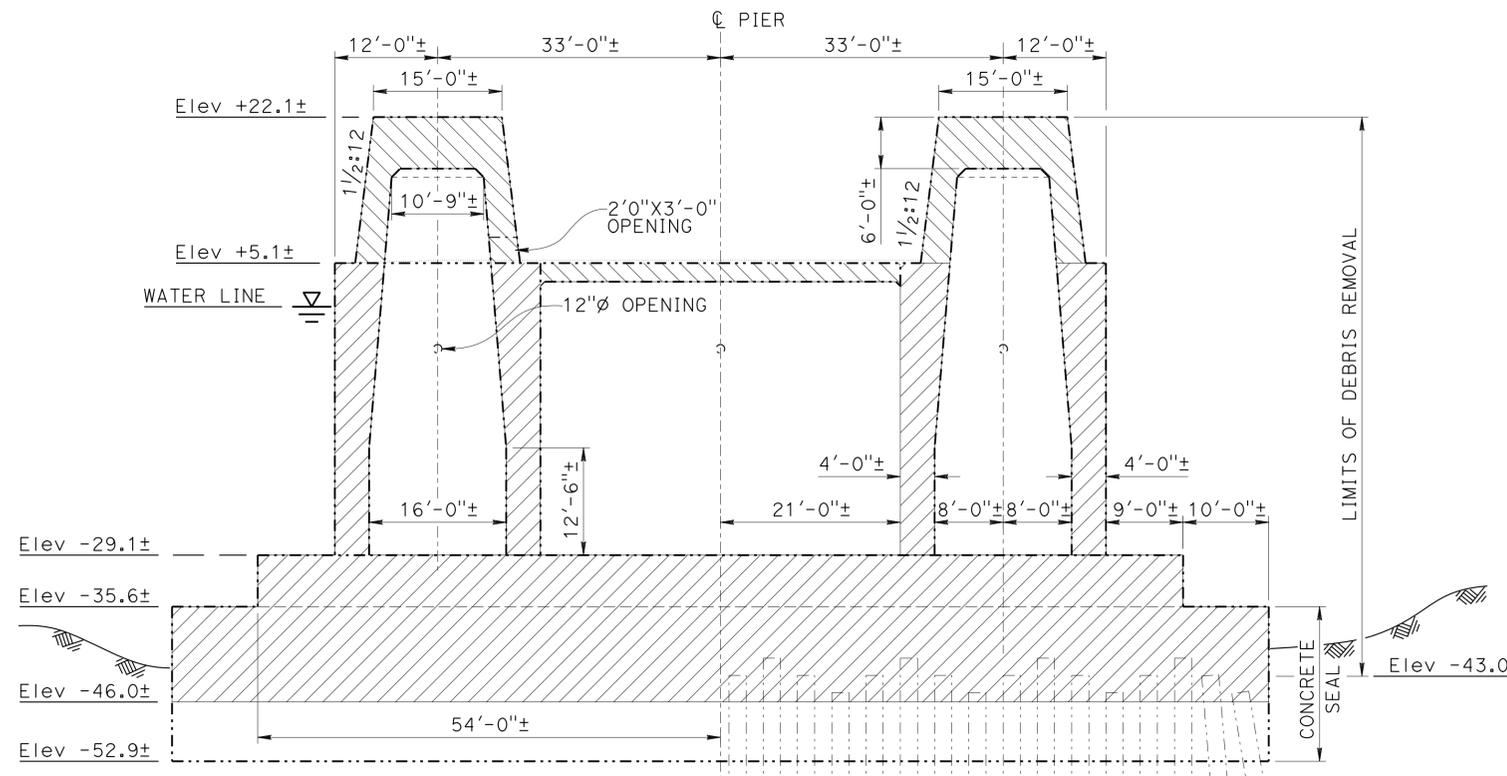
DESIGN BY Yong Pil Kim CHECKED Mary Beall DETAILS BY Carlo Cancino CHECKED Mary Beall QUANTITIES BY Nora Kyo CHECKED Mary Beall			STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8		BRIDGE NO. 33-0025 POST MILE 8.6/1.2		SAN FRANCISCO-OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT MARINE FOUNDATION DEMOLITION PIER E5 - DEMOLITION LIMITS						
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)						ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		UNIT: 3593 PROJECT NUMBER & PHASE: 0416000287, 1		CONTRACT NO.: 04-013574		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES SHEET OF 02/22/16 03/09/16 10 21	

USERNAME => s130888 DATE PLOTTED => 14-MAR-2016 TIME PLOTTED => 12:27

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	18	129

Yong Pil Kim
 REGISTERED CIVIL ENGINEER
 DATE 03-09-16
 PLANS APPROVAL DATE 3-11-16
 YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

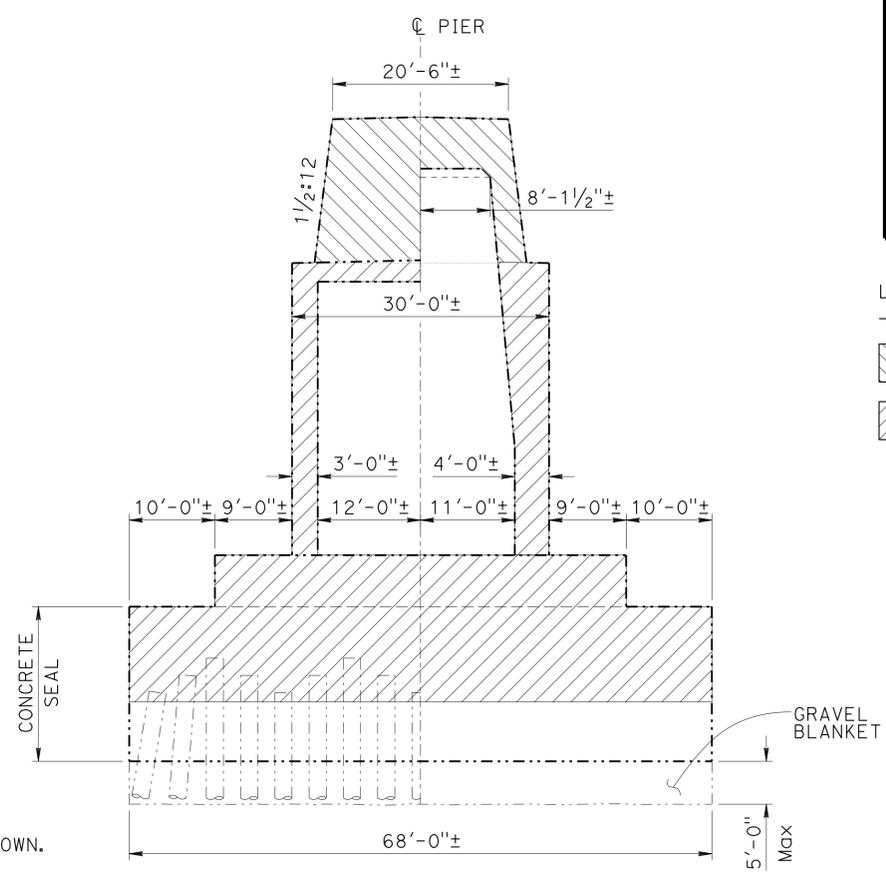
- LEGEND:
- Indicates existing
 - [Hatched Box] Indicates limits of removal using mechanical means
 - [Diagonal Hatched Box] Indicates limits of breaking down into debris by blasting



HALF SIDE ELEVATION
No Scale

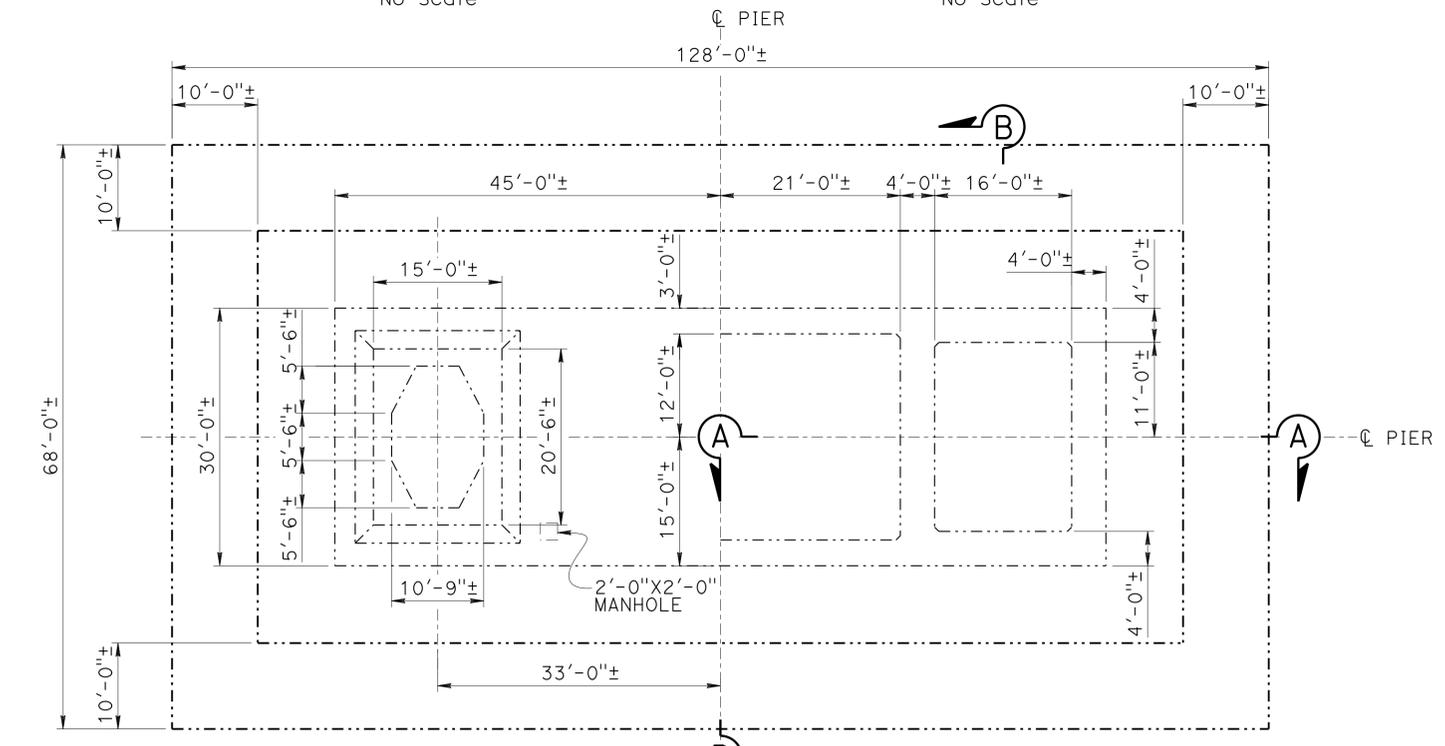
SECTION A-A
No Scale

NOTE:
NOT ALL PILES SHOWN.



SECTION B-B
No Scale

- NOTES:
- Removal limits are shown only on "SECTION A-A" and on "SECTION B-B" for clarity.
 - For "AS-BUILT PILE INFORMATION TABLE", see "INDEX TO PLANS" sheet.



HALF TOP PLAN
No Scale

HALF PLAN AT ELEVATION -26.0
No Scale

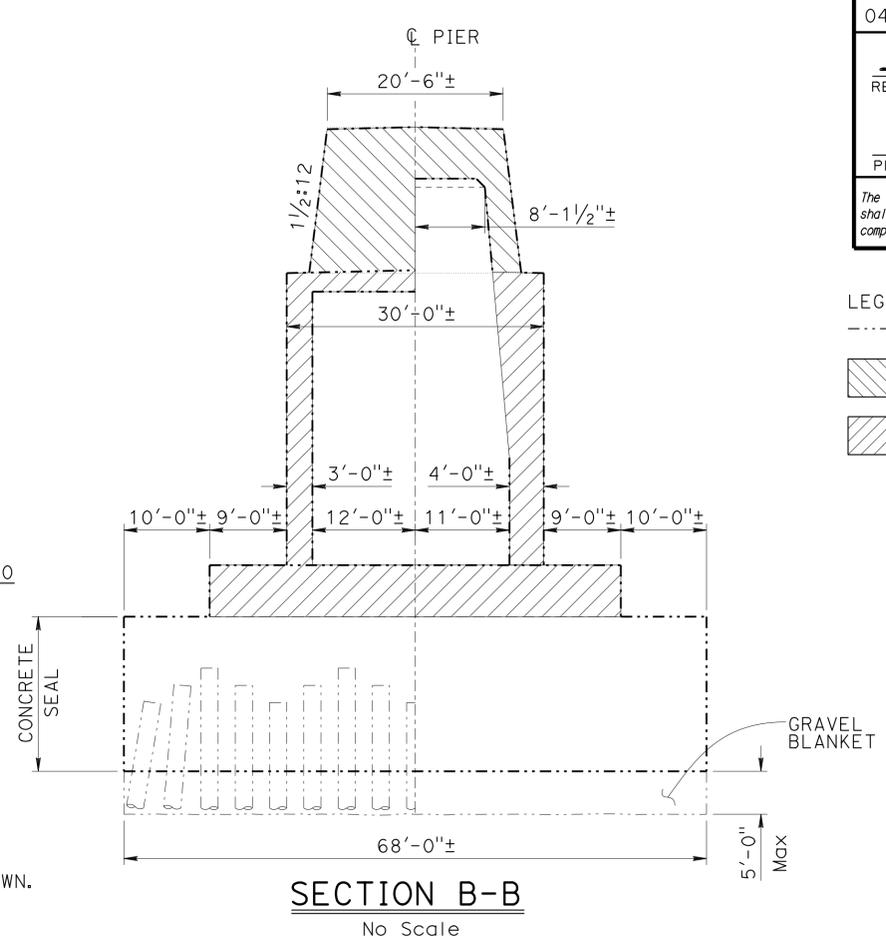
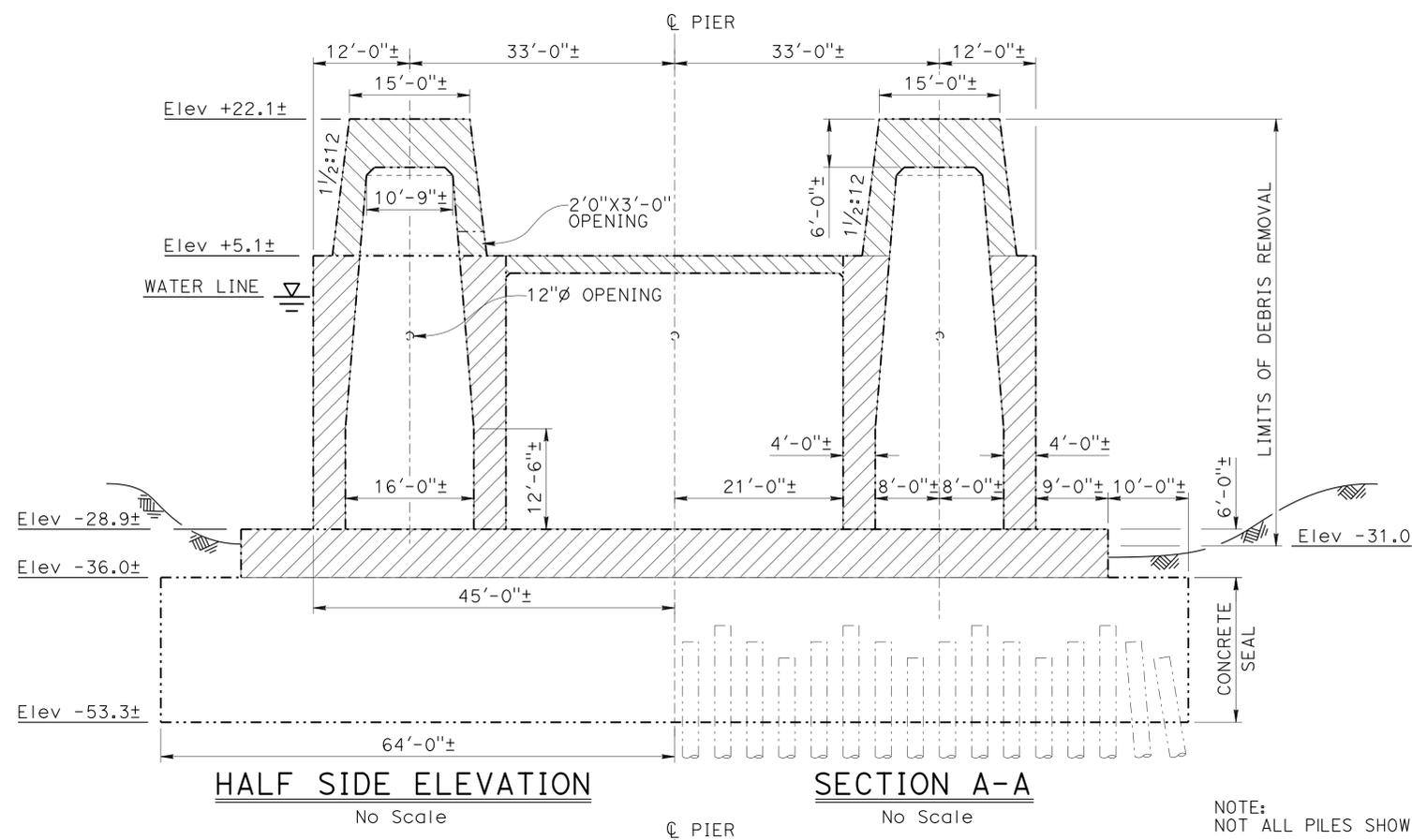
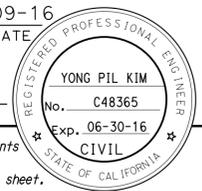
NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 8
 BRIDGE NO. 33-0025
 POST MILE 8.6/1.2

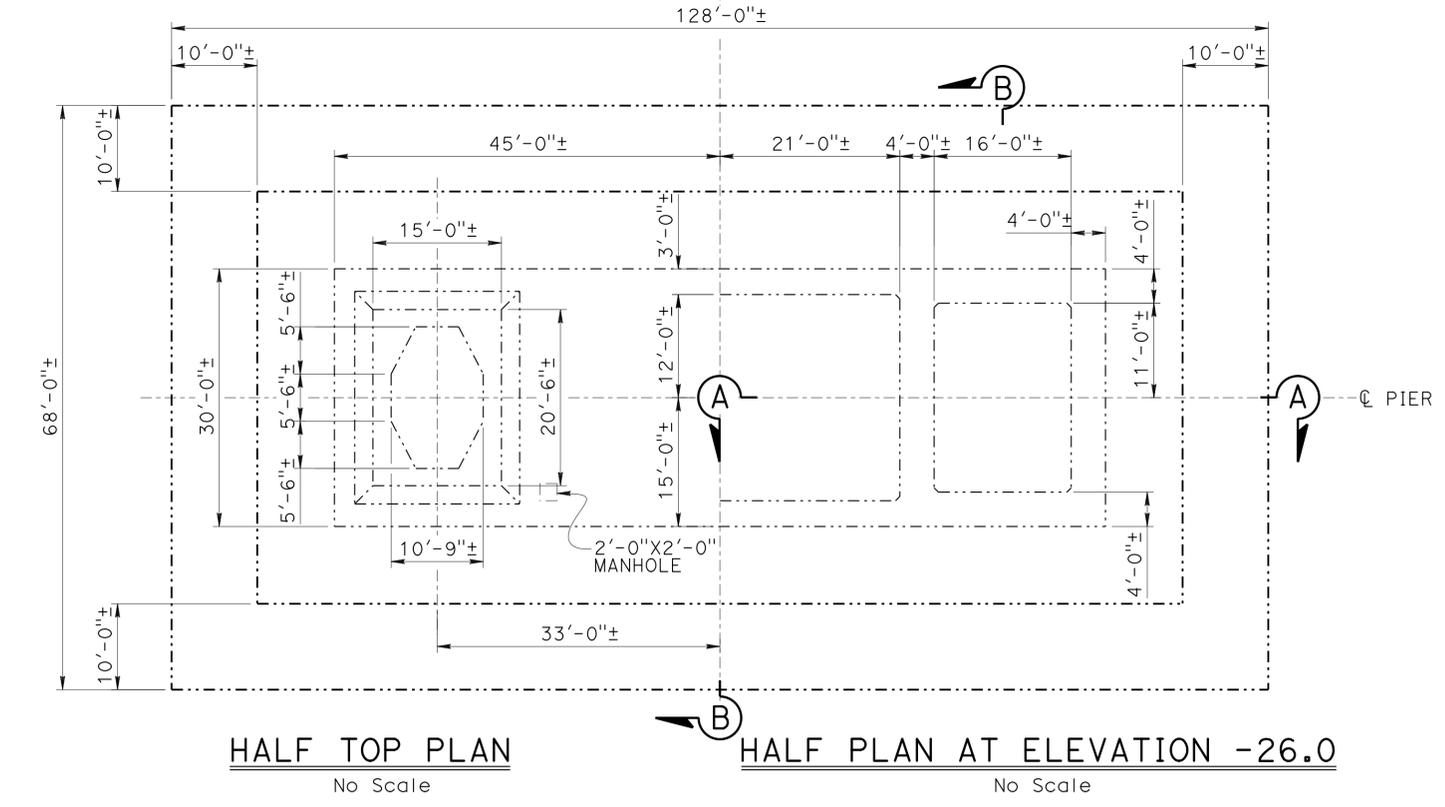
**SAN FRANCISCO-OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT**
MARINE FOUNDATION DEMOLITION
PIER E6 - DEMOLITION LIMITS

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	19	129
Yong Pil Kim			03-09-16	REGISTERED CIVIL ENGINEER DATE	
3-11-16			PLANS APPROVAL DATE		
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					



- LEGEND:
- Indicates existing
 - [Hatched Box] Indicates limits of removal using mechanical means
 - [Cross-hatched Box] Indicates limits of breaking down into debris by blasting

- NOTES:
- Removal limits are shown only on "SECTION A-A" and on "SECTION B-B" for clarity.
 - For "AS-BUILT PILE INFORMATION TABLE", see "INDEX TO PLANS" sheet.

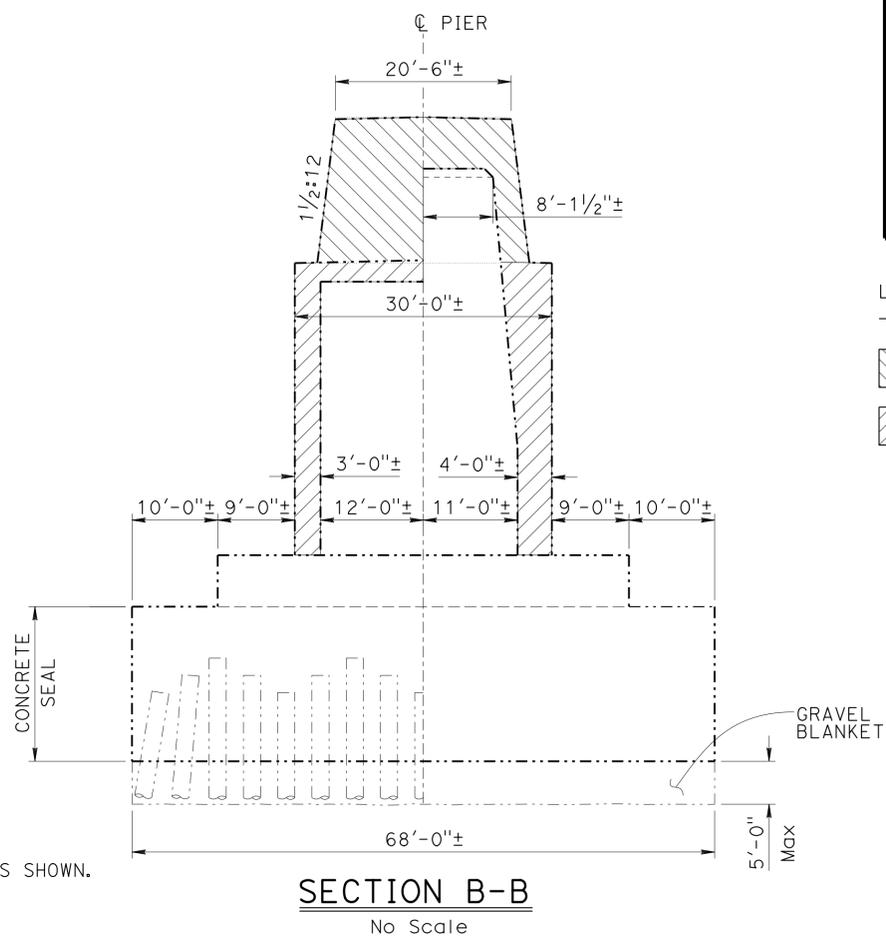
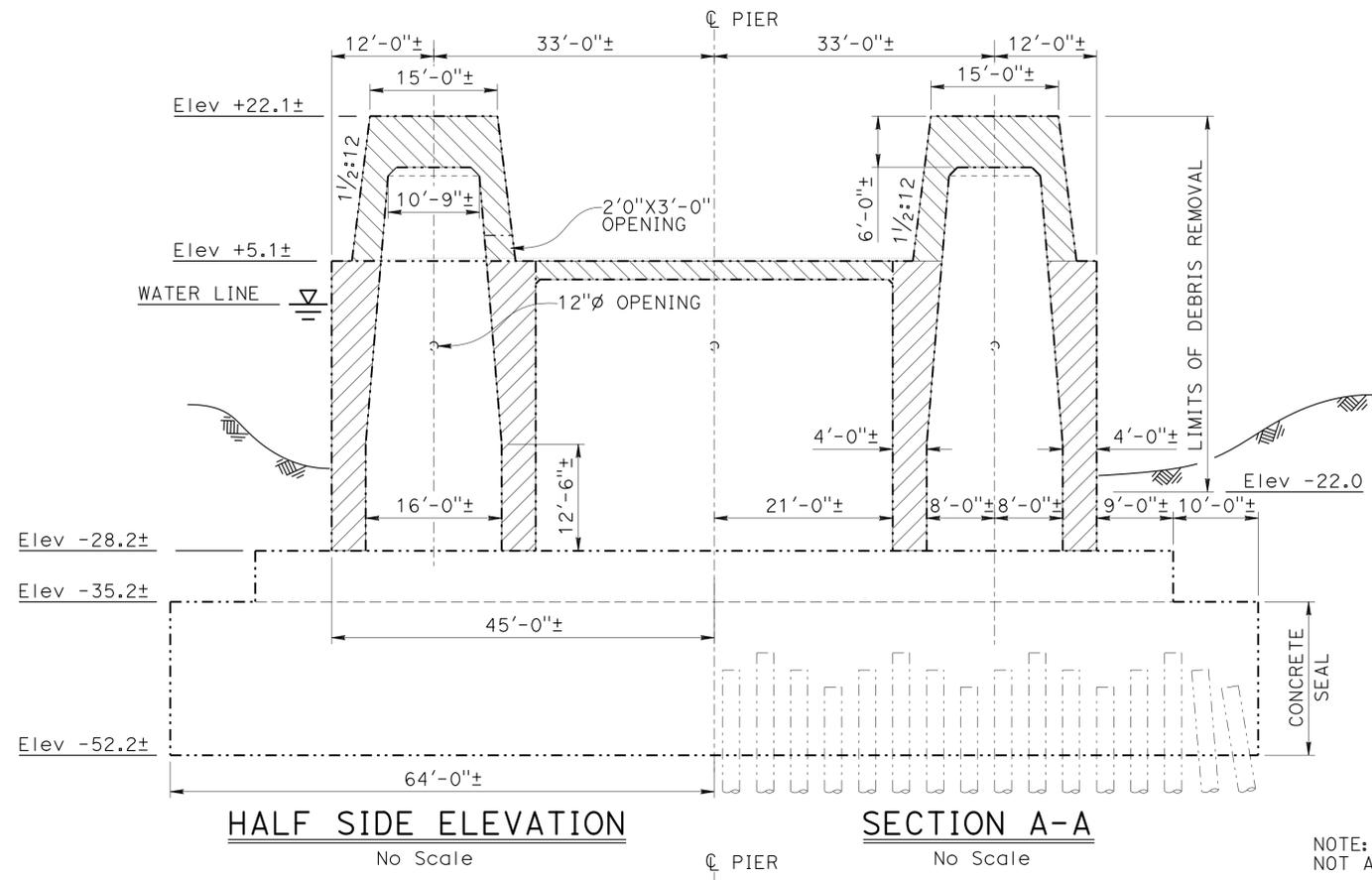
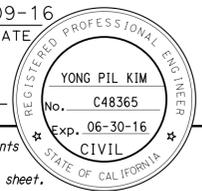


NOTE:
NOT ALL PILES SHOWN.

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN BY Yong Pil Kim CHECKED Mary Beall		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO. 33-0025	SAN FRANCISCO-OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT MARINE FOUNDATION DEMOLITION PIER E7 - DEMOLITION LIMITS
DETAILS BY Carlo Cancino CHECKED Mary Beall				POST MILE 8.6/1.2	
QUANTITIES BY Nora Kyo CHECKED Mary Beall				UNIT: 3593 PROJECT NUMBER & PHASE: 0416000287, 1 CONTRACT NO.: 04-013574	
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)					
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS			0 1 2 3	REVISION DATES 01/22/16 02/22/16 03/09/16	SHEET 12 OF 21

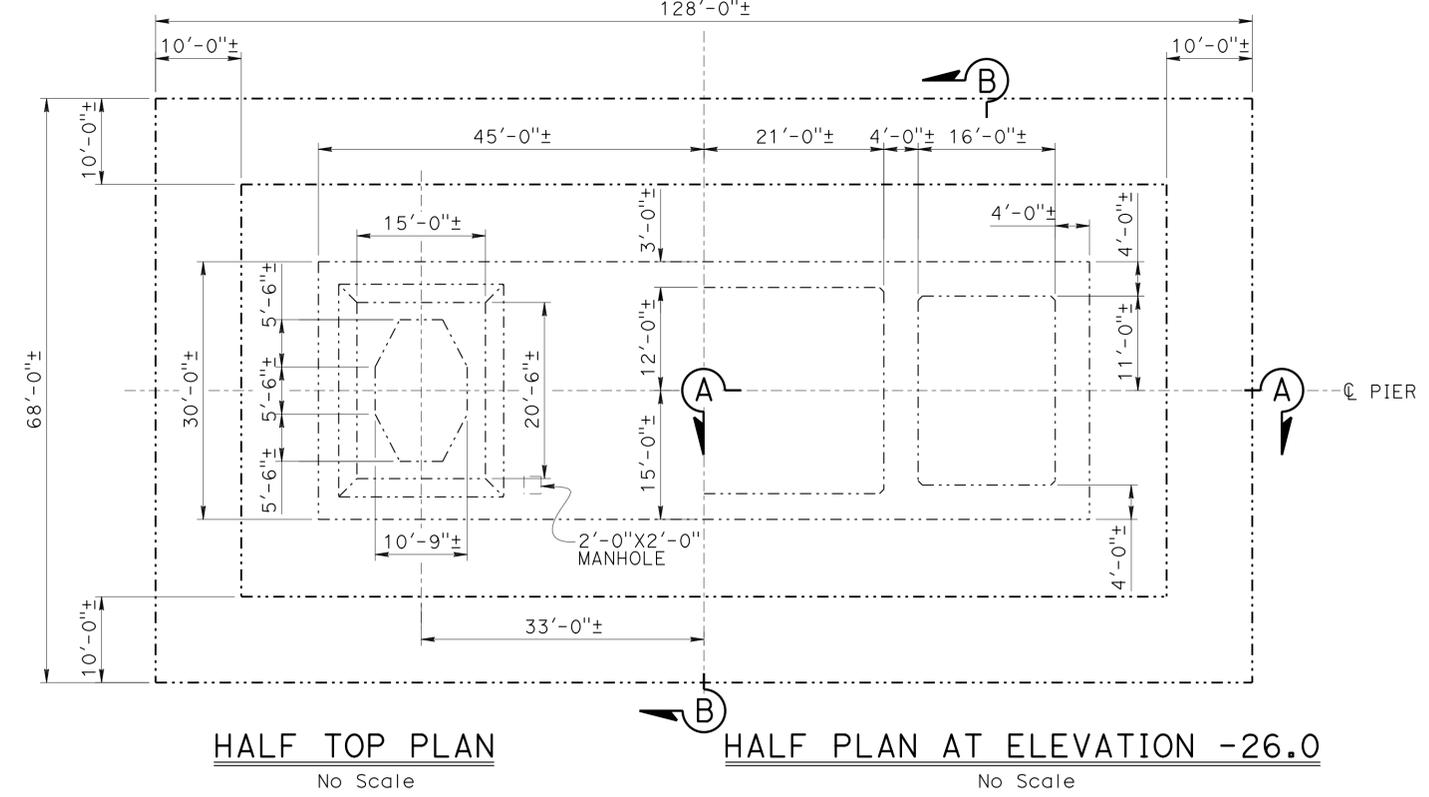
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	20	129
Yong Pil Kim			03-09-16	REGISTERED CIVIL ENGINEER DATE	
3-11-16			PLANS APPROVAL DATE		
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					



- LEGEND:
- Indicates existing
 - [Hatched Box] Indicates limits of removal using mechanical means
 - [Cross-hatched Box] Indicates limits of breaking down into debris by blasting

NOTE:
NOT ALL PILES SHOWN.

- NOTES:
1. Removal limits are shown only on "SECTION A-A" and on "SECTION B-B" for clarity.
 2. For "AS-BUILT PILE INFORMATION TABLE", see "INDEX TO PLANS" sheet.



NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

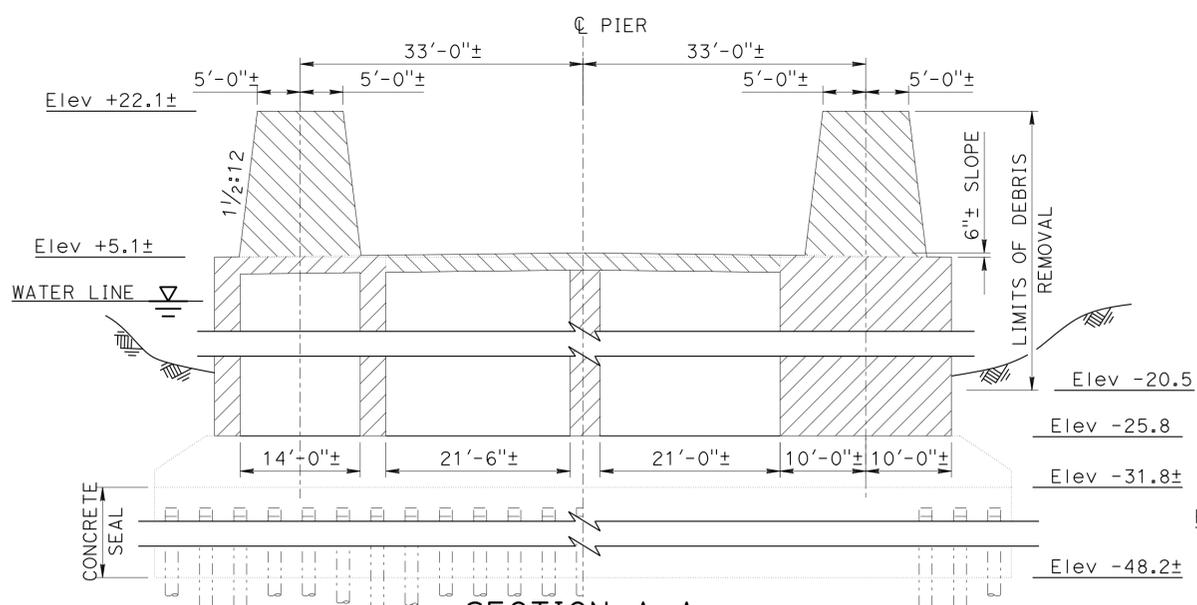
DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO. 33-0025
POST MILE 8.6/1.2

SAN FRANCISCO-OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT

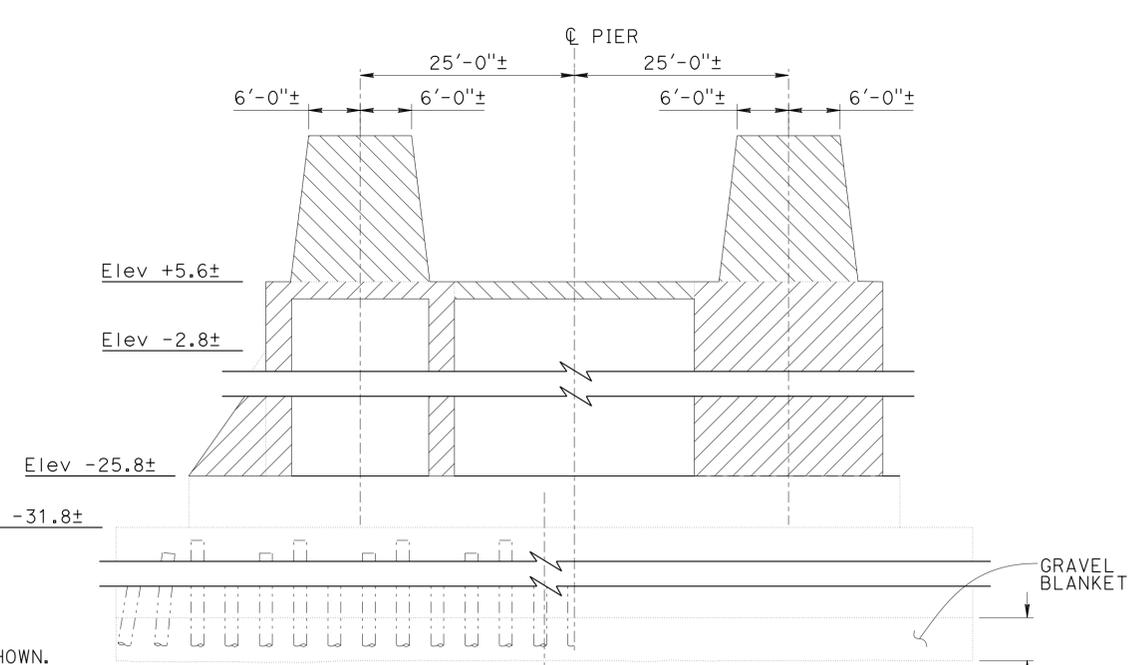
MARINE FOUNDATION DEMOLITION
PIER E8 - DEMOLITION LIMITS

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R, 0.00/0.80R	21	129
Yong Pil Kim			03-09-16	REGISTERED CIVIL ENGINEER DATE	
3-11-16			PLANS APPROVAL DATE		
REGISTERED PROFESSIONAL ENGINEER YONG PIL KIM No. C48365 Exp. 06-30-16 CIVIL STATE OF CALIFORNIA					
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					



SECTION A-A
No Scale

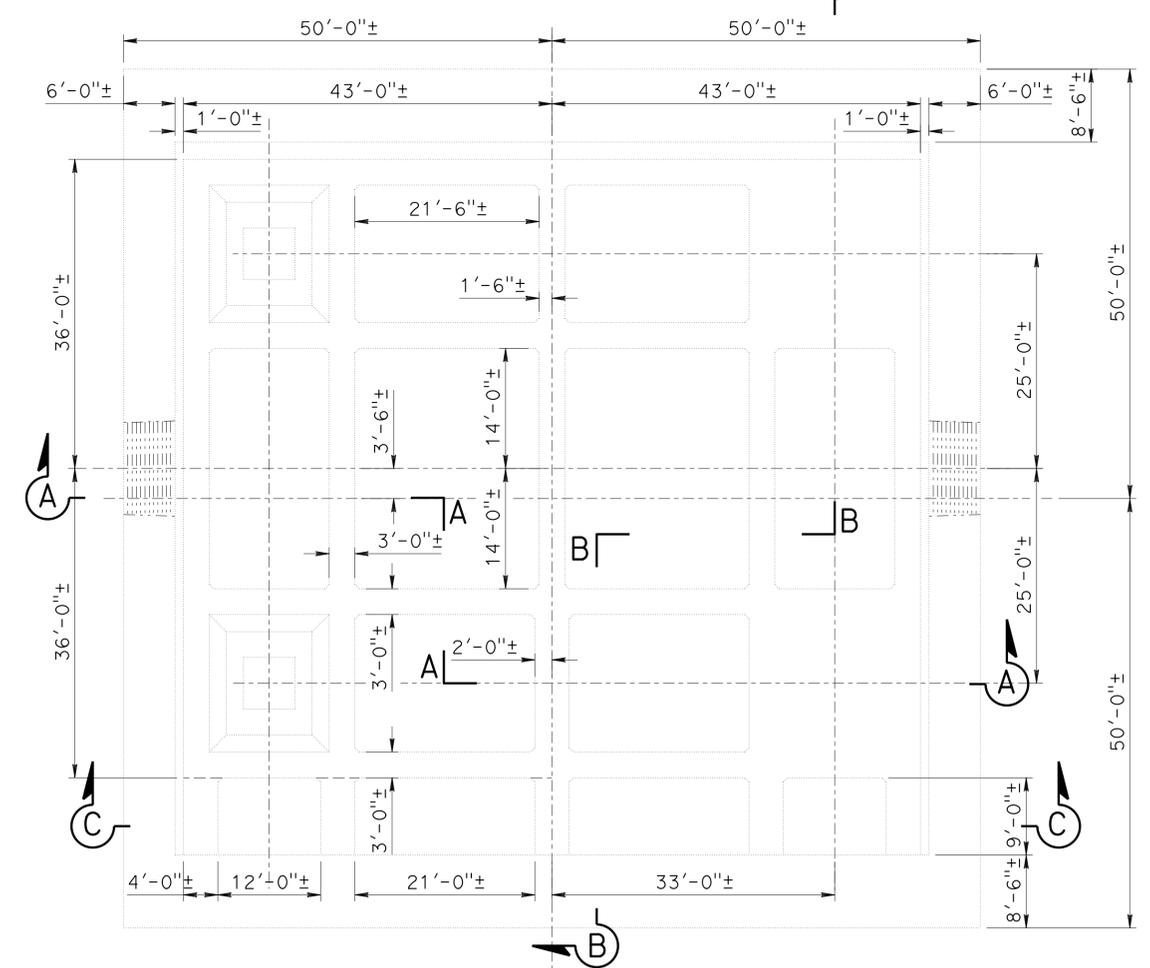
NOTE:
NOT ALL PILES SHOWN.



SECTION B-B
No Scale

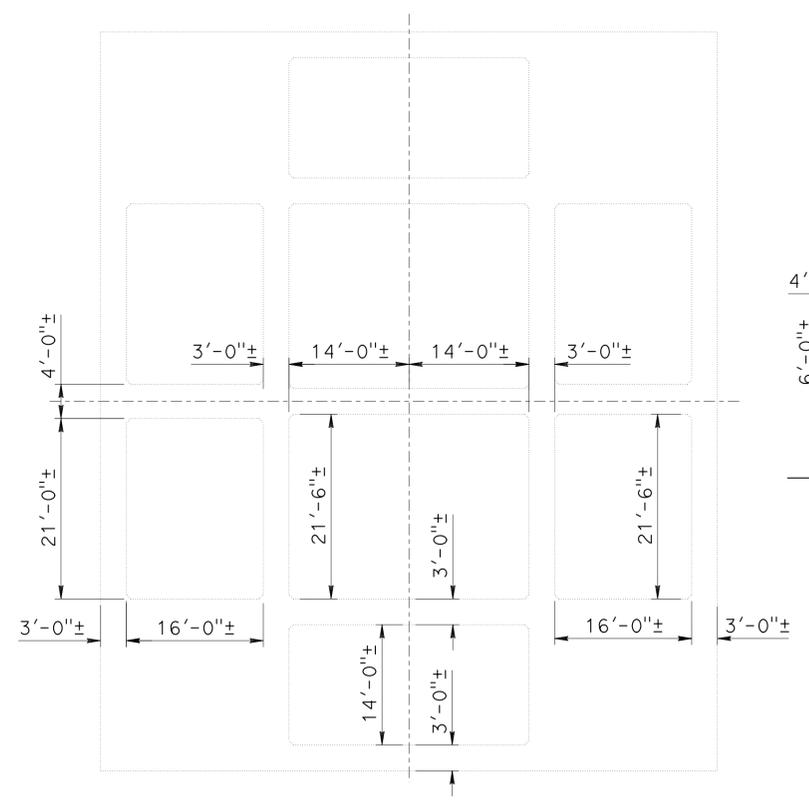
- LEGEND:
- Indicates existing
 - ▨ Indicates limits of removal using mechanical means
 - ▩ Indicates limits of breaking down into debris by blasting

- NOTES:
- Removal limits are shown only on "SECTION A-A" and on "SECTION B-B" for clarity.
 - For "AS-BUILT PILE INFORMATION TABLE", see "INDEX TO PLANS" sheet.

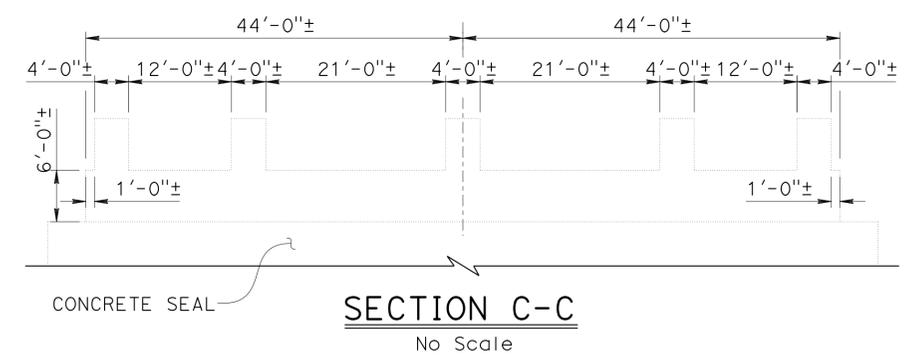


HALF PLAN OF PIER AT TOP
No Scale

HALF SECTION OF PIER SHAFTS AT ELEV -25.0
No Scale



PLAN THRU PIER AT ELEV +2.0
No Scale



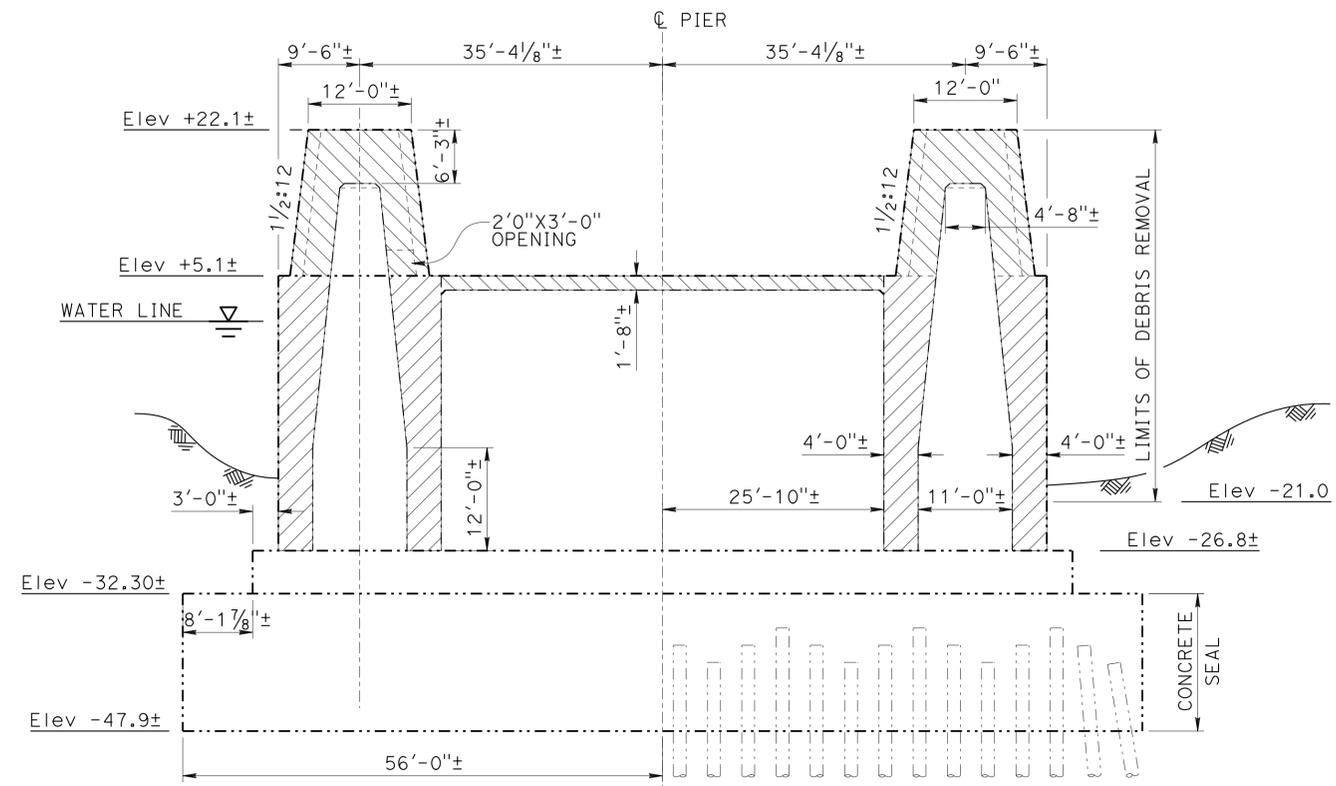
SECTION C-C
No Scale

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN BY Yong Pil Kim CHECKED Mary Beall		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO.	SAN FRANCISCO-OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT MARINE FOUNDATION DEMOLITION PIER E9 - DEMOLITION LIMITS		
DETAILS BY Carlo Cancino CHECKED Mary Beall				33-0025			
QUANTITIES BY Nora Kyo CHECKED Mary Beall				POST MILE 8.6/1.2			
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	UNIT: 3593 PROJECT NUMBER & PHASE: 0416000287, 1	CONTRACT NO.: 04-013574	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 14 OF 21

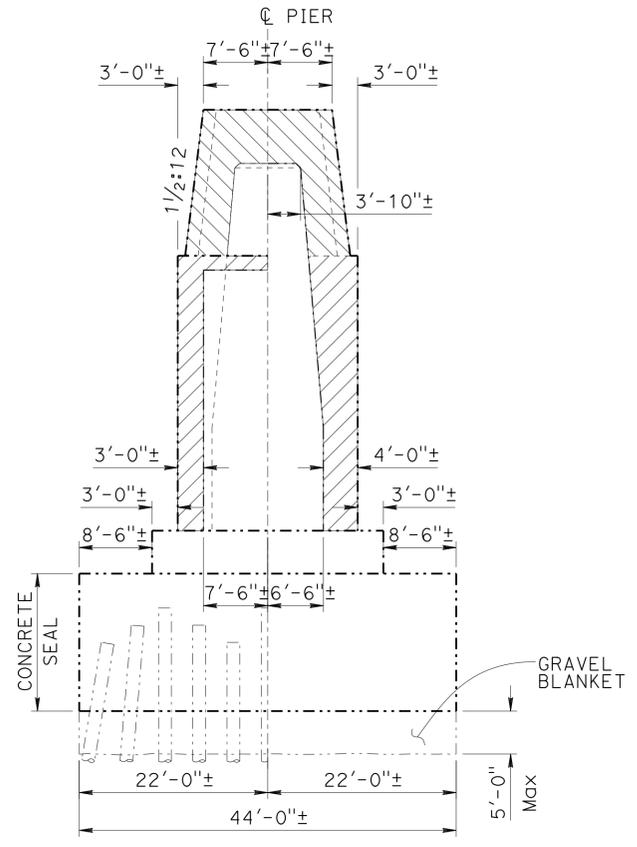
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	22	129

Yong Pil Kim 03-09-16
 REGISTERED CIVIL ENGINEER DATE
 3-11-16
 PLANS APPROVAL DATE
 YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA
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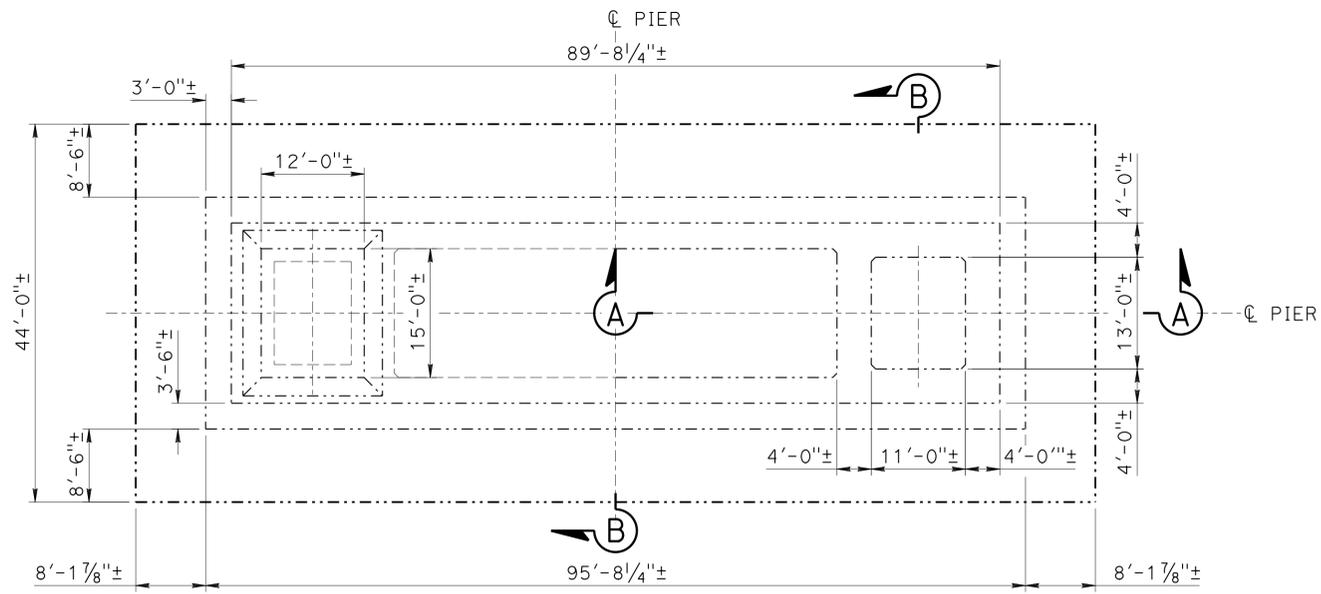
HALF SIDE ELEVATION No Scale
HALF SECTION AT A-A No Scale

NOTE: NOT ALL PILES SHOWN.



SECTION B-B
 No Scale

- LEGEND:
- Indicates existing
 - [Hatched Box] Indicates limits of removal using mechanical means
 - [Diagonal Hatched Box] Indicates limits of breaking down into debris by blasting



HALF PLAN No Scale
HALF PLAN AT ELEVATION -21.0 No Scale

- NOTES:
- Removal limits are shown only on "SECTION A-A" and on "SECTION B-B" for clarity.
 - For "AS-BUILT PILE INFORMATION TABLE", see "INDEX TO PLANS" sheet.

NOTE: THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO.	33-0025
POST MILE	8.6/1.2

SAN FRANCISCO-OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
MARINE FOUNDATION DEMOLITION
PIER E10 - DEMOLITION LIMITS

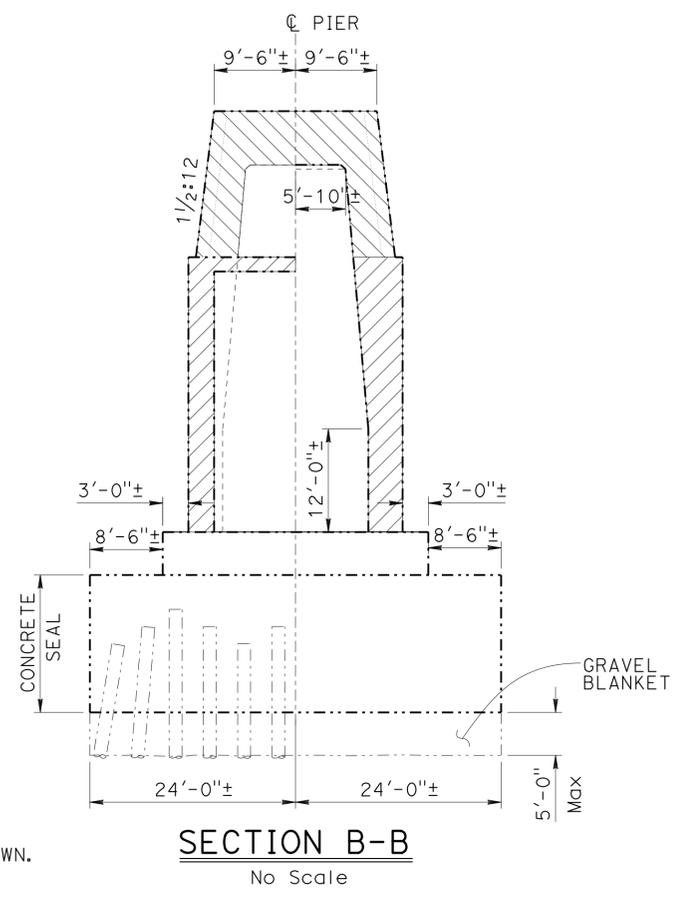
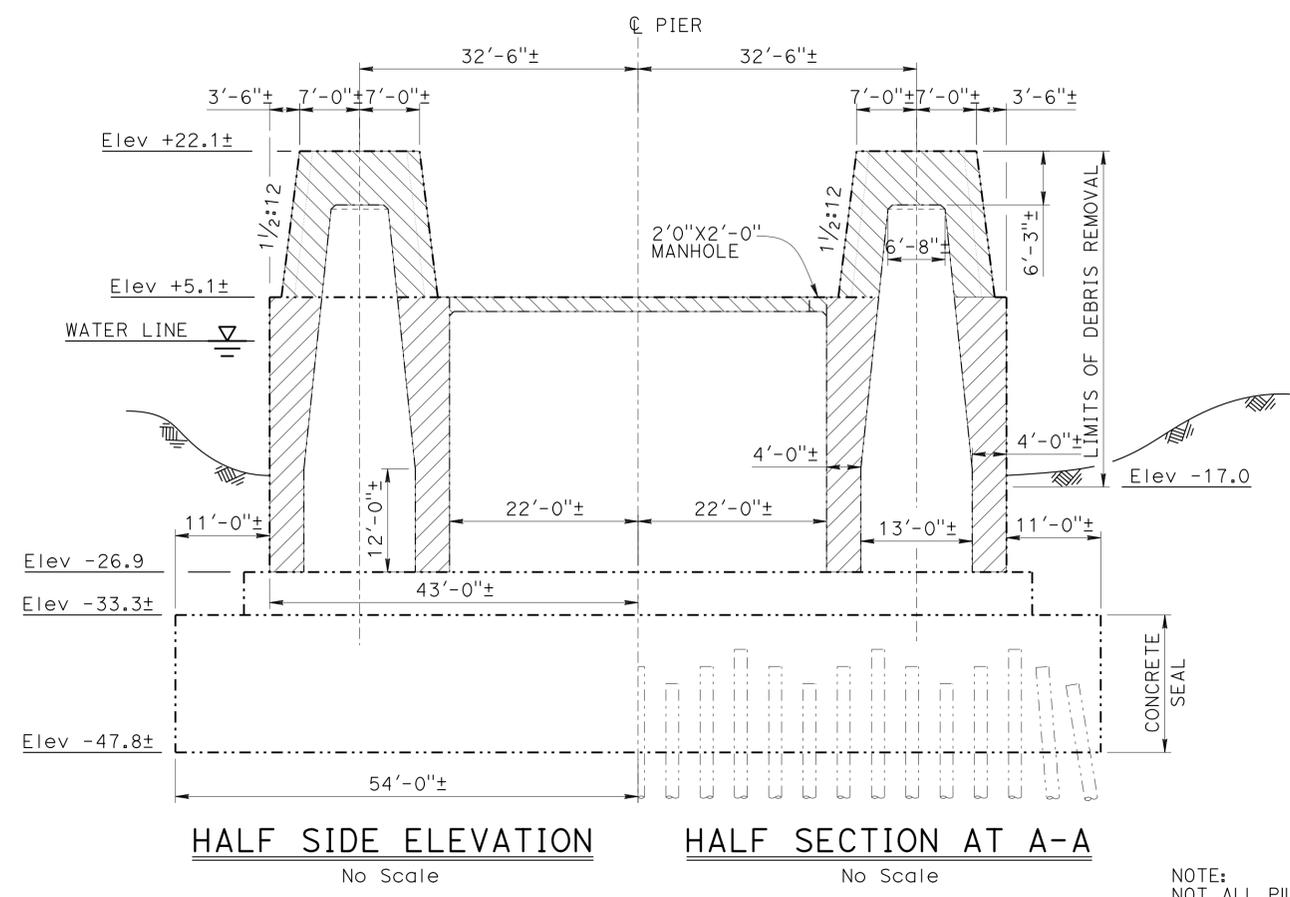
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	23	129

Yong Pil Kim 03-09-16
 REGISTERED CIVIL ENGINEER DATE

3-11-16
 PLANS APPROVAL DATE

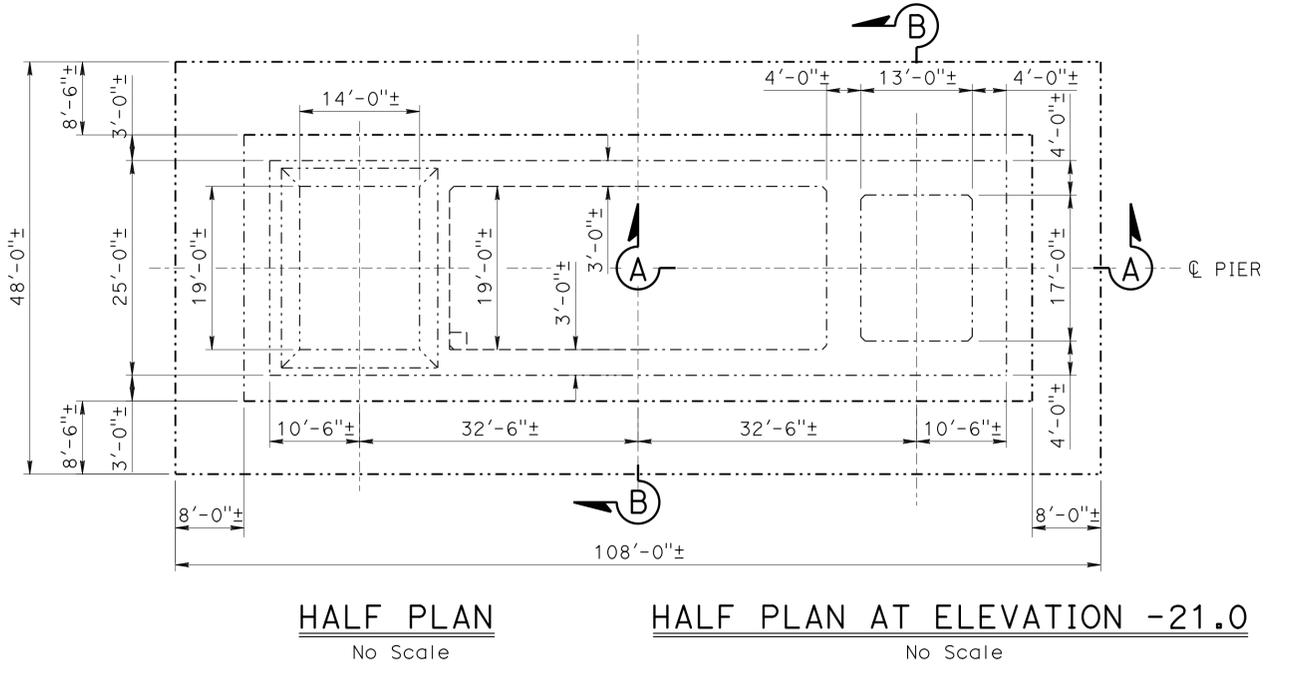
YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA

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- LEGEND:
- Indicates existing
 - [Hatched Box] Indicates limits of removal using mechanical means
 - [Diagonal Hatched Box] Indicates limits of breaking down into debris by blasting

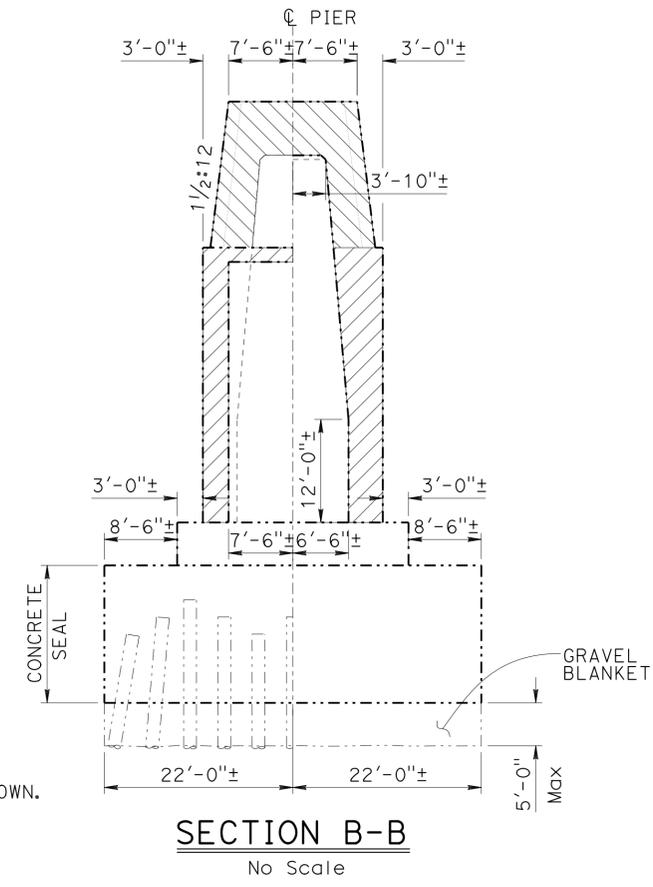
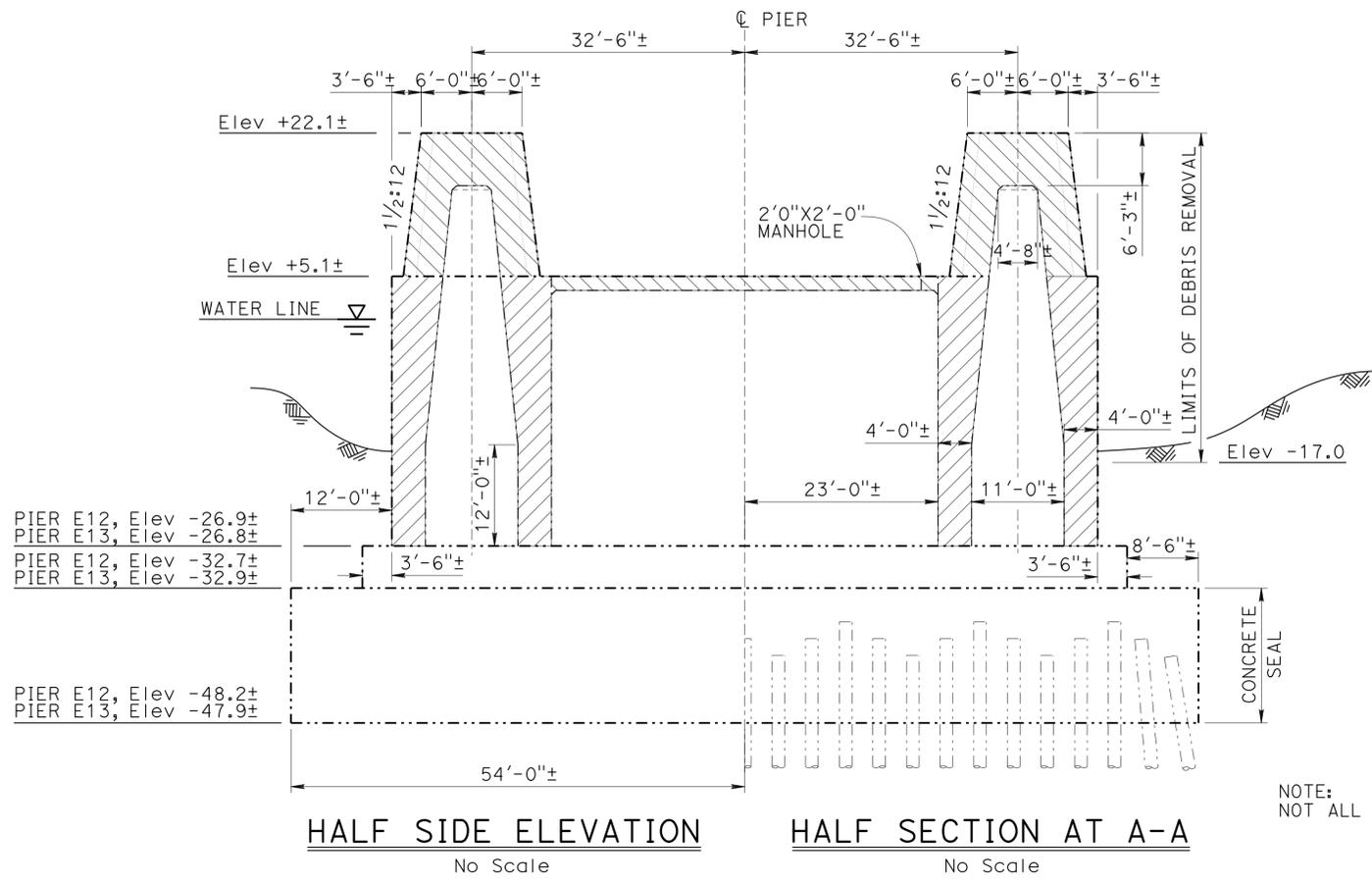
- NOTES:
1. Removal limits are shown only on "SECTION A-A" and on "SECTION B-B" for clarity.
 2. For "AS-BUILT PILE INFORMATION TABLE", see "INDEX TO PLANS" sheet.



NOTE:
 NOT ALL PILES SHOWN.

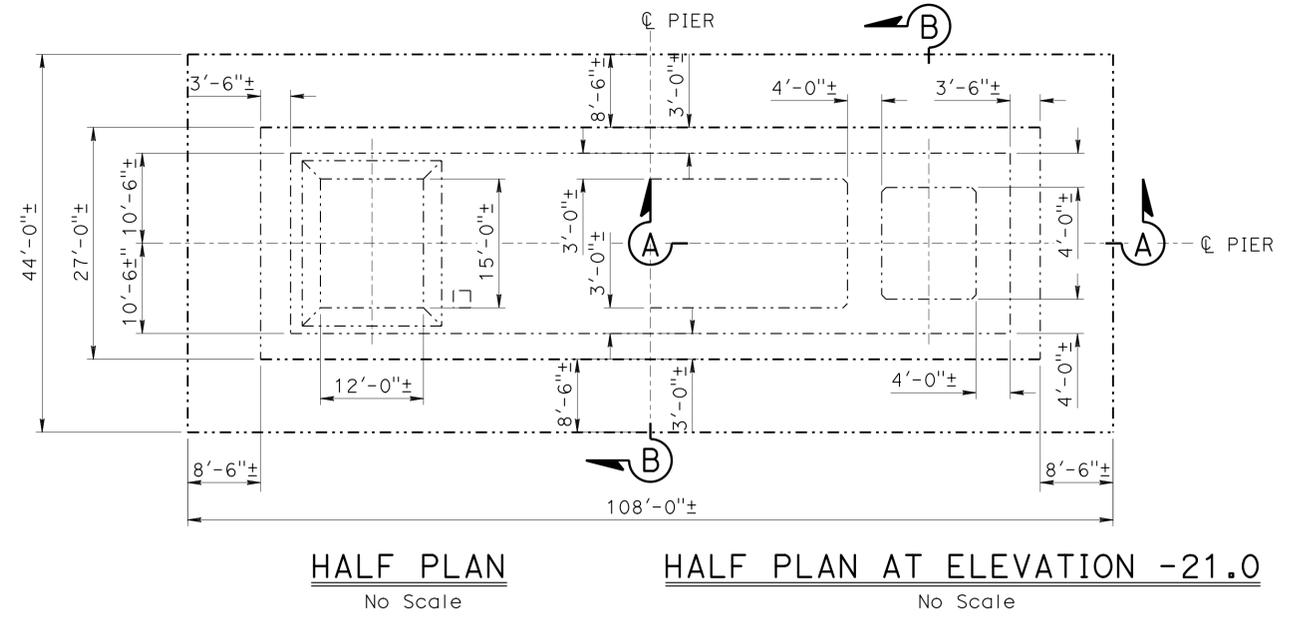
NOTE:
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN BY Yong Pil Kim CHECKED BY Mary Beall			STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO. 33-0025	SAN FRANCISCO-OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT MARINE FOUNDATION DEMOLITION PIER E11 - DEMOLITION LIMITS	
DETAILS BY Carlo Cancino CHECKED BY Mary Beall					POST MILE 8.6/1.2		
QUANTITIES BY Nora Kyo CHECKED BY Mary Beall							
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		UNIT: 3593 PROJECT NUMBER & PHASE: 0416000287, 1		CONTRACT NO.: 04-013574	
DISREGARD PRINTS BEARING EARLIER REVISION DATES						REVISION DATES 01/28/16 02/23/16 03/09/16	SHEET OF 16 21



LEGEND:
 - - - - - Indicates existing
 [Hatched Area] Indicates limits of removal using mechanical means
 [Diagonal Hatched Area] Indicates limits of breaking down into debris by blasting

NOTES:
 1. Removal limits are shown only on "SECTION A-A" and on "SECTION B-B" for clarity.
 2. For "AS-BUILT PILE INFORMATION TABLE", see "INDEX TO PLANS" sheet.



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DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO.	33-0025
POST MILE	8.6/1.2

**SAN FRANCISCO-OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT**
MARINE FOUNDATION DEMOLITION
PIER E12 AND E13 - DEMOLITION LIMITS

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	25	129

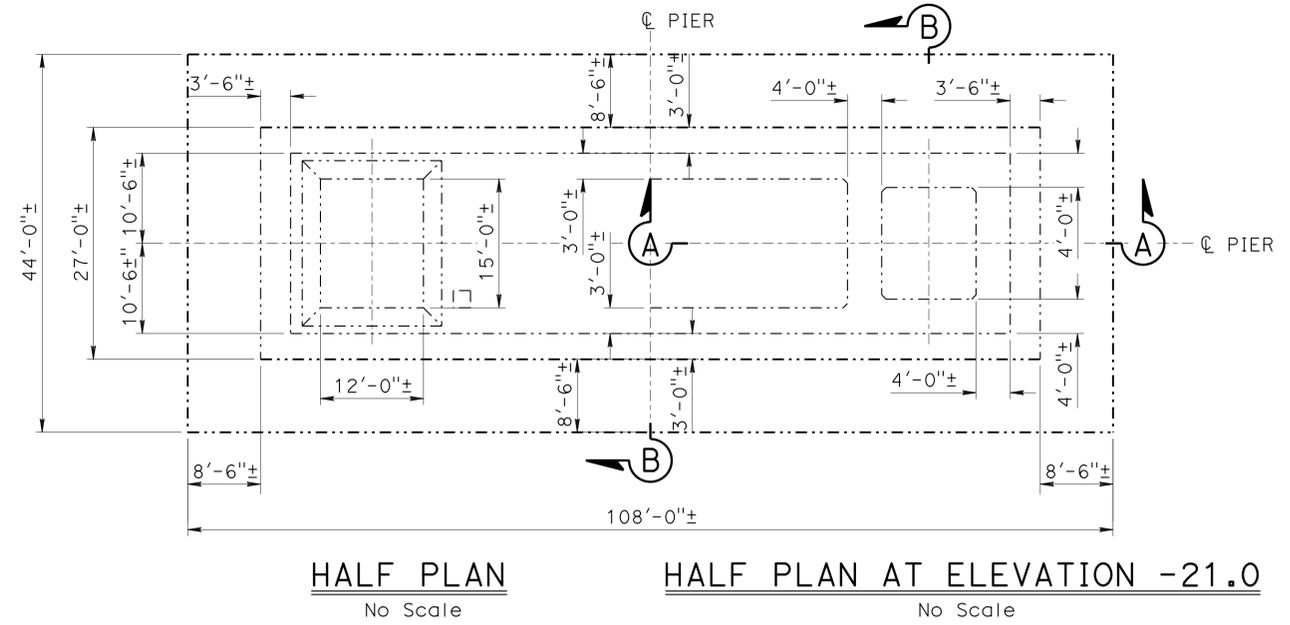
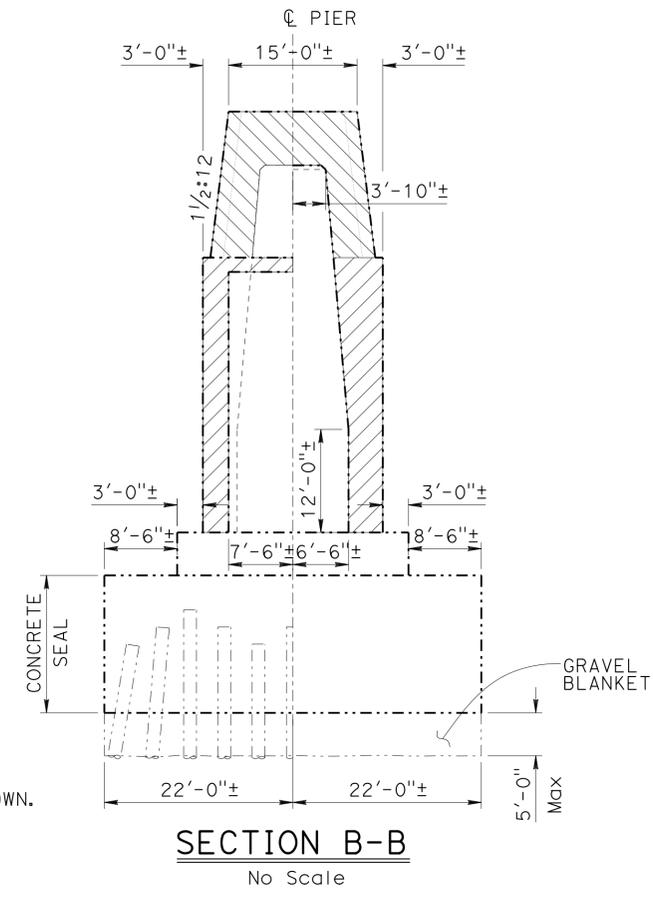
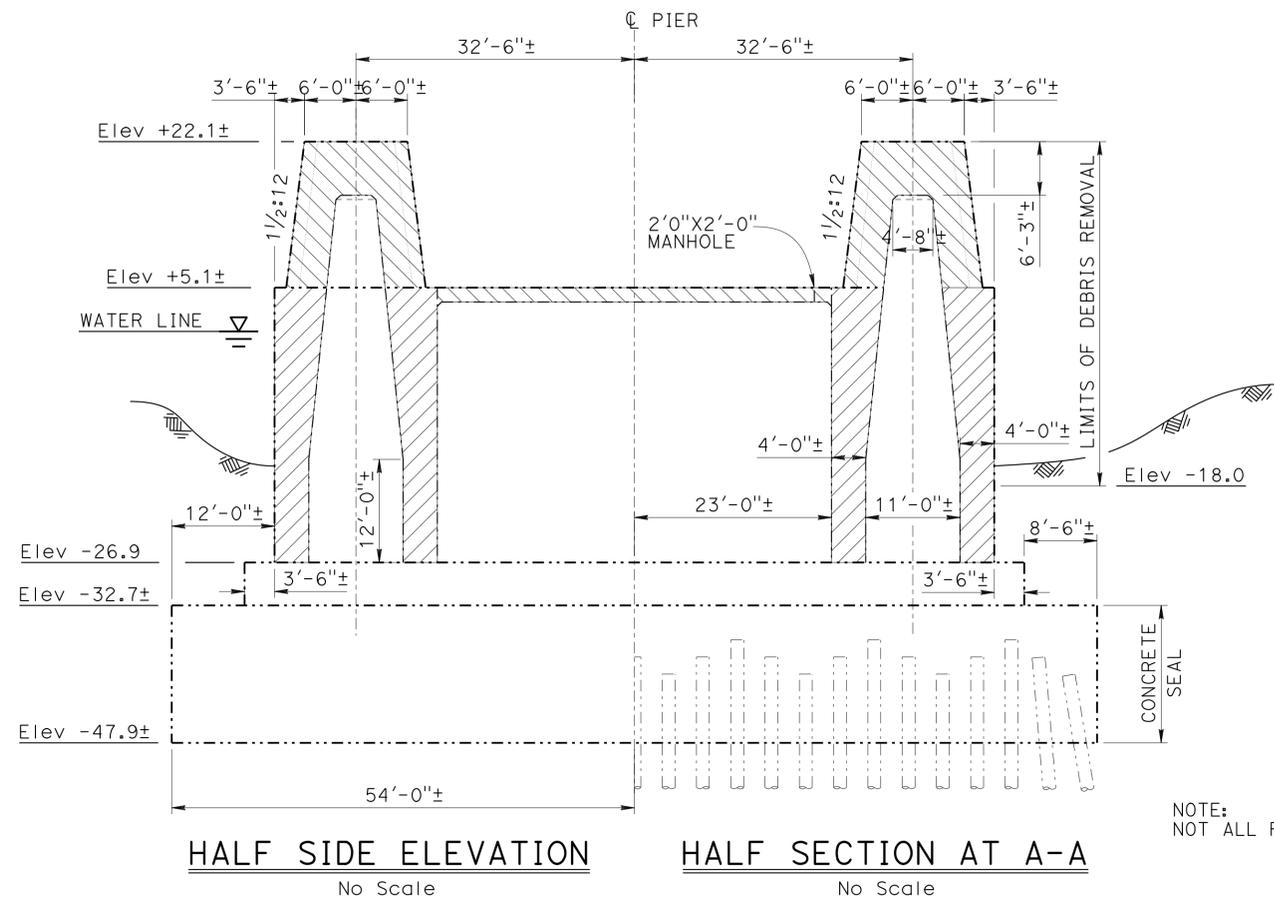
Yong Pil Kim 03-09-16
 REGISTERED CIVIL ENGINEER DATE
 3-11-16
 PLANS APPROVAL DATE

YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA

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- LEGEND:
- Indicates existing
 - [Hatched Box] Indicates limits of removal using mechanical means
 - [Diagonal Hatched Box] Indicates limits of breaking down into debris by blasting

- NOTES:
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 - For "AS-BUILT PILE INFORMATION TABLE", see "INDEX TO PLANS" sheet.



NOTE:
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DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO.	33-0025
POST MILE	8.6/1.2

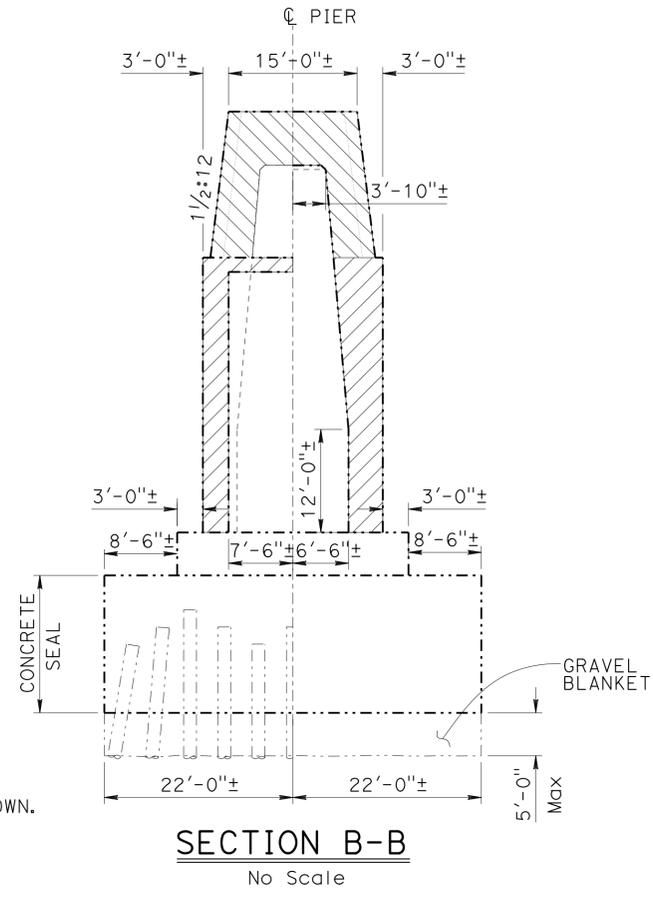
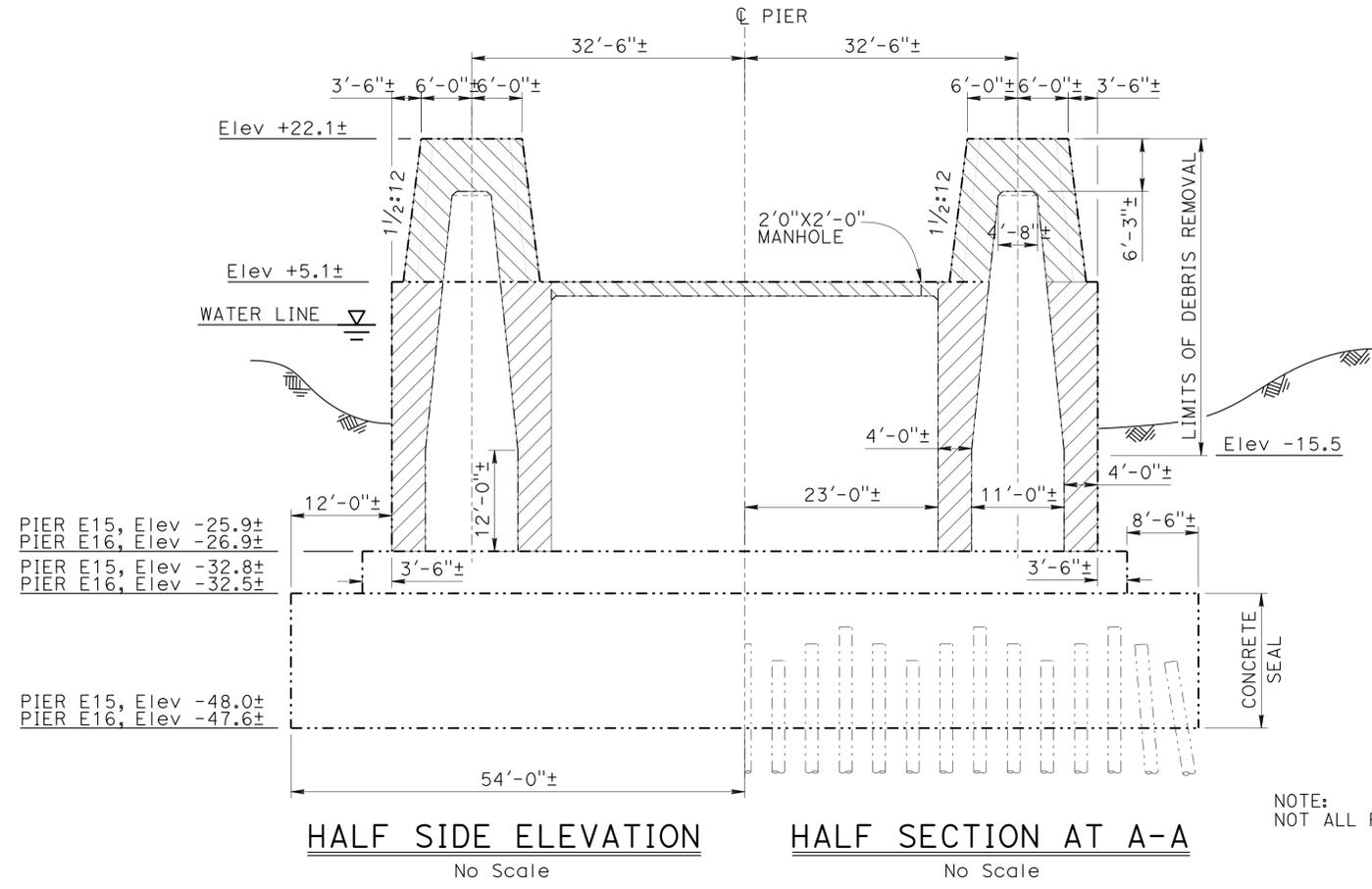
**SAN FRANCISCO-OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT**

MARINE FOUNDATION DEMOLITION

PIER E14 - DEMOLITION LIMITS

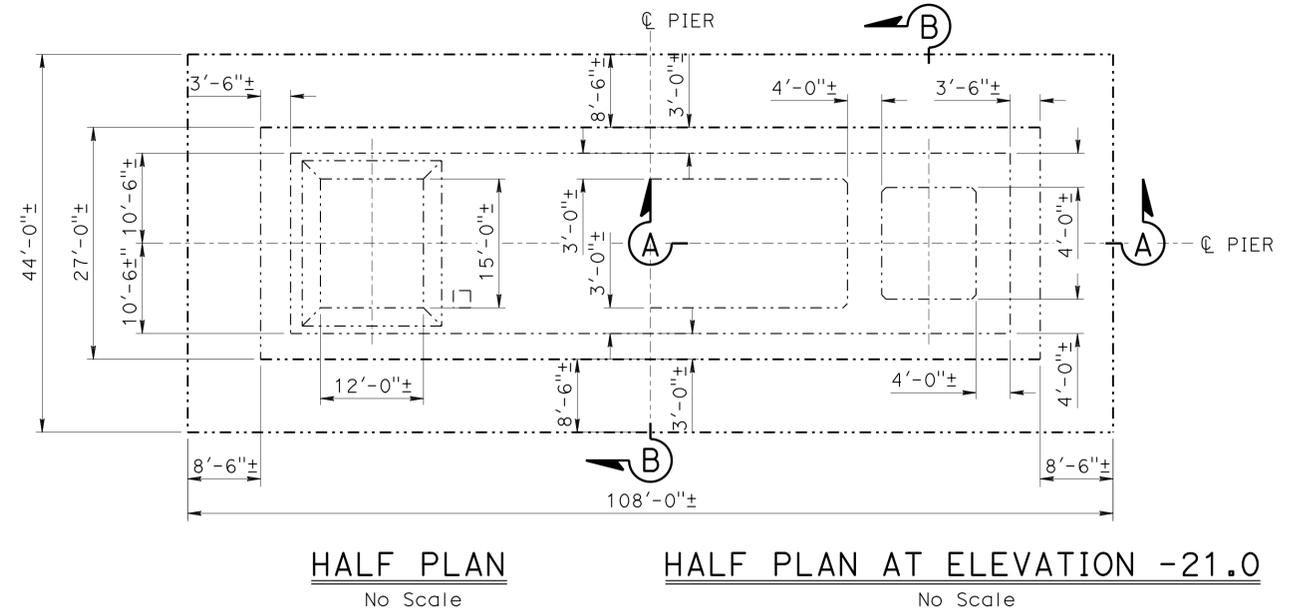
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	26	129

Y. P. Kim 03-09-16
 REGISTERED CIVIL ENGINEER DATE
 3-11-16
 PLANS APPROVAL DATE
 YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA
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LEGEND:
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 [Diagonal Hatched Box] Indicates limits of breaking down into debris by blasting

- NOTES:
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 - For "AS-BUILT PILE INFORMATION TABLE", see "INDEX TO PLANS" sheet.



NOTE:
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DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall

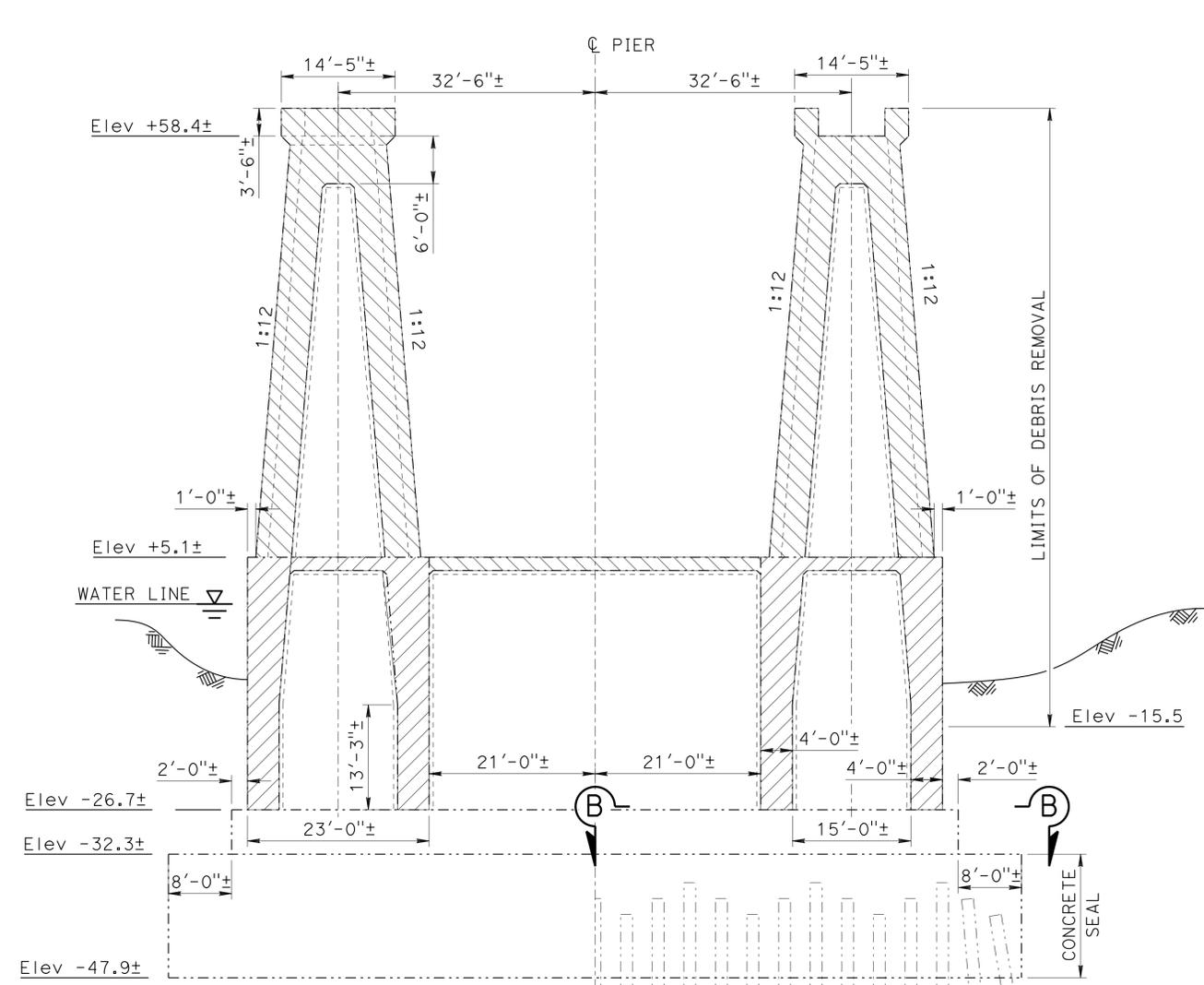
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO.	33-0025
POST MILE	8.6/1.2

**SAN FRANCISCO-OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT**
MARINE FOUNDATION DEMOLITION
PIER E15 AND E16 - DEMOLITION LIMITS

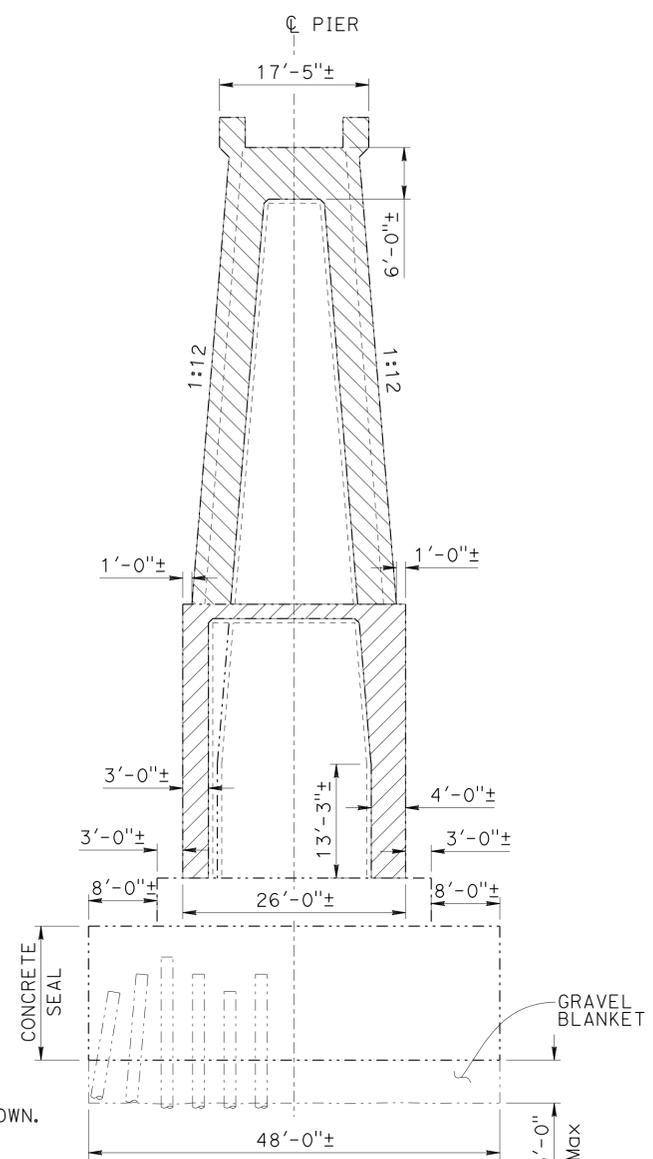
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	27	129
Yong Pil Kim			03-09-16	REGISTERED CIVIL ENGINEER DATE	
3-11-16			PLANS APPROVAL DATE		
REGISTERED PROFESSIONAL ENGINEER YONG PIL KIM No. C48365 Exp. 06-30-16 CIVIL STATE OF CALIFORNIA					
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ELEVATION
No Scale

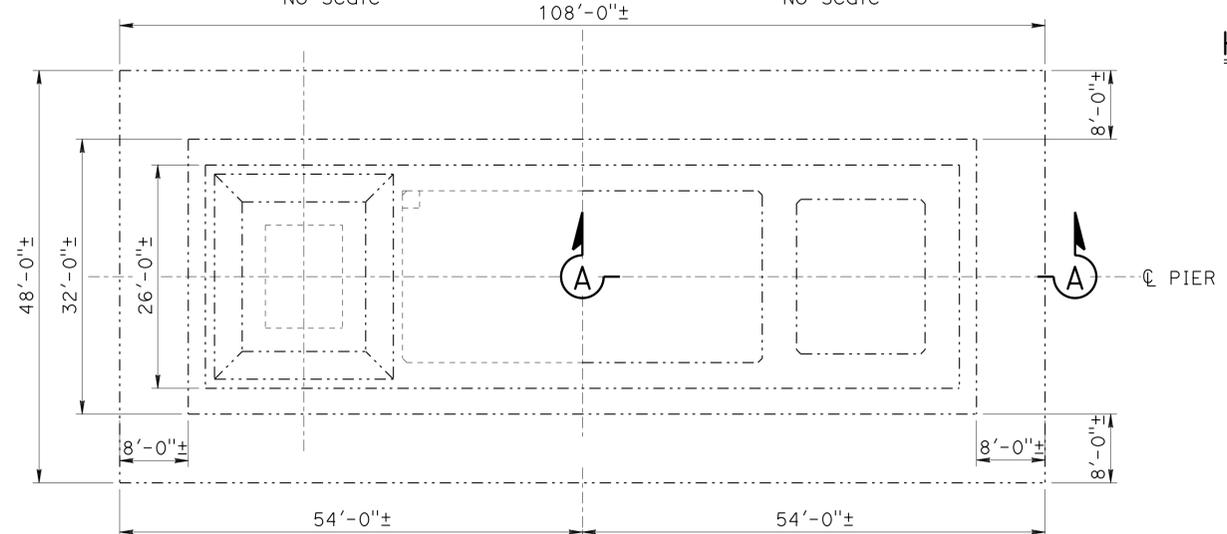
SECTION A-A
No Scale

NOTE:
NOT ALL PILES SHOWN.



HALF SECTION ON $\text{\textcircled{C}}$
No Scale

HALF SECTION THRU SHAFT
No Scale



PLAN
No Scale

SECTION B-B
No Scale

- LEGEND:**
- Indicates existing
 - ▨ Indicates limits of removal using mechanical means
 - ▩ Indicates limits of breaking down into debris by blasting

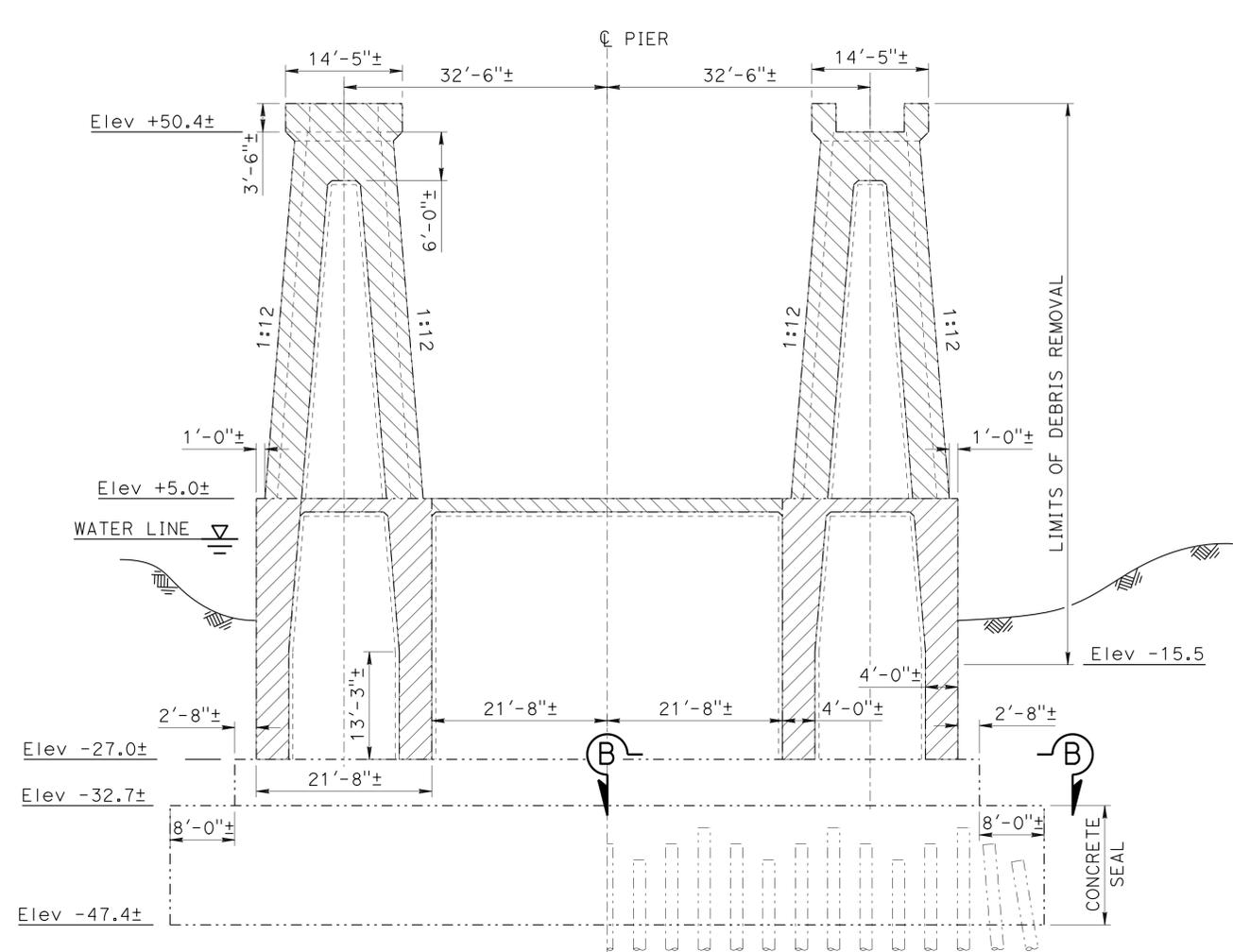
- NOTES:**
- Removal limits are shown on "SECTION A-A" and "HALF SECTION" for clarity.
 - For "AS-BUILT PILE INFORMATION TABLE", see "INDEX TO PLANS" sheet.

NOTE:
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DESIGN BY Yong Pil Kim CHECKED BY Mary Beall		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO.	SAN FRANCISCO-OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT				
DETAILS BY Carlo Cancino CHECKED BY Mary Beall				33-0025					
QUANTITIES BY Nora Kyo CHECKED BY Mary Beall				POST MILE 8.6/1.2					
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	UNIT: 3593 PROJECT NUMBER & PHASE: 0416000287, 1	CONTRACT NO.: 04-013574	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 05/20/13 03/09/16 02/23/16	SHEET 20 OF 21

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SF, Ala	80	8.65R/8.85R 0.00/0.80R	28	129

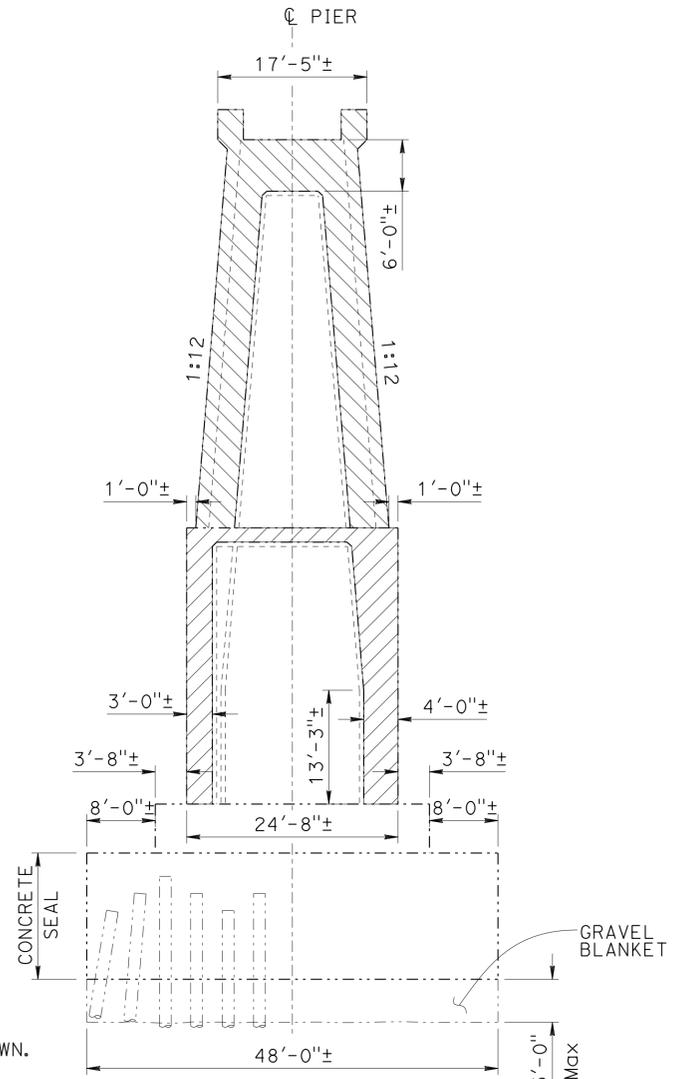
Yong Pil Kim
 REGISTERED CIVIL ENGINEER
 DATE 03-09-16
 PLANS APPROVAL DATE 3-11-16
 YONG PIL KIM
 No. C48365
 Exp. 06-30-16
 CIVIL
 STATE OF CALIFORNIA
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ELEVATION
No Scale

SECTION A-A
No Scale

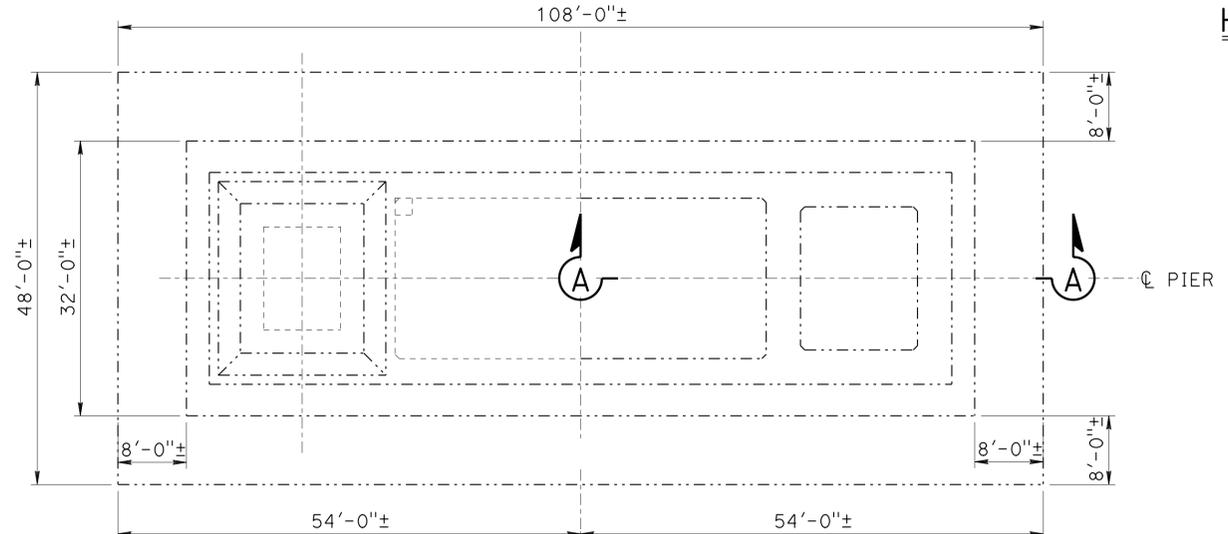
NOTE:
NOT ALL PILES SHOWN.



HALF SECTION ON C
No Scale

HALF SECTION THRU SHAFT
No Scale

- LEGEND:
 - - - - - Indicates existing
 [Hatched Box] Indicates limits of removal using mechanical means
 [Diagonal Hatched Box] Indicates limits of breaking down into debris by blasting
- NOTES:
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 2. For "AS-BUILT PILE INFORMATION TABLE", see "INDEX TO PLANS" sheet.



PLAN
No Scale

SECTION B-B
No Scale

NOTE:
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DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Nora Kyo	CHECKED Mary Beall

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO.	33-0025
POST MILE	8.6/1.2

**SAN FRANCISCO-OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT**
MARINE FOUNDATION DEMOLITION
PIER E18 - DEMOLITION LIMITS

APPENDIX D

Training Records

9050.000.004
April 27, 2016
Revised May 10, 2016

APPENDIX E

Cut Sheets

9050.000.004
April 27, 2016
Revised May 10, 2016



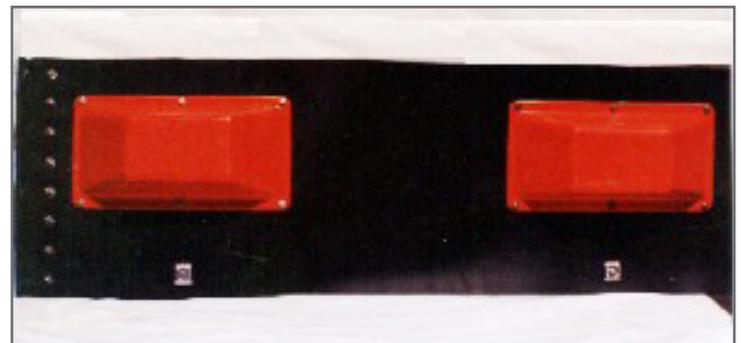
ACME Perma-Boom is a specially designed permanent floating barrier for long-term service. Its extremely rugged construction and excellent resistance to weathering provide years of reliable, low-cost performance. ACME Perma-Boom is perfect for oil debris containment and for exclusion of floating pollutants from sensitive facilities or areas.

Perma-Boom features:

- Heavy duty, high strength, PVC-coated polyester conveyor-belting membrane
- Marine growth and UV inhibitors for years of low maintenance
- High visibility, unsinkable rotary molded polyethylene floats filled with closed cell urethane foam
- ASTM or Universal-style marine-grade aluminum boom connectors to mate with existing inventories
- Corrosion resistant stainless steel hardware

Flotations

Flotation units are tough polyethylene shells that are impregnated with UVEX™, an antioxidant and ultraviolet protection package which makes them exceptionally color stable and highly resistant to UV degradation. The shell is filled with oil-impervious closed-cell foam. The standard color is International orange, however, yellow and black are also available.



End Connectors

Connectors can be supplied in various configurations:

- Heavy duty PVC in a modified universal slide design with TruGrip™ flanges
- Aluminum ASTM F962-04 Quick-Latch or Z connectors
- Aluminum ASTM F2438-04 slide connectors
- US Navy male/female connectors available on request

Ballast

Ballast is accomplished by molded lead weights affixed to the skirt bottom.

Hardware

Standard attachment hardware for floats, ballast and end-connectors are stainless steel.

Standard Sizes

18" width by 100' length (Freeboard 11' x skirt 7")

24" width by 100' length (Freeboard 11' x skirt 13")

36" width by 100' length (Freeboard 12' x skirt 24")

Other lengths available by request.

Other ACME Perma-Boom Services Available

Design, sell, install and maintain floating barrier

Consultations and product sales regarding the type, amount and use of your ACME Perma-Boom considering the following special needs:

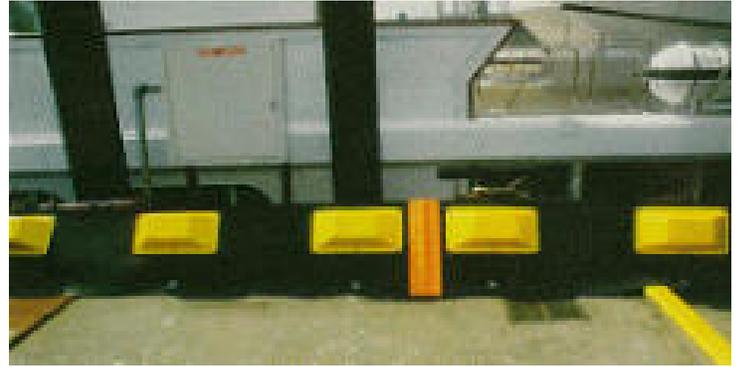
- Surrounding conditions
- Surrounding structures
- Debris barrier vs. containment
- Maintenance schedule

Installation of your permanent boom designed with suggested use and structural considerations in mind:

- Wire/weight slider system
- Float and tether system
- Bulkhead connections
- Site-specific systems and special needs

Operational support accessories for ease of deployment and permanent moorage of boom including:

- Boom deployment boxes
- Tow plates
- Tow bridles
- Anchor systems
- T-Connectors
- Other ancillary gear



Operational maintenance for continued use of ACME Perma-Boom, including:

- Marine growth removal
- Repairs of tears in barrier
- Float replacement

Replacement and repair materials needed for general maintenance of permanent boom and installations such as:

- Floats
- Boom material
- End plate
- Stainless steel/nylon nuts and bolts
- Anchor points
- Toggle pins

Containment Uses:

- Fuel docks
- Offshore platforms
- Shipyards
- Refinery terminals
- Cargo terminals
- Dry docks
- Ferry terminals
- Marinas

HEAVY DUTY PVC & URETHANE BARRIERS SPECIFICATIONS

ITEM	18" PERMA-BOOM	24" PERMA-BOOM	36" PERMA-BOOM
Freeboard	11 inches	11 inches	12 inches
Draft	7 inches	13 inches	24 inches
Weight	3.24 lbs./ft. (est.)	4.3 lbs./ft. (est.)	7.0 lbs./ft.(est.)
Length (STD)	100 ft. or 50 ft. (Custom lengths available)		
Connectors	<ul style="list-style-type: none"> - Z-ASTM F962-04 - Universal slide PVC - Slide--ASTM F2438-04 - US Navy male/female <i>Other connectors provided upon request & availability</i>		
Flotation (STD)	High Density Polyethylene shells that are impregnated with UVEX™ an antioxidant and UV Stabilizer package which makes them exceptionally color stable and highly resistant to light degradation. The shell is filled with oil-impervious closed-cell urethane foam. The standard colors include International orange, black and yellow. Floats can be sealed or unsealed depending on customer requirements.		
Ballast Type	Lead weight with stainless steel bolts		
Hardware	Standard attachment hardware for floats, ballast and end-connectors are stainless steel (available in 304 or 316 alloy)		
Anchor Points	Single or Double - Eye bolts added as per customers requirements (if placed in belting an oversized fender washer is used)		

	PVC BELTING	POLYURETHANE BELTING
Barrier Material	150 oz. Double Impregnated PVC Polyester Fabric Belting with U-V and Marine Growth Inhibitors -(Color Black)	80oz. or 100 oz. Polyurethane Fabric Belting with UV and Marine Growth Inhibitors – (Color Orange) For high abrasion resistance applications
Tensile Strength (Warp)	36,000 lbs. – 54,00lbs. Break Strength 8,000 lbs. – 10,000 lbs. Working Strength	33,600 lbs. – 38,400 lbs. Break Strength 16,800 lbs. Working Strength
Tear Strength (Fill)	1,500 lbs.	1,400 lbs./in - 1,600 lbs./in.
Fire Resistance	Belting is self-extinguishing	Belting is self-extinguishing
Standard Application	Harbors, Dry Docks, Fuel Docks, Shipyards	Military or high abrasion resistance applications

Let us design, manufacture and install a permanent containment boom system to meet your spill contingency requirements.



Mazzella Blasting Mats

Our Details

[Home](#)

[Our Details](#)

[Advantages of Mazzella's Blasting Mats](#)

[Project Gallery](#)

[Contact Us](#)

Mazzella Blasting Mats, wire rope blasting mat has been effectively serving the blasting industry since 1909. The wire rope blasting mat was invented and developed to protect lives and property during the turn of the century New York City 3rd Ave.



subway project. The wire rope blasting mat made an immediate impact on the safety standards of blasting operations in high density urban areas. Wire rope blasting mats are the only blasting mat designed to vent gasses which give the blaster more control.

Mazzella wire rope blasting mats weigh an astonishing 16 pounds per square foot (65 kg/m²). This means you are getting twice as many square feet per truck over rubber, while increasing safety and control. With today's high fuel costs, this is a definite advantage in day to day operational cost.

Wire rope blasting mats are the most versatile and flexible units on the market today. This gives it the ability to adapt to any topography, face or blasting operation. Our wire rope blasting mats come complete with a built in bridle system that makes setting our blast mats simple.

Our wire rope blasting mats are extremely durable; they are built to withstand intensive daily use. Wire rope blasting mats are also fireproof, which offers blasters the ability to use new modern aluminized explosives. The Mazzella wire rope blasting mat is constructed under ISO 9001:2000 standards and is completely recyclable (Green), unlike the rubber tire units.

Whether you are competing in the regional or world markets and looking for a competitive edge. Mazzella Wire Rope Blasting Mats are an answer for they have never changed in their superior Effectiveness, Durability, Safety and Cost Effectiveness in over 100 years.

So why are you not using them?

Contact Us

718-842-0949

718-328-6021

info@tmi2001.com



Mazzella Blasting Mats

Advantages of Mazzella's Patented Wire Rope Blasting Mats over the competitor's rubber tire mats

[Home](#)

[Our Details](#)

[Advantages of Mazzella's Blasting Mats](#)

[Project Gallery](#)

[Contact Us](#)

Effectiveness

Mazzella Wire Rope Blasting Mats

Patented weave design allows gases to vent and diffuse, while containing fly rock.

Flexible, adapts to any surface and topography

Ideally suited for blasts in the proximity of existing buildings

Competitor's Rubber Tire Mats

Does not vent gases, each blast damages the mat continuously reducing effectiveness and reliability

Inflexible, flip and eject flying rocks

Changing rubber density precludes inspection to ensure the mats remain serviceable

Durability

Built to withstand years of intensive, daily use

Damage caused by blasts changes rubber density, significantly reducing durability

Transportability

Economical to transport
Can be rolled up; 13 mats can be packed in a container

Costly to transport
Only 2-3 mats can be packed in a container

Weighs only 16.5 lbs/ft²
(65 kg/m²)

Weighs 32lbs/ft²
(156kg/m²)

Safety

Fireproof

Flammable, emit toxic fumes

Fully compliant with ISO 9001:2000 standards

Environment-Friendly

Completely recyclable

Comprise hazardous waste that is unsafe to dispose of

Cost

Extremely economical: minimal cost per use, low transportation costs, 100% recyclable

Very high cost per use; high transportation costs costly to dispose of (hazardous waste)

Contact Us

 718-842-0949

 718-328-6021

 info@tmi2001.com



Mazzella Blasting Mats

Project Gallery

- Home
- Our Details
- Advantages of Mazzella's Blasting Mats
- Project Gallery
- Contact Us



Contact Us

- 718-842-0949
- 718-328-6021
- info@tmi2001.com



Blast mats placed on large pier with bouys thehered to them for post blast location and retrieval.



Ranger DX500

Surface Top Hammer Drills



Ranger DX500 is a hydraulic, self-propelled, self-contained, crawler based surface drilling rig equipped with a cabin (F.O.P.S. and R.O.P.S.) and rod handling system.

Typical applications for DX500 are road cutting, pipe-line drilling and foundation drilling, as well as production drilling in medium size quarries. Therefore DX500 is most often used by construction contractors, mines and quarries, and also included in the equipment fleet of rental houses as well.

Hole Diameter:	64- 102 mm (3" – 4")
Rock Tools:	38, 45 or 51 mm (1½", 1¾" and 2")
Rock Drill:	15,5 kW
Engine Output:	168 kW
Flushing Air:	6,2 m3/min, up to 10 bar
Production Capacity:	2 000 m3/8h
Total Weight	15000 kg

STANDARD COMPONENTS

Rock drill	HL 510 , hydraulic
Chain feed	CF 145H
Rod handler	RH 714 incl. 1 set of jaws
Boom	DB 800H, articulated
Carrier	Track mounted, turnable superstructure
Powerpack	Diesel driven, hydraulic pumps and on-board compressor
Hydraulic system	Load sensing and open center
Control system	THC 700 Rock Pilot
Movable drill steel support	
Cabin	F.O.P.S. and R.O.P.S.with Air Conditioning
Dust collector	DC 810 H, hydraulic
Working lights	9 pcs
Gauge set	For accumulator pressure checking
Reversing alarm	
Manuals	1 x paper copy 1 x CD-ROM (ToolMan)

THE JAWS FOR DRILL STEELS

Drill steel type	Drill steel diameter	Recommended hole diameter
Extension rods	32 mm	45 - 57 mm
	1 ¼"	1 ¾" - 2 ¼"
MF-rod	32 mm	45 - 57 mm
	1 ¼"	1 ¾" - 2 ¼"
Extension rods	38 mm	64 - 70 mm
	1 ½"	2 ½" - 2 ¾"
MF-rod	38 mm	64 - 70 mm
	1 ½"	2 ½" - 2 ¾"
Extension rods	45 mm	76 - 89 mm
	1 ¾"	3" - 3 ½"
MF-rod	45 mm	76 - 89 mm
	1 ¾"	3" - 3 ½"

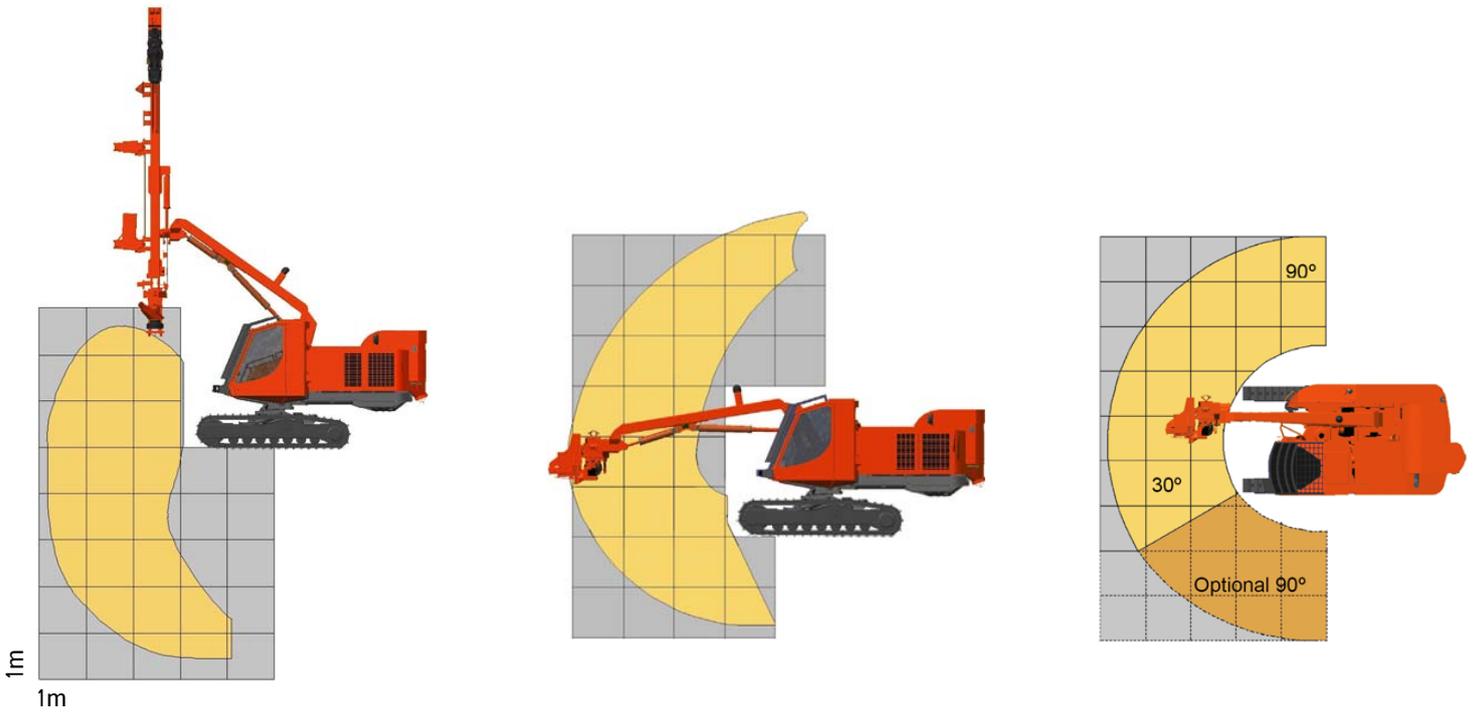
Note: Not with 10' MF-rods. If several jaws selected please specify jaws assembled.

SELECTION OF OPTIONS

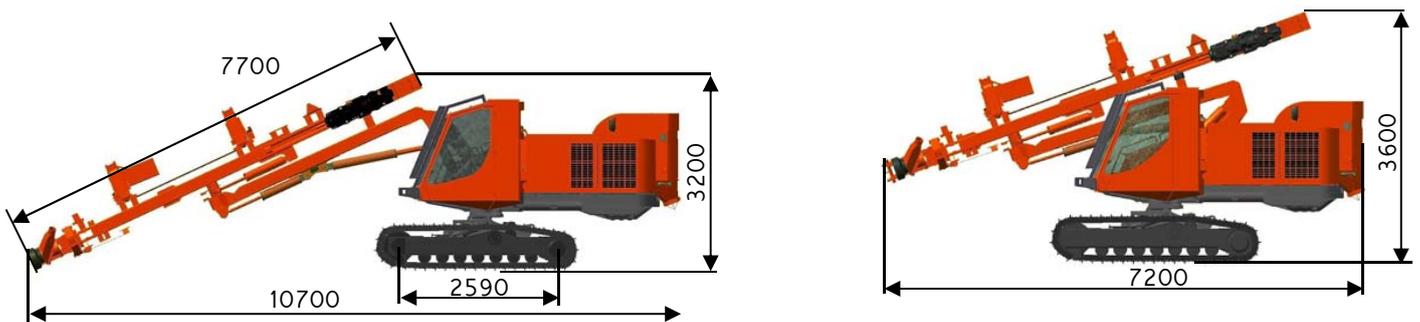
1.	Turnable superstructure 180 deg.
2.	Alternative seat ISRI 6000
3.	Radio and CD-MP3 player
4.	Reversing camera
5.	Vacuum cleaner for cabin
6.	TIM 5200 for vertical holes
7.	TIM 5300 for vertical holes and depth measuring
8.	TIM 6300 for inclined holes and depth measuring
9.	TIM 6500 for inclined holes, depth measuring and laser level
10.	TIM 6700 with interface to external navigation system
11.	GPS aiming device for TIM 6300 and TIM 6500
12.	TIM3D navigation system
13.	Power extractor
14.	Readyness for Power Extractor
15.	Horizontal drilling kit including hose reel
16.	Hose reel (not with 14' rods)
17.	Thread greasing
18.	Thread greasing with 5 gallon bucket
19.	Anti- freeze system for air lines
20.	Primary separator
21.	Flushing control automatics
22.	Shut down of suction for water holes
23.	Dustmizer
24.	Water injection system
25.	Guides for grousers
27.	Three bar grouser plates
28.	Towing hook
29.	Xenon lights, 6 pcs
30.	Hydraulic rear ground support
31.	Winch with radio remote control and cable tightness automatics
32.	Radio remote control for rear ground support, tramming and oscillation
33.	Fuel powered heater for engine and cabin
34.	Fuel powered heater for engine, cabin and water tank
35.	Readyness for fuel powered heater
36.	Electric fuel filling pump
37.	Grinder Sandvik RG420H
38.	Central lubrication system Sandvik
39.	Biodegradable hydraulic oil, Shell Naturelle HFE 46 or HFE 68
40.	Kit for alternative steels, each
41.	First service kit for DX800
42.	Special tools for HL 800T, field kit
43.	Special tools for HL 800T, complete
44.	Extra manuals
45.	Security+ Silver, Gold or Platinum
46.	SanRemo (Silver, Gold or Platinum)
47.	LED lights
48.	EN 16228 Safety cage for feed

See more detailed option descriptions in Sales Tools

COVERAGE AREA



TRAMMING AND TRANSPORT DIMENSIONS



Weight (without options)	15000 kg
Width	2.45 m
Height	3.6 m / 3.2 m
Total length	7.2 m / 10.7 m

Sandvik Mining and Construction reserves the right to change this specification without further notice.

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