

Supplemental Information

270 Beach Road Float Improvements Project

This supplementary information document provides additional information that is pertinent to the US Army Corps of Engineers (USACE) NWP 3 and/or NWP 25 application for Section 404 of the Clean Water Act and Regional Water Quality Control Board (RWQCB) application NOI Construction and Maintenance of Overwater Structures for Section 404 of the Clean Water Act and includes text that could not effectively be included in the forms or is additional for review by USACE and RWQCB for their determination.

Some boxes could only include text too small to read dependably on the USACE 4345 application form for Section 404 of the Clean Water Act and the Regional Water Quality Control Board (RWQCB) Application NOI and we provide that information here as well for readability.

USACE BOX 15. Location Of Project

Latitude: 37.866313° N

Longitude: -122.460600° W

USACE BOX 16. Other Location Descriptions, If Known (See Instructions)

RWQCB SECTION III, BOXES A-E. Project Location

The Project is located in Belvedere Cove (San Francisco Bay) within Assessor's Parcel Number (APN) 060-261-11. The Project is located offshore of the property owned by the Applicant at 270 Beach Road, Belvedere, California (APN 060-225-01, see Attachment A. Figure 1. Project Location and Figure 2. Parcel Map).

State Tax Parcel ID: 060-261-11

Municipality: Town of Belvedere

Section: N/A

Township: 01S

Range: 06W

USACE BOX 18: IDENTIFY THE SPECIFIC NATIONWIDE PERMIT(S) YOU PROPOSE TO USE

If the modification of the floating dock can be considered a slight alteration, we propose using NWP 3 for maintenance.

If NWP 3 may not be used, then NWP 25 for Structural Discharges should be considered for CWA Section 404. In this case a separate CWA Section 10 authorization may be required.

USACE BOX 19: DESCRIPTION OF PROPOSED NATIONWIDE PERMIT ACTIVITY

RWQCB SECTION V. BOXES A-M: PROJECT INFORMATION AND SECTION V. BOX B: DISCHARGE INFORMATION AND SECTION VII: PROJECT SIZE

Project Components

The Project proposes to add a new 223 sf floating dock finger adjacent to the existing floating dock to accommodate a private vessel use by the property owner. A new 12-inch diameter steel piling with a black polyethylene jacket will be installed to support the new floating dock. Two 12-inch diameter steel berthing pilings will be removed from the San Francisco Bay. See Attachment A. Figure 3. Project Actions and Attachment B. Project Plans for the location of the proposed project components and project engineering details.

- **Floating dock finger addition:** The area of the proposed floating dock finger addition is 223 sf. The addition of the new floating dock finger to the existing overwater structure will increase the total area of the overwater structure to 1,312 sf (not including the slip space). The new floating dock is shaped like the letter “L” and will be positioned parallel to the existing floating dock and oriented at 40 degrees, within 45 degrees of the north-south direction. The longer portion of the proposed addition is 39 feet long by 4 ft wide and the shorter portion of the addition (at the head of the slip) is 18 feet long by 4 ft wide. Two filler triangles will be installed in the inside corners of the slip. The floating finger dock will be composed entirely of untreated glued laminate cedar connected with steel hardware. The deck will float on ten polyethylene floats, each 4 ft long, 2 ft wide, and 20 in high. A steel pile hoop will connect the floating dock to the new pile.
- **New pile installation:** One new 12-inch diameter steel pile wrapped in plastic jacketing will be installed at the southern corner of the floating dock addition for support. The footprint of this pile is roughly 1 sf.
- **Berthing pile removal:** The two berthing piles located to the northeast of the existing floating dock will be removed from the Bay as they would no longer be needed if a slip is available.
- **Vessel moorage:** The private vessel will be moored in between the two floating docks. The slip space is 14 ft wide and 35 feet long for an area of 490 sf. The vessel planned to be moored is 28 ft long and 8 ft wide for an area of 224 sf. It should be noted that a 40 ft long by 12ft wide vessel can already be moored as previously authorized.

All project actions are located bayward of the mean high tide (MHT) line in the Corps and RWQCB’s jurisdiction.

Construction methods

Prior to placement of the floating dock addition, the two existing steel berthing piles will be removed by using a direct pull or vibratory hammer with a crane from a barge. Prior to removal, the piles will be struck to reduce the bond between the sediment and the pile to reduce turbidity impacts when removing. To minimize the spread of turbidity plumes and water quality impacts, a silt curtain will be placed in the immediate work area during the pile installation and removal. The removed piles will be placed on the barge and be taken offsite.

The new pile will be driven using a vibratory hammer or an impact hammer with a wood cushion block between the hammer and pile from the barge-mounted crane. If using an impact hammer, the impacts

will start off slow and with less impact force in order for resident fish to move out of the area and then ramp up to normal operating levels. A debris boom and silt curtain will be used around the pile installation area to minimize turbidity.

The barge anticipated to be used will be 25 ft by 60 ft with a 3-ft draft (Figure 3. Project Actions). The barge-mounted crane is anticipated to have a 50-ton weight lifting capacity remain onsite for no more than 6 hours in total. A construction day for pile work will be selected so that the barge will be present on site only during tides of 2.6 feet above mean low low water (MLLW) or higher to avoid the barge coming within 18-inches of the Bay substrate. The barge will require dropping two, 12-inch diameter spuds to the Bay substrate to hold it in place during the work. The spuds will be dropped and lifted only one time. We conservatively anticipate that the spuds will be dropped within vegetated eelgrass habitat, constituting a potential temporary impact.

The floating dock addition will be prefabricated and unloaded from the barge or floated in separately with a small work skiff. The floating dock will be attached to the existing floating dock and new pile by hand from the top of the floating dock with support from a small work skiff. Additional elements such as railings and the swim ladder will be installed by hand from the floating dock as well.

Project Schedule

The entire project is anticipated to require no more than one week to complete, which includes

Barge access and setup, removal of two berthing piles, installation of one 12-inch steel pile, and exiting of the barge is anticipated to require no more than 6 hours. If the prefabricated floating dock is brought to the site by the barge, it will be unloaded in that time frame as well. This portion of the work with the barge will be planned around a high tide cycle to avoid any low tides and avoid the barge coming within 18 inches of the Bay substrate.

Connection of the new finger dock to the existing dock and installation of hardware is anticipated to require no more than 5 days of intermittent work.

All work will be conducted between June 15 and November 30 to be undertaken during the San Francisco Bay in-water work windows. Work is planned for 2024, however if permits cannot be attained during summer of 2024, work may be conducted in 2025.

Project Impacts

Potential impacts resulting from the project can be categorized as temporary during construction and permanent impacts following construction.

Temporary Impacts

Temporary construction impacts may include minor and localized increases of turbidity, noise and vibration, and disturbance to the Bay substrate may occur during the removal and installation of the pilings. There will also be temporary (less than 6 hours) shading impacts from the 25' x 60' barge (1,500 sf) during construction. No contact of the barge and Bay substrate is anticipated. It is anticipated that a single period of shading will have no appreciable impact on the eelgrass bed or benthos.

Impacts from the setting and removal of the barge spuds will be temporary as they will be in place for a maximum of six hours. Impacts will include the potential displacement of 2 sf of eelgrass and potential for minor turbidity to occur over a period of less than one hour. Eelgrass is anticipated to grow back quickly (within the season) in the areas where the spuds are placed.

With the minimization measures in place, all construction-related activities are anticipated to be minor.

No impacts are anticipated during the placement and attachment of the new floating dock finger to the existing dock and new pile as all work will be conducted above the water.

Permanent Impacts

The potential permanent structural impacts include the new 223 sf floating dock that will shade San Francisco Bay in the long term. The removal of two pilings and installation of one represents a long-term beneficial impact of 1 sf. Table 1 shows the temporary actions and their impacts on both bay substrates and overwater structures. Impacts are shown in Attachment A. Figure 5. Potential Impacts to Eelgrass Habitat.

Although a boat will be moored in the slip, it is not considered here as the same vessel or up to 40 ft long by 12ft wide vessel can already be moored between the existing mooring piles and the floating dock as previously authorized.

Table 1. Project Items Below High Tide Line

Project Items	Quantity	Impact Areas of Overwater Structure (sf)	Impact Area Contacting Bay Substrate (sf)	Permanent/Temporary
New Floating Dock (223 sf)	1	223		Permanent
New 12-inch Pile	1		1	Permanent
Barge (25' x 60')	1	1,500		Temporary
Remove Two Existing 12-inch diameter Piles	2		-2	Permanent
Total permanent impacts (sf)		223	-1	Permanent
Total temporary impacts (sf)		1,500	3	Temporary
Total area of impacts (permanent + temporary)		1,726		

Eelgrass Habitat Impacts

Eelgrass bed coverage area and density varies between seasons and years depending upon various environmental factors and influences, such as fresh water outflow, nutrient availability, and light availability (generally related to natural turbidity) and storm events. In locations where eelgrass beds have persisted over many years and where eelgrass has been documented as absent for many years can give some confidence of the eelgrass occurring in future seasons. However, at the edges of the beds where expansion and contraction occur, and in areas with marginally suitable habitat is located, eelgrass coverage and density can be quite variable. In these locations, predictions of how an eelgrass bed will grow or recede or will start to grow is difficult and any predictions cannot be made with any specific level

of accuracy. Therefore, predictions of how a specific project might impact eelgrass beds for the following seasons is difficult, except where eelgrass has been consistently present or absent for many years.

Eelgrass is present within the Project Area (see Attachment A. Figure 4. Eelgrass Habitat) and is anticipated to be present at the time of construction, although the extent cannot be determined. However, we can estimate the maximum extent of eelgrass habitat impact based on the July 2023 eelgrass survey as this was one of the highest growth years in recent history. If the same amount of eelgrass is present that was present in July 2023, the new floating dock finger would shade approximately 130 sf of vegetated eelgrass habitat and 93 sf of unvegetated eelgrass habitat. The installation of the one new pile would impact approximately 1 sf of unvegetated eelgrass habitat. The removal of the two berthing piles would be beneficial in the long term by restoring 2 sf of vegetated eelgrass habitat. Please see Attachment A. Figure 5. Potential Impacts to Eelgrass Habitat. If eelgrass habitat recedes from the extent of the 2023 growth year, we would anticipate that eelgrass habitat impacts would be reduced as well.

The proposed preconstruction and post-construction surveys conducted as required by the 2014 CEMP will provide the actual impacts to the eelgrass present at the time of construction.

USACE BOX 20. DESCRIPTION OF PROPOSED MITIGATION MEASURES

Proposed Avoidance and Minimization Measures

The following avoidance and minimization measures will be implemented during construction:

1. A debris containment system, including a silt curtain, will be installed around the entirety of the work area and any construction debris will be recovered as quickly as feasible for proper disposal.
2. In-water work will be confined to the established work window of June 15 and November 30. .
3. Piles will be removed with a vibratory hammer, after being hit or vibrated first to break the bond between the sediment and the piles to minimize sediment sloughing and will be removed slowly to allow sediment to slough off at or near the mudline.
4. Piles will be installed with a vibratory hammer to the greatest extent feasible and will utilize silt curtains to minimize resuspended sediment in the water column.
5. All staging, on-site fabrication, and materials modifications will occur on the barge of land to the greatest extent feasible.
6. Barge work will only occur during high tides to ensure the barge bottom does not come within 18 inches of the bay bottom.
7. Removed piles will be placed on the barge such that all sediment and runoff is captured in a basin and not allowed to enter the water.
8. If a piling breaks off above the mudline during removal, the loose piece of pile will first be placed on the barge or onshore prior to removing the remaining portion of the pile.

Eelgrass Habitat Mitigation

Eelgrass has been shown to be present historically within the Study Area (Attachment A. Figure 4). The most recent eelgrass survey, conducted by Sunset Environmental Solutions in July 2023, observed eelgrass in the project location for the proposed floating dock addition (Attachment A. Figure 3).

Following CEMP 2014 guidelines, a pre-construction eelgrass survey of the Study Area will be conducted within 60 days before the beginning of construction and within 30 days of the end of construction by a qualified biologist with previous experience conducting such surveys. Monitoring will occur for two years

following construction. If NMFS determines a mitigation plan is needed, the most appropriate mitigation option will be considered.

NMFS 2018 NLAA Program Measures and Compliance

The following measures recommended by the Additional Procedures and Criteria for Permitting Projects under a Programmatic Determination of Not Likely to Adversely Affect Select Listed Species in California (the 2018 NLAA Program) will be implemented to extent feasible during the Project.

Although the Applicant realizes this Project may not qualify under the 2018 NLAA Program, because not all criteria are specifically met, the Project strives to incorporate as many of the minimization and avoidance measure as possible. We list each measure recommended below and how the Project will comply with each.

Avoidance and Minimization Measures

Specific Criteria

- The 2018 NLAA Program covers construction (including replacement) of single newly constructed boat docks, piers, and overwater structures (floating or non-floating) that do not exceed 1,500 square feet of overwater surface area. Projects with multiple docks cannot be separated to meet the requirements of the 2018 NLAA Program.
 - The Project is 223 sf and meets this criterion.
- Projects with in-water work that are located within a distance of 33 feet to 66 feet of SAV must adhere to the following measures:
 - Ensure that barges and vessel hull bottoms do not come within 18 inches of the bay bottom at MLLW
 - The barge will be limited onsite at times when tides are above 2.6 feet above MLLW, ensuring the barge will not come within 18 inches of the bay floor. The project will meet this criterion.
 - Ensure that barge spuds, anchors and chains, and other vessel equipment are not directly deployed in eelgrass or the 17-foot perimeter around eelgrass.
 - Two spuds will be dropped within the 17-foot perimeter of eelgrass. It is infeasible to operate the barge without spuds and this is an unavoidable temporary impact to 2 sf of eelgrass habitat.
 - Ensure that vessel propellers do not scar or scour eelgrass or the 17-foot perimeter around eelgrass.
 - Vessel propellers will be located more than 17 feet outside of the historical limit of eelgrass to the northeast of the project area. Depths in areas where the propellers are greater than 6 feet below MLLW and no impacts are anticipated. The project will meet this criterion.
- No new creosote-treated piles will be installed.
 - No creosote piles are proposed for this Project. The project will meet this criterion.
- All floating dock pilings, mooring dolphins, and fender piles must be capped with devices (bird spikes or similar) to prevent perching by piscivorous bird species.

- All pilings will be capped with plastic or fiberglass cones to prevent perching of piscivorous birds. The project will meet this criterion.
- Effective erosion and sediment control best management practices (BMPs) will be undertaken and maintained to prevent discharge of sediment to waters of the State. This includes the aforementioned debris boom and silt curtain.
 - A debris boom/silt curtain will be deployed around the work area during construction. The project will meet this criterion.

Pile Driving

- Impact hammer with steel piles – Piles must be 12 inches or less in diameter, and the hammer must be 3,000 pounds or smaller and must use a wood or plastic cushion block between the hammer and pile. Limited to projects using only one hammer and less than 20 piles installed per day.
 - Piles will be 12 inches in diameter and the hammer will be less than 3,000 pounds and use a wood cushion block. Only one hammer will be used to install the one pile. The project will meet this criterion.
- Install and remove piles with a vibratory hammer whenever possible, rather than the direct pull or clamshell method. Under those conditions where impact hammers are necessary (e.g., substrate type and seismic stability) the pile must be driven as deep as possible with a vibratory hammer before the use of the impact hammer.
 - The project may use a vibratory hammer, however and impact hammer may also be used with a direct pull method. The project may meet this criterion.
- When pile driving in an intertidal area (a place that is exposed at low tide), drive piles during low tide when minimal water is present, and substrates are exposed.
 - No piles will be driven in intertidal areas. The project will meet this criterion.

Work Windows

- Work will only occur in the San Francisco Bay work window of June 15 through November 30 to avoid salmonids and spawning pacific herring.
 - Work will occur between June 15 and November 30. The project will meet this criterion.
- Project activities are to occur only during daylight hours.
 - All project activities will occur during daylight hours. The project will meet this criterion.

Given the above-described avoidance and minimization measures, it is anticipated that the project will not conform entirely to the 2018 NLAA Program, however it will comply with most of the criteria.

[RWQCB Water Quality Certification for Overwater Structures Measures and Compliance](#)

The Order No. R2-2018-0009 covers project actions associated with construction or maintenance, including upgrades, retrofit, expansion, demolition, and reconfiguration of piers and docks (including associated ramps and floating docks) where the Applicant owns or operates a waterfront structure of less than 10,000 square feet (sq. ft.) of overwater coverage, including additions. This Order also includes pile removal, replacement, and installation.

Although the Applicant realizes this Project may not qualify under the RWQCB Overwater Structures WQC NLAA Program, because not all criteria are specifically met, the Project strives to incorporate as many of the minimization and avoidance measure as possible. We list each measure recommended below and how the Project will comply with each.

Avoidance, Mitigation, and Monitoring

1. If the proposed project is within 150 feet of a mapped eelgrass bed, then prior to construction, the Permittees shall perform an eelgrass survey of the project area during the months of May through September (i.e., the active growth period for eelgrass in San Francisco Bay). All eelgrass surveys shall be performed in accordance with the latest version of NMFS' California Eelgrass Mitigation Policy and Implementing Guidelines. The survey is valid for either 60 days from the survey date or until the next active growth period if construction occurs after the end of the active growth period.
 - Pre-construction, post-construction, and two annual eelgrass surveys will be conducted per the CEMP 2014 guidelines. The Project will comply with this measure.
2. If the results of the pre-construction survey indicate that the proposed project is located within an eelgrass bed, the Permittees shall modify the project to avoid placing any portion of the overwater structure in or over eelgrass unless the Permittees submit an assessment of alternatives that demonstrates that it is infeasible to avoid placing the structure in or over eelgrass.
 - Placing the structure outside of historically located eelgrass beds is infeasible. The Project will comply with this measure.
3. If it is infeasible to avoid placing the structure in or over eelgrass, the Permittees shall design the project to minimize impacts to eelgrass beds to the maximum extent feasible. At a minimum, decking materials above eelgrass shall be comprised of slotted materials or spaced to provide a minimum 40 percent transparency, thereby minimizing impacts from shading of eelgrass by allowing light penetration below the structure.
 - The decking of the floating dock will not provide 40 percent light transmittance because the floats themselves are opaque and alternatives are not available. The Project will not be able to comply with this measure.
4. If it is not feasible to avoid placement of the structure in or over eelgrass, the Permittees shall submit to the Regional Water Board a mitigation and monitoring plan (MMP) that shall be implemented to compensate for unavoidable impacts to eelgrass. Construction of the proposed project shall not commence until the Executive Officer provides written approval of the MMP.
 - A MMP will be provided. The Project will comply with this measure.
5. To compensate for any remaining unavoidable impacts to eelgrass beds, the Permittees shall provide an MMP prepared by a qualified biologist with experience in surveying, monitoring, and implementing eelgrass mitigation plans.
 - A MMP will be provided. The Project will comply with this measure.
6. To compensate for impacts not related to eelgrass impacts, the Permittee shall propose mitigation commensurate with the impacts.
 - A MMP will be provided. The Project will comply with this measure.
7. The purpose of the required monitoring is to evaluate the success or failure of avoidance, minimization, and compensatory mitigation for eelgrass impacts. The level of detail of the MMP and associated reporting shall be commensurate with the scope and size of the restoration.
 - A MMP will be provided. The Project will comply with this measure.

8. New anchored moorings and persistently moored vessels shall be placed in areas in which submerged aquatic vegetation habitat is ordinarily absent.
 - The proposed slip is located in an area where eelgrass has been observed to be ordinarily present. However, the previous authorized mooring location has greater historical occurrence for eelgrass and is more suitable for eelgrass growth. The relocation of the mooring site represents a net zero loss or possibly a net positive gain in eelgrass habitat. Additionally, the proposed slip area is already able to be used for mooring a vessel and the only difference is the additional 223 sf of floating dock. The Project may not meet this criterion.
9. Persistently moored vessels shall be placed on waters deep enough so that the bottom of the vessel remains a minimum of 18 inches off the substrate during extreme low tide events to prevent adverse grounding impacts to benthic habitat.
 - The proposed slip ranges from 2.24 to 3.15 feet below MLLW. The lowest predicted tide at NOAA Tidal Station 9414817 (Angel Island West) for the 2024 year is 1.59 feet below MLLW. The proposed vessel keel depth is a maximum of 1.5 feet while moored. At the lowest tide of the year, the vessel comes within 18 inches of the bay floor. The Project does not meet this criterion.
10. Piles shall be removed with a vibratory hammer whenever practicable.
 - The project may use a vibratory hammer, however and impact hammer may also be used with a direct pull method. The project may meet this criterion.
11. Piles shall be installed during low tide periods using a vibratory hammer, unless the Permittee demonstrates that it is infeasible.
 - The piles will need to be driven at high tide to avoid the barge from coming within 18 inches of the bay floor during pile installation. This measure is inconsistent with the 2018 NLAA Program and as such is infeasible. Based on the infeasibility, the Project meets this criterion. The method of least potential impact was chosen.
12. Impact hammer use with wood piles shall be limited to projects using only one hammer, and no more than 20 piles shall be installed per day.
 - No wood piles will be installed. This measure does not apply.
13. Impact hammer use with concrete piles shall be limited to piles less than 18 inches in diameter, and no more than 20 piles shall be installed per day.
 - No concrete piles will be installed. This measure does not apply.
14. Impact hammer use with steel piles shall be limited to piles less than 12 inches in diameter, and the hammer must be 3000 pounds or smaller and must use a wood or nylon (plastic) cushion block between hammer and pile. Projects shall be limited to using only one hammer, and no more than 20 piles shall be installed per day.
 - One 12-inch diameter pile will be driven and the hammer will be less than 3,000 pounds and use a wood cushion block. Only one hammer will be used to install the one pile. The project will meet this criterion.
15. In-water construction periods shall be restricted to environmental work windows protective of aquatic species (June 1 – November 30).
 - In-water construction work will occur between June 15 and November 30. The project will meet this criterion.
16. Project activities within 700 feet of tidal marsh or suitable Ridgway's Rail (formerly California Clapper Rail) or California Black Rail habitat are prohibited during rail breeding season (January 15 – August 31 for Ridgway's Rail, February 1 – August 31 for California Black Rail).

- The Project is not located within 700 feet of tidal marsh or suitable Ridgway's Rail or California Black Rail habitat. The project will meet this criterion.
17. No project activities shall occur within 50 feet of suitable Ridgway's Rail or California Black Rail habitat during extreme high tide events or when adjacent tidal marsh is flooded. Extreme high tides events are defined as a tide forecast of 6.5 feet or higher measured at the Golden Gate Bridge and adjusted to the timing of local high tides.
- The Project is not located within 50 feet of tidal marsh or suitable Ridgway's Rail or California Black Rail habitat. The project will meet this criterion.

Attachments

Attachment A. Figures

Figure 1. Project Location

Figure 2. Parcel Map

Figure 3. Project Actions

Figure 4. Eelgrass Habitat

Figure 5. Potential Impacts to Eelgrass Habitat

Attachment B. Project Plans

Attachment C: RWQCB Water Quality Certification Dredge and Fill Application Fee Calculator

Attachment D: Preliminary Eelgrass Survey (Sunset 2023)

Attachment A
Figures



Figure 1. Project Location

270 Beach Road, Belvedere, California

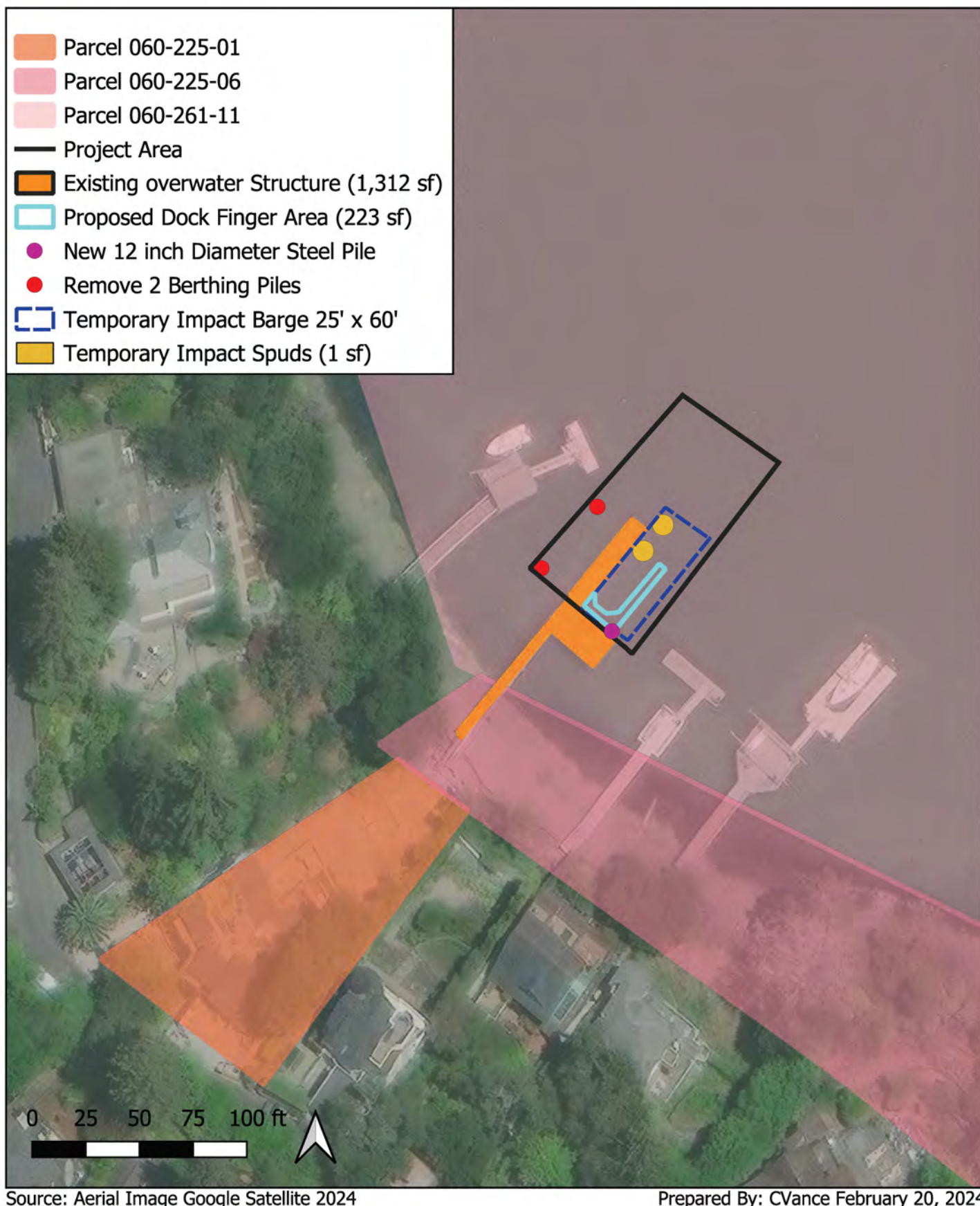


Figure 2. Parcels

270 Beach Road, Belvedere, California



Figure 3. Project Actions
270 Beach Road, Belvedere, California

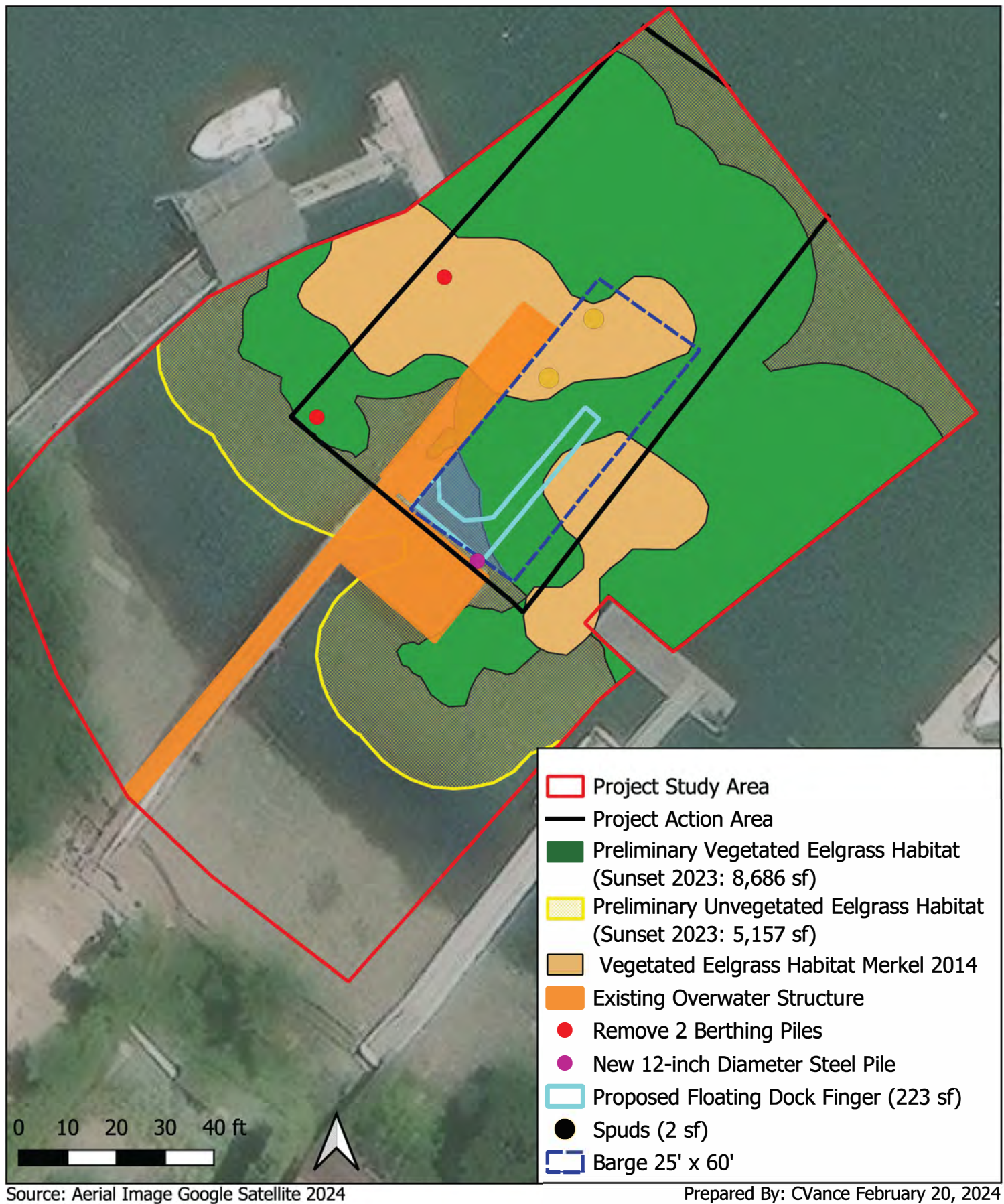
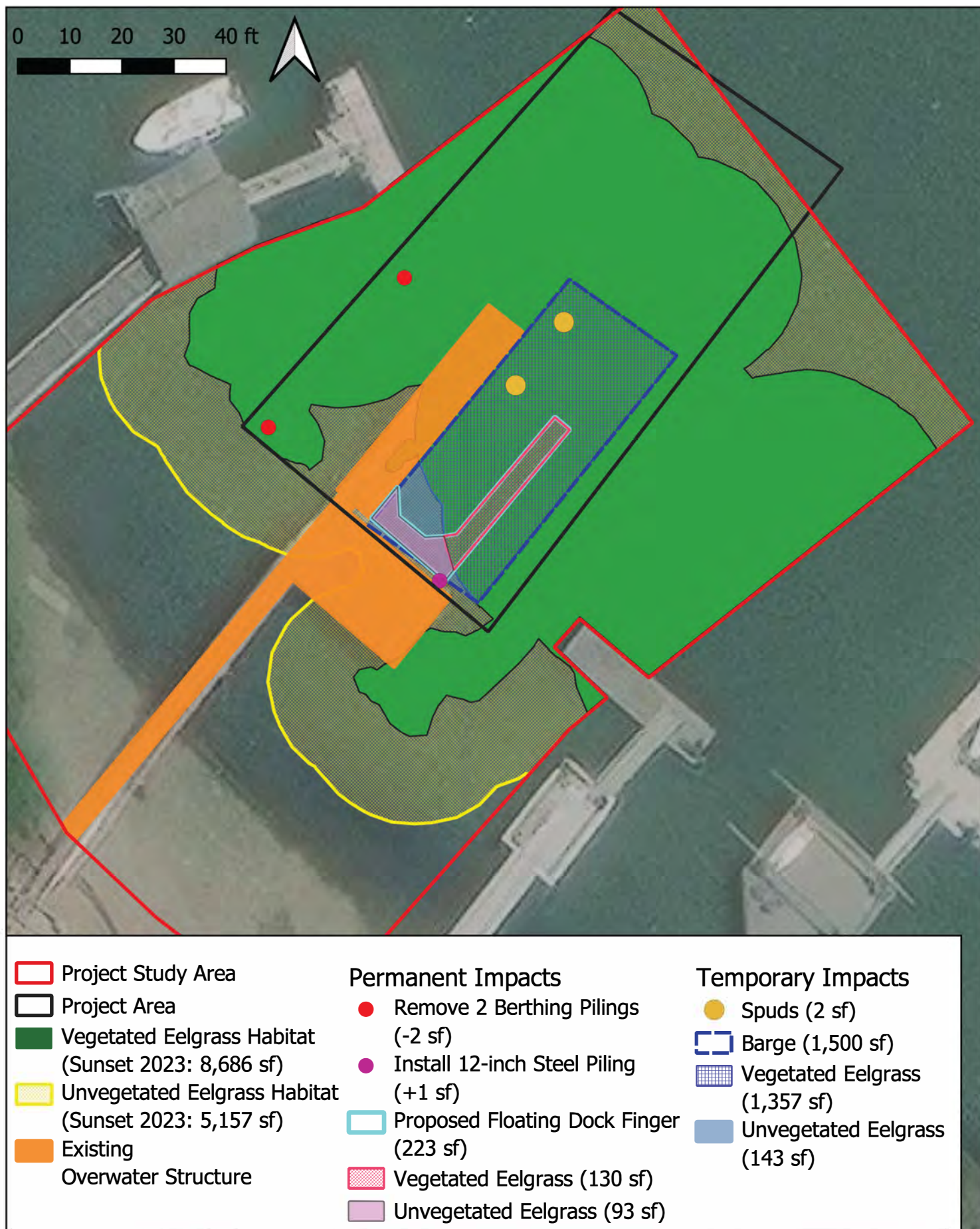


Figure 4. Eelgrass Habitat
270 Beach Road, Belvedere, California



Source: Aerial Image Google Satellite 2024

Prepared By: CVance February 20, 2024

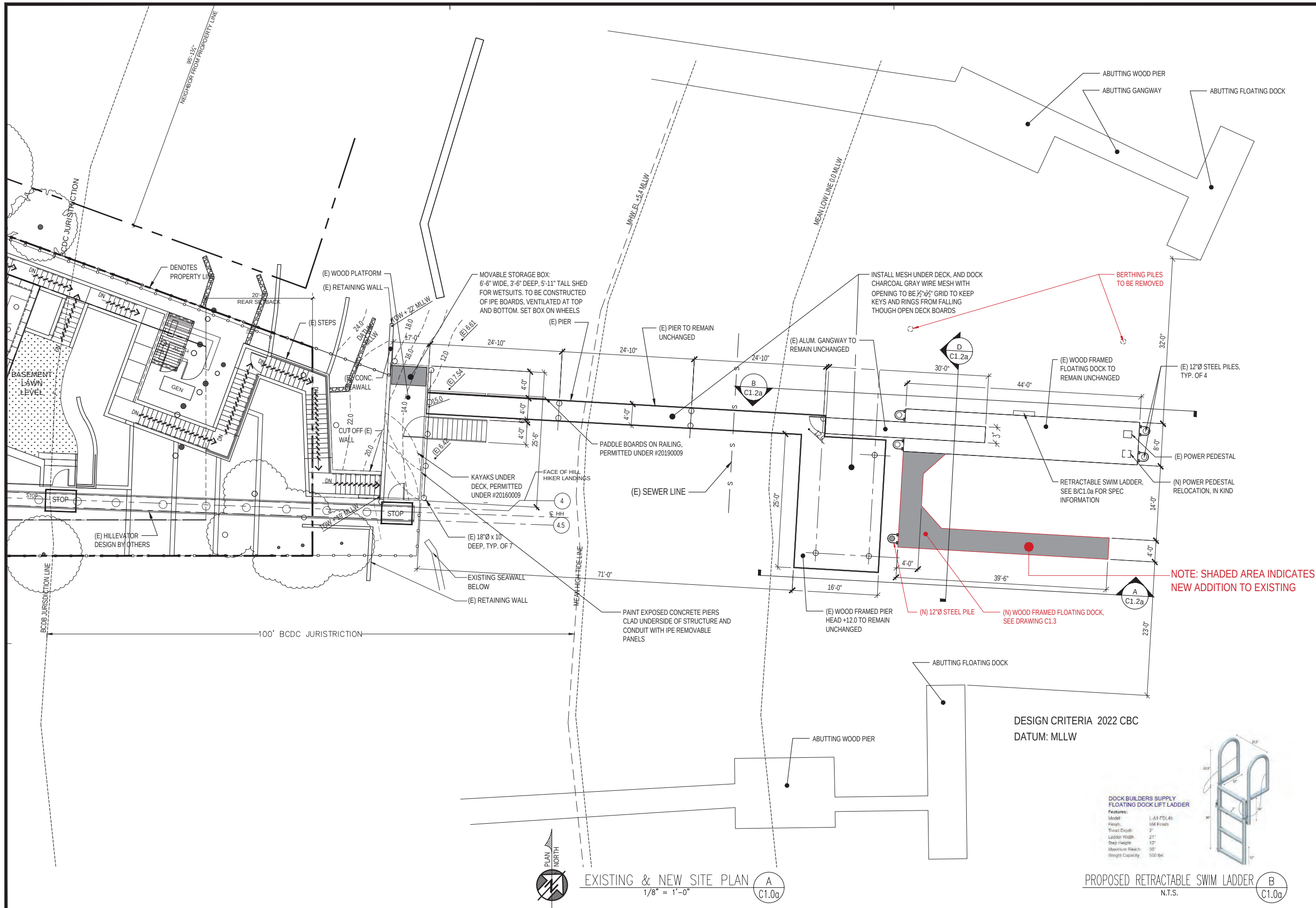
Figure 5. Potential Impacts to Eelgrass Habitat

270 Beach Road, Belvedere, California

Attachment B
Project Plans

Drawings and written material appearing herein constitute the original and published work of Clausen Engineers and the same may not be duplicated, copied, or disclosed without the written consent of Clausen Engineers.

- ENLARGE EXISTING FLOAT
- ADD ONE PILE
- REMOVE TWO PILES
- NOTE: EXISTING PIER, GANGWAY AND FLOAT TO REMAIN AS IS



**270 BEACH RD
FLOAT IMPROVEMENTS**

270 BEACH RD
BELVEDERE, CA



DATES ISSUED:	
DATE	DESCRIPTION
10/19/23	SHORTEN FLOAT
11/07/23	GENERAL
01/22/24	PERMIT SUBMITTAL
02/13/24	PERMIT SUBMITTAL

REVISIONS		
No.	DATE	DESCRIPTION

**EXISTING & NEW
SITE PLAN**



DRAWN: _____ CHECKED: _____

C1.0a

PROJECT No.: 26153

CAD FILE: 26153/Dock Rebuild/C1.3a DATE MODIFIED: 02/13/24

All drawings and written material appearing herein constitute the original and unpublished work of Clausen Engineers and the same may not be duplicated, used, or disclosed without the written consent of Clausen Engineers.



W.B. Clausen
Structural Engineers

1727 64TH Street
Emeryville, California 94608
Ph: 510.655.4144
Fx: 510.655.1133
www.clausenengineers.com

PROJECT NAME:

270 BEACH RD FLOAT IMPROVEMENTS

270 BEACH RD
BELVEDERE, CA

STAMP:



DATES ISSUED:

DATE	DESCRIPTION
10/19/23	SHORTEN FLOAT
01/22/24	PERMIT SUBMITTAL
02/13/24	PERMIT SUBMITTAL

REVISIONS:

No.	DATE	DESCRIPTION
1		
2		
3		
4		

DRAWING TITLE:

EXISTING & NEW ELEVATIONS

SCALE:



DRAWN:

CHECKED:

KCC

SHEET No.:

C1.2a

PROJECT No.:

26153

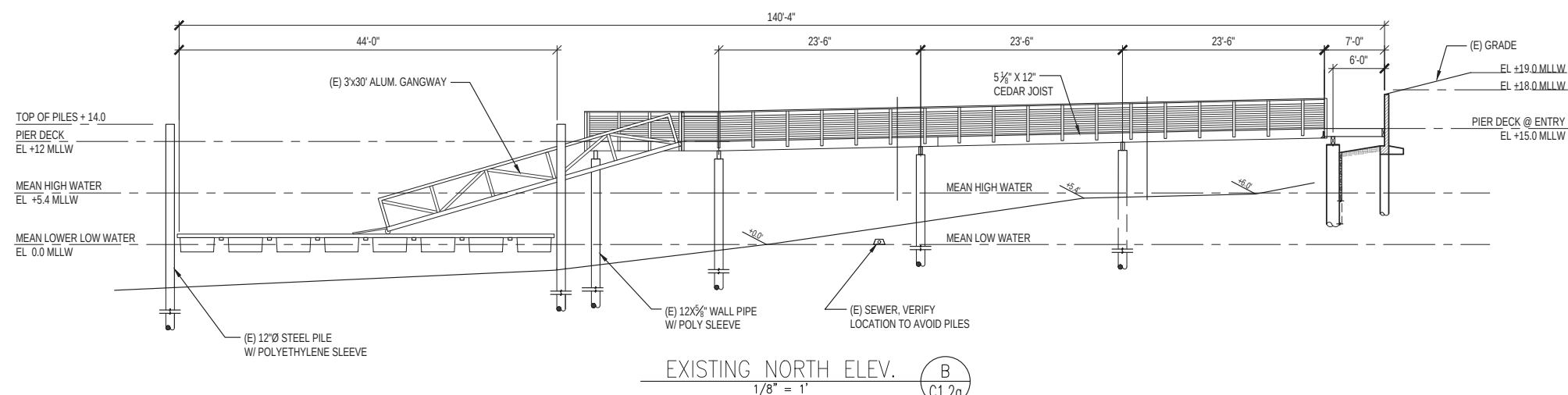
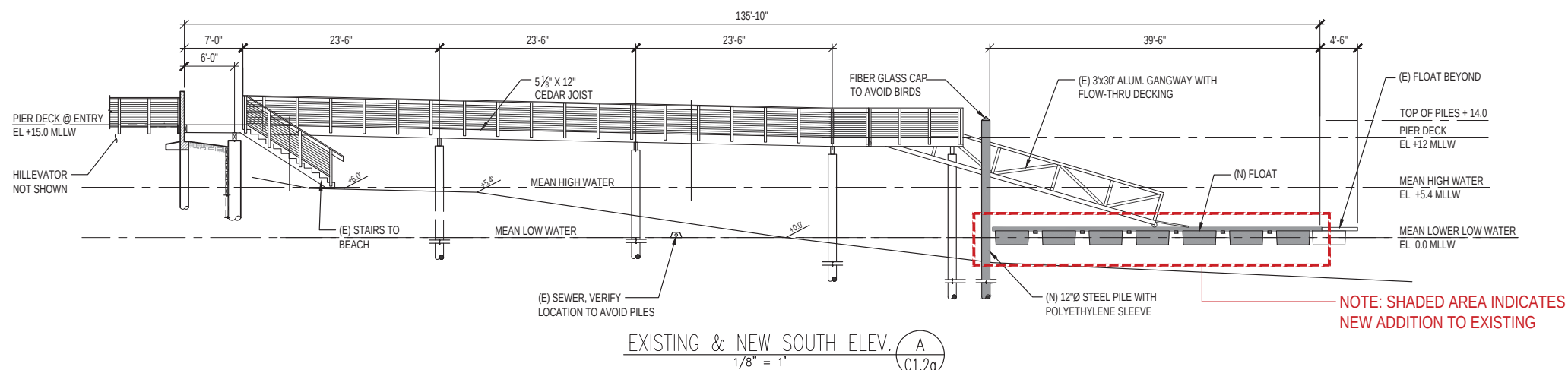
CAD FILE:

DATE MODIFIED:

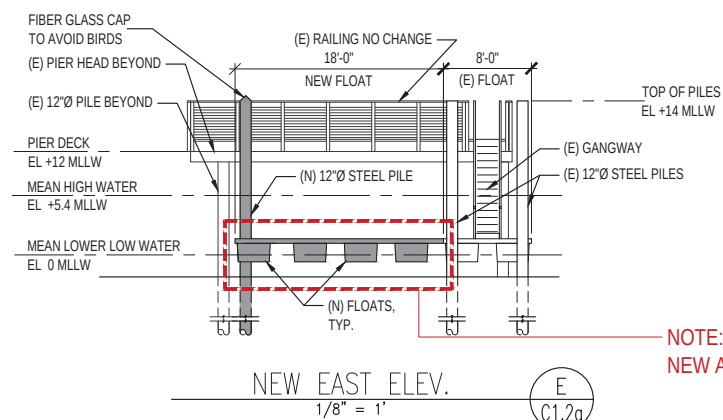
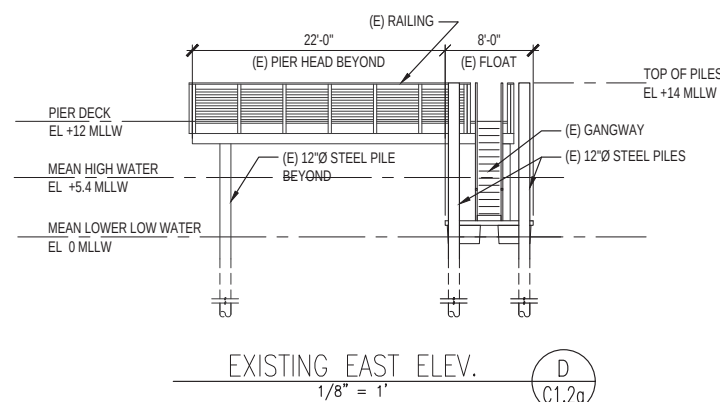
26153\Dock Rebuild\C1.2a

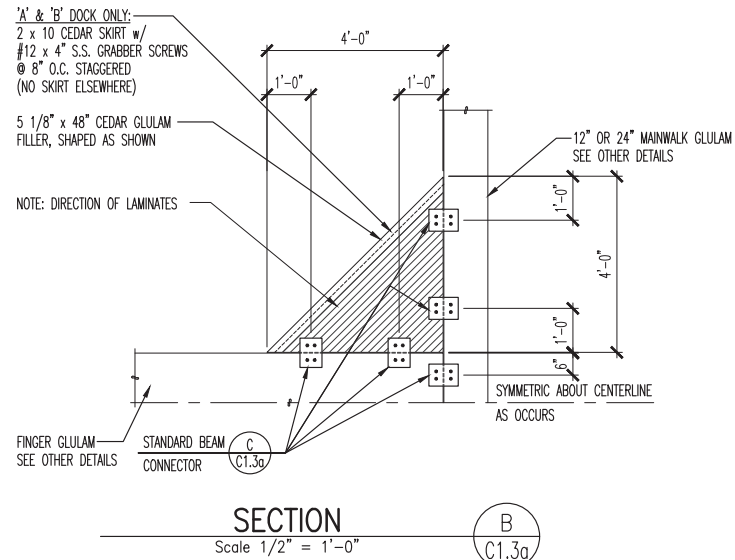
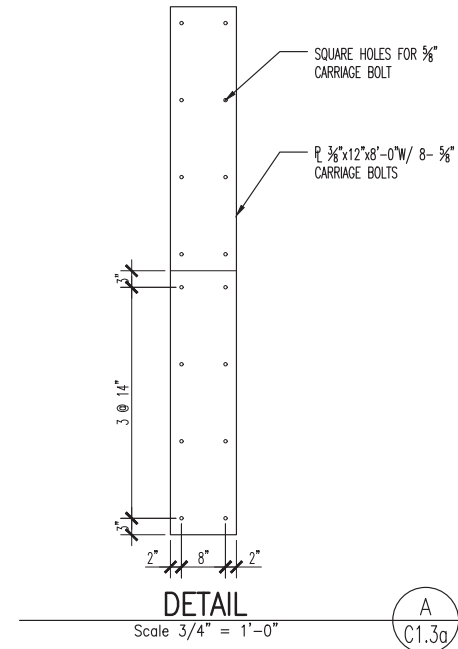
02/13/24

All drawings and written material appearing herein constitute the original and unpublished work of Clausen Engineers and the same may not be duplicated, used, or disclosed without the written consent of Clausen Engineers.

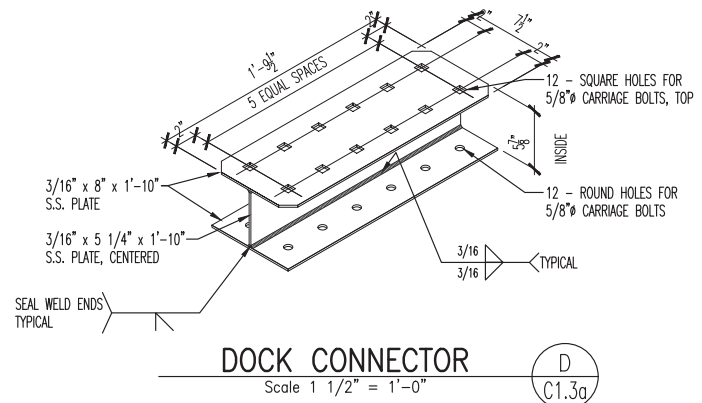
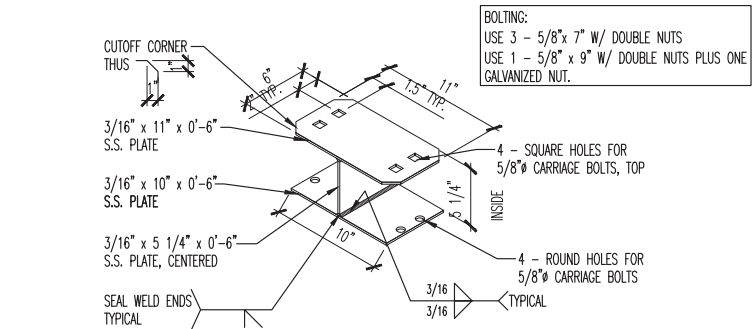


DATUM: MLLW

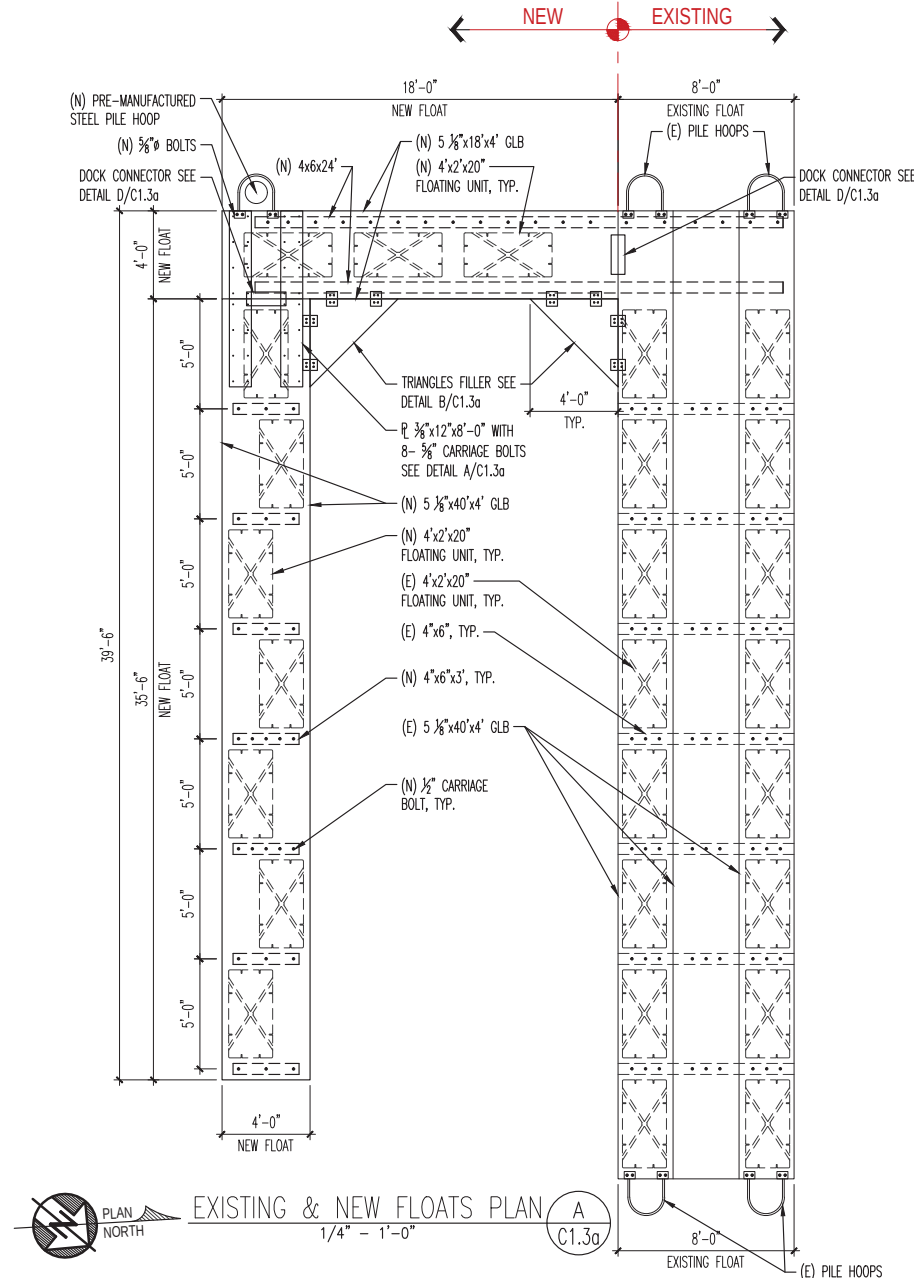




PROPOSED DOCK
CEDAR GLULAM DECKING 1



BOLTING:
USE 3 - 5/8"x 7" W/ DOUBLE NUTS
USE 1 - 5/8"x 9" W/ DOUBLE NUTS PLUS ONE GALVANIZED NUT.



PROPOSED PILE
STEEL W/ BLACK POLY SLEEVE 2

W.B. Clausen
Structural Engineers

1727 64TH Street
Emeryville, California 94608

Ph: 510.655.4144
Fx: 510.655.1133
www.clausenengineers.com

PROJECT NAME:

**270 BEACH RD
FLOAT IMPROVEMENTS**

270 BEACH RD
BELVEDERE, CA

STAMP:

DATES ISSUED:

DATE	DESCRIPTION
10/10/23	SHORTEN FLOAT
01/22/24	PERMIT SUBMITTAL
02/13/24	PERMIT SUBMITTAL

REVISIONS:

No.	DATE	DESCRIPTION
1		
2		
3		
4		
5		

DRAWING TITLE:

**EXISTING & NEW
FLOAT PLAN &
MATERIALS**

SCALE:

DRAWN: _____ CHECKED: KCC

SHEET No.: **C1.3a**

PROJECT No.: 26153

CAD FILE: 26153\Dock Rebuild\C1.3a DATE MODIFIED: 02/13/24

All drawings and written material appearing herein constitute the original and unpublished work of Clausen Engineers and the same may not be duplicated, used, or disclosed without the written consent of Clausen Engineers.



EXISTING DECKING IPE



EXISTING DECKING IPE



EXISTING GANGWAY ALUMINUM W/ TRHU FLOW DECK

EXISTING FLOATS, FLOATS AT PROPOSED LOCATION TO MATCH EXISTING



EXISTING GUARD RAIL CEDAR POSTS AND CAP W/ STAINLESS CABLES



EXISTING GUARD RAIL CEDAR POSTS AND CAP W/ STAINLESS CABLES



EXISTING GANGWAY ALUMINUM W/ TRHU FLOW DECK



W.B. Clausen
Structural Engineers

1727 64TH Street
Emeryville, California 94608
Ph: 510.655.4144
Fx: 510.655.1133
www.clausenengineers.com

PROJECT NAME:

270 BEACH RD
FLOAT IMPROVEMENTS

270 BEACH RD
BELVEDERE, CA

STAMP:



DATES ISSUED:	
DATE	DESCRIPTION
10/10/23	SHORTEN FLOAT
01/22/24	PERMIT SUBMITTAL
02/13/24	PERMIT SUBMITTAL

REVISIONS:		
No.	DATE	DESCRIPTION
△		
△		
△		
△		
△		
△		

DRAWING TITLE:

EXISTING PHOTOS &
MATERIALS

SCALE:



DRAWN:

CHECKED:

KCC

SHEET No.:

C1.4a

PROJECT No.:

26153

CAD FILE:

DATE MODIFIED:

26153/Dock Rebuild/C1.4a

02/13/24

All drawings and written material appearing herein constitute the original and unpublished work of Clausen Engineers and the same may not be duplicated, used, or disclosed without the written consent of Clausen Engineers.

Attachment C
RWQCB Water Quality Certification Dredge
and Fill Application Fee Calculator

Scroll down to see instructions below and use this calculator to estimate Water Quality Certification application fees

This calculator is publicly available for informational purposes only and estimates fees in accordance with the fiscal year 2023-2024 water quality fee schedule. Applicants may use the calculator to generate estimates for project budgeting. The State Water Board does not guarantee the accuracy of estimates generated by the calculator. The final fee amount will be determined by Water Boards staff in accordance with California Code of Regulations, Title 23, section 2200(a)(3). The State Water Board reserves the right to modify the calculator at any time.

Click here for a link to the current regulations.

Important note: This calculator may not be applicable to federal dischargers.

Please contact the State Water Board's Wetlands Permitting and Planning Manager with any questions

Combination Project: Check box for a combination deep water dredging and fill project; which are subject to both Category A and B fees.

☐

Discharge Size	Rounded Discharge Size	Application Fee	Category A Project Fee or Amendment Fee	Annual Fee
----------------	------------------------	-----------------	---	------------

Category A Fill & Excavation Discharges (Fee Code 84) Note: discharge size equals the sum of temporary and permanent impacts

Discharge Area Acres x \$26,608		0.00 Rounded to two decimal places	\$0	\$0
---------------------------------	----------------------	--	-----	-----

Category B* Dredging Discharges (Fee Code 86)

Estimated annual fee

Expected Annual Dredge Quantity Cubic Yards x \$0.653		0 Rounded to whole number	\$0	\$0
*Category B Projects are billed annually and based on the quantity of material dredged during the previous fiscal year				

Flat Fee Categories - Check ONE applicable box		Application Fee	Annual Fee
Category C (Fee Code 85)			

Sand Mining, In-Stream Gravel Mining and Beach Nourishment Discharges	☐	\$0	-	\$0
---	--------------------------	-----	---	-----

Category D (Fee Code 85)

Ecological Restoration and Enhancement Projects	☐	\$0	-	\$0
---	--------------------------	-----	---	-----

Category E (Fee Code 87)

Low Impact Discharges	☒	\$2,985	-	\$399
-----------------------	-------------------------------------	---------	---	-------

Category F (Fee Code 85)

Emergency Projects authorized by a General Order	☐	\$0	-	\$0
--	--------------------------	-----	---	-----

Category G Amended Orders - Check applicable box, Step 5 below

(1) All Category (D) Ecological and Restoration and Enhancement Projects, regardless of amendment type.	☐	Annual fee applicable per discharge category above.		
(2) Administrative amendments including, but not limited to, ownership changes, typographic edits, or time extensions that do not result in a temporal loss of resource function. Amendments in this category require no technical analysis or additional compensatory mitigation.	☐			
(3) Amendment results in change(s) in impact character, location, or volume of the discharge; or a time extension that results in temporal loss of resource function, according to the following criteria: -Amendment increases the active certification's impact quantity by less than 50 percent, and -Amendment does not require a change to the mitigated aquatic resource type.	☐			
(4) Amendment requires a supplemental CEQA analysis, or Amendment results in change(s) in impact character, location, or volume of the discharge, or a time extension that results in a temporal loss of resource function, according to the following criteria: -Amendment increases the active certification's impact quantity by more than 50 percent, or -Amendment requires a change to the mitigated aquatic resource type.	☐			

Category H (Fee Code 19) Note: Maximum fee not applicable to this category

(H) Wildfire Mitigation by Electrical Corporations, Electric Utilities, and Electrical Cooperatives	☐		\$0
---	--------------------------	----------------------	-----

Total Fees

Application Fee Due with application	\$2,985
Category A Project Fee or Amendment Fee Due prior to certification or amendment	\$0
Sum of Fees Due Prior to Authorization Note to dischargers seeking an amendment to an existing order: Sum does not include any previously paid fee amounts	\$2,985
Annual Fee Invoiced annually (unless maximum \$259,011 fee reached)	\$399

Scroll down to see instructions below and use this calculator to estimate Water Quality Certification application fees

This calculator is publicly available for informational purposes only and estimates fees in accordance with the fiscal year 2023-2024 water quality fee schedule. Applicants may use the calculator to generate estimates for project budgeting. The State Water Board does not guarantee the accuracy of estimates generated by the calculator. The final fee amount will be determined by Water Boards staff in accordance with California Code of Regulations, Title 23, section 2200(a)(3). The State Water Board reserves the right to modify the calculator at any time.

Click here for a link to the current regulations.

Important note: This calculator may not be applicable to federal dischargers.

Please contact the State Water Board's Wetlands Permitting and Planning Manager with any questions

Combination Project: Check box for a combination deep water dredging and fill project; which are subject to both Category A and B fees.

Discharge Size	Rounded Discharge Size	Application Fee	Category A Project Fee or Amendment Fee	Annual Fee
----------------	------------------------	-----------------	---	------------

Category A Fill & Excavation Discharges (Fee Code 84) Note: discharge size equals the sum of temporary and permanent impacts

Discharge Area Acres x \$26,608		0.00 Rounded to two decimal places	\$0	\$0	\$0
---------------------------------	----------------------	--	-----	-----	-----

Category B* Dredging Discharges (Fee Code 86)

Estimated annual fee

Expected Annual Dredge Quantity Cubic Yards x \$0.653		0 Rounded to whole number	\$0	\$0	\$0
*Category B Projects are billed annually and based on the quantity of material dredged during the previous fiscal year					

Flat Fee Categories - Check ONE applicable box			Application Fee	Annual Fee
Category C (Fee Code 85)				

Sand Mining, In-Stream Gravel Mining and Beach Nourishment Discharges	☐	\$0	-	\$0
---	--------------------------	-----	---	-----

Category D (Fee Code 85)

Ecological Restoration and Enhancement Projects	☐	\$0	-	\$0
---	--------------------------	-----	---	-----

Category E (Fee Code 87)

Low Impact Discharges	☒	\$2,985	-	\$399
-----------------------	-------------------------------------	---------	---	-------

Category F (Fee Code 85)

Emergency Projects authorized by a General Order	☐	\$0	-	\$0
--	--------------------------	-----	---	-----

Category G Amended Orders - Check applicable box, Step 5 below

(1) All Category (D) Ecological and Restoration and Enhancement Projects, regardless of amendment type.	☐	Annual fee applicable per discharge category above.
(2) Administrative amendments including, but not limited to, ownership changes, typographic edits, or time extensions that do not result in a temporal loss of resource function. Amendments in this category require no technical analysis or additional compensatory mitigation.	☐	
(3) Amendment results in change(s) in impact character, location, or volume of the discharge; or a time extension that results in temporal loss of resource function, according to the following criteria: -Amendment increases the active certification's impact quantity by less than 50 percent, and -Amendment does not require a change to the mitigated aquatic resource type.	☐	
(4) Amendment requires a supplemental CEQA analysis, or Amendment results in change(s) in impact character, location, or volume of the discharge, or a time extension that results in a temporal loss of resource function, according to the following criteria: -Amendment increases the active certification's impact quantity by more than 50 percent, or -Amendment requires a change to the mitigated aquatic resource type.	☐	

Category H (Fee Code 19) Note: Maximum fee not applicable to this category

(H) Wildfire Mitigation by Electrical Corporations, Electric Utilities, and Electrical Cooperatives	☐		\$0
---	--------------------------	----------------------	-----

Total Fees

Application Fee Due with application	\$2,985
Category A Project Fee or Amendment Fee Due prior to certification or amendment	\$0
Sum of Fees Due Prior to Authorization Note to dischargers seeking an amendment to an existing order: Sum does not include any previously paid fee amounts	\$2,985
Annual Fee Invoiced annually (unless maximum \$259,011 fee reached)	\$399

General instructions

Terms defining the measurement of a "discharge":

- Discharge of **"dredged material"** is measured by the volume of material removed in deep water dredging activities;
- Discharge of **"fill material"** is measured by the physical area of placement of fill material into a waterbody;
- Discharge of **"excavation material"** is measured by the physical area within a waterbody where earth-moving activities occur.

Generally, fees are determined by the size or volume of discharge to a water body. Fees for fill and/or excavation projects are based on discharge area in acres. Fees for deep water dredging are based on the volume of dredged material removed in cubic yards. For further explanation, see (A) and (B) below. However, your project may qualify for a flat fee category. If so, the project fee will be based on the fee for that category instead of size or volume (see (C) through (G) below). Amended orders may or may not be subject to fees depending on the complexity of analysis required. Follow the steps below to determine the fee associated with your project. Please contact Water Boards staff with further questions regarding how to use the calculator, **click here** for a link to the staff directory.

Step 1 Determine the Fee Category for your project:

Fee Based on Fill or Excavation Discharge Size Within the Waterbody

(A) Do your project activities add fill material (soil, rocks, concrete, culverts(s), pier pilings, etc.) or excavate soil or other materials within a waterbody?

Fill refers to replacing any portion of a water with dry land, or to changing the bottom elevation or grade of any portion of a water. Fill material includes rock, sand, clay, plastics, construction debris, wood chips, overburden from mining, or other construction activities, and materials used to create any structure or infrastructure within waters (culverts, pilings, etc.).

Excavation refers to removing sediment or soil in shallow waters or under no-flow conditions where impacts to beneficial uses are best described by the area of the excavation. It typically is done for purposes other than navigation. Examples include earth-moving work such as trenching for utility lines; channel reconstruction; embankment construction; removing sediment to increase channel capacity; and other flood control and drainage maintenance activities (e.g. debris removal, vegetation management and removal, detention basin maintenance and erosion control of slopes along open channels and other drainage facilities).

Fees Based on Discharge of Dredged Material

(B) Is your project deep water dredging? (except Sand Mining - see (C) below)

Dredging generally refers to removing sediment in deeper water to increase depth and typically occur to facilitate navigation. The impacts to beneficial uses are best described by the volume of the discharge removed. Dredge volumes are expressed in cubic yards.

Fee Based on Flat Fee Categories

Does your project qualify for one of the following flat fee categories? **To qualify for a flat fee category, the entirety of all project activities must be included within a single flat fee category**, i.e., the project cannot include other components involving activities not included within the flat fee category.

(C) Sand Mining, In-Stream Gravel Mining and Beach Nourishment Discharges

Aggregate extraction in surface waters where source material is free of pollutants and the dredging operation will not violate any basin plan provisions and beach nourishment projects.

(D) Ecological Restoration and Enhancement Projects

The project meets the definition of an "Ecological Restoration and Enhancement Project" set forth in the State Wetland Definition and Procedures for Discharges of Dredged or Fill Materials to Waters of the State, adopted by the State Water Board on April 2, 2019:

Ecological Restoration and Enhancement Project means the project is voluntarily undertaken for the purpose of assisting or controlling the recovery of an aquatic ecosystem that has been degraded, damaged or destroyed to restore some measure of its natural condition and to enhance the beneficial uses, including potential beneficial uses of water. Such projects are undertaken:

- 1) in accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the real property interest owner or the entity conducting the habitat restoration or enhancement work and:
 - a. a federal or state resource agency, including, but not limited to, the U.S. Fish and Wildlife Service, Natural Resources Conservation Service, Farm Service Agency, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Forest Service, U.S. Bureau of Land Management, California Department of Fish and Wildlife, California Wildlife Conservation Board, California Coastal Conservancy or the Delta Conservancy;
 - b. a local agency with the primary function of managing land or water for wetland habitat purposes; or
 - c. a non-governmental conservation organization; or
- 2) by a state or federal agency that is statutorily tasked with natural resource management. These projects do not include the conversion of a stream or natural wetland to uplands or stream channelization. It is recognized that Ecological Restoration and Enhancement Projects may require ongoing maintenance or management to maximize fish, wildlife, habitat, or other ecological benefits, or filling gullied stream channels and similar rehabilitative activities to re-establish stream and meadow hydrology. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during rehabilitation activities are not considered a conversion to another aquatic habitat type. These projects also do not include actions required under a Water Board Order for mitigation, actions to service required mitigation, or actions undertaken for the primary purpose of land development.

(E) Low Impact Discharges

Projects may be classified as low impact discharges if they meet all of the following criteria:

1. The discharge size is less than all of the following: (a) for fill, **0.1 acre, AND 300 linear feet**, and (b) for dredging, 25 cubic yards.
2. The discharger demonstrates that: (a) all practicable measures will be taken to avoid impacts; (b) where unavoidable temporary impacts take place, waters and vegetation will be restored to pre-project conditions as quickly as practicable; and (c) where unavoidable permanent impacts take place, there will be no net loss of wetland, riparian area, or headwater functions, including onsite habitat, habitat connectivity, floodwater retention, and pollutant removal.
3. The discharge will not do any of the following: (a) directly or indirectly destabilize a bed of a receiving water; (b) contribute to significant cumulative effects; (c) cause pollution, contamination, or nuisance; (d) adversely affect candidate, threatened, or endangered species; (e) degrade water quality or beneficial uses; (f) be toxic; or (g) include "hazardous" or "designated" material.

(F) Emergency Projects Authorized by a Water Board General Order

- RGP 8 Corps' Sacramento District
- RGP 5 Corps' San Francisco District
- RGP 63 Corps' Los Angeles District

(G) Amended Orders (go to Step 4)

(H) Wildfire Mitigation by Electrical Corporations, Electric Utilities, and Electrical Cooperatives

Dredge or fill activities conducted by electrical corporations, electric utilities, and electrical cooperatives pursuant to a wildfire mitigation plan prepared in accordance with Public Utilities Code, section 8386(b) or section 8387(b)(1). This annual fee covers all dredge or fill activities conducted by the electrical corporations, electric utilities, and electrical cooperatives pursuant to a wildfire mitigation plan, and is in lieu of the project-specific dredge or fill fees in section 2200(a)(3)(A)-(G) for dredge or fill activities conducted pursuant to a wildfire mitigation plan. Annual fee is assessed as \$40.00 per mile of overhead electrical

Step 2

If you have determined that your project qualifies for a flat fee category (C through H) check the applicable box to calculate fees.

Step 3

A. Is your project a fill/excavation project?

If your project is a fill/excavation project, calculate your fee based on the size of the discharge area in acres. For projects with multiple impact sites, sum the individual discharge quantities and enter the total in the calculator. For projects impacting multiple water features sum discharge quantities for all features. In addition, fees are based on the sum of both permanent and temporary impacts. The size of the discharge area shall be rounded to two decimal places (0.01 acre = 436 square feet). Category A discharges are subject to the sum of the Application fee and Project fee; the Application fee is due at the time of application and the project fee is due prior to issuance of the certification; additional annual fees are assessed from the date of certification until project completion.

B. Is your project a dredging project? Your dredging fee will be based on the actual amount of material dredged from the waterbody. Therefore, annual active discharge invoices are sent for the previous fiscal year's dredging amount. Invoice amounts will be based on the fee schedule current for that fiscal year. Please submit your application fee amount as shown in the calculator above. You may estimate your upcoming annual active discharge fee using the current fee calculator. However, this will only be an estimate because fees are subject to change annually as approved by the State Water Board.

Combination fill/excavation and dredging Projects (A and B)

Does your dredging project also include a discharge of fill material? These projects typically include dredging material from one part of a waterbody and depositing the dredged material into a different location in the waterbody. These projects are subject to both Category A and Category B fees.

Step 4

Are you requesting an amendment to a previously issued water quality certification or WDR? Fees for amended orders are based on the increased quantity of discharge and the level of technical

analysis required evaluate project changes, therefore Water Board staff will determine which category your amendment is subject. Water Board staff will determine the fee for amendments based on the fee schedule and will request the applicant to submit the appropriate fee.

Fees based on amendments are categorized as follows:

(1) All Category (D) Ecological and Restoration and Enhancement Projects, regardless of amendment type. **No fee required**

(2) Administrative amendments including, but not limited to, ownership changes, typographic edits, or time extensions that do not result in a temporal loss of resource function. Amendments in this category require no technical analysis or additional compensatory mitigation. **No fee required**

(3) Amendment results in change(s) in impact character, location, or volume of the discharge; or a time extension that results in temporal loss of resource function, according to the following criteria:

- Amendment increases the active certification's impact quantity by **less than 50 percent**, and
- Amendment does not require a change to the mitigated aquatic resource type.

Additional standard fee assessed per increased amount of discharge(s). The minimum fee is \$2,985. For category A or B projects, enter discharge quantities for increased impacts quantities. For flat fee categories, select the appropriate category.

(4) Amendment requires a supplemental CEQA analysis, or Amendment results in change(s) in impact character, location, or volume of the discharge, or a time extension that results in a temporal loss of resource function, according to the following criteria:

- Amendment increases the active certification's impact quantity by **more than 50 percent**, or
- Amendment requires a change to the mitigated aquatic resource type.

Additional standard fee assessed per total amount of discharge(s). The minimum fee is \$2,985. For category A or B projects, enter discharge quantities for all project impacts, including quantities previously certified. For flat fee categories, select the appropriate category.

Dischargers that have met the project fee cap will be assessed the minimum fee for each amendment of previously-issued WDR or water quality certification.

Step 5

See **Total Fees** for a breakdown of fees owed.

Step 6

Fee Types & Due Dates

Projects are subject to fees at three separate times throughout the life of a project. Application and Project Fees are determined according to the fee schedule in effect on the date of application submittal. Annual fees are determined according to the fee schedule in effect on the date of billing:

1) Application Fee: Amount due with the initial application.

2) Project Fee: Amount due prior to certification (applies to Category A only).

3) The Annual Fee amount is invoiced annually: All projects are subject to an Annual Fee each fiscal year or portion of a fiscal year that the certification is active (from the effective date of the order until the regional board or state board issues a Notice of Project Complete Letter to the discharger). The Water Boards fiscal year begins on July 1 and ends on June 30. Dischargers will be invoiced their first Annual Fee beginning in November/December of the year following the Effective Date of certification. Dischargers will be invoiced for an Annual Fee each year until the project is completed. The annual fee for category (A) fill and excavation discharges will be \$2,509 for the first five fiscal years following the effective date of the order, then \$399 beginning with the sixth fiscal year until the Notice of Completion is issued to the discharger. The annual fee for category (B) dredging discharges will be invoiced after the annual dredge volume has been determined.

Attachment D
Preliminary Eelgrass Survey -
270 Beach Road 2023 Post-Construction
Eelgrass Survey Report



SUNSET ECOLOGICAL
SOLUTIONS
BIOLOGY, PERMITTING, AND COMPLIANCE

2023 Post-Construction Eelgrass Survey

270 Beach Road Waterfront Improvements Project Belvedere, Marin County, California

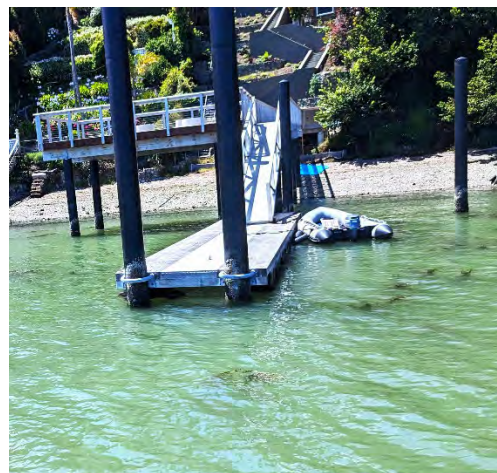
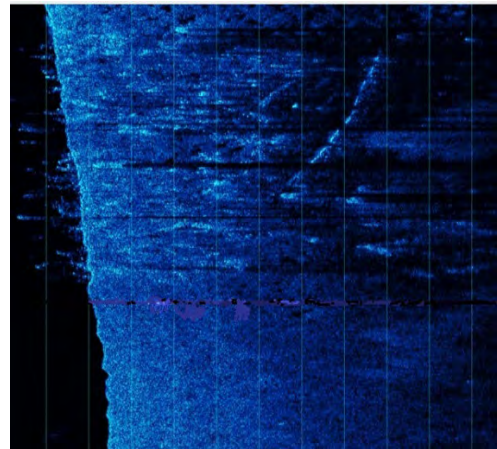
January 4, 2024

Prepared for:

Jay and Hollie Haynes
270 Beach Road
Belvedere, CA 94920
Jhaynes@gmail.com

Prepared by:

Sean R. Avent
Sunset Ecological Solutions
1641 48th Avenue
San Francisco, California, 94122
sean@sunsetecological.com
415.377.2380



Summary

On July 24st, 2023 a third and final annual post construction eelgrass (*Zostera marina*) survey was conducted. The in-water construction work was completed in fall of 2021 and initial post-construction survey was completed on October 29th, 2021 around the Project Area at 270 Beach Road (Figure 1). The second post-construction survey was completed on September 23rd, 2022. This 2023 post-construction eelgrass survey was compared to the pre-construction conditions as surveyed on August 2 and August 9, 2021, as well as to the 2021 and 2022 post-construction surveys.

Vegetated eelgrass habitat in 2023 increased by 3,349 square feet (0.077 acres) in the Project Study Area since the 2022 post-construction survey (Table 3) and increased by 4,419 square feet (0.101 acres) since the 2021 pre-construction survey (Table 4). Total eelgrass habitat in the Project Area increased by 3,058 square feet (0.070 acres) in the Project Study Area since the 2022 post-construction survey (Table 3) and increased by 4,383 square feet (0.101 acres) since the 2021 pre-construction survey (Table 4).

The overall increase in vegetated eelgrass habitat indicates that the Project is not having long term negative effects on the continued presence or growth of eelgrass beds overall.

Per the California Eelgrass Mitigation Policy and Implementing Guidelines (NOAA 2014), this completes the need for eelgrass surveys for this project and no future post-construction eelgrass surveys will be conducted.

The remaining sections of this report present a more detailed accounting of the methods and results of the 2023 and final post-construction eelgrass survey.

Introduction

The purpose of these surveys was to complete a third post-construction eelgrass survey in support of the 270 Beach Road Waterfront Improvements Project as required by the permits as issued by the following agencies as well as a recommendation by California Department of Fish and Wildlife:

- US Army Corps of Engineers (Corps) Nationwide Permit #17 Authorization Verification Number File Number 2017-00240N
- Regional Water Quality Control Board (RWQCB) Water Quality Certification; CIWQS Reg. Meas. 416151; CIWQS Place ID 839676
- Bay Conservation and Development Commission (BCDC) Permit No. M2017.028.00

The Project, located off the northeastern shoreline of Belvedere Island in Belvedere Cove, within San Francisco Bay (see Figure 1) consisted of the removal of the old pier, gangway and floating dock and creosote piles (as shown in Figures 1-4), and replacing with a new pier, gangway, and floating dock (see Appendix B for Project Plans). The yellow polygon in Figures 1 through 6 shows the location of the newly constructed pier and dock. The aerial photographs in Figures 5, 6, and 7 shows the newly constructed dock. Appendix A contains photographs of the previous pier and dock and the newly constructed pier and dock and surrounding habitat.

The Project Study Area encompasses the areas of the previous and the current pier and dock footprints and surrounding areas (see Figure 1). A Reference Study Area was also surveyed and is located along the same shoreline between 250 and 260 Beach Road approximately 100 to 215 feet to the north of the Project where eelgrass has historically occurred (Merkel and Associates, 2015) and where eelgrass was

observed in the 2021 pre- and 2021, 2022, and 2023 post-construction surveys (Sunset Ecological Solutions, 2021, 2022, 2023). Figure 1 shows the location of the Reference Study Area in relation to the Project Study Area and the historic location of eelgrass beds (Merkel and Associates, 2015). Figures 2, 3, and 4, show the extents of eelgrass habitat in the previous 2021 pre-construction, 2021 post-construction, and 2022 post-construction surveys, respectively.

Background

Eelgrass Ecology

Eelgrass (*Zostera marina*) is a sea grass with dark green, long, narrow, ribbon shaped leaves of 20-50 centimeters in length (exceptionally up to 2 meters long) with rounded tips. Leaves shoot from a creeping rhizome that binds bottom sediments. An individual rhizome may have many shoots; however, most shoots tend to be towards the growing end of the rhizome. Leaves and rhizomes contain air spaces, called lacunae, that aid buoyancy. Numerous flowers occur on a reproductive shoot similar to those of terrestrial grasses. The flowers float near the surface, are pollinated by floating pollen and produce seeds that sink to the bottom and germinate the following year. Eelgrass is common throughout the northern Pacific and Atlantic Oceans. It is a known spawning habitat for Pacific herring (*Clupea pallasii*), which lay their eggs on the thin blades during the months of December and January, and provides habitat for many other species of fish, mammals, and invertebrates.

In San Francisco Bay, the first study on the baywide distribution of eelgrass indicated that it covered upwards of 300 acres (Wyllie-Echeverria and Rutten, 1989). A 2003 study suggested a more widespread distribution within the Bay, covering approximately 2,880 acres (Merkel and Associates, 2003). A 2009 study suggests an even greater widespread distribution within the Bay, covering approximately 3,707 acres (Merkel and Associates, 2010). Monitoring data from 2013 and 2014 shows a significant decline of eelgrass bed coverage to 3,300 acres and approximately 2,790 acres, respectively (Sweeney et al. 2015). However, in the past few years, many eelgrass beds have rebounded and have expanded significantly (*personal observation*).

Eelgrass in the Bay is mostly restricted to a narrow intertidal range between approximately +1 feet mean low-low water (MLLW) and -6 feet MLLW. Its depth range at a particular site is dependent upon water turbidity as plant growth is light limited (Zimmerman *et al.*, 1991). Sediment type, currents, bottom shear, and water temperature also affect its distribution. Although eelgrass is typically a perennial species that dies back to a persistent underground rhizome during the winter, there is evidence that it also occurs as an annual species in many parts of the Bay (Fonseca *et al.*, 1998, 2003; Merkel and Associates, 2003). These studies noted a high annual overturn for some beds, especially those in warm and turbid environments. The number of individual plants can therefore fluctuate and show more of an annual growth pattern in some areas, as opposed to typical perennial growth shown in other areas of the Bay and coastlines around the world.

Eelgrass in San Francisco Bay tends to grow in shallow, sheltered waters away from the strong currents and wind driven waves that may occur in the area. Zimmerman et al. (1991, 1995) found there was a high degree of variation in available light between sites and, in general, eelgrass growth in the Bay was often restricted by low light and turbid conditions. As demonstrated by numerous studies over the years, eelgrass in San Francisco Bay tends to be less prevalent in years with higher rainfall, and more prevalent in years with lower rainfall, coinciding with increased turbidity and lower light penetration. Previous

studies have shown that Belvedere Cove contains a large population of eelgrass (Merkel and Associates, 2010, 2015).

Eelgrass Regulatory Policy

Eelgrass itself is not listed as threatened or endangered under the State or Federal Endangered Species Acts. However, because eelgrass is spawning ground for Pacific herring and is important habitat for other aquatic wildlife, eelgrass beds are regulated by CDFW through the CEQA review process and are considered Essential Fish Habitat (EFH) by the National Marine Fisheries Service (NMFS). As a responsible agency under CEQA, CDFW can comment on any proposed project that may affect eelgrass habitat, and approve mitigation measures for any impacts. Protection of EFH is mandated through the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to protect the loss of habitat necessary to maintain sustainable fisheries in the United States. The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802(10)). Under regulatory guidelines issued by NMFS, any federal agency that authorizes, funds, or undertakes action that may affect EFH is required to consult with NMFS (50 CFR 600.920).

The first official regulatory policy regarding eelgrass protection on the west coast was the Southern California Eelgrass Mitigation Policy, issued by NMFS in 1991, developed by NMFS, CDFG, and the U.S. Navy. In June of 2011, the U.S. Army Corps of Engineers (Corps) and U.S. Environmental Protection Agency (EPA) issued the *Agreement on Programmatic EFH Conservation Measures for Maintenance dredging Conducted Under the LTMS Program* (Programmatic EFH Consultation), based on consultation documentation prepared by NMFS and issued on July 13, 2010. As part of this agreement, the Corps and EPA have agreed to implement avoidance and mitigation measures as appropriate for a given project based on specific site conditions. These measures include pre- and post-dredge eelgrass surveys, mitigation for indirect impacts through eelgrass marking, implementation of turbidity controls, or light monitoring, and mitigation for direct impacts to eelgrass through mitigation as guided by the California Eelgrass Mitigation Policy and Implementing Guidelines (CEMP; NOAA 2014).

Project Description

The constructed Project (fall of 2021) included the replacement of a previously existing dock with a wood framed pier and floating dock (see Appendix A Photographs 1 and 4). The replacement pier includes a 4-foot-wide walkway extending from the base of the shorefront, located slightly to the north of the present pier walkway. This walkway leads to a pier head that extends seaward (northeast) and to the south of the walkway's centerline. The replacement floating dock extends seaward (northeast) from the walkway's centerline, which rotates the float approximately 115 degrees from the past float orientation to improve navigation and reduce wave action on the structure. The pile-supported, 702-square foot wood pier was constructed with wood framing and wood decking spaced at ½-inch intervals. Pilings support the pier and include a total of 12, 12-inch diameter steel pilings with polyethylene sleeves below the high tide line and mean high water line. The 45-square-foot gangway is prefabricated and made of aluminum. The 352-square-foot floating dock is constructed of Alaska yellow cedar beams and polyethylene encapsulated flotation units. The gangway is a prefabricated aluminum structure. Pilings support the float and includes a total of four 12-inch diameter steel pilings with polyethylene sleeves. Two berthing piles are installed 15 feet north of and parallel to the floating dock.

To implement the project, a licensed marine contractor first removed the existing pier, floating boat dock, and existing creosote preserved wood piles. The proposed floating dock was constructed at an upland

location and floated to the site. Pile removal and installation was conducted using a barge-mounted crane and drop hammer using a wood block cushion. The Project plans are included in Appendix B.

Survey Methods

On July 24, 2023 between the hours of 10:00 AM and 2:00 PM, Sunset Ecological Solutions (Sunset) conducted a post-construction side scan sonar-based eelgrass survey of the proposed Project and adjacent areas up to the adjacent docks on either side. Sunset also surveyed an eelgrass reference site to the north and along the same shoreline where eelgrass has historically been present (Merkel and Associates, 2015; Attachment B, Figures 5-7). Figure 1 shows the Project and Reference Study Area locations. Survey conditions on July 24, 2023 coincided with tides of ranging from 1.75 to 3.5 feet above MLLW.

During the side scan sonar-based survey, the Study Area was traversed using a 17-foot survey vessel along north-south transects adjacent to the shoreline to determine areas of eelgrass presence or absence within the Project and Reference Study Areas. The survey was completed using a side scan sonar system with a transducer with 0.441°x52° wide scanning beam at 1200 kHz. The data was analyzed using Sonar TRX software (version 21.1) which converts raw side scan data into a georeferenced image file, which was overlaid onto the survey area in a Google Earth to allow mapping of eelgrass extent and areal coverage. Transect cross sections were spaced at roughly 30-foot intervals throughout the survey footprint. Areas where side scan sonar imagery indicated presence of eelgrass were sampled during the survey using underwater video samples to obtain field verification. The eelgrass survey was performed using side scan sonar to comply with requirements of the National Marine Fisheries Service (NMFS) for eelgrass surveys completed in areas that cannot be safely surveyed on foot at low tide in San Francisco Bay. Based on the depths present within and adjacent to the dredge area, eelgrass surveys by foot cannot be completed safely at low tide, as depths exceed those that can be safely traversed on foot. Dive surveys are not a viable strategy for completing eelgrass surveys due to the turbid nature of San Francisco Bay.

The survey took place during the active growing season for eelgrass. Based on growth within the Study Area, eelgrass density was typical of beds at the time of the survey and adequate for determining the locations and density of the eelgrass beds.

Data Acquisition and Processing

Georeferenced side scan sonar images were analyzed using visual indicators for eelgrass. Signatures of eelgrass in the images included textures, shadows, contrast intensity, patterns, and other suitable characteristics. The side scan sonar images were analyzed to determine eelgrass locations utilizing in-field observations as a reference. Visual surveys were compared to the side scan sonar images and signatures to corroborate the data and provide positive identification of submerged eelgrass. A 5-meter buffer was placed around all eelgrass beds to form the unvegetated eelgrass habitat per the 2014 CEMP guidelines.

Results

Eelgrass health and cover within both the Project Area and the Reference Area appeared consistent with conditions typical for this part of the growing season. Comparison of the eelgrass as surveyed was generally consistent with the locations of eelgrass as surveyed in the 2014 bay-wide survey (Merkel and Associates, 2015) and the three previous site surveys (Figures 2-4).

Project Area Eelgrass Habitat

Within the Project Study Area an eelgrass bed comprising approximately 8,686 square feet (0.199 acres) was mapped, occurring between the piers to the north and south as well as underneath the southeastern side of the dock. The bed is located between approximately 1.2 feet below MLLW and 4.9 feet below MLLW (Figure 5). This eelgrass bed was relatively continuous along the frontages of the existing floating docks and extended along the coast, both north and south beyond the Project Study Area. Unvegetated eelgrass habitat within the Project Area totaled 5,157 square feet (0.118 acres). Table 2 below shows the size in square feet and in acres for the total unvegetated and vegetated eelgrass habitat from the 2023 post-construction survey compared to the 2022 post-construction survey to show the change from the past year.

Table 1 shows the size of the unvegetated and vegetated eelgrass habitat from the 2021 pre-construction and 2022 post-construction survey to show the changes from pre-construction to post-construction conditions. Table 2 shows the size of the unvegetated and vegetated eelgrass habitat from the 2021 post-construction survey and the 2022 post-construction survey in the same metrics as Table 1 to show the change from years 0 to 1. Table 3 shows the size of the unvegetated and vegetated eelgrass habitat from the 2022 post-construction survey and the 2023 post-construction survey in the same metrics as Table 1 to show the change from years 2 to 3. Table 4 below shows the size in square feet and in acres for the total unvegetated and vegetated eelgrass habitat from the 2023 post-construction survey and the 2021 pre-construction survey to compare the pre-construction and existing conditions.

Within the Project Study Area, the 2023 post-construction vegetated eelgrass habitat (Figure 4) increased in size relative to the pre-construction survey (Figure 6); see Table 4. The eelgrass bed expanded within the Project Study Area along the northern and southern sides while thinning out slightly in the center (Figures 2, 4 and 5). There is a significant increase in the aerial coverage (approximately 4419 square feet) of vegetated eelgrass habitat. The coverage in 2023 was greater than the pre-construction survey. Figure 6 shows the locations and aerial extent of the vegetated eelgrass coverage between the four surveys overlaid on top of each other for a comparison. Figure 5 shows the locations and aerial extent of the total eelgrass coverage between the four surveys overlaid on top of each other for a comparison.

Table 1. 2021 Pre- and 2022 Post-Construction Eelgrass Habitats Surveyed within the Project Study Area

	2021 Pre-Construction Size Square Feet (Acres)	2021 Post-Construction Size Square Feet (Acres)	Difference Square Feet (Acres)
Unvegetated Eelgrass Habitat	5,193 (0.119)	5,833 (0.134)	+640 (0.015)
Vegetated Eelgrass Habitat	4,267 (0.098)	5,415 (0.124)	+1,148 (0.026)
Total Eelgrass Habitat	9,460 (0.217)	11,248 (0.258)	+1,788 (0.041)

Table 2. 2021 and 2022 Post-Construction Eelgrass Habitats Surveyed within the Project Study Area

	2021 Post- Construction Size Square Feet (Acres)	2022 Post- Construction Size Square Feet (Acres)	Difference Square Feet (Acres)
Unvegetated Eelgrass Habitat	5,833 (0.134)	5,448 (0.125)	-385 (0.009)
Vegetated Eelgrass Habitat	5,415 (0.124)	5,337 (0.123)	-78 (0.002)
Total Eelgrass Habitat	11,248 (0.258)	10,785 (0.248)	-463 (0.010)

Table 3. 2022 and 2023 Post-Construction Eelgrass Habitats Surveyed within the Project Study Area

	2022 Post-Construction Size Square Feet (Acres)	2023 Post-Construction Size Square Feet (Acres)	Difference Square Feet (Acres)
Unvegetated Eelgrass Habitat	5,448 (0.125)	5,157 (0.118)	-291 (0.007)
Vegetated Eelgrass Habitat	5,337 (0.123)	8,686 (0.199)	+3,349 (0.077)
Total Eelgrass Habitat	10,785 (0.248)	13,843 (0.318)	+3,058 (0.070)

Table 4. 2021 and 2023 Post-Construction Eelgrass Habitats Surveyed within the Project Study Area

	2021 Pre-Construction Size Square Feet (Acres)	2023 Post-Construction Size Square Feet (Acres)	Difference Square Feet (Acres)
Unvegetated Eelgrass Habitat	5,193 (0.119)	5,157 (0.118)	-36 (0.001)
Vegetated Eelgrass Habitat	4,267 (0.098)	8,686 (0.199)	+4,419 (0.101)
Total Eelgrass Habitat	9,460 (0.217)	13,843 (0.318)	+4,383 (0.101)

Reference Area Eelgrass Habitat

One continuous bed of eelgrass totaling approximately 7,114 square feet (0.164 acres), was mapped in the eelgrass Reference Study Area (Figure 4). The vegetated eelgrass bed within the Reference Study Area extended to the north and south along the shoreline beyond the reference area. It occurred at depths between approximately 1.7 feet below MLLW and 4.8 feet below MLLW. Unvegetated eelgrass habitat within the Reference Study Area totaled 4,406 square feet (0.101 acres). Table 3 below shows the size in square feet and in acres for the total unvegetated and vegetated eelgrass habitat from the 2022 post-construction survey and the 2021 pre-construction survey. Table 4 shows the size of the unvegetated and vegetated eelgrass habitat from the 2022 post-construction survey and the 2021 post-construction survey in the same metrics as Table 3. Figure 5 shows the locations and aerial extent of the vegetated eelgrass coverage between the three surveys overlaid on top of each other for a comparison.

Within the Reference Study Area, the 2023 vegetated eelgrass habitat (Figure 5) increased in size relative to the pre-construction survey (Figure 2) by 248 square feet (0.006 acres) and the unvegetated eelgrass habitat decreased by 328 square feet (0.008 acres) (Table 7).

Table 5. 2021 Pre- and 2021 Post-Construction Eelgrass Habitats Surveyed within the Reference Area

	2021 Pre-Construction Size Square Feet (Acres)	2021 Post-Construction Size Square Feet (Acres)	Difference Square Feet (Acres)
Unvegetated Eelgrass Habitat	4,775 (0.110)	3,892 (0.089)	-883 (0.021)
Vegetated Eelgrass Habitat	5,930 (0.136)	7,573 (0.174)	+1,643 (0.038)
Total Eelgrass Habitat	10,705 (0.246)	11,465 (0.263)	+760 (0.017)

Table 6. 2021 and 2022 Post-Construction Eelgrass Habitats Surveyed within the Reference Area

	2021 Post-Construction Size Square Feet (Acres)	2022 Post-Construction Size Square Feet (Acres)	Difference Square Feet (Acres)
Unvegetated Eelgrass Habitat	3,892 (0.089)	4,406 (0.101)	+514 (0.012)
Vegetated Eelgrass Habitat	7,573 (0.174)	7,114 (0.163)	-459 (0.011)
Total Eelgrass Habitat	11,465 (0.263)	11,520 (0.264)	+55 (0.001)

Table 6. 2022 Post- and 2023 Post-Construction Eelgrass Habitats Surveyed within the Reference Area

	2022 Pre-Construction Size Square Feet (Acres)	2023 Post-Construction Size Square Feet (Acres)	Difference Square Feet (Acres)
Unvegetated Eelgrass Habitat	4,406 (0.101)	4,447 (0.101)	+41 (0.001)
Vegetated Eelgrass Habitat	7,114 (0.163)	6,178 (0.142)	-936 (0.021)
Total Eelgrass Habitat	11,520 (0.264)	10,655 (0.245)	-865 (0.020)

Table 7. 2021 Pre- and 2023 Post-Construction Eelgrass Habitats Surveyed within the Reference Area

	2021 Pre-Construction Size Square Feet (Acres)	2023 Post-Construction Size Square Feet (Acres)	Difference Square Feet (Acres)
Unvegetated Eelgrass Habitat	4,775 (0.110)	4,447 (0.101)	-328 (0.008)
Vegetated Eelgrass Habitat	5,930 (0.136)	6,178 (0.142)	+248 (0.006)
Total Eelgrass Habitat	10,705 (0.246)	10,655 (0.245)	-50 (0.001)

Table 8. Comparison of Project and Reference Differences: 2021 Pre- and 2023 Post Construction

	Project Area Gain or Loss (Percent)	Reference Area Gain or Loss (Percent)
Unvegetated Eelgrass Habitat	-0.7	-6.9
Vegetated Eelgrass Habitat	+103.6	+4.2
Total Eelgrass Habitat	+46.3	-0.5

Discussion

Within the Project Area, both vegetated and total eelgrass habitat increased substantially. Within the reference Area, the vegetated eelgrass habitat increased slightly and the total eelgrass habitat decreased slightly. Based on this simple analysis, the overall Project did not have a long-term impact on eelgrass habitat.

In San Francisco Bay, eelgrass habitats expanded significantly in the 2023 growing season signifying a good growth year. Increases as observed Bay-wide were observed in the Project Area, but not in the Reference Area. Vegetated eelgrass habitat within the Project Area expanded offshore and inshore, while in the Reference Area, it remained as a band parallel to shore, but the inshore edge receded from the 2021 and 2022 surveys.

Within the Project Area eelgrass was observed to grow in deeper waters offshore as compared to all other years. Eelgrass also expanded adjacent to the new dock and in patches directly adjacent to the floating dock. Eelgrass is filling in around areas where the old dock was removed.

It is unclear at this point why the inshore portions of the Reference Area receded without further analysis. Possible explanations could include a change in bathymetry or wave energy impacting the shallower areas exposed to wave action. If this were the case, it would make sense that the eelgrass in between the floating docks would expand as the wave energy may have been dissipated as a result of the in water structures.

Based on the comparison of the eelgrass habitat within the Project Area between pre-project and final conditions after three years, the Project did not result in long-term loss.

References

- Fonseca, M.S., W.J. Kenworthy, and G.W. Thayer. 1998. Guidelines for the conservation and restoration of seagrasses in the United States and Adjacent Waters. US Dept. Commerce/NOAA Coastal Ocean Analysis Series. No. 12.
- Fonseca, M., S. Wyllie-Echeverria, C. Addison and T. Wyllie-Echeverria. 2003. National Ocean Service joint pilot project on eelgrass (*Zostera marina* L.) recovery in San Francisco Bay. Preliminary Report.
- Merkel and Associates, Inc. 2003. San Francisco Bay Eelgrass Inventory. Submitted to CalTrans and NOAA Fisheries. June - October 2003.
- Merkel and Associates, Inc. 2010. 2009 San Francisco Bay Eelgrass Inventory. Submitted to CalTrans and NOAA Fisheries. October - November 2009.
- Merkel & Associates, Inc. 2015. San Francisco Bay Eelgrass Inventory October-November 2014. Submitted to National Marine Fisheries Service.
- NOAA Fisheries. 2014. California Eelgrass Mitigation Policy and Implementing Guidelines. October. Available at:
http://www.westcoast.fisheries.noaa.gov/publications/habitat/california_eelgrass_mitigation/Final%20CEMP%20October%202014/cemp_oct_2014_final.pdf
- Sunset Ecological Solutions. 2021. Pre-Construction Eelgrass Survey, 270 Beach Road Waterfront Improvements Project. Prepared for Jay and Hollie Haynes, 270 Beach Road, Belvedere, CA 94920
- Sweeney C. K. Schaffer, N. Cosentino-Manning, and M. Latta. 2015. State of the Estuary Report 2015 Summary. Habitat – Eelgrass Summary. Available at: http://www.sfestuary.org/wp-content/uploads/2015/09/Summary_TA_Habitat_Eelgrass_Sweeney_SOTER_2015.pdf
- Wyllie-Echeverria, S. and P. Rutten. 1989. Inventory of eelgrass (*Zostera marina*) in San Francisco Bay/San Pablo Bay. NMFS/NOAA Administrative Report SWR-89-05. Terminal Island, CA October 1989
- Zimmerman, R.C., J.L. Reguzzoni, S. Wyllie-Echeverria, M. Josselyn, and R.S. Alberte. 1991. Assessment of Environmental suitability for growth of *Zostera marina* (eelgrass) in San Francisco Bay. *Aquatic Botany* 39: 353-366.
- Zimmerman, R.C., J.L. Reguzzoni, and R. S. Alberte. 1995. Eelgrass (*Zostera marina* L.) transplants in San Francisco Bay: Role of light availability on metabolism, growth and survival. *Aquatic Botany* 51:67-8.

FIGURES



Figure 1. Project Location

2022 Post-construction Survey
270 Beach Road Pier Improvement Project
Belvedere, California



Figure 2. 2021 Pre-Construction Eelgrass Survey

2022 Post-construction Survey
 270 Beach Road Pier Improvement Project
 Belvedere, California



Figure 3. 2021 Post-Construction Eelgrass Survey

2022 Post-construction Survey
 270 Beach Road Pier Improvement Project
 Belvedere, California



Figure 4. 2022 Post-Construction Eelgrass Survey

2022 Post-construction Survey
 270 Beach Road Pier Improvement Project
 Belvedere, California



Source: Esri Satellite 2023

Prepared By: KChang December 26 2023

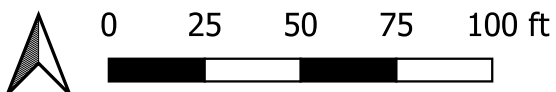
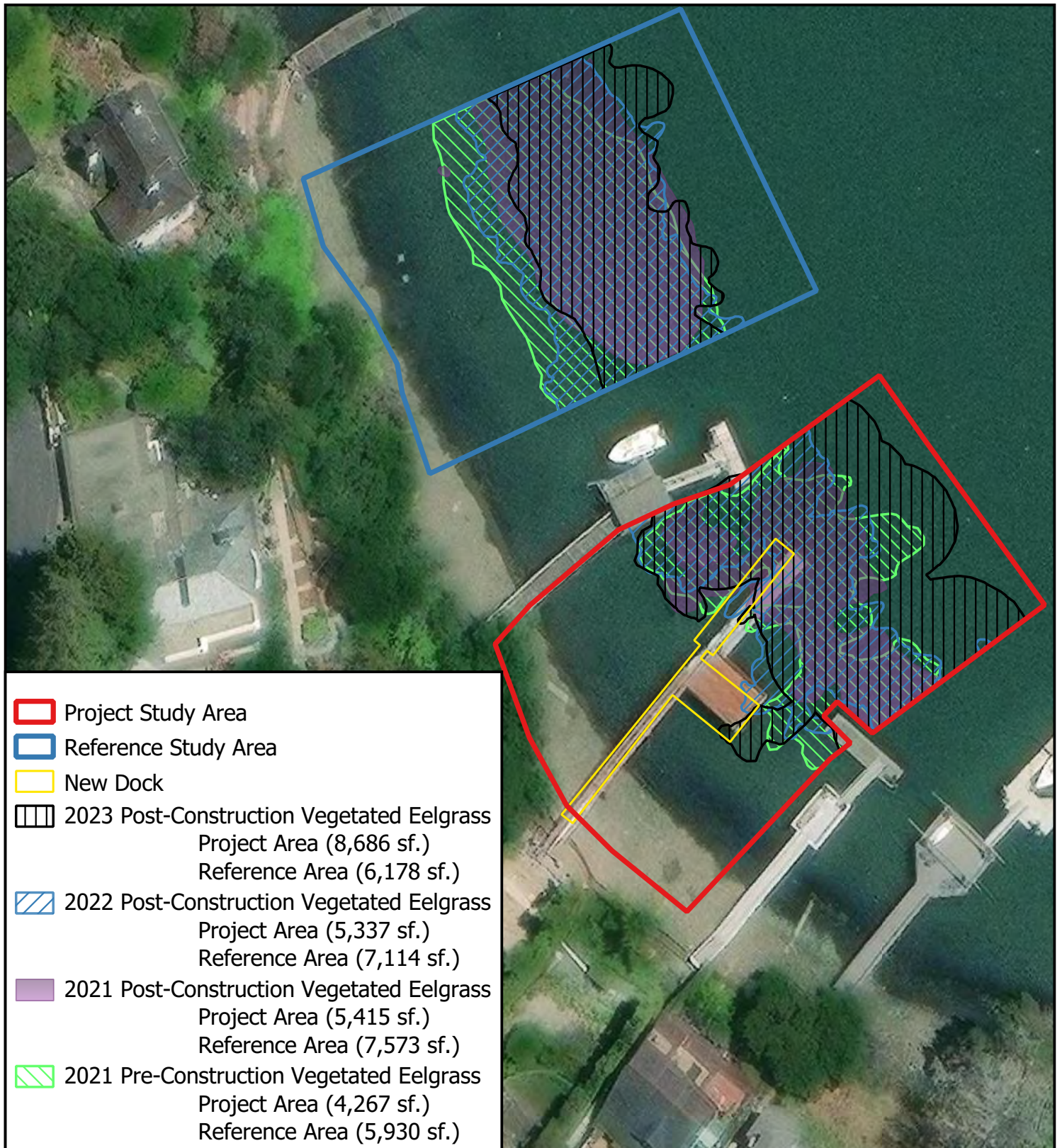


Figure 5. 2023 Post-Construction Eelgrass Survey Results

2023 Post-Construction Survey
270 Beach Road Pier Improvement Project
Belvedere, California



Source: Esri Satellite 2023

Prepared By: KChang December 12 2023

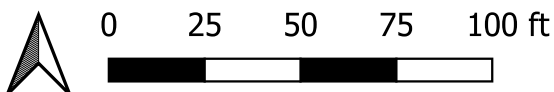
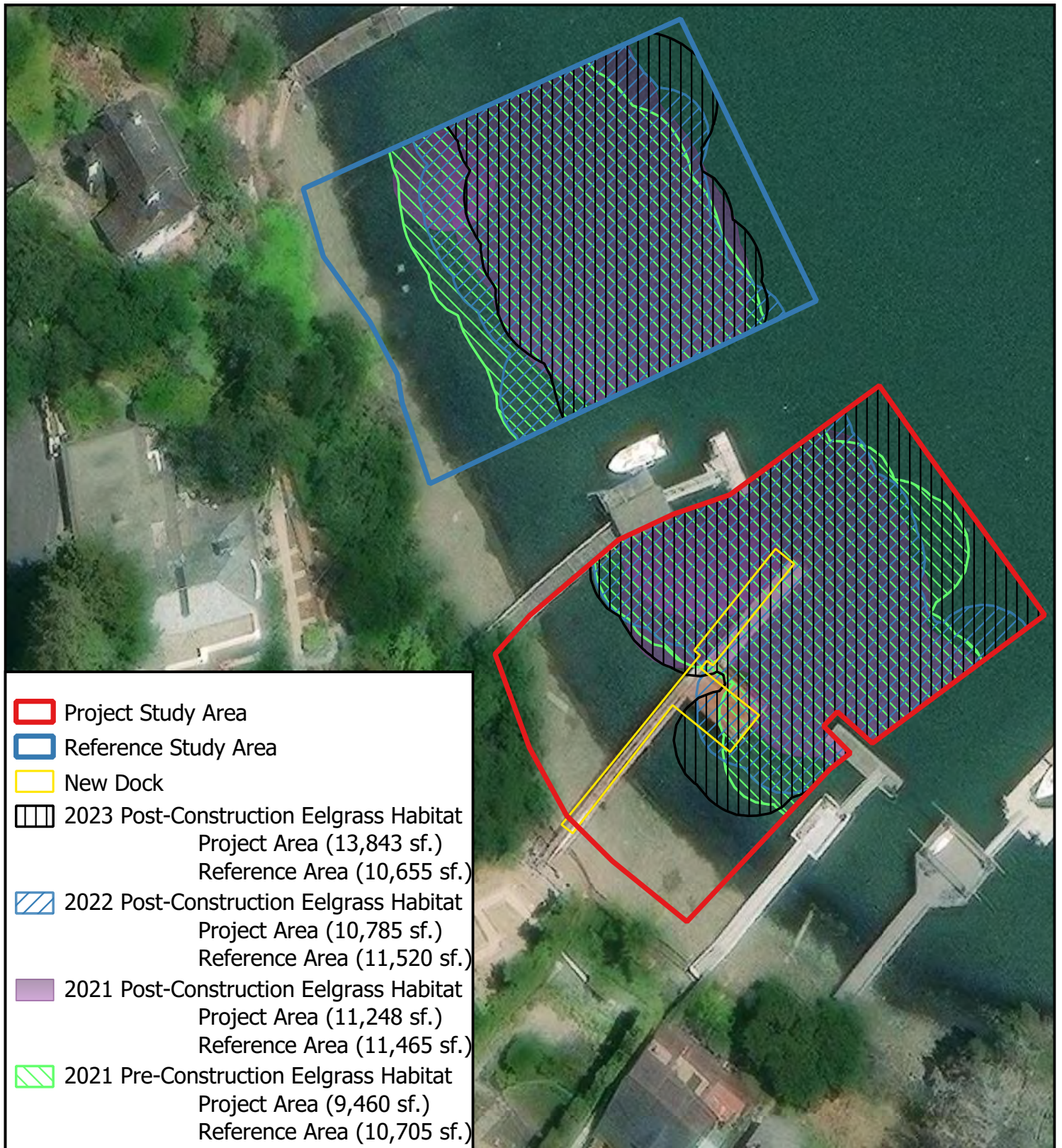


Figure 6. Vegetated Eelgrass Habitat Comparison

2023 Post-Construction Survey
270 Beach Road Pier Improvement Project
Belvedere, California



Source: Esri Satellite 2023

Prepared By: KChang December 13 2023

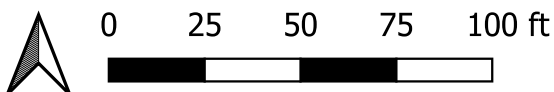


Figure 7. Total Eelgrass Habitat

2023 Post-Construction Survey
270 Beach Road Pier Improvement Project
Belvedere, California

APPENDIX A

PHOTOGRAPHS

Appendix A – Photographs



Photograph 1. Pre-construction dock and pier shown at high tide in August, 2021. Note absence of eelgrass between the dock and shore. Floating detached eelgrass blades are present on the surface.



Photograph 2. Photo of the exposed shoreline and pre-construction dock at low tide in August, 2021. Note lack of eelgrass on exposed shoreline (elevations higher than MLLW).

Appendix A – Photographs



Photograph 3. Photo of the constructed pier and floating dock, October 29, 2021



Photograph 4. Photo of the constructed pier and floating dock, October 29, 2021

Appendix A – Photographs



Photograph 5. Photo of the constructed pier and floating dock, July 24, 2023. Note eelgrass bed present and visible at the surface. More eelgrass is subsurface and is not visible.



Photograph 6. Photo of the reference area, July 24, 2023. Note eelgrass bed present and visible at the surface. More eelgrass is subsurface and is not visible.

APPENDIX B

PROJECT PLANS

270 BEACH ROAD BELVEDERE, CA WATERFRONT IMPROVEMENTS

APPROVED AS REVISED

Permit No. 2000131 Date 9/28/20

Building Official [Signature]

For Revision _____ Only



W.B. Clausen
Structural Engineers

1727 64TH Street
Emeryville, California 94608
Ph: 510 655 4144
Fax: 510 655 1133
www.clausenengineers.com

PROJECT NAME:
FLOAT, PIER & GANGWAY

270 BEACH RD
WATERFRONT
IMPROVEMENTS
270 BEACH RD
BELVEDERE, CA



DATE	DESCRIPTION
2/1/17	City of Belvedere: Design Review
4/20/17	Army Corps Application
7/20/17	Water Quality Certification
11/13/18	APPLY TO BCDC

RECEIVED
TITLE SHEET
SEP 03 2020
City of Belvedere



DRAWN: PHC
CHECKED: PHC

SHEET NO.: T1.0

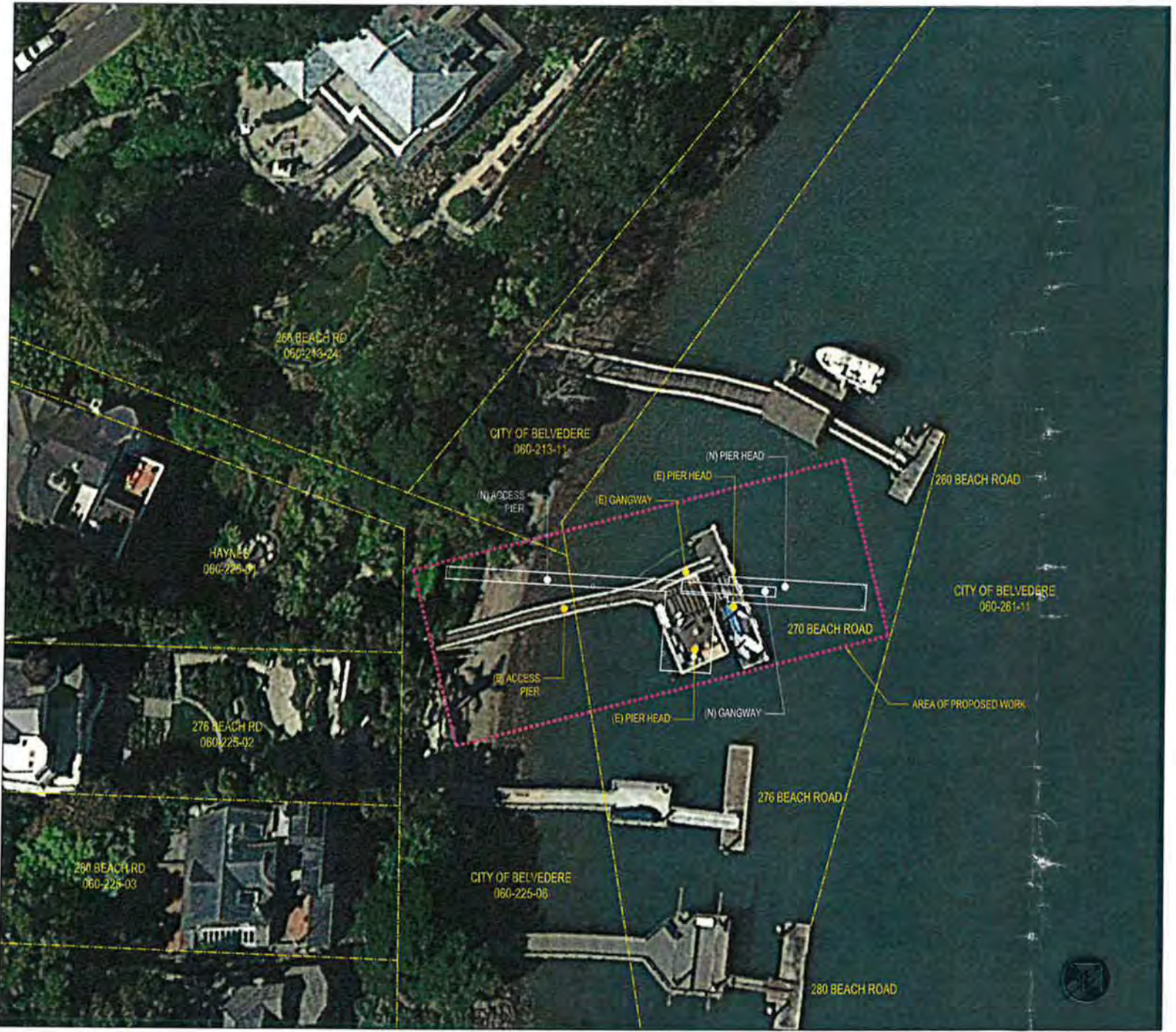
PROJECT NO.: 26153

CAD FILE: 26153(Dock Rehab)T1.0-C1.1_C1.3
DATE MODIFIED: 5/04/18

All drawings and all other material appearing herein constitute the original and approved work of Clausen Engineers and the same may not be duplicated, altered or modified without the written consent of Clausen Engineers.

PERMIT COPY

SITE AERIAL SCALE 1" = 20'



VICINITY MAP



PROJECT TEAM DIRECTORY

OWNER / APPLICANT
JAMES AND HOLLIE MOORE HAYNES
270 BEACH RD.
BELVEDERE, CA 94920

ENGINEERING CONSULTANT
CLAUSEN ENGINEERS
1727 64TH ST.
EMERYVILLE, CA 94608
510-444-4144
CONTACT: TIM MURISON

CODE DATA

AP 60-225-01 (HAYNES)
060-225-06 (CITY OF BELVEDERE)
060-261-11 (CITY OF BELVEDERE)
ZONING R-15, SINGLE FAMILY RESIDENTIAL
LOT SIZE 10,653 (MIN. 5000 SF)
SETBACKS 15' FRONT / 10' SIDE / 10' REAR
MAX. HEIGHT 36 FT

DESIGN CRITERIA 2019 CBC

BAY FILL SUMMARY*

EXISTING	PROPOSED
FLOATING DOCK: 360 SF	FLOATING DOCK: 352 SF
FLOAT PILES: 5 SF	BERTHING PILES: 2 SF
GANGWAY: 45 SF	FLOAT PILES: 3 SF
PIER: 549 SF	GANGWAY: 45 SF
PIER PILES: 24 SF	PIER: 576 SF
TOTAL 983 SF	PIER PILES: 10 SF
	TOTAL: 988 SF

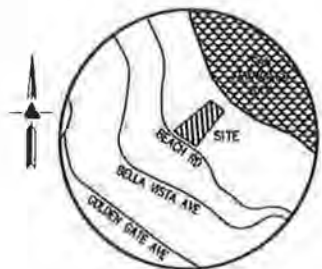
* BAY SIDE OF MHW LINE

DRAWING INDEX

T1.0	TITLE SHEET
SU2	TOPOGRAPHIC SURVEY BY LEA & BRAZE ENGINEERING, INC.
C1.0	PROPOSED CONDITIONS
C1.1	PIER FRAMING PLAN & DETAILS
C1.2	SECTIONS & DETAILS
C1.3	PROPOSED MATERIALS

SCOPE OF WORK

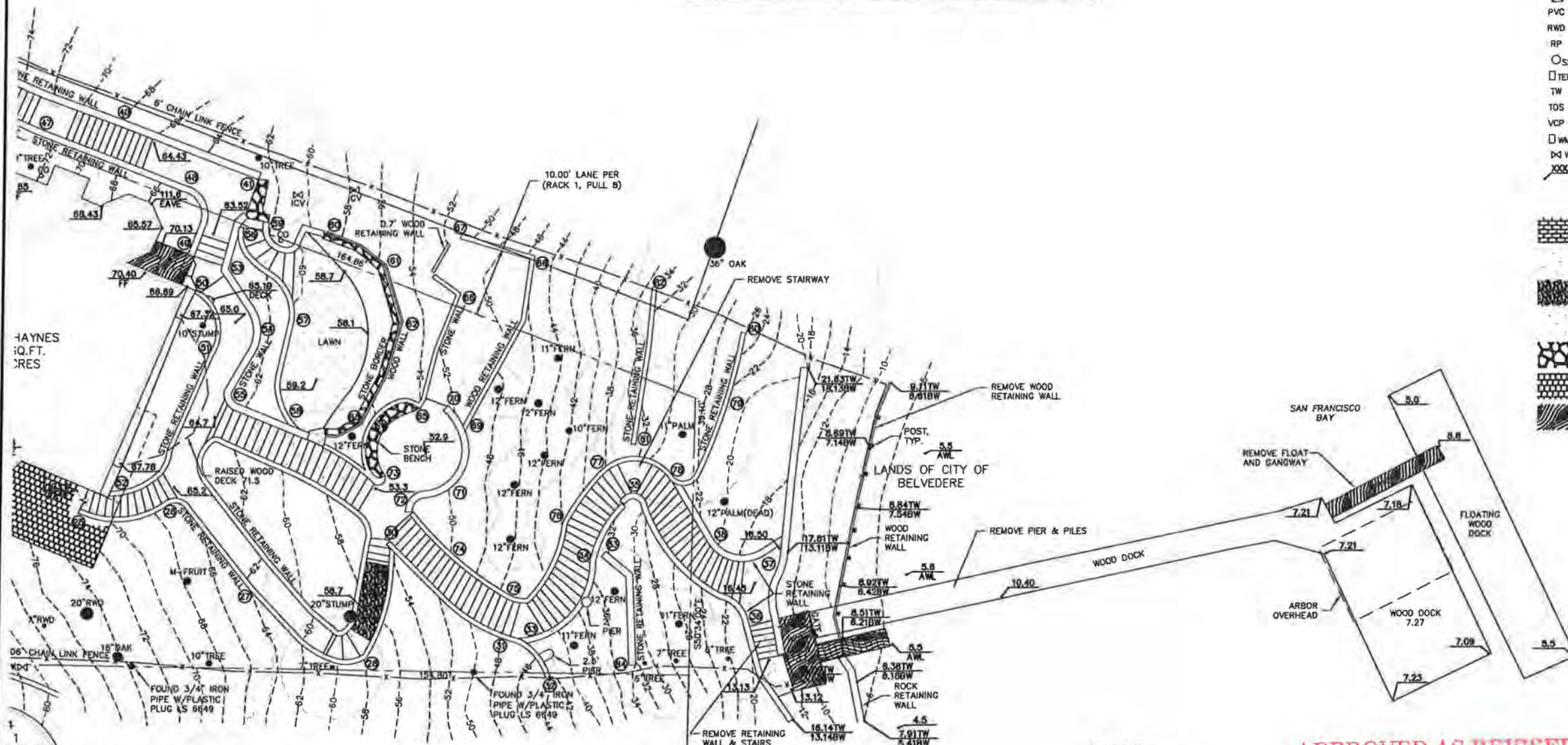
- REMOVE AN EXISTING WOOD FRAMED PIER, GANGWAY, PILES, AND FLOATING DOCK AND REPLACE WITH NEW WOOD FRAMED PIER, STAIRWAY TO BEACH, GANGWAY, PILES, FLOATING DOCK, AND TWO BERTHING PILES
- ADD HILLEVATOR - DESIGN BY OTHERS
- REPLACE STAIRWAY TO BEACH AND RETAINING WALLS
- SEE DRAWING C1.0 FOR DETAILED DESCRIPTION OF SHORELINE WORK - DESIGN BY OTHERS



VICINITY MAP
NO SCALE

DS

RETAINING WALL LEGEND											
1	102.36TW	15	90.87TW	29	55.29TW	43	87.03TW	57	81.24TW	71	53.28TW
2	102.28TW	16	90.87TW	30	55.19TW	44	82.13TW	58	80.88TW	72	53.42TW
3	99.17TW	17	95.05TW	31	47.54TW	45	78.73TW	59	83.44TW	73	54.43TW
4	87.54TW	18	92.85TW	32	42.54TW	46	78.53TW	60	58.59TW	74	50.43TW
5	98.04TW	19	100.36TW	33	46.24TW	47	72.77TW	61	58.26TW	75	48.47TW
6	101.63TW	20	107.22TW	34	43.23TW	48	71.07TW	62	55.58TW	76	43.57TW
7	99.02TW	21	104.46TW	35	35.92TW	49	65.01TW	63	58.49TW	77	41.42TW
8	91.52TW	22	107.44TW	36	33.52TW	50	65.46TW	64	56.57TW	78	38.31TW
9	88.70TW	23	104.85TW	37	29.24TW	51	67.14TW	65	54.71TW	79	29.17TW
10	92.78TW	24	100.55TW	38	20.52TW	52	65.44TW	66	52.28TW	80	27.37TW
11	91.77TW	25	99.51TW	39	18.52TW	53	68.80TW	67	53.40TW	81	27.35TW
12	90.47TW	26	95.31TW	40	16.52TW	54	65.00TW	68	52.90TW	82	21.15TW
13	88.36TW	27	99.42TW	41	21.83TW	55	70.17TW	69	50.56TW	83	28.48TW
14	86.08TW	28	99.92TW	42	21.23TW	56	69.47TW	70	50.56TW	84	25.48TW
15	88.97TW	29	72.37TW	43	96.28TW	57	65.49TW	71	51.58TW	85	35.98TW
16	88.27TW	30	71.77TW	44	84.78TW	58	63.09TW	72	50.89TW	86	32.68TW
17	89.12TW	31	67.19TW	45	89.79TW	59	64.95TW	73	51.43TW	87	33.15TW
18	87.32TW	32	65.69TW	46	87.39TW	60	63.16TW	74	49.86TW	88	32.30TW
19	89.19TW	33	63.73TW	47	82.82TW	61	62.87TW	75	48.86TW	89	34.43TW
20	88.49TW	34	61.73TW	48	82.82TW	62	62.87TW	76	48.86TW	90	31.43TW
21	88.96TW	35	58.40TW	49	87.03TW	63	82.39TW	77	53.28TW	91	34.43TW
22	88.26TW	36	57.90TW	50	83.93TW	64	82.13TW	78	50.43TW	92	31.43TW



EASEMENT NOTE

THERE ARE NO EASEMENTS PER PRELIMINARY TITLE REPORT PREPARED BY FIDELITY NATIONAL TITLE COMPANY, ORDER NO. 10-537756-KB, DATED AS OF SEPTEMBER 15, 2010

BENCHMARK

CITY OF BELVEDERE BENCHMARK #50 BRASS DISK STAMPED "CITY OF BELVEDERE BENCHMARK", SET IN CONCRETE @ ANGLE PT. CURB RETURN, INTERSECTION BEACH RD AND BAYVIEW AVE ELEVATION = 150.46' (NGVD 29 DATUM)

SITE BENCHMARK

SURVEY CONTROL POINT MAG AND SHINER SET IN ASPHALT ELEVATION = 102.24' (NGVD 29 DATUM)

NOTES

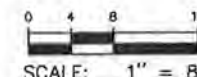
ALL DISTANCES AND DIMENSIONS ARE IN FEET AND DECIMALS OF A FOOT.
UNDERGROUND UTILITY LOCATION IS BASED ON SURFACE EVIDENCE.
BUILDING FOOTPRINTS ARE SHOWN AT GROUND LEVEL.
FINISH FLOOR ELEVATIONS ARE TAKEN AT DOOR THRESHOLD (EXTERIOR)

APPROVED AS REVISED

Permit No. _____ Date 9/28/21

Building Official _____

For Revision _____ Only



SCALE: 1" = 8'

LEGEND AND NOTES

---	BOUNDARY LINE
---	BUILDING OVERHANG LINE
X	FENCE LINE
SS	SANITARY SEWER LINE
SD	STORM DRAIN LINE
AWL	APPROXIMATE WATER LEVEL (11-24-15)
BW	BENCHMARK
CB	BOTTOM RETAINING WALL
CATV	CABLE TV BOX
CB	CATCH BASIN
CO	CLEAN-OUT BOX
EB	ELECTRICAL BOX
EM	ELECTRICAL METER
FF	FINISH FLOOR
FX	FIRE HYDRANT
FL	FLOW LINE
GM	GAS METER
INV	INVERT
ICV	IRRIGATION CONTROL VALVE
JMAP	JAPANESE MAPLE
M	MULTI-TRUNK TREE
M	PILLAR, SIMILAR
PVC	POLYVINYL CHLORIDE PIPE
RWD	REDWOOD
RP	ROOF PEAK
SSMH	SANITARY SEWER MANHOLE
TEL	TELEPHONE BOX
TW	TOP OF RETAINING WALL
TOS	TOP OF SLAB
VCP	VITRIFIED CLAY PIPE
WM	WATER METER
WV	WATER VALVE
XXX	SPOTGRADE
ASPH	ASPHALT
BRICK	BRICK
CONC	CONCRETE
GRAVEL	GRAVEL
LAWN	LAWN
STONE	STONE
TILE	TILE
WOOD	WOOD



LEA & BRAZE ENGINEERING, INC.
LAND SURVEYORS
SACRAMENTO REGION
1450 J STREET, SUITE 300
ROSELAND, CA 95661
(916) 986-1335
(916) 987-3019
WWW.LEABRAZE.COM

APN: 060-225-01

270 BEACH ROAD
BELVEDERE
CALIFORNIA

MARIN COUNTY

TOPOGRAPHIC
SURVEY

SEA WALL	DB
10-22-18	
ADDED TREE	RM
07-31-18	
REVISED BEARING	RM
1-3-18	
REVISED ADJOINER	RM
11-3-17	
ADDTL SURVEY	DB
12-4-15	
REVISIONS	BY

JOB NO: 2150959
DATE: 8-24-19
SCALE: 1" = 8'
DRAWN BY: DB
SHEET NO:

SU2

2 OF 3 SHEETS

FLOAT, PIER & GANGWAY

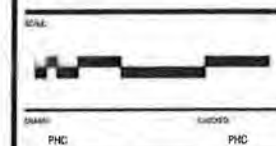
270 BEACH RD
WATERFRONT
IMPROVEMENTS
 270 BEACH RD
 BELVEDERE, CA



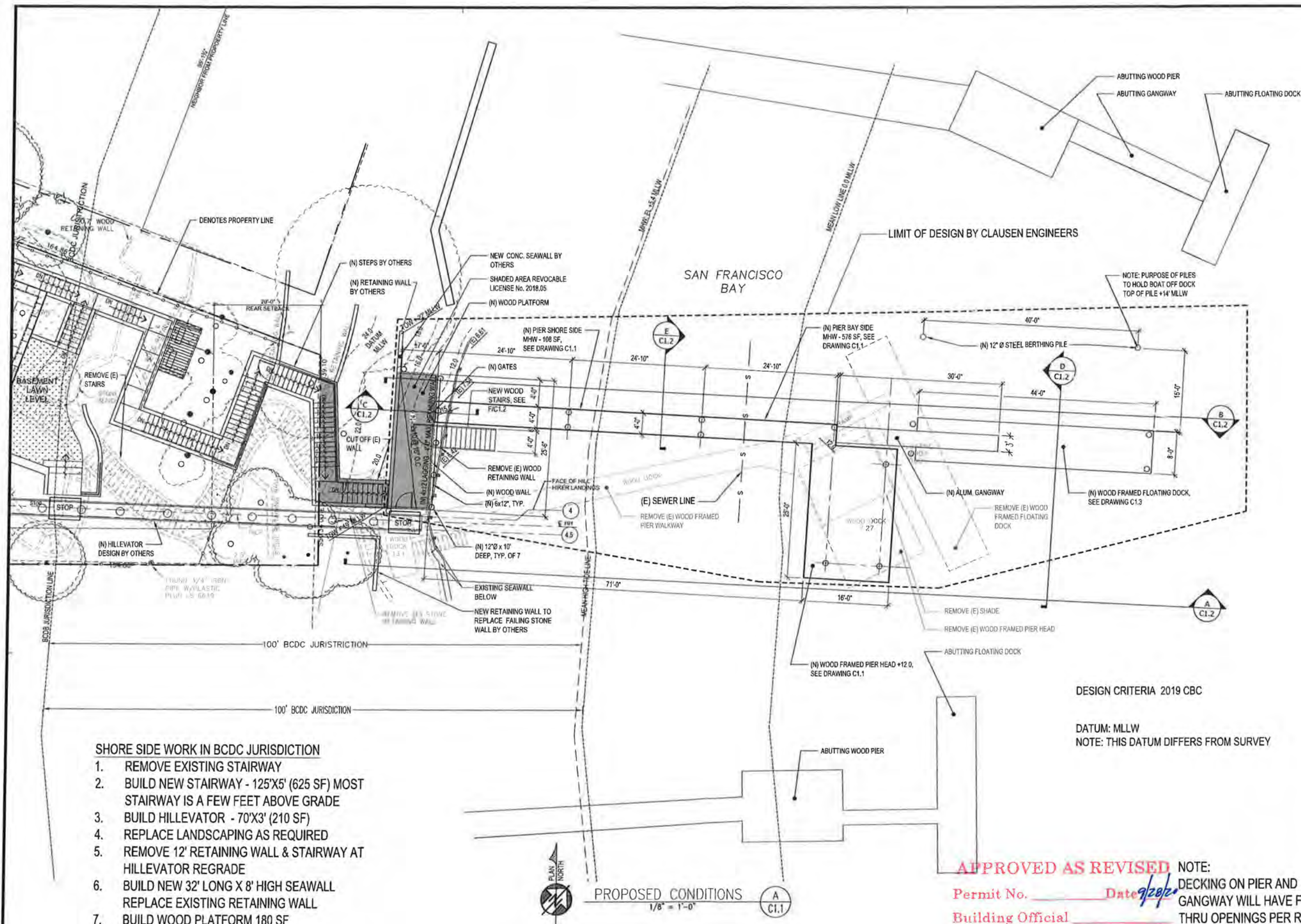
DATE	DESCRIPTION
2/1/17	City of Belvedere Design Review
4/20/17	Army Corps of Engineers Permit
7/28/17	Water Quality Certification
11/12/18	APPLY TO BCDC

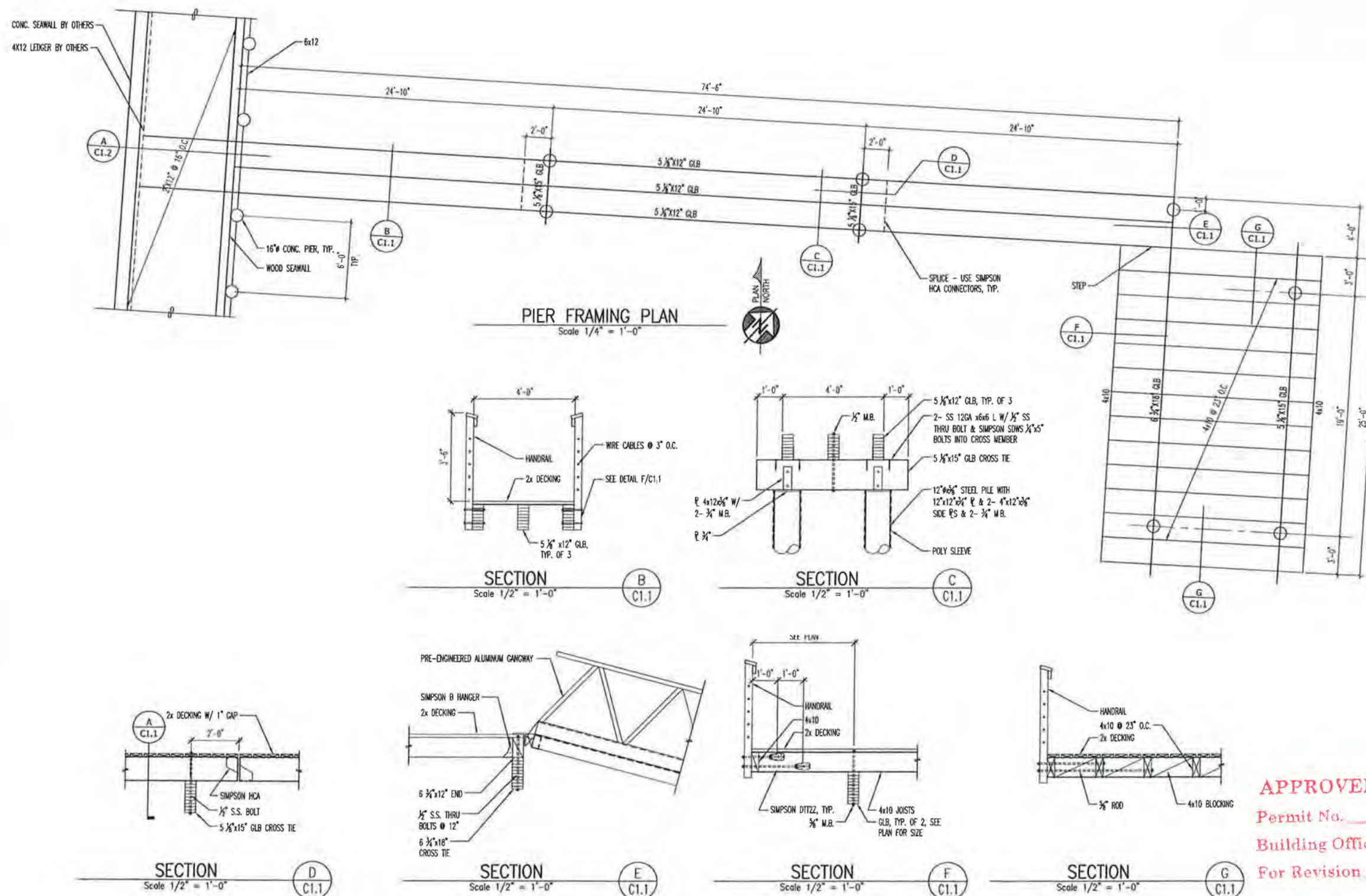
REV	DATE	DESCRIPTION
1	8/17/17	Berthing piles
2	01/09/19	General
3	02/26/19	GENERAL
4	05/15/19	BCDC
5	06/18/19	GENERAL
6	10/24/20	RELEASE FOR PERMIT

PROPOSED CONDITIONS



C1.0
 PROJECT NO. 26153
 DATE MOVED: 11/12/18
 26153/2000 Rev 001 C1.0 C1.3 11/12/18
 All drawings and written material are the property of W.B. Clausen & Associates, Inc. and shall remain the property of W.B. Clausen & Associates, Inc. even if they are loaned to another party. No part of this drawing shall be reproduced or transmitted in any form or by any means electronic, mechanical, photocopying, recording, or by any information storage or retrieval system, without the prior written permission of W.B. Clausen & Associates, Inc.





MATERIALS	
WOOD	ALASKA YELLOW CEDAR #1
STEEL	A36, HOT DEEP GALVANIZED
STEEL BOLTS	A307 HOT DEEP GALVANIZED
STAINLESS STEEL	A316

COAT STEEL PILES WITH INTERLOCK 954

FLOAT, PIER & GANGWAY

270 BEACH RD
WATERFRONT
IMPROVEMENTS
270 BEACH RD
BELVEDERE, CA



DATE	DESCRIPTION
2/1/17	City of Belvedere: Design Review
4/20/17	Army Corps of Engineers Permit
7/20/17	Water Quality Certification
11/13/18	APPLY TO BCDC
06/22/20	REVISION TO BEAM

NO.	DATE	DESCRIPTION
1	8/17/17	Earthling galls
2	01/09/19	General
3	02/26/19	GENERAL
4	05/15/19	BCDC
5	07/18/19	GENERAL
6	06/24/20	RELEASE FOR PERMIT
7	08/10/20	CONSTRUCTION

PIER FRAMING PLAN
AND DETAILS

APPROVED AS REVISED
Permit No. _____ Date 9/28/20
Building Official _____
For Revision _____ Only



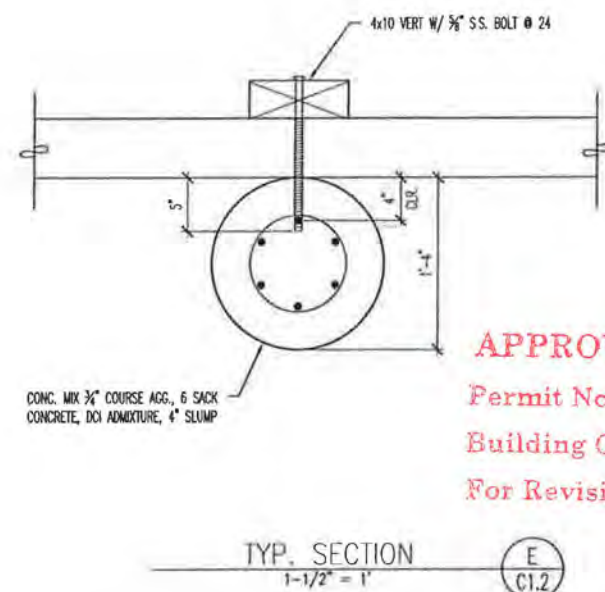
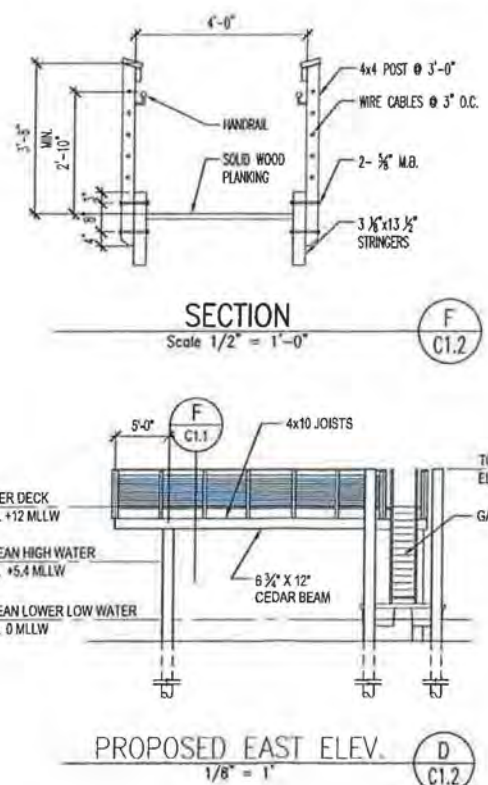
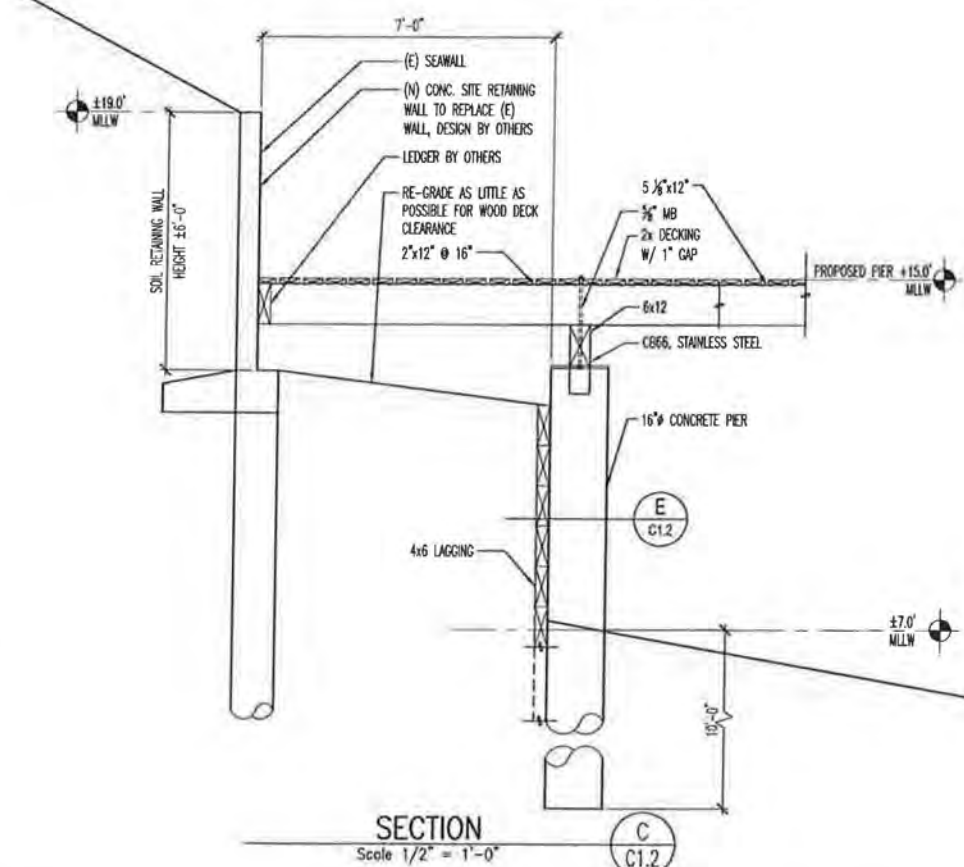
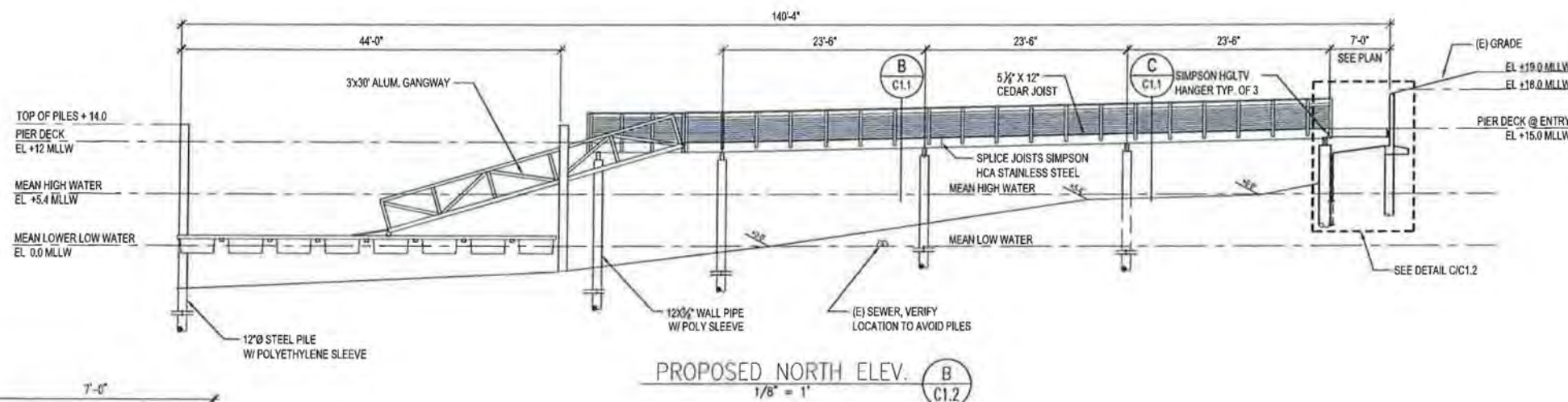
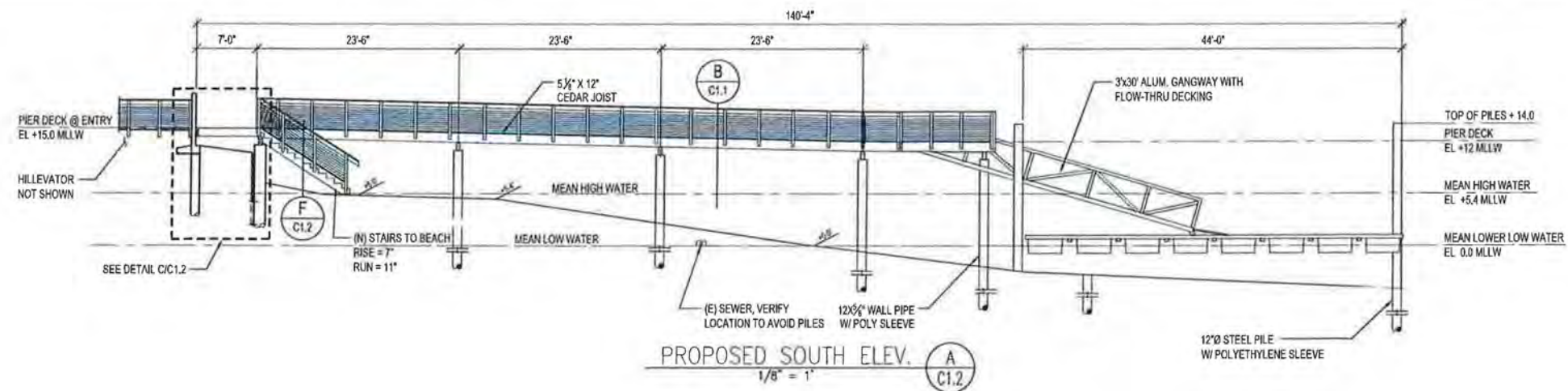
DATE	CREATED
PHG	PHG

C1.1

PROJECT NO: 26153

DATE	DATE MODIFIED
26153/Dock Rebuild/1.0-C1.0-C1.3	11/12/18

All drawings and written material appearing herein constitute the original and unpublished work of Clausen Engineers and this same may not be duplicated, used, or disclosed without the written consent of Clausen Engineers.



APPROVED AS REVISED
 Permit No. _____ Date 7/28/20
 Building Official _____
 For Revision _____ Only

WB
W.B. Clausen
Structural Engineers
 1727 64TH Street
 Emeryville, California 94608
 Ph: 510.655.1144
 Fx: 510.655.1133
 www.clausenengineers.com

PROJECT NAME:
FLOAT, PIER & GANGWAY

270 BEACH RD
WATERFRONT
IMPROVEMENTS
 270 BEACH RD
 BELVEDERE, CA



DATE	DESCRIPTION
2/1/17	City of Belvedere; Design Review
4/20/17	Army Corps of Engineers Permit
7/20/17	Water Quality Certification
11/13/18	APPLY TO BCDC

SECTIONS & DETAILS

SCALE: _____

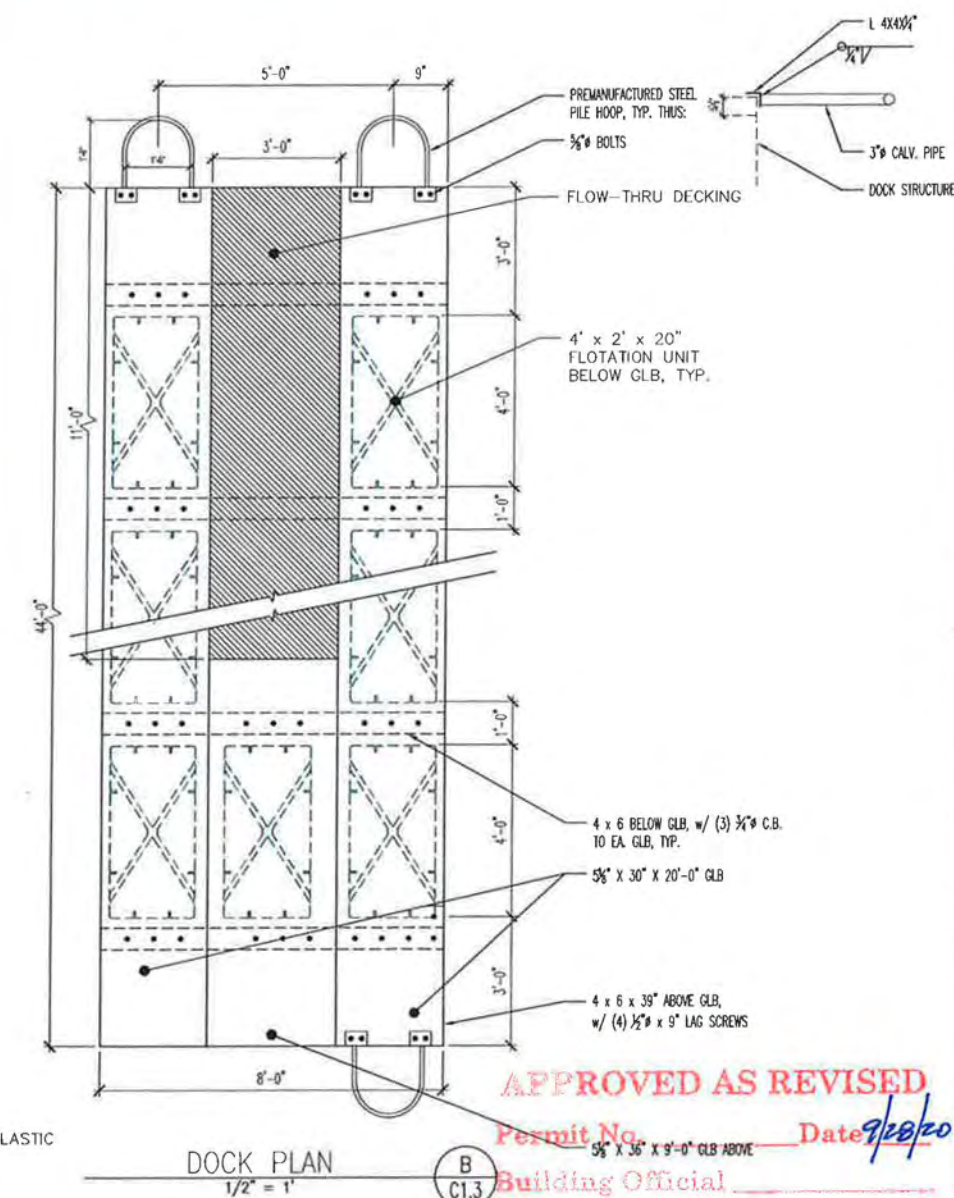
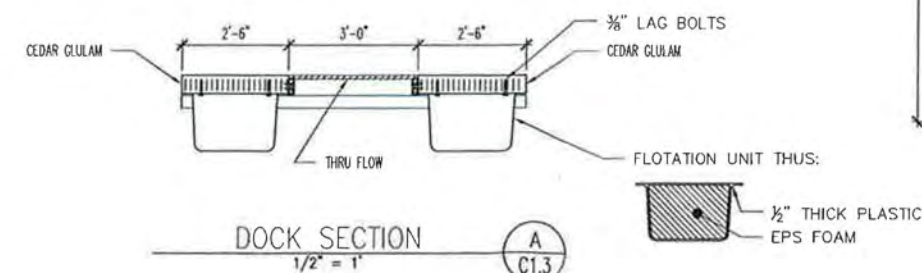
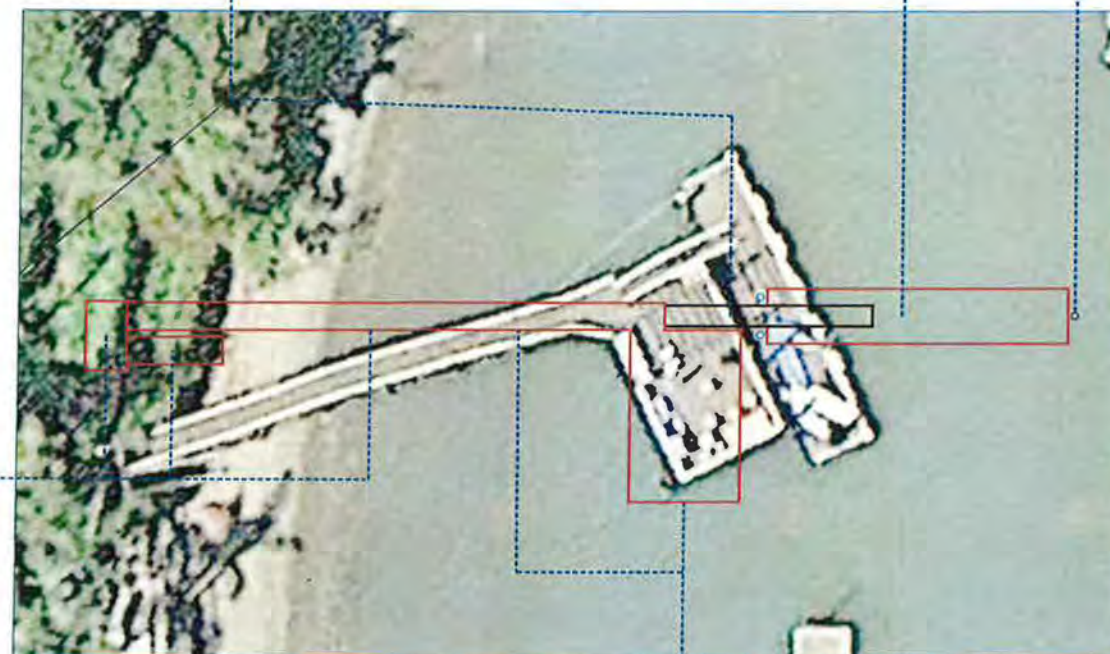
DATE: _____

PROJECT NO. **C1.2**

PROJECT NO. 26153

DATE: 11/12/18

26153 Dock Rebuild 11.0-C1.1_C1.3



W.B. Clausen
Structural Engineers

1727 64TH Street
Emeryville, California 94608

FLOAT, PIER & GANGWAY

270 BEACH RD
WATERFRONT
IMPROVEMENTS

270 BEACH RD
REI VEDERE CA



DATES-BUILD	
DATE	DESCRIPTION
2-1/17	City of Belvedere: Design Review
4/20/17	Army Corps of Engineers Permit
7/20/17	Water Quality Certification
11/13/18	APPLY TO BCDC

PERMISSION		
NO.	DATE	DESCRIPTION
1	01/09/19	GENERAL
2	02/20/19	GENERAL
3	05/15/19	BCDC
4	06/24/20	RELEASE FOR PERMIT
5		
6		

PROPOSED MATERIALS



DRUGS	CHESTS
PHC	PHC

MEETING

C1.3

26153

CRD FILE:	DATE MODIFIED:
26153\Dock Rebuild\T1.0-C1.1_C1.3	7/2

All drawings and written material appearing herein constitute the original, unpublished work of Claxton Engineers and the same may not be duplicated or disclosed without the written consent of Claxton Engineers.



SUNSET ECOLOGICAL
SOLUTIONS
BIOLOGY, PERMITTING, AND COMPLIANCE

2023 Post-Construction Eelgrass Survey

270 Beach Road Waterfront Improvements Project Belvedere, Marin County, California

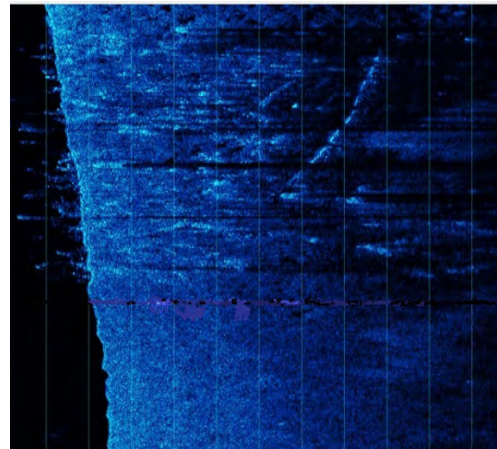
January 4, 2024

Prepared for:

Jay and Hollie Haynes
270 Beach Road
Belvedere, CA 94920
Jhaynes@gmail.com

Prepared by:

Sean R. Avent
Sunset Ecological Solutions
1641 48th Avenue
San Francisco, California, 94122
sean@sunsetecological.com
415.377.2380





Source: Esri Satellite 2023

Prepared By: KChang December 26 2023

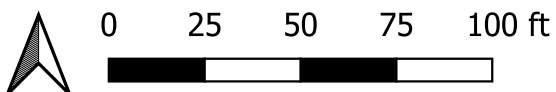
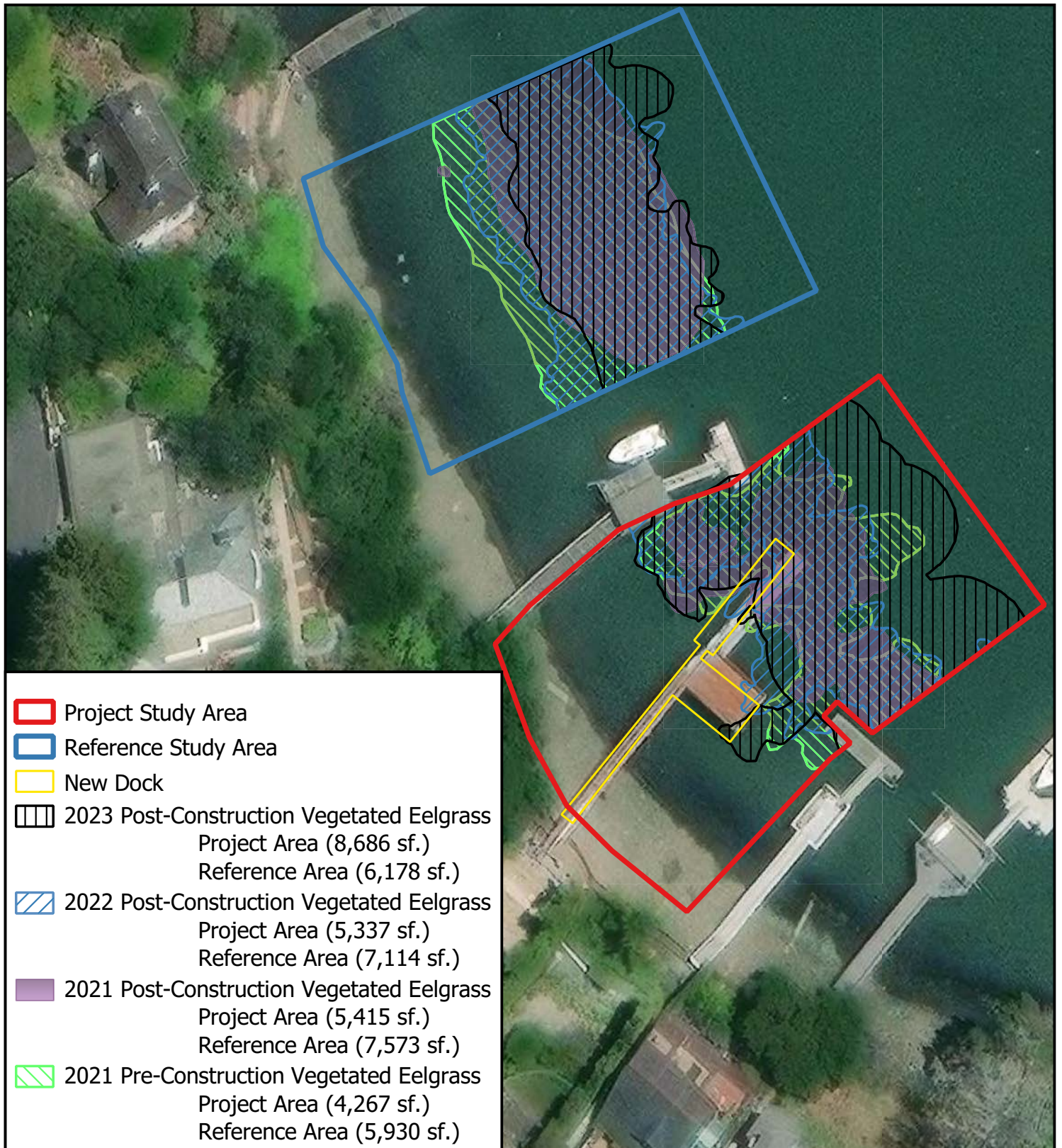


Figure 5. 2023 Post-Construction Eelgrass Survey Results

2023 Post-Construction Survey
270 Beach Road Pier Improvement Project
Belvedere, California



Source: Esri Satellite 2023

Prepared By: KChang December 12 2023

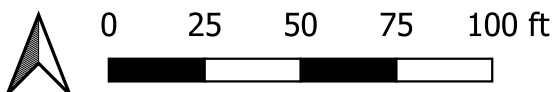
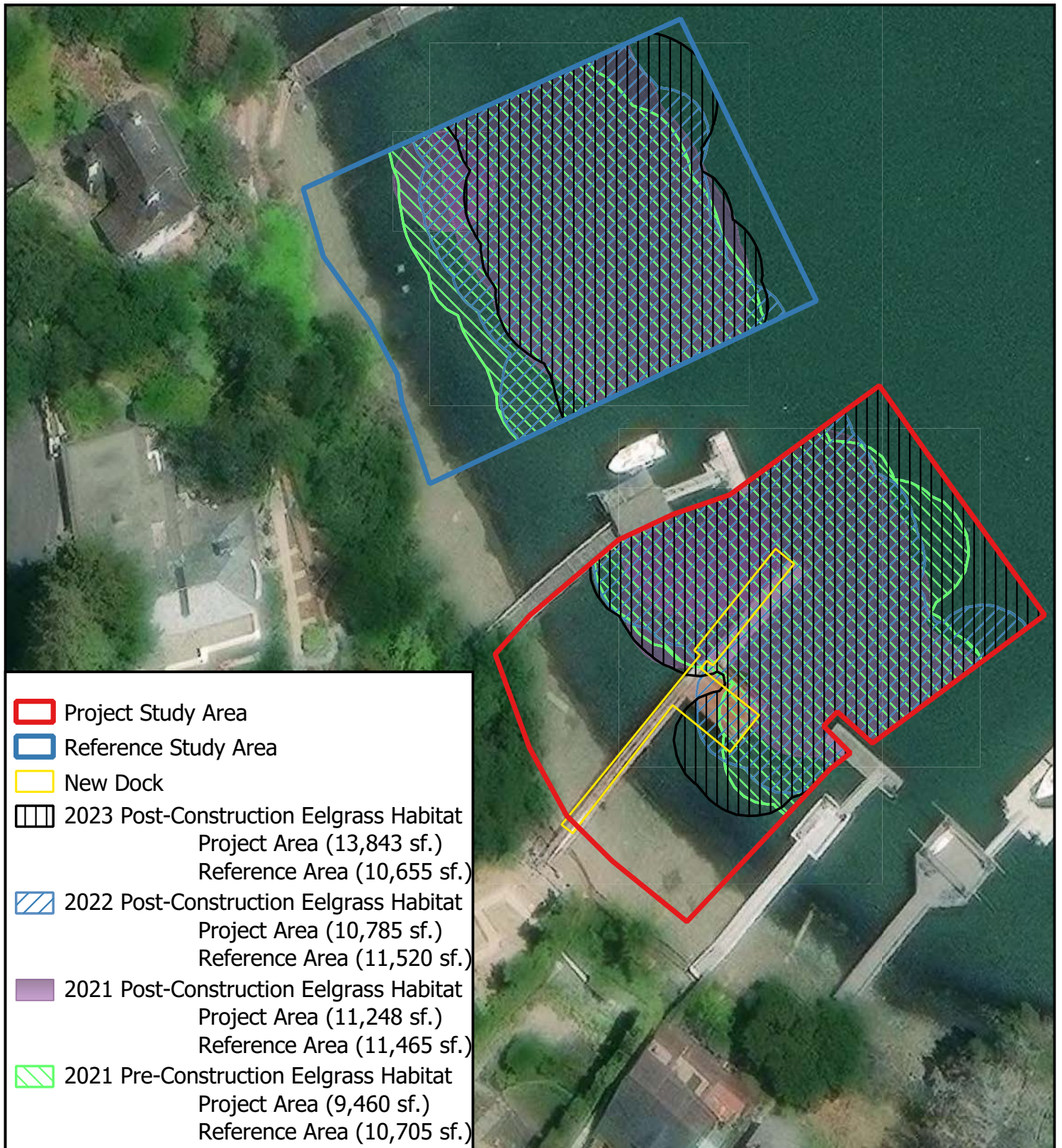


Figure 6. Vegetated Eelgrass Habitat Comparison

2023 Post-Construction Survey
270 Beach Road Pier Improvement Project
Belvedere, California



Source: Esri Satellite 2023

Prepared By: KChang December 13 2023

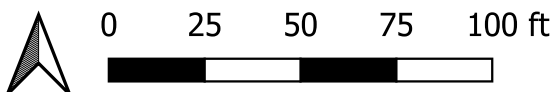


Figure 7. Total Eelgrass Habitat

2023 Post-Construction Survey
270 Beach Road Pier Improvement Project
Belvedere, California