

# **Ecological No Net Loss Assessment Report**

Prepared for

**Thomas Residence  
8149 W Mercer Way  
Mercer Island, WA 98040**

Prepared by



Northwest Environmental Consulting, LLC  
600 N 36<sup>th</sup> Street, Suite 423  
Seattle, WA 98103  
206-234-2520

**December 2023**

## Purpose

The purpose of this report is to fulfill the requirements of City of Mercer Island Municipal Code Shoreline Master Program by assessing overall project impacts and proposed mitigation to determine if the project meets the “No Net Loss” General Regulation of the Shoreline Master Program.

No Net Loss is defined as “An ecological concept whereby conservation losses in one geographic or otherwise defined area are equaled by conservation gains in function in another area.”

Permits are being applied for a dock repairs and shoreline improvements.

## Location

The subject property is located at 8149 W Mercer Way, Washington (see Appendix A – Sheet A1.0). The parcel is on the waterfront of Lake Washington that contains several endangered fish species listed under the Endangered Species Act and Washington State designated priority fish species.

## Project Description

The proposed work includes removing the existing wood decking. The pile splicing method will be used to repair 14 of the existing timber piles. The dock will be reframed and raised by 1 foot. The deck will be replaced with ThruFlow grated decking. No new overwater coverage is proposed.

The existing bulkhead will be repaired and pulled back 6 inches. See Sheets 2.0 to 14.0 for additional information and layout.

A planting plan will be installed that includes 2 native evergreen trees and 3 native shrubs and preserves existing vegetation. See sheet 8.0 and 9.0.

During construction, a floating boom will surround the work barge and pier. See sheet 7.0.

Project drawings are included in Attachment A.

## Approach

Northwest Environmental Consulting LLC (NVEC) biologist Brad Thiele conducted a site visit on December 18, 2023, to evaluate conditions on site and adjacent to the site. NVEC also consulted the following sources for information on potential critical fish and wildlife habitat along this shoreline:

- Washington Department of Fish and Wildlife (WDFW): Priority Habitats and Species online database (<http://apps.wdfw.wa.gov/phsontheweb/>)
- WDFW SalmonScape online database of fish distribution and ESA listing units (<https://apps.wdfw.wa.gov/salmonscape/>)

## Site Description

The subject property is a shoreline tract in a residential neighborhood. It has shoreline on its southern boundary with single-family homes on the eastern and western properties.

The only existing structures on the property are the house, the existing dock, and a rock bulkhead. The shoreline a lawn with beds and terraces with a few ornamental beds with a patio. The bulkhead is constructed with granite boulders. Lake substrates are sand and gravel with some cobble. Eurasian milfoil was present in the Lake starting about 20 feet from shore. (Photos 1 through 6).

The property to the east and west have similar shoreline features with bulkheads, docks and homes.

## Species Use

WDFW's PHS mapping and SalmonScape mapping tools show the following salmonid species using Lake Washington for migration and/or rearing: residential coastal cutthroat (*Oncorhynchus clarkii*), winter steelhead (*O. mykiss*), Dolly Varden/bull trout (*Salvelinus malma*), sockeye salmon (*O. nerka*), fall Chinook (*O. tshawytscha*), coho salmon (*O. kisutch*), and kokanee (*O. nerka*). The SalmonScape database maps the site as accessible to the Endangered Species Units (ESU) of Threatened Chinook and steelhead. Juveniles may rear in the waters near the project when traveling from spawning sites on other lake tributaries to the lake's outlet at the Locks. The project site is accessible to any fish migrating or rearing in the lake.

The shoreline is mapped as a Sockeye spawning area by WDFW.

Pioneer Park mapped as a biodiversity area is approximately 5,000 feet to the northeast of the site. No priority habitats are directly associated with the project site except for Lake Washington.

The Mercer Island GIS portal maps an unpipied watercourse on the property. The piped watercourse will spill over the new bulkhead as currently occurs. No vegetation will be removed along the watercourse. The stream will be bypassed during construction per HPA specifications if required. The watercourse is non-fish bearing.

## Project Impacts and Conservation Measurements

### *Direct Impacts:*

**Sediments:** Sediment disturbance will occur below the OHWM and along the shoreline of Lake Washington during pile work. Additionally, the tug and barge propwash may disturb sediments temporarily when making trips to/from the site.

Sediments are expected to be minimally disturbed during pile repair and installation. The bottom substrate is sand a gravel that will help reduce the chances of turbidity.

Bulkhead repair has the potential to create turbidity. A boom with a silt curtain will surround the work area to decrease the potential of turbidity from leaving the site. Any disturbed soils landward of the bulkhead will be stabilized upon completing the work.

The project is expected to meet state water quality standards for turbidity.

**Lakebed:** No change in lakebed coverage will occur because of pile repairs.

**Shoreline:** Planting native vegetation will increase the habitat functions of the shoreline by creating shade along the shoreline that will improve the existing baseline habitat conditions at the project site. These plants will provide overhanging cover for fish, structural diversity for birds and wildlife, detritus for aquatic invertebrates and long-term recruitment of woody material and other allochthonous food sources. The proposed planting plan is included (see Appendix A – Sheet 8.0).

The bulkhead will be set back landward 6 inches along more than 107 feet of the shoreline and include a stairway to the shoreline. The bulkhead reconfiguration will create about 54 square feet of beach. Beach nourishment gravels along the bulkhead. The bulkhead setback and cove will attenuate wave action along shoreline where bulkhead existed improving the shoreline conditions for fish and reducing lakebed erosion caused by reflecting waves.

**Noise:** Construction equipment will create noise audible to neighbors and in-water. Noise disturbance will be short-term and should have negligible effects on fish and wildlife in the area. Work will be completed during the in-water work window when juvenile fish are not expected to be present.

**Potential spills:** Short-term risks include the potential for spills that can occur with any equipment operation. The level of impact to the aquatic environment is expected to be minimized if they should occur because spill containment measures will be employed by a trained crew should a spill occur.

**Indirect Impacts:**

**Shading:** The existing 415 square foot wooden deck will be removed and replaced with ThruFlow grated decking.

Grated decking increases light penetration to the waters below the dock, which can increase productivity in the waters, and reduce the full shade favored by salmonid predators. Salmonid predators are known to use hard shadowing under solid-decked docks to ambush juvenile salmonids. Reducing these hard shadows limits their ability to effectively hunt salmonids. Overwater structures may also increase outmigration times of juvenile salmonids. Juvenile salmonids have been shown to hesitate before passing under structures. Grated decking may reduce this behavioral effect.

ThruFlow grated decking has measured performance at 43 percent light penetration (ThruFlow, 2021). Thus, the increase in lighting under the pier is effectively 57% of the area of a solid decked structure. A summary of how this will affect this project’s shading is shown below:

**Table 1 – Effective coverage**

	Existing solid overwater coverage	Proposed Grated overwater coverage	Conversion to grated	Effective coverage
Existing decking (SF)	415	0	0.57	415
Proposed decking (SF)		415	0.57	237
Change	415	415		178

The use of grated decking reduces the effective overwater coverage by 178 square feet over the existing pier.

In addition, raising the dock by 1 foot will increase penetration of the water under the dock further reducing hard shadowing and the potential for the dock to act as a partial fish migration barrier.

**Recreational Boating:** The project supports continued recreational boating, which has been identified as a limiting factor for salmonid populations in Lake Washington. The pier reconfiguration will not introduce additional boating to Lake Washington, as the owners could still access the lake from a public boat launch or private moorage facility.

***Other Conservation measures:***

**Work window:** The work will be completed during the prescribed in-water work window for this area of Lake Washington (July 16 to December 31). Operating within this time frame helps protect Chinook salmon, steelhead, bull trout and other salmonid fish species by doing work when juvenile fish are not expected to be present.

**Best Management Practices:** Applicable BMPs will be used, such as a floating boom around the in-water work area, to contain any floating debris that may escape during construction. The barge will have a perimeter containment sock to absorb oil and grease that might inadvertently wash from the barge during construction.

Hazardous material containment materials such as spill absorbent pads and trained personnel will be required onsite during any phase of construction where machinery is in operation near surface waters.

**In-lieu Fee:** The shoreline on the subject property will be planted with additional native, overhanging vegetation. The project also requires approval from the National Marine Fisheries Service (NMFS). NMFS has developed a calculator to determine appropriate mitigation costs for proposed in-water structures in Lake Washington. This calculator has established a fund that owners can pay into if they are not willing or cannot find mitigation to offset impacts from the project. The owner is not able to complete the required mitigation at the subject property and the property owners will pay into the in-lieu fee program to mitigate project impacts. An in-lieu fee program is defined as follows:

“A program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements... Similar to a mitigation bank, an in-lieu fee program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu program sponsor.” (Fed. Reg. 40 CFR Part 230)

The fee has been determined using the Restoration And Permitting (RAP) Calculator for Lake Washington and will be paid to King County Conservation Fund. This fund has been used to remove 350 piles from the mouth of the Cedar River within Lake Washington to date.

## **Conclusion**

Juvenile Chinook salmon, and other salmonids, rear and migrate along the Lake Washington shoreline.

There will be temporary impacts from noise and disturbed sediments during construction. The effects of construction will be short term. Construction disturbance will degrade ecological conditions at the site temporarily.

The project will minimize construction effects on the environment by following the prescribed fish window and using applicable BMPs to prevent construction spills, turbidity, and floating debris from escaping the area. The construction crew will retrieve all dropped items from the bottom and dispose of them properly.

The replaced decking will all be grated reducing the effective overwater coverage at the site by 178 square feet. The grated decking reduces the hard shadows favored by salmonid predators and increases productivity under the pier in the littoral zone.

Docks may act as a partial barrier to outmigrating juvenile salmonids that use the nearshore when migrating out of Lake Washington to saltwater. Reducing effective overwater coverage and reducing hard shadowing may help reduce hesitation of outmigrating juvenile salmonids. Raising the dock by 1 foot will may also reduce hesitation of juvenile migration passing under the dock and have a similar effect to grating the surface of the dock.

The bulkhead will be set back 6 inches along approximately 107 feet of the shoreline. The bulkhead conversion will create about 54 square feet of beach area. Beach nourishment gravels will be added along the bulkhead per HPA specifications. The bulkhead setback will attenuate wave action along shoreline where bulkhead existed improving the shoreline conditions for fish and reducing lakebed erosion caused by reflecting waves.

A shoreline planting plan will be implemented that will add a Western red cedar, a shore pine, and 3 native shrubs that will improve natural shading, allochthonous food sources and will eventually be a source of woody materials and will improve shoreline conditions at the site in the long-term.

The owner has also opted to pay into the In Lieu Fee program that will be used for conservation projects that benefit salmon in King County.

This project has been designed to meet current residential dock standards and will use Best Management Practices to reduce project impacts. The conservation measures are designed to improve ecological functions or prevent further degradation of habitat **and will result in No Net Loss of ecological functions**. Moving the bulkhead landward, planting the shoreline, and grating and raising the existing dock **will increase ecological functions** at the site.

## Document Preparers

Brad Thiele

Biologist

29 years of experience

Northwest Environmental  
Consulting, LLC. (NVEC)

The conclusions and findings in this report are based on field observations and measurements and represent our best professional judgment and to some extent rely on other professional service firms and available site information. Within the limitations of project scope, budget, and seasonal variations, we believe the information provided herein is accurate and true to the best of our knowledge. Northwest Environmental Consulting does not warrant any

assumptions or conclusions not expressly made in this report, or based on information or analyses other than what is included herein.

## REFERENCES

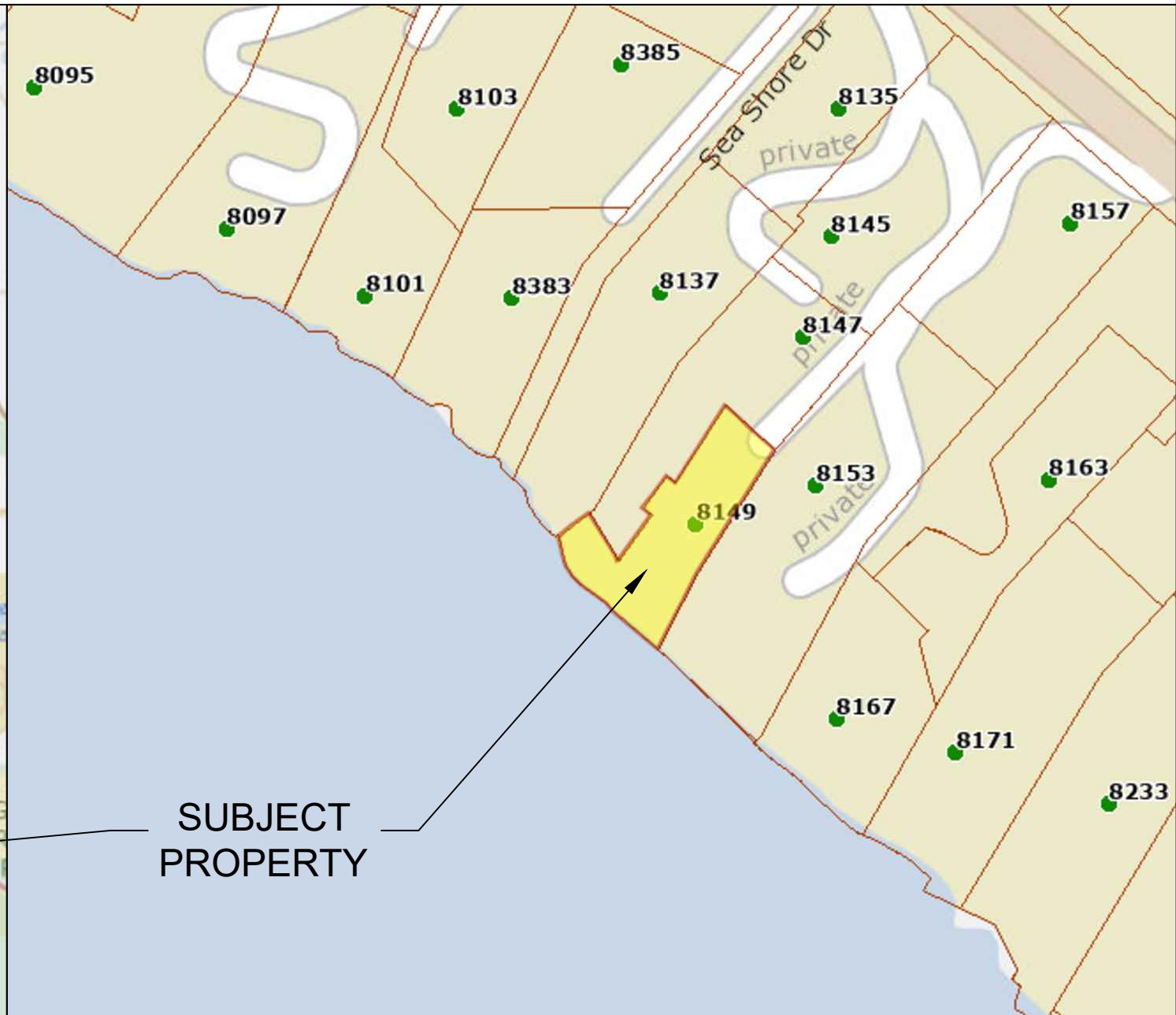
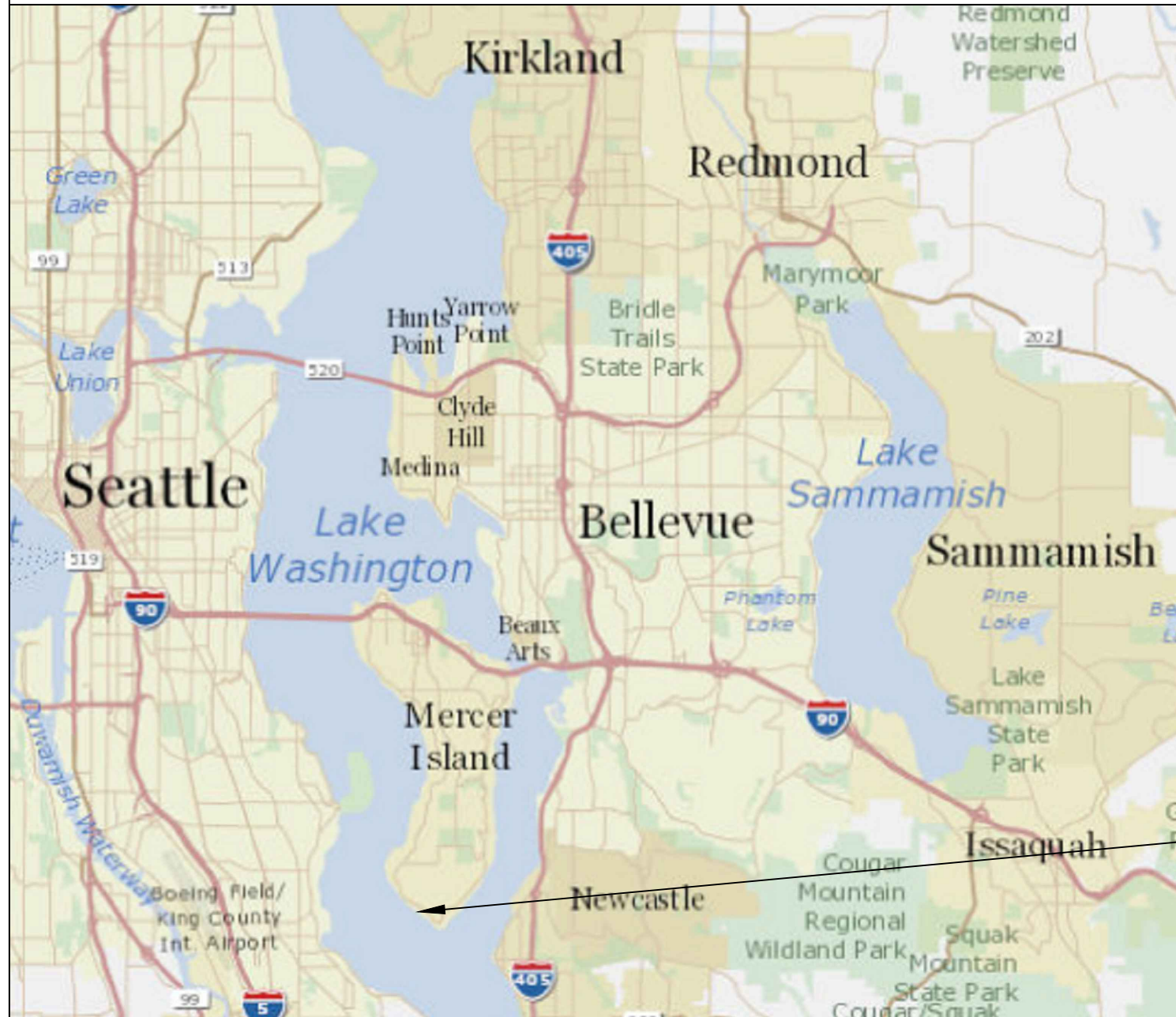
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- Kitsap Conservation District (Kitsap). 2023. Kitsap Conservation District Native Plant Sale <https://kitsapcd.org/plant-sale> accessed 2023.
- ThruFlow. 2020. Legacy Series. Online at <https://thruflow.com/products/legacy/>.
- US Army Corps of Engineers (USACE). 2004. Final Biological Evaluation, Regional General Permit: Construction of New or Expansion of Existing Residential Overwater Structures and Driving of Moorage Piling. Lake Washington, Lake Sammamish, the Sammamish River and Lake Union, Including the Lake Washington Ship Canal, in the State of Washington.
- Washington Department of Fish and Wildlife (WDFW). 2023. Priority Habitats and Species. Online database. Accessed December 2023 at <http://apps.wdfw.wa.gov/phsontheweb/>
- WDFW. 2023. SalmonScape. Online database. Accessed December 2023 at <http://apps.wdfw.wa.gov/salmonscape/>

# **Appendix A: Project Drawings**

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# SITE PLAN



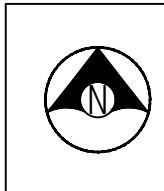
**SUBJECT  
PROPERTY**

Pin: 335850-0355

Legal Description: HILLMANS C D SEA SHORE LAKE FRONT PCL B MERCER ISLAND LLR# SUB 14-007 REC #20140917900003 SD LLR DAF- PCLS A & B MI LLR# SUB 12-004 REC #20130404900003 SD LLR DAF - TRS 480 & 481 SD PLAT TGW LOT B MI SP# SP 87-04-03 (J3) REC # 8804119002 BEING TRS 478 & 479 TGW POR TRS 579 & 580 TGW SH LDS ADJ LESS CO RD TGW UNPLATTED STRIP ADJ TRS 480 & 481

Plat Block:  
Plat Lot: 480-481 &

Parcel	East Dock	West Dock
LAT: 47.52822	LAT: 47.52802778	LAT: 47.52811944
LONG: -122.2336	LONG: -122.23373056	LONG: -122.23389167



Seaborn Pile Driving  
1080 W Ewing St  
Seattle, WA 98119

Office: 206-236-1700 ext. 5  
www.seabornpiledriving.com

Scope of Work: We propose to repair (14) piles of the east dock, set back 6" and repair 107 lft of existing bulkhead, replace 4 lft of existing rock bulkhead with stairs, raise the existing east dock 1', and repair the existing east dock with (415 sqft) grated decking material.

County: King County  
Location: Lake Washington

Applicant: Thomas Residence  
8149 W Mercer Way  
Mercer Island, Washington 98040

Datum: CORPS OF ENGINEERS 1919  
NE Quarter Of Section 36, Township 24, Range 04

Adjacent Owners:  
KIVIAT MARK DAVID  
8137 W MERCER WAY 98040  
MCMILLAN COREY TYLER+VICTOR  
8153 W MERCER WAY 98040

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NWS-2023-XXX  
PAGE 1 OF 15

Last Updated: 12/14/2023 8:49 am Leymar  
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# GENERAL NOTES:

MATERIALS SPEC LIST:

**Boat Lifts:** Aluminum

- \* 153" x 117"

**Boat Cover:**

- \* Canvas - 137" x 306"

**Decking Material:** FRPP - Fiberglass reinforced polypropylene

Light permeable percentage:

- \* Surface - 43%
- \* 18" Dock Height - 61%

**Sewer:**

- \* All sewer is field verified by probing the lake bed manually during the allowed work windows for the area.

**Piles:**

- \* Repair piles are done as a sleeve/strap method

**Preservatives**

- \* Structural Glued Laminated timber shall be alaskan cedar AC.AC. 20f-V12
- \* Wood Shall be seasoned dry with a maximum moisture content of 19%
- \* Preservative treated wood shall conform to the american wood protection association (AWP) UC4A. All wood shall bear a treatment identification mark by the certifying agency.

CODE REFERENCES: Mercer Island

**We are applying for the permit to be reviewed under the:**

“Development Standards for Replacement, Repair and Maintenance of Overwater Structures, Including Moorage Facilities” per MIMC 19.13050(F)(2).

2. Development Standards for Replacement, Repair and Maintenance of Overwater Structures, Including Moorage Facilities. The maintenance, repair and complete replacement of legally existing overwater structures is permitted; provided, that:
    - i. All permit requirements of federal and state agencies are met;
    - ii. The area, width, or length of the structure is not increased, but may be decreased;
    - iii. The height of any structure is not increased, but may be decreased; provided, that the height above the OHWM may be increased as provided in subsection (F)(2)(ix)(b) of this section;
    - iv. The location of any structure is not changed unless the applicant demonstrates to the director’s satisfaction that the proposed change in location results in: (A) a net gain in ecological function, and (B) a higher degree of conformity with the location standards for a new overwater structure;
    - v. Piles shall not be treated with pentachlorophenol, creosote, CCA or comparably toxic compounds. If ammoniacal copper zinc arsenate (ACZA) pilings are proposed, the applicant shall meet all of the best management practices, including a post-treatment procedure, as outlined in the amended Best Management Practices of the Western Wood Preservers.
    - vi. All piling sizes are in nominal diameter; Any paint, stain or preservative applied to components of the overwater structure must be leach resistant, completely dried or cured prior to installation. Materials shall not be treated with pentochlorophenol, creosote, CCA or comparably toxic compounds;
    - vii. The applicant shall abide by the work windows for listed species established by the U.S. Army Corps of Engineers and Washington Fish and Wildlife;
    - viii. Disturbance of bank vegetation shall be limited to the minimum amount necessary to accomplish the project. Disturbed bank vegetation shall be replaced with native, locally adapted herbaceous and/or woody vegetation. Herbaceous plantings shall occur within 48 hours of the completion of construction. Woody vegetation components shall be planted in the fall or early winter, whichever occurs first. The applicant shall take appropriate measures to ensure revegetation success; Ch. 19.13 Shoreline Master Program | Mercer Island City Code Page 29 of 34 The Mercer Island City Code is current through Ordinance 20C-13, passed June 16, 2020.
    - ix. Structural Repair. The structural repair, which may include replacement of framing elements, of moorage facilities that results in the repair of more than 50 percent of the structure’s framing elements within a five-year period shall comply with subsections (F)(2)(ix)(a) through (F)(2)(ix)(c) of this section. For this section, framing elements include, but are not limited to, stringers, piles, pile caps, and attachment brackets, as shown in Figure D:
      - a. One hundred percent of the decking area of the pier, dock, and any platform lifts must be fully grated with materials that allow a minimum of 40 percent light transmittance;
      - b. The height above the OHWM for moorage facilities, except floats, shall be a minimum of one and one-half feet and a maximum of five feet; and
      - c. An existing moorage facility that is five feet wide or more within 30 feet waterward from the OHWM shall be replaced or repaired with a moorage face
      - x. Exterior surface repair. The exterior surface repair, which may include the replacement of exterior surface materials of moorage facilities that results in the repair of more than 50 percent of the surface area of the moorage facility’s decking, fascia, and platform lifts within a five-year period (see Figure D), shall be required to utilize materials that allow a minimum of 40 percent light transmittance over 100 percent of the dock; and
- Any decking that is removed in the course of repair shall be replaced with decking materials that allow a minimum of 40 percent light transmittance.

**\*\*CODE REFERENCES CONTINUED ON FOLLOWING PAGE\*\***



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NWS-2023-XXX  
PAGE 2 OF 15

# GENERAL NOTES:

CODE REFERENCES (cont.) : Mercer Island

**We are applying for the permit to be reviewed under the:**

**"19.13.020(a) Legal nonconforming uses and structures may continue."**

Overwater uses and structures, and uses and structures 25 feet landward from the OHWM, which were legally created may be maintained, repaired, renovated, remodeled and completely replaced to the extent that nonconformance with the standards and regulations of this chapter is not increased.

We will be increasing the conformity on this property. We are proposing to replace 100% of wood members with steel framing. Steel will be using 62% of total material as opposed to steel.

**SDP Exempt under WAC173-27-040(2)(b) Normal maintenance or repair**

We are repairing an existing structure to prevent decay to existing structures. The repairs will also allow for more light transmission through the dock into the lake.

**WAC 197-11-800(3) Repair, remodeling and maintenance activities**

We are repairing an existing structure and are not driving any pile. We would only be repairing piles, as well as lifting the dock 1FT to increase the conformity.

**19.13.020(a) Legal nonconforming uses and structures may continue.**

Overwater uses and structures, and uses and structures 25 feet landward from the OHWM, which were legally created may be maintained, repaired, renovated, remodeled and completely replaced to the extent that nonconformance with the standards and regulations of this chapter is not increased.

We will be increasing the conformity of this property by raising the dock to allow for more light transmission.

**"19.13.050(b) Bulkheads and shoreline stabilization structures."**

1.An existing shoreline stabilization structure may be replaced with a similar structure if there is a demonstrated need to protect principal uses or structures from erosion caused by currents or waves, and the following conditions shall apply:

- i.The replacement structure should be designed, located, sized, and constructed to assure no net loss of ecological functions
- ii.Replacement walls or bulkheads shall not encroach waterward of the ordinary high water mark or existing structure unless the primary structure was occupied prior to January 1, 1992, and there are overriding safety or environmental concerns. In such cases, the replacement structure shall abut the existing shoreline stabilization structure. Soft shoreline stabilization measures that provide restoration of shoreline ecological functions may be permitted waterward of the ordinary high water mark.
- iii.For purposes of this section standards on shoreline stabilization measures, "replacement" means the construction of a new structure to perform a shoreline stabilization function of an existing structure which can no longer adequately serve its purpose. Additions to or increases in size of existing shoreline stabilization measures shall be considered new structures.
- iv.Construction and maintenance of normal protective bulkhead common to single-family dwellings requires only a shoreline exemption permit, unless a report is required by the code official to ensure compliance with the above conditions; however, if the construction of the bulkhead is undertaken wholly or in part on lands covered by water, such construction shall comply with SEPA mitigation.

We have provided a geotechnical report and will be constructed and designed to the specifications.

\*\*Dock established/constructed: 2/20/1974 Project No: CAO7404-001

\*\*Boatlift: permitted under 92-0031 3/2/1992

\*\*Canopy Legally Established under 1211-0048 03/25/2013



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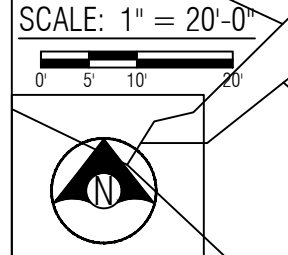
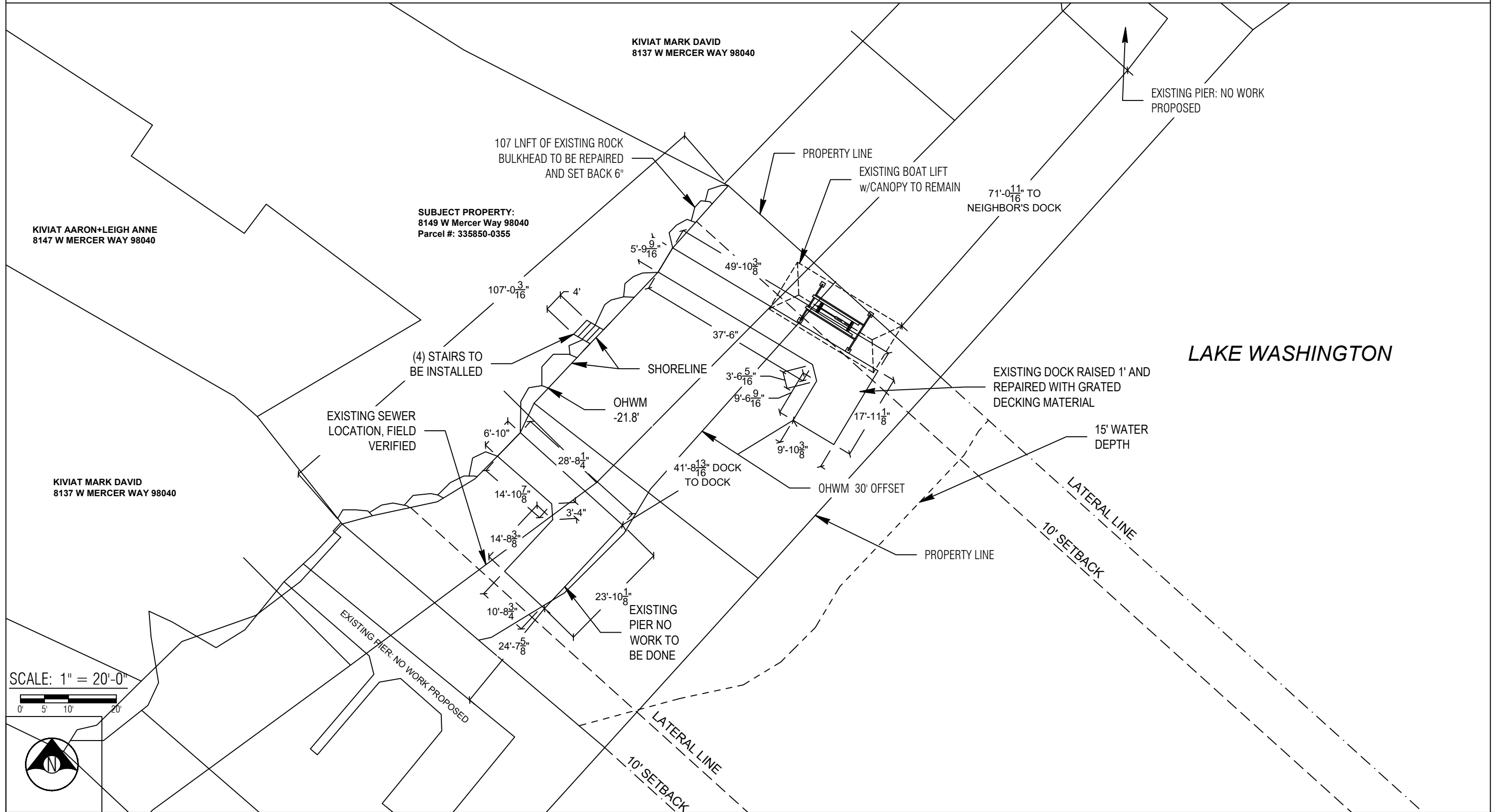
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<b>SHEET</b> <b>3.0</b>		
NWS-2023-XXX PAGE 3 OF 15		



# PROPOSED CONDITIONS

**\*\*CLEAN UP LAKE AROUND PROJECT\*\***



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NWS-2023-XXX  
 PAGE 5 OF 15

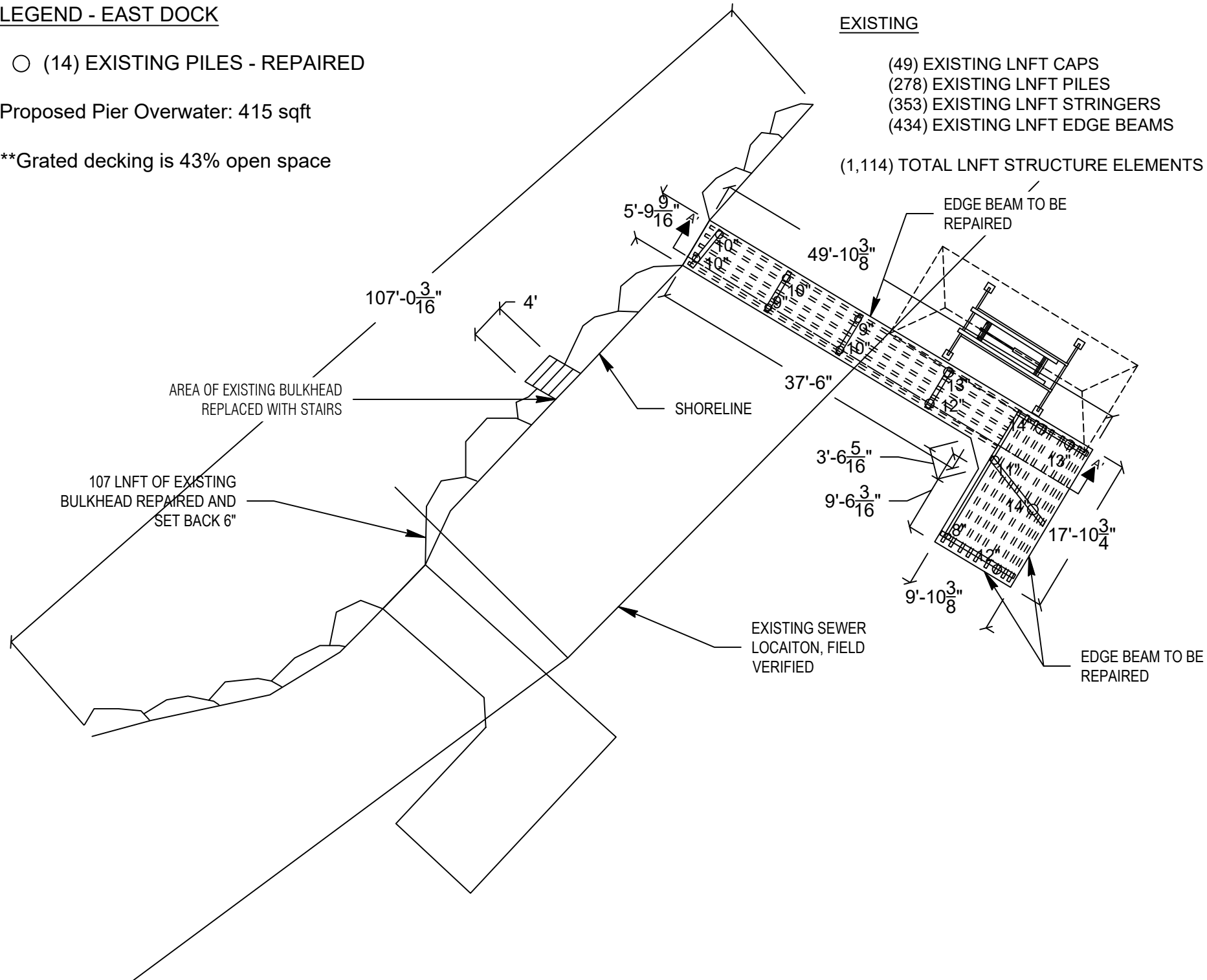
# PIER DETAILS - PROPOSED PLAN VIEW

## LEGEND - EAST DOCK

○ (14) EXISTING PILES - REPAIRED

Proposed Pier Overwater: 415 sqft

\*\*Grated decking is 43% open space



## EXISTING

- (49) EXISTING LNFT CAPS
- (278) EXISTING LNFT PILES
- (353) EXISTING LNFT STRINGERS
- (434) EXISTING LNFT EDGE BEAMS

(1,114) TOTAL LNFT STRUCTURE ELEMENTS

## TO BE REPAIRED

- (0) EXISTING LNFT CAPS TO BE REPAIRED
- (63) EXISTING LNFT PILES TO BE REPAIRED
- ▭ (215) EXISTING LNFT STRINGERS TO BE REPAIRED w/ ANGLE IRON
- ▭ (78) EXISTING LNFT EDGE BEAMS TO BE REPAIRED

(Y) TOTAL LNFT STRUCTURE ELEMENTS TO BE REPAIRED

557/1,114 = 50%

**\*\*100% OF EXISTING WOOD STRINGERS LINEAR FOOTAGE TO BE REPLACED WITH STEEL FRAMES USING 61% OF LINEAR FOOTAGE\*\***

(SEE PROPOSED FRAMING PLAN ON SHEET 11 FOR DIFFERENTIATION)

ALL PILES ARE REPAIRED USING A SLEEVE METHOD, ONLY 4-1/2' OF EACH PILE WILL BE REPAIRED (SEE DETAIL S3/13)

PLAN VIEW



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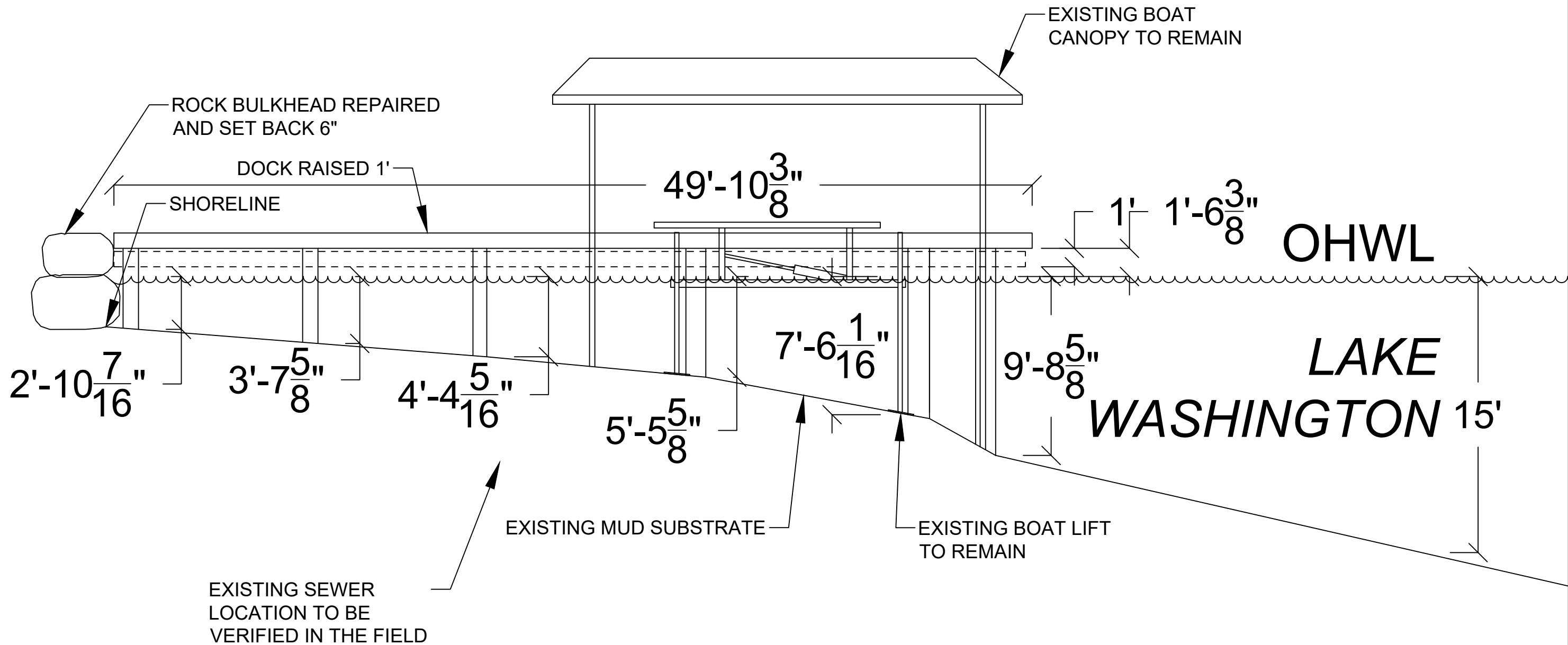
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# PIER DETAILS PROPOSED - SECTION VIEW



SECTION VIEW: A'-A'



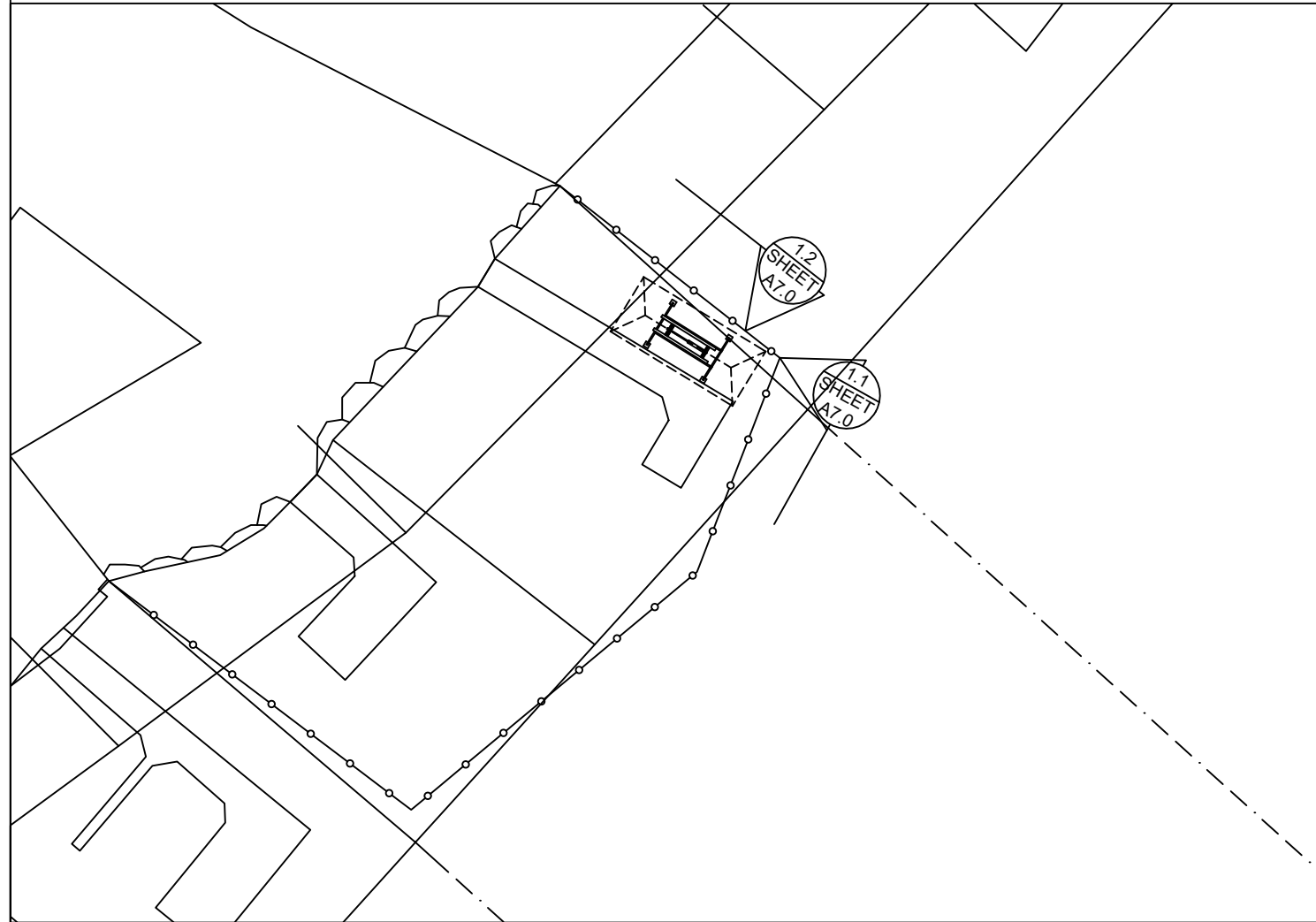
Seaborn Pile Driving  
 1080 W Ewing St  
 Seattle, WA 98119  
 Office: 206-236-1700 ext. 5  
 www.seabornpiledriving.com

Scope of Work: We propose to repair (14) piles of the east dock, set back 6" and repair 107 lft of existing bulkhead, replace 4 lft of existing rock bulkhead with stairs, raise the existing east dock 1', and repair the existing east dock with (415 sqft) grated decking material.

County: King County  
 Location: Lake Washington  
 Applicant: Thomas Residence  
 8149 W Mercer Way  
 Mercer Island, Washington 98040  
 Datum: CORPS OF ENGINEERS 1919  
 NE Quarter Of Section 36, Township 24, Range 04  
 Adjacent Owners:  
 McMILLAN COREY TYLER+VICTOR  
 8153 W MERCER WAY 98040  
 KIVIAT MARK DAVID  
 8137 W MERCER WAY 98040  
 Last Updated: 12/14/2023 8:49 am Leymar  
 Created: 07/17/23

**SHEET**  
**7.0**

# BMP INFORMATION

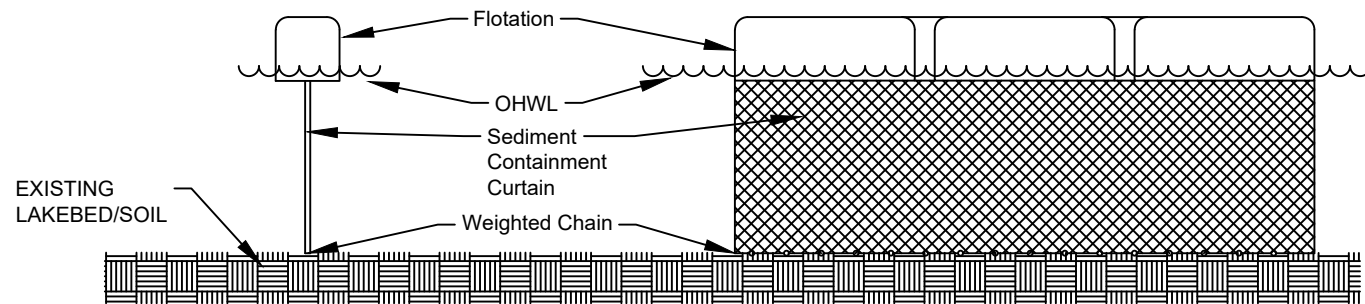


## BMP NOTES:

- A.** Constant vigilance shall be kept for the presence of protected fish species during all aspects of the proposed action, particularly during in-water activities such as vessel movement, deployment of anchors & spuds, pile driving, dredging, and placement of gravels and other fill.
1. The project manager shall designate an appropriate number of competent observers to survey the project site and adjacent areas for protected species, including the presence of fish as conditions allow.
  2. Visual surveys shall be made prior to the start of work each day, and prior to resumption of work following any break of more than an hour. Periodic additional visual surveys throughout the work day are strongly recommended.
  3. All in-water work shall be done during the in-water work window for the waterbody. Where there is a difference between the USCOE and WDFW work windows, the overlap of the two shall apply.
  4. All pile driving and extraction shall be postponed or halted when obvious aggregations or schooling of fish are observed within 50 yards of that work, and shall only begin/resume after the animals have voluntarily departed the area.
  5. When piloting vessels, vessel operators shall operate at speeds and power settings to avoid grounding vessels, and minimize substrate scour and mobilization of bottom sediments.
- B.** No contamination of the marine environment shall result from project-related activities.
1. Appropriate materials to contain and clean potential spills shall be stored and readily available at the work site and/or aboard project-related vessels.
  2. The project manager and heavy equipment operators shall perform daily pre-work equipment inspections for cleanliness and leaks. All heavy equipment operations shall be postponed or halted should a leak be detected, and shall not proceed until the leak is repaired and the equipment is cleaned.
  3. To the greatest extent practicable, utilize biodegradable oils for equipment that would be operated in or near water.
  4. Fueling of land-based vehicles and equipment shall take place at least 50 feet away from the water, preferably over an impervious surface. Fueling of vessels shall be done at approved fueling facilities.
  5. Turbidity and siltation from project-related work shall be minimized and contained through the appropriate use of erosion control practices, effective silt containment devices, and the curtailment of work during adverse weather and tidal/flow conditions.
  6. All wastes shall be collected and contained for proper disposal at approved upland disposal sites appropriate for the material(s).
  7. When removing piles and other similarly treated wood, containment curtain must fully enclose the work area. Wood debris, oils, and any other materials released into lake waters must be collected, removed, and properly disposed of at approved disposal sites.
  8. All in- and over-water wood cutting would be limited to the minimum required to remove the subject wood component, and all cutting work should be enclosed within floating containment curtain.
  9. When removing piles, no actions shall be taken that would cause adhering sediments to return to lake waters.
  10. Above-water containment shall be installed around removed piles to prevent sediment laden waters from returning to lake waters.
  11. Construction staging (including stocking of materials, etc.) will occur on the supply barge.
  12. All Exposed wood to be used on the project will be treated with a cheminite treatment.

DETAIL 1.1

DETAIL 1.2



DETAIL 1.1 & 1.2



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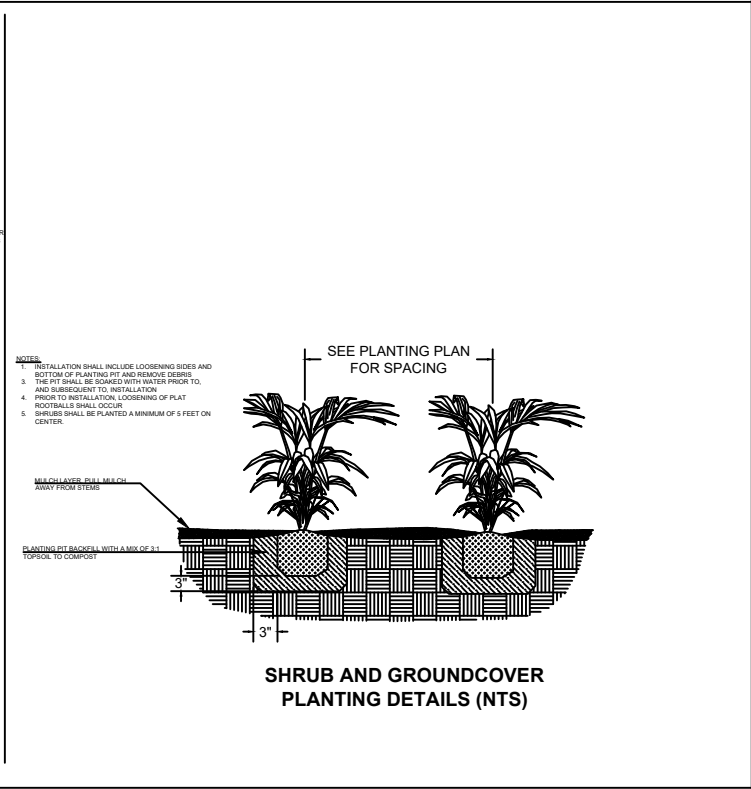
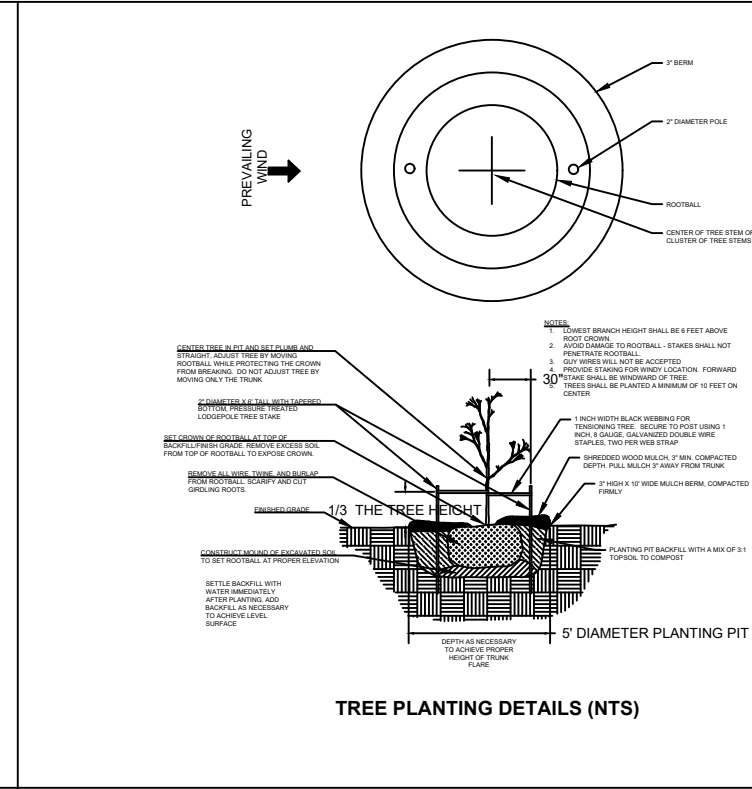
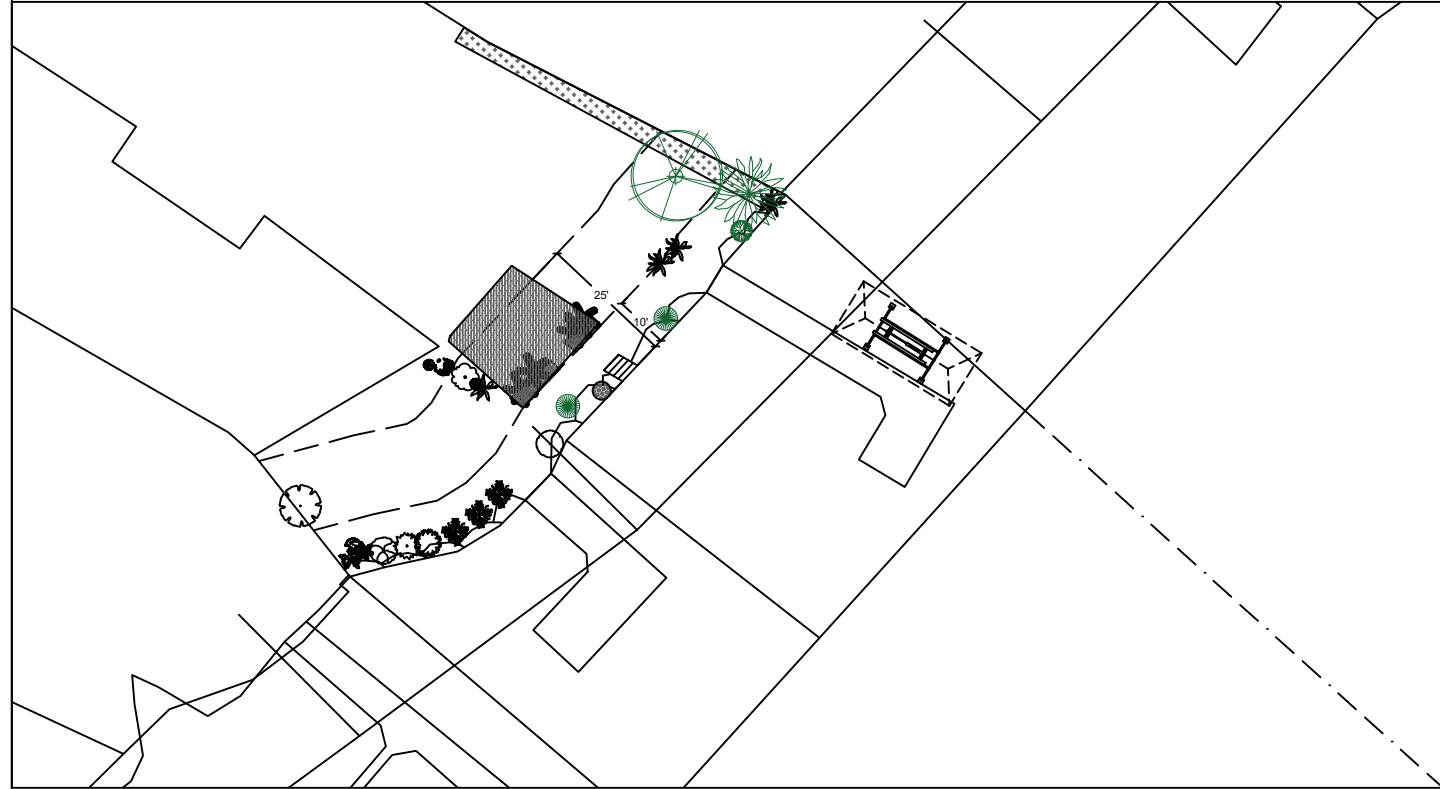
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# MITIGATION PLAN



**Notes:**

- The property owner shall implement and abide by the shoreline planting plan, including the installation of the identified species, in the identified locations. Shrubs shall be planted at least five feet on center, and trees shall be planted at least ten feet on center.
- For best plant survival, planting should be completed the first October through March period concurrent with or immediately following the work authorized by this permit. A report, as-built drawing and photographs demonstrating the plants have been installed or a report on the status of project construction will be submitted to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch, within 12 months from the date of permit issuance. This reporting requirement may be met by completing and submitting a U.S. Army Corps of Engineers approved Report for Mitigation Work Completion form.
- The property owner shall preserve in good health 100% of shoreline planting plan vegetation for as long as the structures that have been permitted under the RAP program remain in place. Plants that die must be replaced with the appropriate plant type (i.e. tree for tree, shrub for shrub) from the RAP Plant List.
- The property owner shall monitor the survival of shoreline planting plan vegetation for five years (Monitoring Years 1-5) after the U.S. Army Corps of Engineers accepts the as-built report. The property owner shall also submit annual monitoring reports to the U.S. Army Corps of Engineers each year during this period. Each annual monitoring report will include written and photographic documentation that the performance standards are being met, including documentation of plant mortality and replacement. Photos will be taken from established points and used repeatedly for each monitoring year. In addition to photos at designated points, photo documentation will include a panoramic view of the entire planting area. Submitted photos will be formatted on standard 8 1/2 x 11" paper, dated with the date the photo was taken, and clearly labeled with the direction from which the photo was taken. The photo location points will be identified on an appropriate drawing. Annual shoreline planting monitoring reports will be submitted to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch, by November 31 of each monitoring year. This reporting requirement may be met by completing and submitting a U.S. Army Corps of Engineers approved Mitigation Planting Monitoring Report form.

## PROPOSED PLANTING SPECIES/QUANTITIES

SYMBOL	LATIN NAME	COMMON NAME	QTY	SIZE
	Thuja plicata	Western Red Cedar	1	3 ft
	Pinus contorta v contorta	Shore pine	1	3 ft
	Rosa nutkana	Nootka Rose	1	1 Gallon
	Philadelphus lewisii	Mock Orange	2	1 Gallon

**PLANTS:** Shrubs to be installed 5ft on center and trees to be installed 10ft on center.

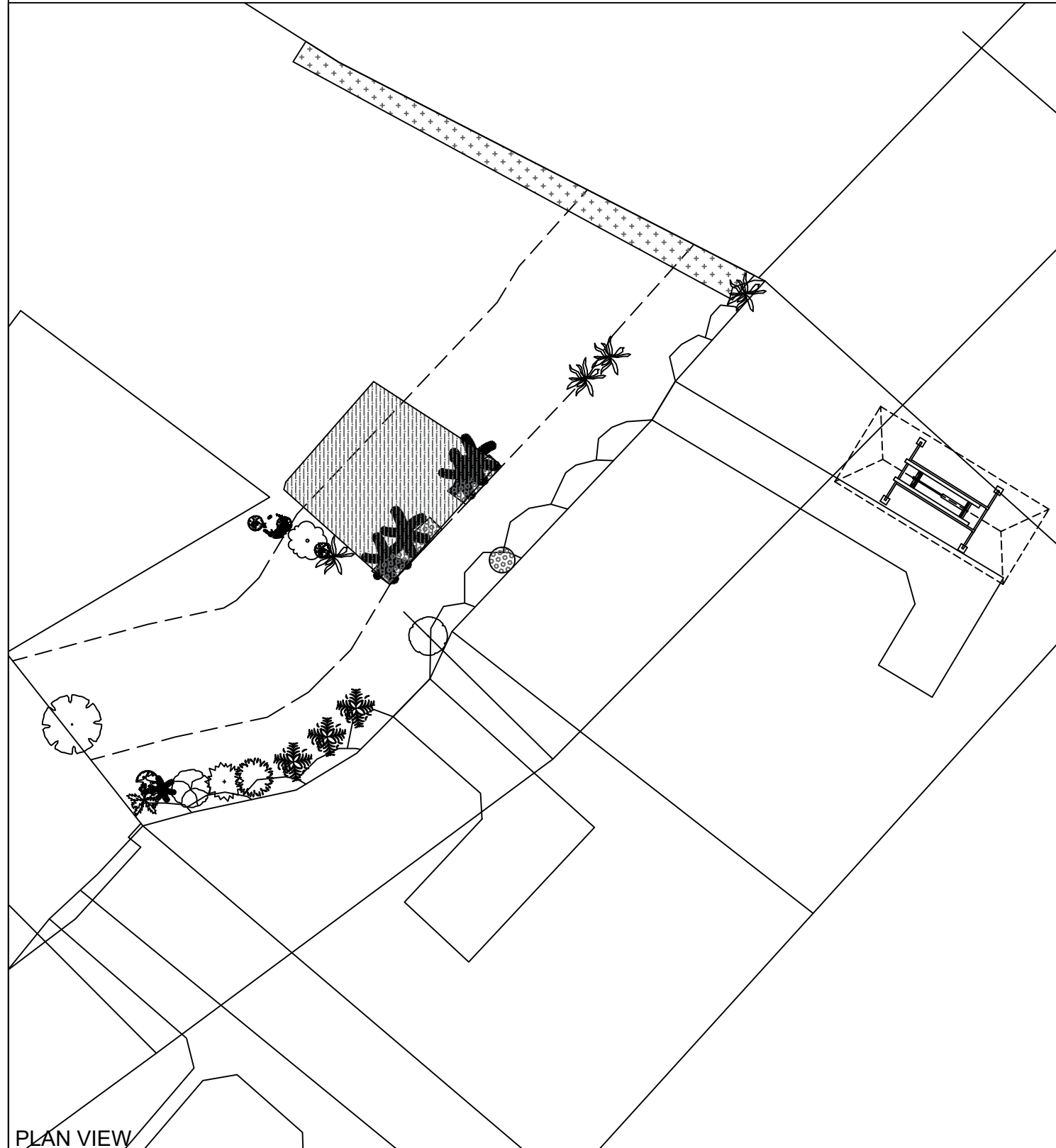


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# EXISTING PLANT PLAN



EXISTING PLANTING SPECIES/QUANTITIES				
SYMBOL	SCIENTIFIC NAME	COMMON NAME	QTY	SIZE
	Salvia microphylla	Baby Sage	1	5' x 5'
	Polystichum munitum	Western Swordfern	4	varies
	Rosa x hybrida	Hybrid tea rose	3	varies
	Crococsmia	Montbretia	1	~5' x 5ft
	Hydrangea paniculata	Panicle hydrangea	5	varies
	Verbena bonariensis	Purpletop vervain	1	~5' x5'
	Rudbeckia hirta	Black-eyed Susan	1	~4'
	Zantedeschia	Calla lily	1	~4'
	Musa basjoo	Hardy banana	1	~8'
	Hypericum androsaemum	Tutsan	1	~5'
	Prunus laurocerasus	Cherry laurel	N/A	N/A
	Juniperus communis	Juniper	N/A	N/A
	Wisteria sinensis	Chinese wisteria	N/A	N/A
	Passiflora caerulea	Blue passionflower	1	N/A
	Hemerocallis liloasphodelus	Yellow daylily	1	~ 5'
	Berberis thunbergii	Japanese barberry	3	varies

EXISTING PLANTS TABLE

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**SHEET 10.0**

GENERAL CONDITIONS

1. THE CONTRACTOR SHALL VERIFY AND REVIEW ALL ITEMS WITHIN THE DRAWINGS PRIOR TO PROCEEDING WITH THE WORK. NOTIFY THE ENGINEER IMMEDIATELY WITH ANY DISCREPANCIES.
2. IF A SPECIFIC DETAIL IS NOT SHOWN FOR ANY PART OF THE WORK, THE CONSTRUCTION SHALL BE THE SAME AS FOR SIMILAR WORK.
3. DIMENSIONS ARE NOT TO BE SCALED FROM THE PLANS, SECTIONS, OR DETAILS WITHIN THE DRAWINGS.
4. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCE, AND PROCEDURES.
5. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE REFERENCED CONSTRUCTION AND ALL OTHER REGULATING AGENCIES, EXERCISING AUTHORITY OVER ANY PORTION OF THE WORK.
6. THE PROJECT SPECIFICATIONS AND SPECIFIC NOTES AND DETAILS IN THE DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES.
7. NOTIFY THE ENGINEER OF ALL CHANGES MADE IN THE FIELD PRIOR TO INSTALLATION.
8. CONSTRUCTION TOLERANCE: VERTICAL 1/8", PLUMBNESS 1", HORIZONTAL DRIFT 1".
9. COMPLY WITH PROJECT PERMITS.

DESIGN CRITERIA

DESIGN CODE: AASHTO LRFD, ASCE DESIGN OF MARINE FACILITIES

WIND DESIGN: V= 78 MPH

DESIGN VESSEL: 25' VESSEL

WAVE DESIGN: SIGNIFICANT WAVE HEIGHT 2.1 FT  
WAVE PERIOD 2.3 SEC  
WAVE LENGTH 27.2 FT

LIVE LOAD: 40 PSF

STRUCTURAL STEEL

1. ALL PLATES SHALL CONFORM TO ASTM 50.
2. ALL WF SHAPED SHALL CONFORM TO ASTM A992, FY = 50 KSI.
3. ALL PILES SHALL CONFORM TO ASTM A252 GRADE 3 FY = 45 KSI.
4. ALL BOLTS SHALL CONFORM TO ASTM A307, UNO.
5. ALL NUTS SHALL CONFORM TO ASTM A563, UNO.
6. ALL WASHERS SHALL CONFORM TO ASTM F436, UNO.
7. ALL THREADED RODS SHALL CONFORM TO ASTM F1554, GRADE 36.
8. ALL STEEL MEMBERS THAT ARE NOT EPOXY COASTED SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 AS APPLICABLE.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY WELDERS QUALIFIED FOR THE WELD AND POSITION SHOWN IN ACCORDANCE WITH AWS AND HAVING CURRENT CERTIFICATION FROM WABO.
2. ALL WELDS SHALL BE PERFORMED WITH PROCEDURES PRE-QUALIFIED OR QUALIFIED IN ACCORDANCE WITH AWS D1.1.
3. THE WELDS SHOWN ARE FOR THE FINAL CONNECTIONS. FIELD WELD SYMBOLS ARE SHOWN WHERE REQUIRED BY THE STRUCTURAL DESIGN. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING IF A WELD SHOULD BE SHOP OR FIELD WELDED IN ORDER TO FACILITATE THE STRUCTURAL STEEL ERECTION.

4. WELDING ELECTRODES SHALL BE 70 KSI STRENGTH AND SHALL BE "LOW-HYDROGEN ELECTRODES"

TIMBER

1. EACH PIECE OF LUMBER SHALL BEAR A STAMP INDICATING A GRADE MARK OF THE WEST COAST LUMBER INSPECTION BUREAU (WCLIB), WESTERN WOOD PRODUCTS ASSOCIATION (WWPA), OR OTHER AGENCY ACCREDITED BY THE AMERICAN STANDARD COMMITTEE (ALSC).
2. DIMENSION LUMBER SHALL BE P.T. DOUG-FIR NO 2 OR BETTER, UNLESS NOTED OTHERWISE.
3. WOOD SHALL BE SEASON DRY WITH A MAXIMUM MOISTURE CONTENT OF 19%
4. PRESERVATION TREATED WOOD SHALL CONFORM TO THE AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) UC4A. ALL WOOD SHALL BEAR A TREATMENT IDENTIFICATION MARK BY THE CERTIFYING AGENCY.
5. ALL BOLT HOLES IN WOOD MEMBERS SHALL BE A MINIMUM OF 1/32" TO MAXIMUM OF 1/16" LARGER THAN THE BOLT DIAMETER. PROVIDE PLATE WASHERS WHERE NUTS BEAR ON WOOD. CUT WASHERS SHALL MEASURE 2 1/4" X 3/16" THICK.
6. JOIST TO EDGE BEAM CONNECTION SHALL BE HUS28 OR EQUIVALENT FOR PT 4X8 JOIST, AND OHU48-SDS3 OR EQUIVALENT FOR PT 2X8 JOIST BEAM.

MARINE GRADE PLYWOOD

1. PLYWOOD: US PRODUCT PS1 (LATEST EDITION), GRADE STOMPED AND EDGE BRANDED TO DFPA STANDARDS OF THE APA - THE ENGINEERED WOOD ASSOCIATION
2. FRAMING, BLOCKING, BACKING, ETC., UNLESS OTHERWISE SHOWN, SHALL BE DOUGLAS FIR. ALL INTERIOR WOOD AND PLYWOOD USED FOR BLOCKING AND BUILT INTO ROOFING, WALLS, OR OTHERWISE SHOWN SHALL RECEIVE FIRE RETARDANT PRESSURE TREATMENT IN ACCORDANCE TO IBC TYPE IIB CONSTRUCTION.
3. FOR PLYWOOD NAILING, SIZE AND SPACING SHALL AS INDICATED ON THE DRAWINGS, NAILS SHALL HAVE A DISTANCE NOT LESS THAN 3/8 INCH.

GRATING

1. DECK GRATING SHALL BE SAFE-T-SPAN I6010 FRP GRATING WITH MINIMUM OPEN AREA OF 60%

SPECIAL INSPECTIONS

1. ALL WELDS FOR THE ACCESS BRIDGE/ABUTMENT/FLOAT MODULES SHALL BE INSPECTED AFTER FIT-UP PRIOR TO PRODUCTION WELDING & AFTER PRODUCTION WELDING PRIOR TO COATING REPAIR
2. ALL CAST IN PLACE AND PRECAST CONCRETE SHALL BE THIRD PARTY INSPECTED FOR REINFORCING BAR PLACEMENT, COMPRESSIVE STRENGTH PER ASTM C39, SLUMP PER ASTM C143, AND AIR ENTRAINMENT PER ASTM C260

ABBREVIATIONS

@	AT
AWS	AMERICAN WELDING SOCIETY
CL	CENTER LINE
CLR	CLEAR
COL	COLUMN
CONT.	CONTINUOUS
DF	DOUF FIR
EA	EACH
EX OR (E)	EXISTING
GLB	GLULAM BEAM
LLH	LONG LEG HORIZONTAL
MIN	MINIMUM
MNFR	MANUFACTURER
OC	ON CENTER
OPP	OPPOSITE
PL	PLATE
PSI	POUND PER SQUARE INCH
PSF	POUND PER SQUARE FOOT
P.T.	PRESERVATIVE TREATED
SF	SQUARE FOOT
REF	REFERENCE
SIM	SIMILAR
SS	STAINLESS STEEL
t	THICK
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VIF	VERIFY IN FIELD
WABO	WASHINGTON ASSOCIATION OF BUILDING OFFICIALS
WF	WIDE FLANGE
W/	WITH

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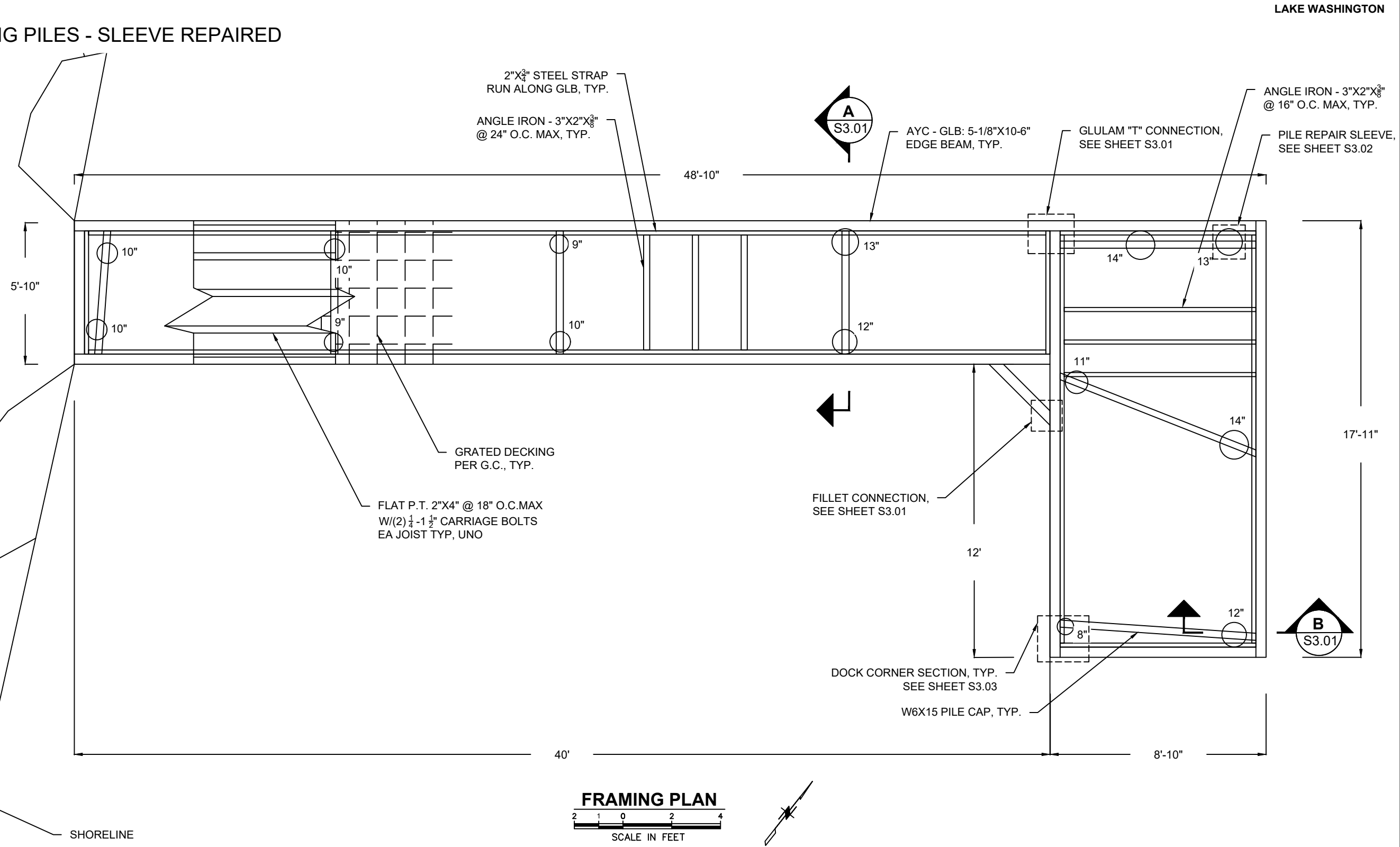
DRAWN BY: IK  
DESIGNED BY: JS  
CHECKED BY: DT

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SHEET  
S1.01

**LEGEND - EAST DOCK**

○ (14) EXISTING PILES - SLEEVE REPAIRED



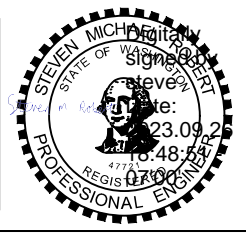
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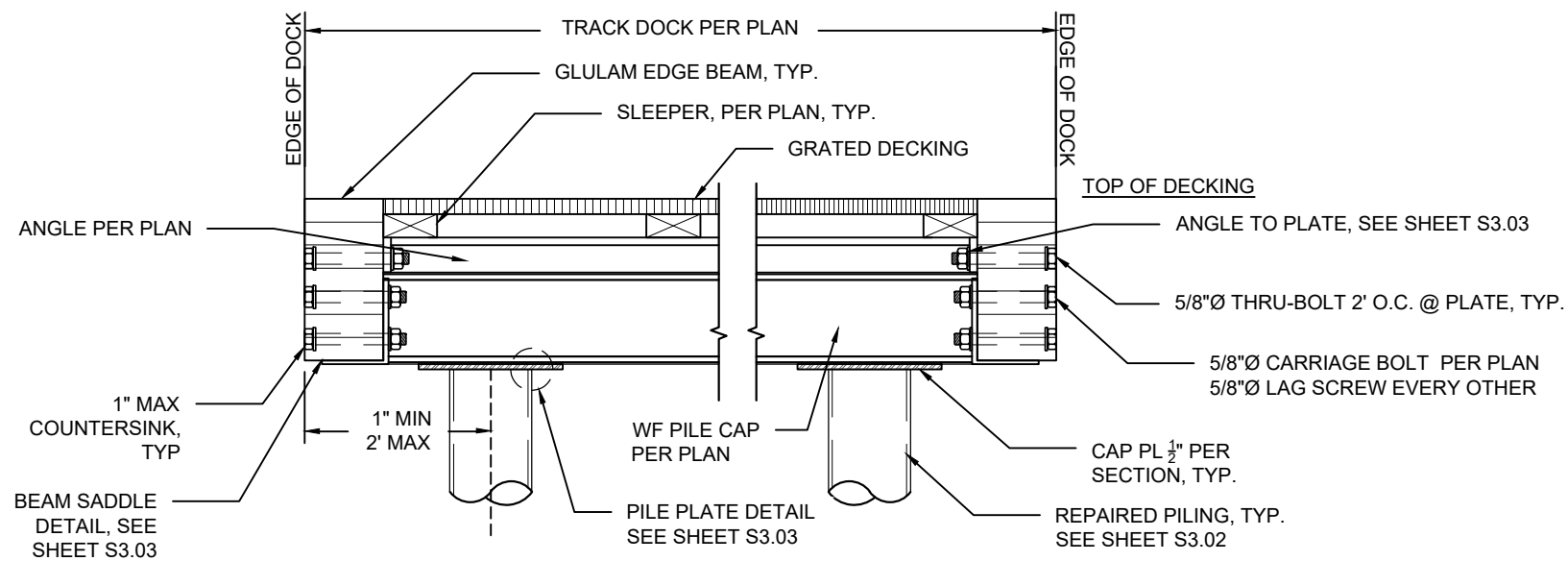
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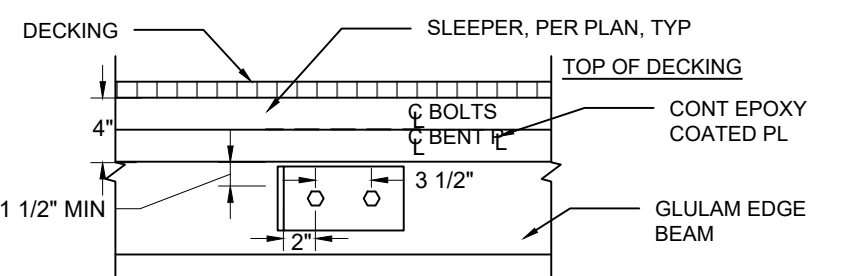
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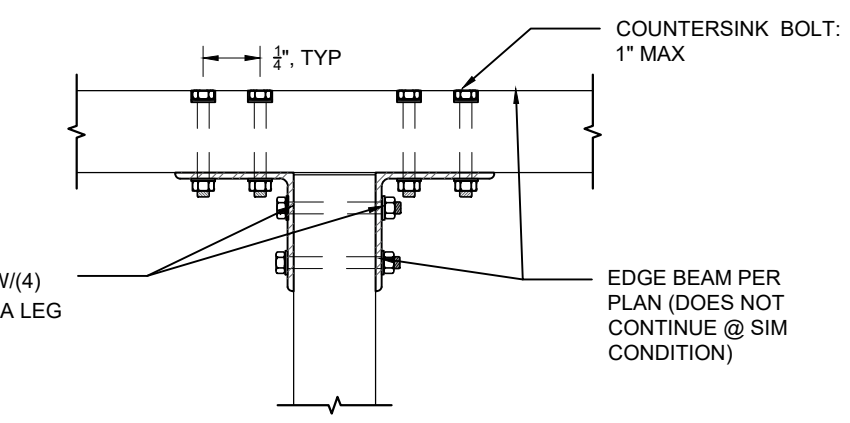
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**S2.01**



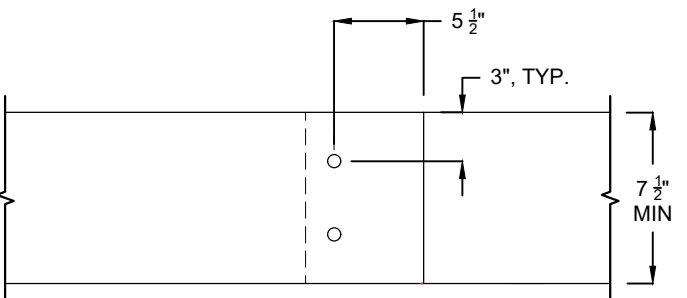
**A**  
S2.01  
**TYPICAL DOCK SECTION**  
SCALE IN FEET



**B**  
S2.01  
**DOCK END SECTION**  
SCALE IN FEET



**GLULAM "T" CONNECTION**  
SCALE IN FEET



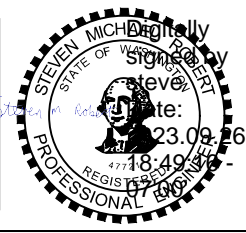
**FILLET CONNECTION**  
SCALE IN FEET



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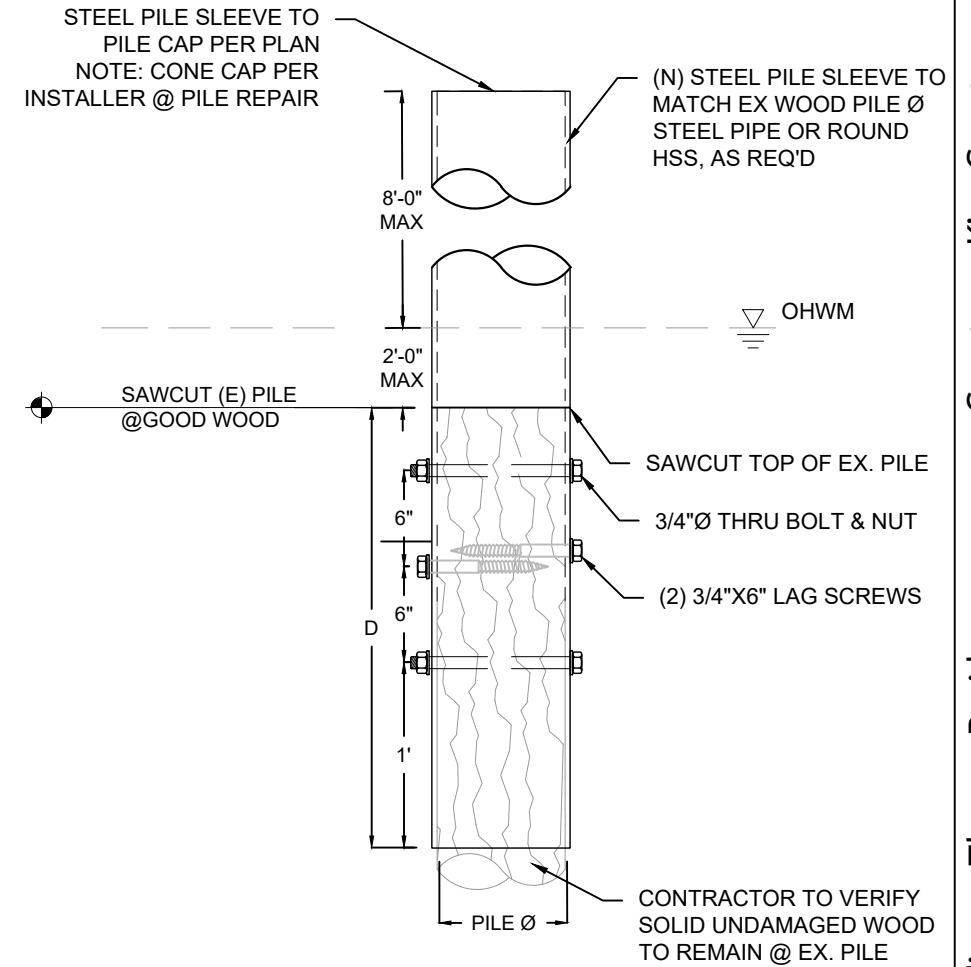
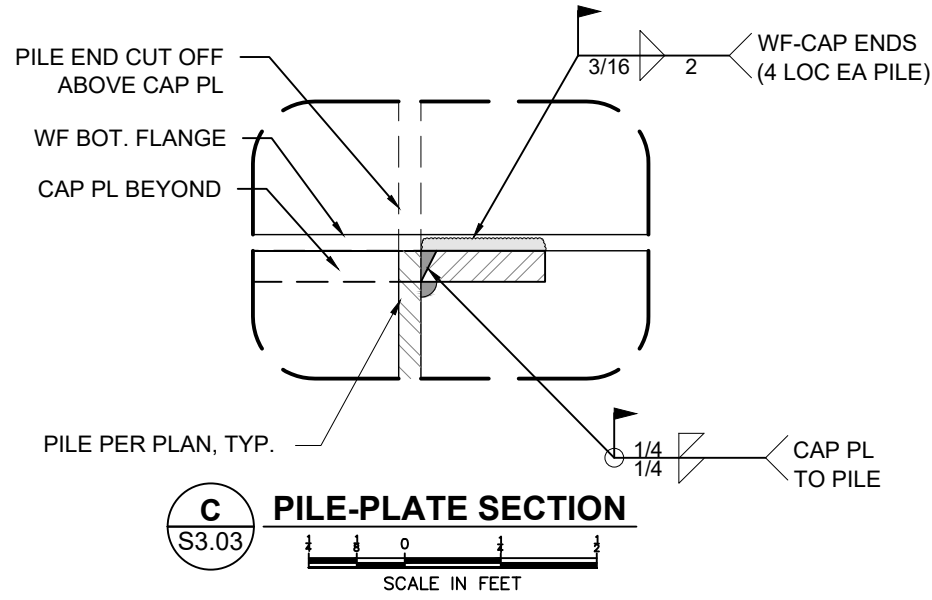
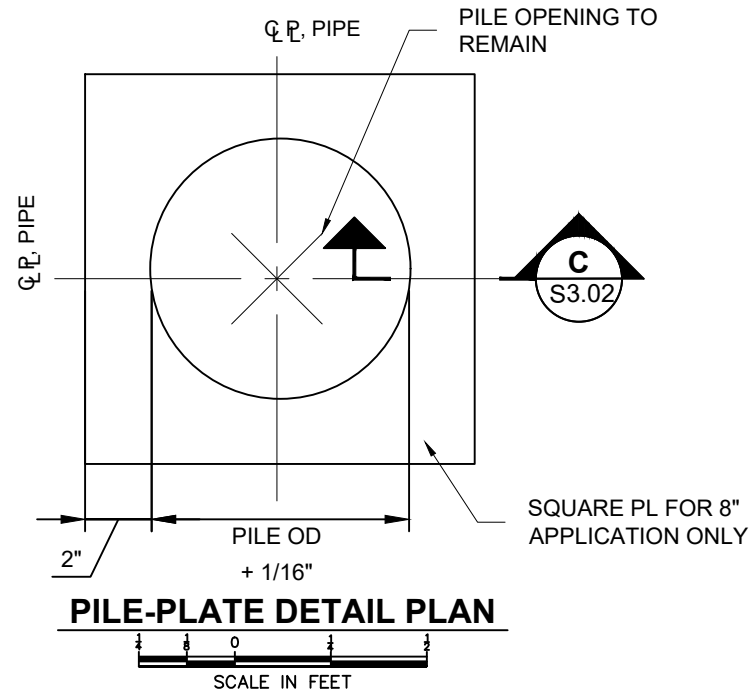
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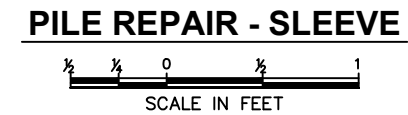
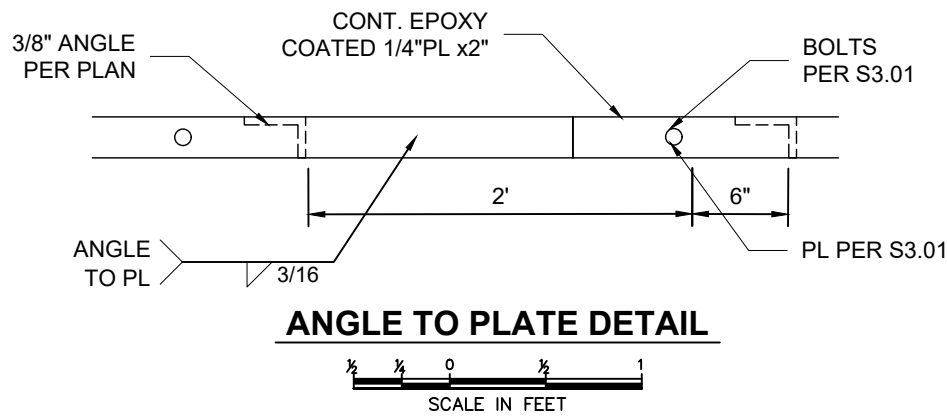
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SHEET  
S3.01  
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STEEL SLEEVE TABLE	
PILE Ø	MIN D
8"	27"
10"	30"
12"+	36"

CONTRACTOR TO VERIFY THAT THE PILE FITS SNUGLY IN THE SLEEVE SUCH THAT THERE IS UNIFORM BEARING OF THE PILE AGAINST THE SLEEVE



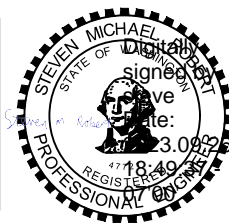
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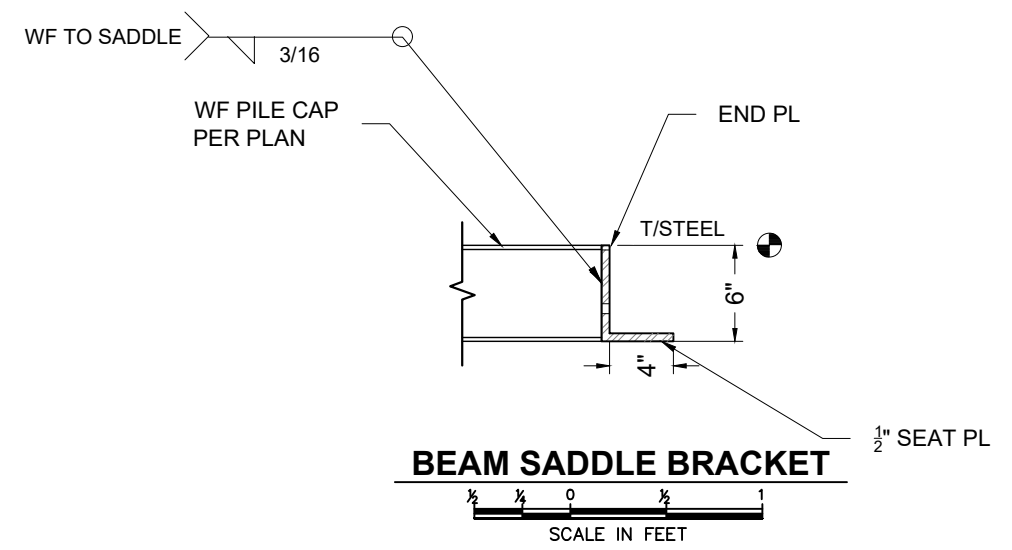
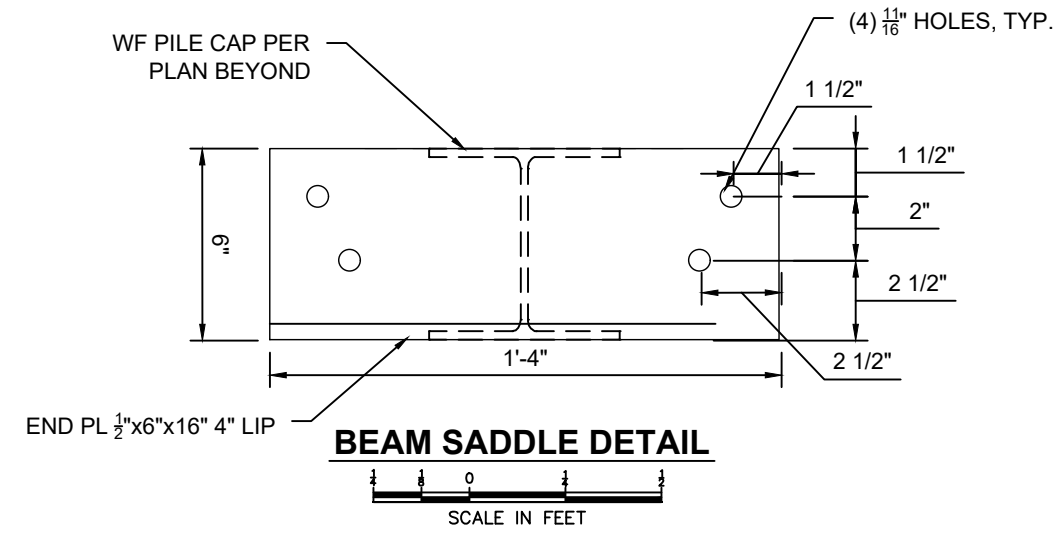
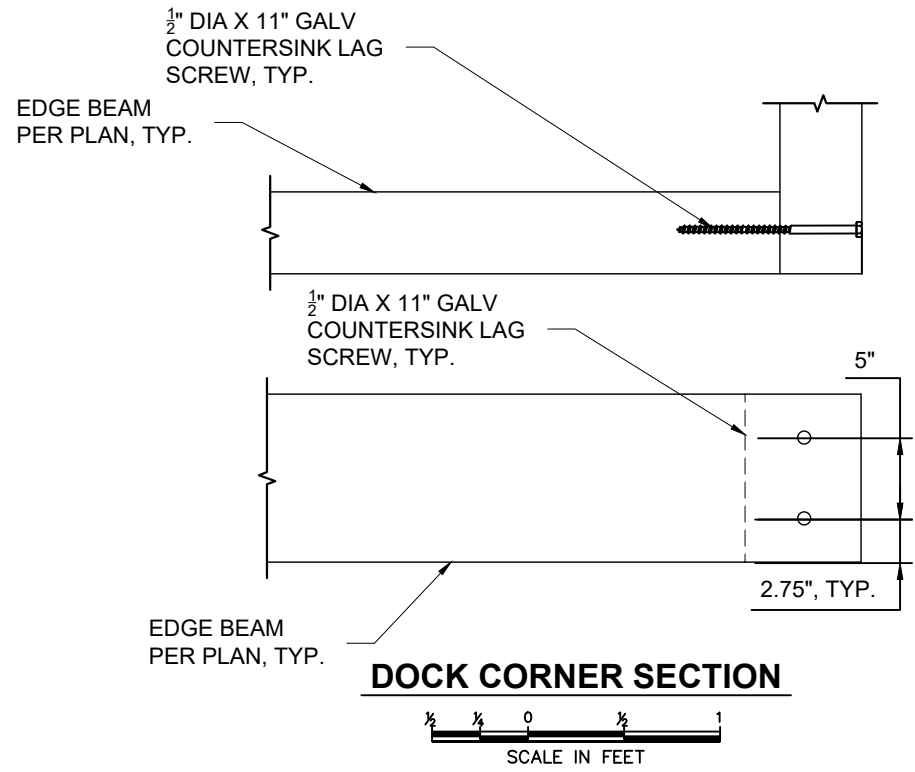
9706 4th Ave NE  
 Suite 300  
 Seattle, WA 98115  
 P: 206.523.0024  
 www.dcgengr.com



DRAWN BY: IK  
 DESIGNED BY: JS  
 CHECKED BY: DT

Scope of Work: We propose to repair (14) piles of the east dock, raise the existing east dock 1', and repair the existing east dock with (415 sqft) grated decking material.

**SHEET**  
**S3.02**



Datum: CORPS OF ENGINEERS 1919  
 NE Quarter Of Section 36, Township 24, Range 04

County: King County  
 Location: Lake Washington

Applicant: Thomas Residence  
 8149 W Mercer Way  
 Mercer Island, Washington 98040

Adjacent Owners:  
 McMILLAN COREY TYLER+VICTOR  
 8153 W MERCER WAY 98040

KIVIAT MARK DAVID  
 8137 W MERCER WAY 98040

Last Updated: 9/26/2023 2:58 PM Isabella  
 Created: 07/17/23



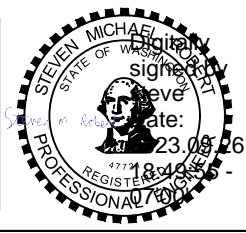
Seaborn Pile Driving  
 1080 W Ewing St  
 Seattle, WA 98119

Office: 206-236-1700 ext. 5  
 www.seabornpiledriving.com



9706 4th Ave NE  
 Suite 300  
 Seattle, WA 98115

P: 206.523.0024  
 www.dcgengr.com

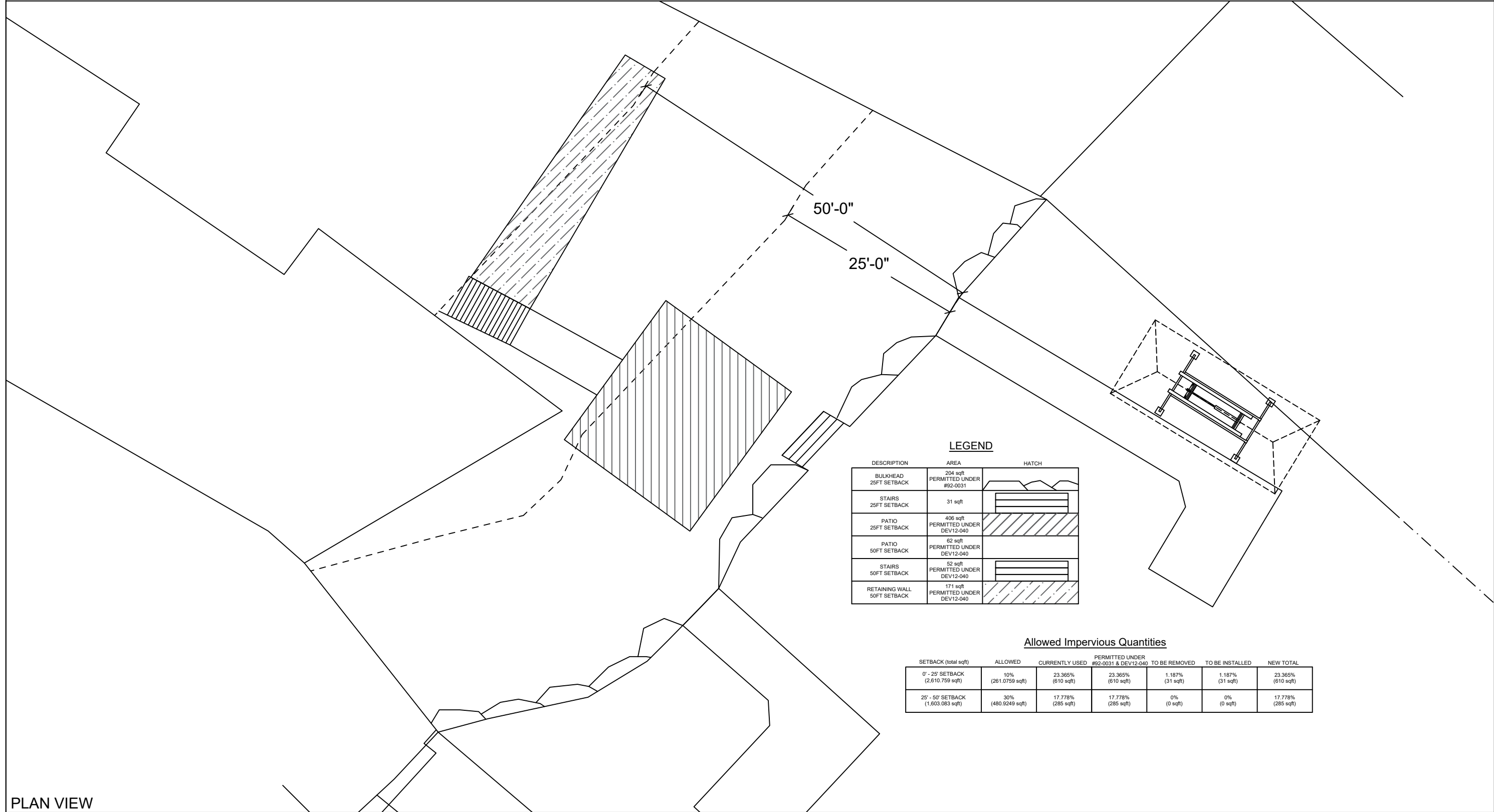


DRAWN BY: IK  
 DESIGNED BY: JS  
 CHECKED BY: DT

Scope of Work: We propose to repair (14) piles of the east dock, raise the existing east dock 1', and repair the existing east dock with (415 sqft) grated decking material.

**SHEET S3.03**

# HARDSCAPE CALCULATION



PLAN VIEW



Seaborn Pile Driving  
1080 W Ewing St  
Seattle, WA 98119

Office: 206-236-1700 ext. 5  
www.seabornpiledriving.com

Scope of Work: We propose to repair (14) piles of the east dock, set back 6" and repair 107 lft of existing bulkhead, replace 4 lft of existing rock bulkhead with stairs, raise the existing east dock 1', and repair the existing east dock with (415 sqft) grated decking material.

County: King County  
Location: Lake Washington

Applicant: Thomas Residence  
8149 W Mercer Way  
Mercer Island, Washington 98040

Datum: CORPS OF ENGINEERS 1919  
NE Quarter Of Section 36, Township 24, Range 04

Adjacent Owners:  
KIVIAT MARK DAVID  
8137 W MERCER WAY 98040  
MCMILLAN COREY TYLER+VICTOR  
8153 W MERCER WAY 98040

Last Updated: 12/14/2023 8:49 am Leymar  
Created: 07/17/23

**SHEET**  
**15.0**

## **Appendix B: Site Photographs**

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Photo 1 - Existing dock looking waterward.



Photo 2 - Existing dock looking landward.



Photo 3 - Existing shoreline looking north.



Photo 4 - Existing shoreline looking south.



Photo 5 - Existing conditions conditions looking north.



Photo 6 - Existing shoreline conditions looking south.