

# **Ecological No Net Loss Assessment Report**

Prepared for

**Mercerwood Shores Club  
4150 E Mercer Way  
Mercer Island WA 98040**

Prepared by



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

**November 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 associated moorage improvements.

## Location

The subject property is located at 4150 E Mercer Way in the City of Mercer Island, Washington (Sheet A1.0 in Appendix A). The parcel is on the waterfront of Lake Washington, which contains several endangered fish species listed under the Endangered Species Act and Washington State designated priority fish species.

## Project Description

The proposed work will repair a section of Pier A (2,316 square feet) and all of Pier B (867 square feet) by removing a section of the deck, repairing the existing piles by sleeving, re-framing the deck, and then re-decking with grated decking. Pier A pile sleeving work includes repairing 63 piles and 7 mooring piles. Pier B pile sleeving work includes repairing 28 piles and 3 mooring piles. All piles are timber and are approximately 12 inches in diameter. (See Sheets 2-10 of 16 for construction plans and details).

The existing 297 linear feet of skirting will be removed from Pier A.

The existing riprap boat lift will be improved by removing the 6 to 9-inch rock and replacing with ¾ inch crushed gravel. Then adding 4 prefabricated 3-foot by 12-foot concrete panels to create a 12-foot by 12-foot concrete launch. (See Sheets 11-13 of 16).

During construction, a floating boom will surround the work barge and dock. A silt curtain will be used around the boat ramp. (See Appendix A – Sheets 14-16 of 16).

Project drawings are included in Attachment A.

## Approach

Northwest Environmental Consulting LLC (NVEC) biologist Brad Thiele conducted a site visit on October 25, 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/>)
- Mercer Island GIS online database (<https://chgis1.mercergov.org/Html5Viewer/Index.html?viewer=PubMaps&viewer=PubMaps>)

## Site Description

The subject property is in a residential neighborhood on the northeastern shoreline of Mercer Island. The immediate area around the project site is open water, a rock bulkhead, mowed lawn, and recreation facilities. Properties to the north and south of Mercerwood Shore Club are single-family residences. Pictures of the site are included in Appendix B.

Existing structures on the property include picnic tables, a parking lot, kayak storage racks, a boat launch, storage sheds and a storage building with bathrooms.

Two piers, and one floating dock, are present on the property. The northern pier is about 867 square feet and has 3 boatlifts. The southern pier is about 3,958 square feet with 2 main extensions, mooring for 30 boats, and 3 boatlifts.

The shoreline on the property is armored with a rock bulkhead along most of the shoreline. A beach is present on the southern end, and a sloped shoreline is present on the northern end at the location of the boat ramp. An ash tree and bamboo overhang the water on the southeast corner of the property. Behind this line of vegetation is mowed lawn. The beach contains several logs, and a rock wall with vegetation is present behind the beach and well above the ordinary high water mark. A willow and sapling western red cedar is present along the shoreline near the docks. See Site Photos in Appendix B.

The substrate along the shoreline and under the pier is primarily sandy, with a few cobbles close to shore in the southern portion of the property and about 10 feet from shore along the northern portion. Some milfoil is present further from shore.

## 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 migrate and may rear in the waters near the project when traveling from spawning sites on other lake tributaries to the lakes system's outlet at the Hiram M. Chittenden Locks. The project site is accessible to any fish migrating or rearing in the lake.

There are no other WDFW priority species directly associated with the project site or within 0.5 mile of the site. King County's iMap database does not list any critical areas on the property or on any of the adjacent properties, aside from indicating that this portion of the island's shoreline contains erosion hazards. The City of Mercer Island Watercourse Map does not indicate the presence of any streams at the site.

The subject property's shoreline, along with its adjacent shorelines, is mapped by the Washington Department of Fish and Wildlife as potential sockeye spawning habitat.

## Project Impacts and Conservation Measurements

### *Direct Impacts:*

**Sediments and Water Quality:** Sediment disturbance could occur during pile sleeving. Additionally, the tug and barge propwash may disturb sediments temporarily when making trips to and from the site. Pile sleeving will not likely be a source of significant sediment disturbance. All grout will be placed within the sleeve once it has been dewatered to prevent grout from contacting the water column.

Reconstruction of the boat ramp is a potential source of significant turbidity. A silt curtain will surround the boat ramp during construction to prevent turbidity from leaving the work area. The footprint of the launch will not be changed. Using prefab concrete plates will reduce turbidity that may be caused during use over time.

The project will meet state water quality standards.

**Lakebed:** Pile sleeving will change lakebed coverage. The pile sleeving will add about 4 inches of diameter to each repair. Pile sleeving will repair 97 piles at the site. This will displace an additional 59 square feet of lakebed.

**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 in larger numbers.

**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 minor because a trained crew will be onsite that will implement spill containment measures should a spill occur.

**Shading:** The proposed dock will not change overwater coverage at the site. The proposed decking will be ThruFlow grated decking. Grated decking allows light to penetrate the waters below the dock, which can increase productivity in the water column, 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. In addition, hard shadowing may increase juvenile salmonid outmigration times when encountered along the shoreline.

ThruFlow grated decking has a 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. Table 1 provides a summary of effective coverage changes from the proposed project:



**Table 1 – Effective coverage**

	Existing/ Proposed	Proposed grated	Conversion	Effective coverage	Reduction in effective coverage
Pier A (SF)	2,316	2,316	0.57	1,320	996
Pier B (SF)	867	867	0.57	494	373
TOTAL (SF)	3,183	3,183		1,814	1,369

The use of grated decking at the site reduces the effective coverage by 1,369 square feet.

Removal of the skirting allows light to enter under the dock effectively raising the dock up. The existing 296.5 linear feet of skirting will effectively elevate the dock 12 inches above the water surface over 296.5 linear feet of the dock. This will allow more light under the existing dock and has similar positive effects to the aquatic environment as grated decking.

**Recreational Boating:** The project supports continued recreational boating, which has been identified as a limiting factor for salmonid populations in Lake Washington. The pier 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 supplies 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.

A silt curtain will be used to surround the boat ramp to prevent turbid water from leaving the construction area.

## **Conclusion**

Juvenile Chinook salmon, and other salmonids, rear and migrate along the Lake Washington shoreline. Lake Washington is a Shoreline of the State.

There will be temporary impacts from noise and disturbed sediments during construction. The pile repair will displace an additional 59 square feet of lakebed by increasing the pile diameter.

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 effects of construction will be short term.

The dock will use grated decking to reduce the effective overwater coverage by 1,369 square feet over existing. The grating reduces the hard shadows favored by salmonid predators and increases productivity under the pier. Overwater structures may slow juvenile salmonid outmigration times. Using grated decking may reduce the chances of delaying outmigrating juvenile salmonids.

Removal of 296.5 linear feet of skirting will increase the effective height of the dock from water level to 12 inches along the dock where the skirting is removed. This will allow more light to penetrate under the dock and have similar effects as conversion to grated decking.

The new boat ramp will use concrete panels. This will reduce sediment disturbance during use of the boat launch and improve the aquatic environment along the nearshore over the existing ramp during boat launch and retrieval.

This project has been designed to meet current Lake Washington 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.**

## 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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King County. 2023. King County iMap. Online database. Accessed November 2023 at <https://gismaps.kingcounty.gov/iMap/>

Washington Department of Fish and Wildlife (WDFW). 2023. Priority Habitats and Species. Online database. Accessed November 2023 at <http://apps.wdfw.wa.gov/phsontheweb/>

WDFW. 2023. SalmonScape. Online database. Accessed November 2023 at <http://apps.wdfw.wa.gov/salmonscape/>

# **Appendix A: Project Drawings**

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# PROJECT INFORMATION

**APPLICANT:**  
MERCERWOOD SHORE CLUB

**DRAWINGS BY:**  
ECCO DESIGN INC.  
7413 GREENWOOD AVE N  
SEATTLE, WA 98103  
206-706-3937

**SITE ADDRESS:**  
4150 E MERCER WAY  
MERCER ISLAND, WA 98040

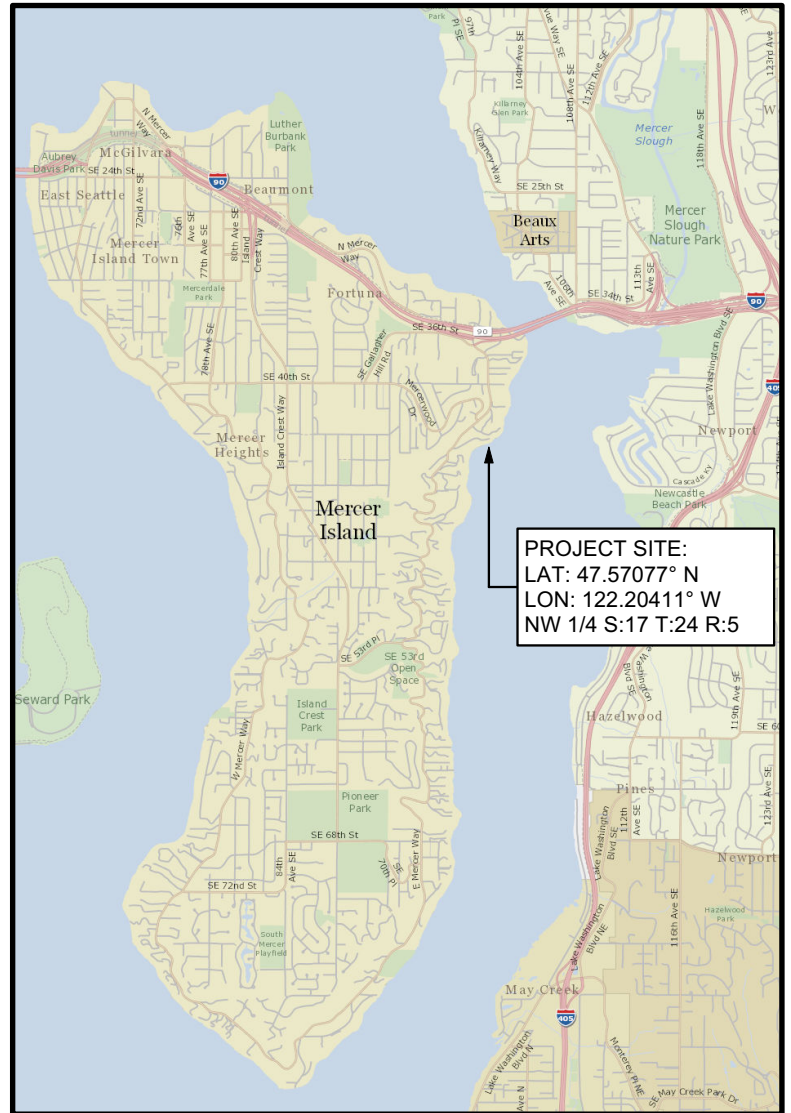
**PARCEL NUMBER:**  
413190-0075

**BODY OF WATER:**  
LAKE WASHINGTON

**LEGAL DESCRIPTION:**  
LAKEHOLM ADD S 60 FT OF 14 ALL 15-16-17 &  
2ND CL SH LDS ADJ & POR VAC ST  
PLAT LOT: 14 TO 17

**PROJECT DESCRIPTION:**  
REPAIR TWO EXISTING PIER EXISTING BY  
SLEEVING PILES, RE-FRAMING, AND  
RE-DECKING WITH GRATED DECKING. A  
SECTION OF ONE PIER (PIER A) HAS ALREADY  
BEEN REPAIRED AND THE REMAINING  
SECTION IS TO BE REPAIRED. INSTALL  
CONCRETE PANELS FOR AN EXISTING BOAT  
LAUNCH.

# VICINITY MAP



**REFERENCE:** NWS-2019-972

**DATUM:** C.O.E. Locks Datum

**ADJACENT PROPERTY OWNERS:**

1. Yi Jia
2. Thomas & Kathleen Hatsukami

**APPLICANT:** Mercerwood Shore Club

**LOCATION:** 4150 E Mercer Way  
Mercer Island, WA 98040

**LAT/LONG:** 47.57077°/-122.20411°

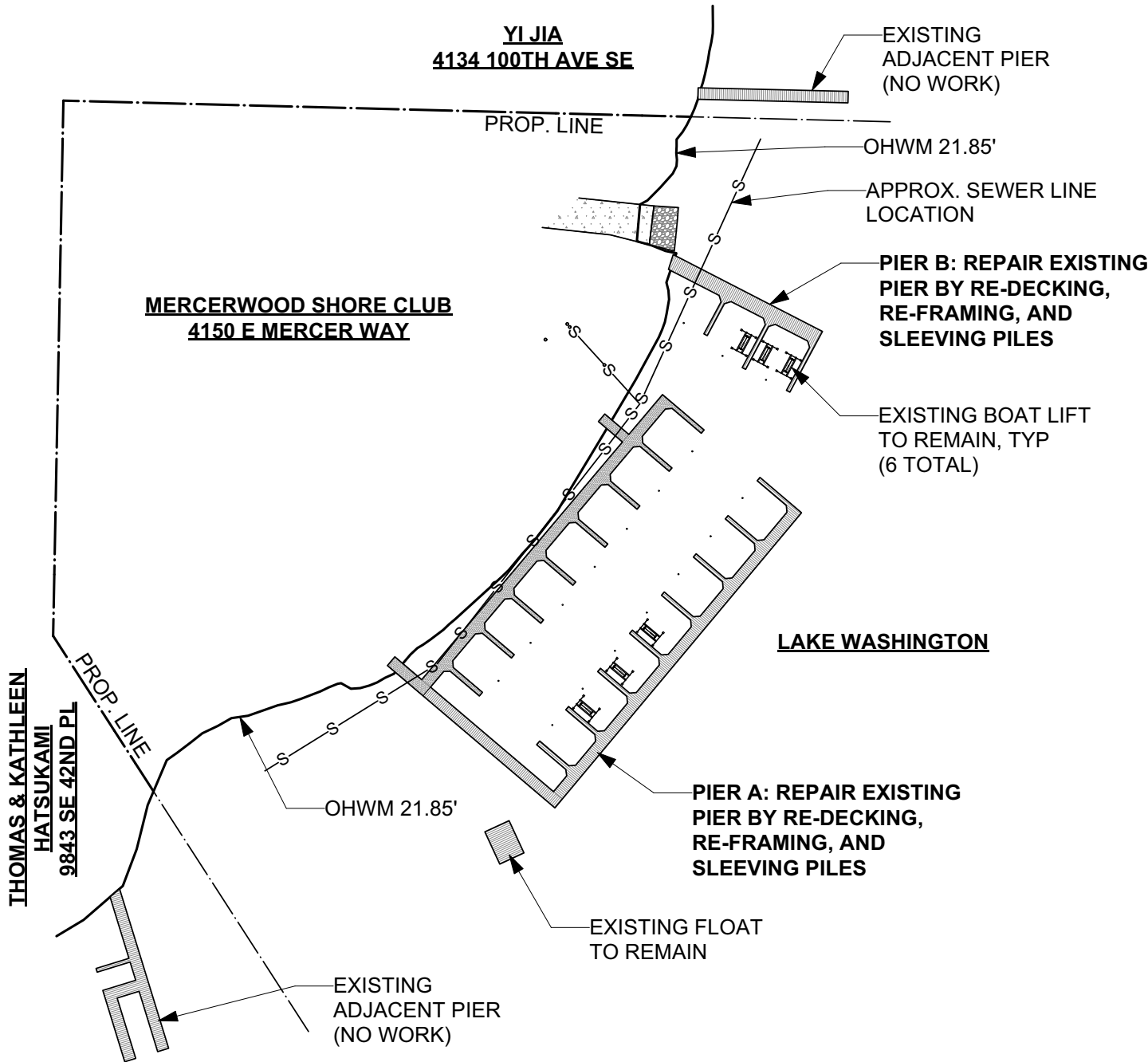
**PROPOSED PROJECT:**

Repair Piers  
**IN:** Lake Washington  
**NEAR/AT:** Mercer Island  
**COUNTY:** King **STATE:** WA

**SHEET** 1 of 16

**DATE:** November 9, 2023

PLEASE NOTE THAT THE SHORELINE CONFIGURATION AND PROPERTY LINE LOCATIONS ARE APPROXIMATE ONLY. PROPERTY LINES ARE BASED ON KING COUNTY GIS.



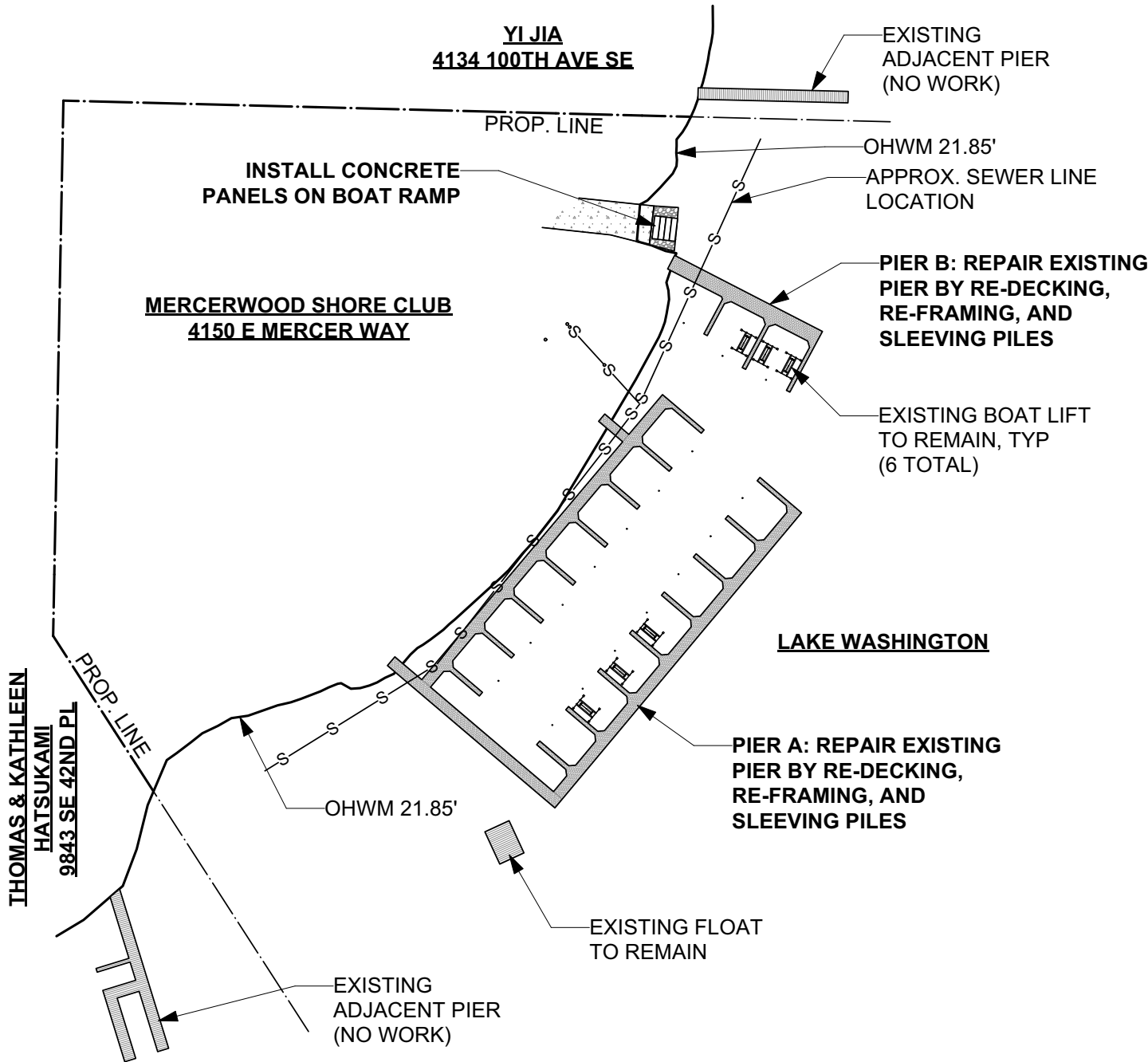
# **SITE PLAN (EXISTING)**

SCALE 1" = 80'-0"



**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA

PLEASE NOTE THAT THE SHORELINE CONFIGURATION AND PROPERTY LINE LOCATIONS ARE APPROXIMATE ONLY. PROPERTY LINES ARE BASED ON KING COUNTY GIS.



# SITE PLAN (PROPOSED)

SCALE 1" = 80'-0"



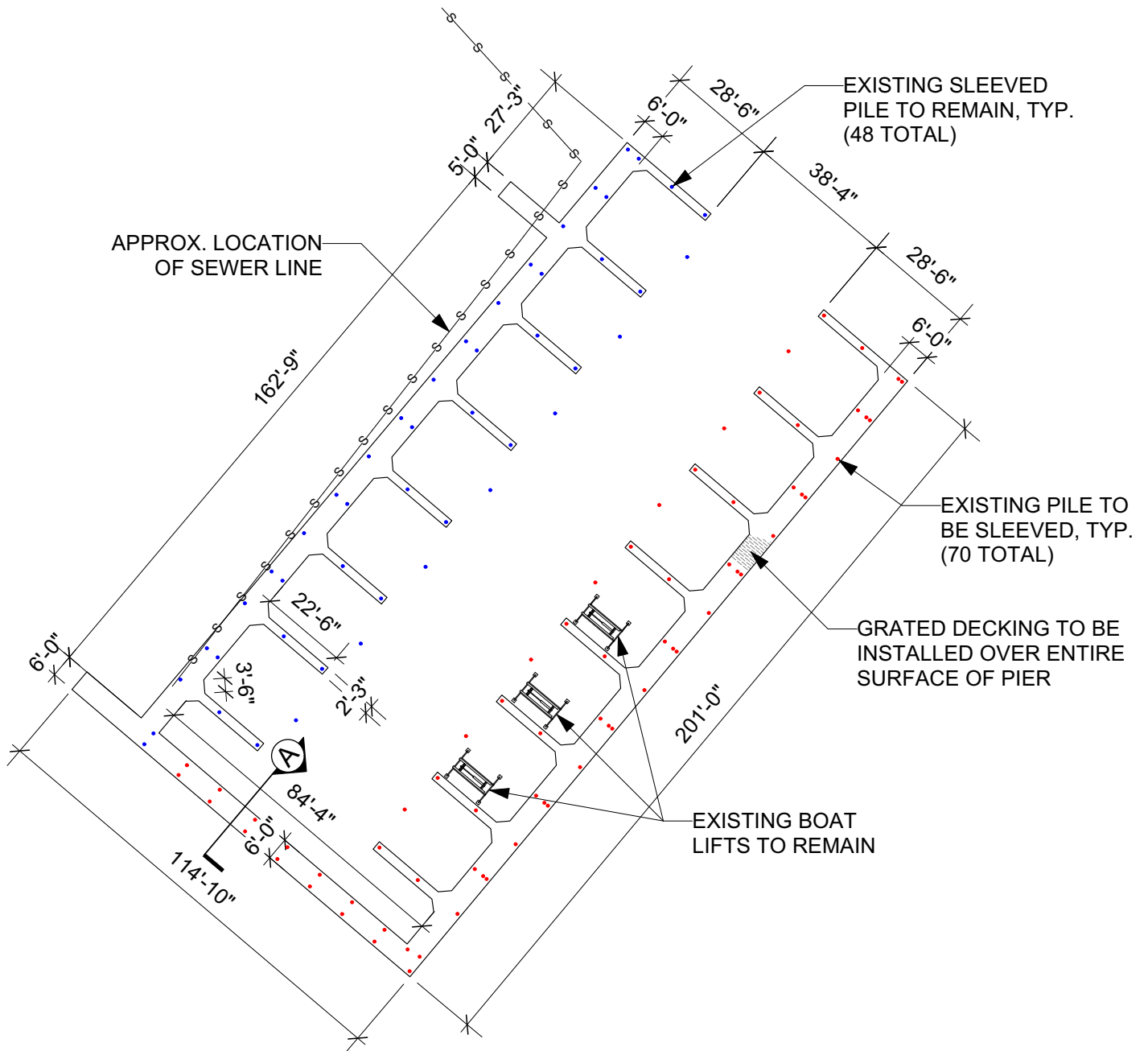
**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA

**PIER A:**

- 63 - PILES TO BE REPAIRED WITH THE PILE AS DETAILED
- 7 - MOORING PILE TO BE REPAIRED WITH THE PILE AS DETAILED
- 41 - EXISTING REPAIRED PILES TO REMAIN (NO WORK)
- 7 - EXISTING REPAIRED MOORING PILES TO REMAIN (NO WORK)
- 3,958 SQ FT - EXISTING OVER WATER COVERAGE

**SKIRTING**

EXISTING SKIRTING IS ALONG THE SOUTHEAST (201') & SOUTHWEST (109.5') WALKWAYS  
201' + 95.5' = 296.5 LINEAR FEET OF SKIRTING TO BE REMOVED



**PIER A - PILE PLAN**



SCALE 1" = 40'-0"

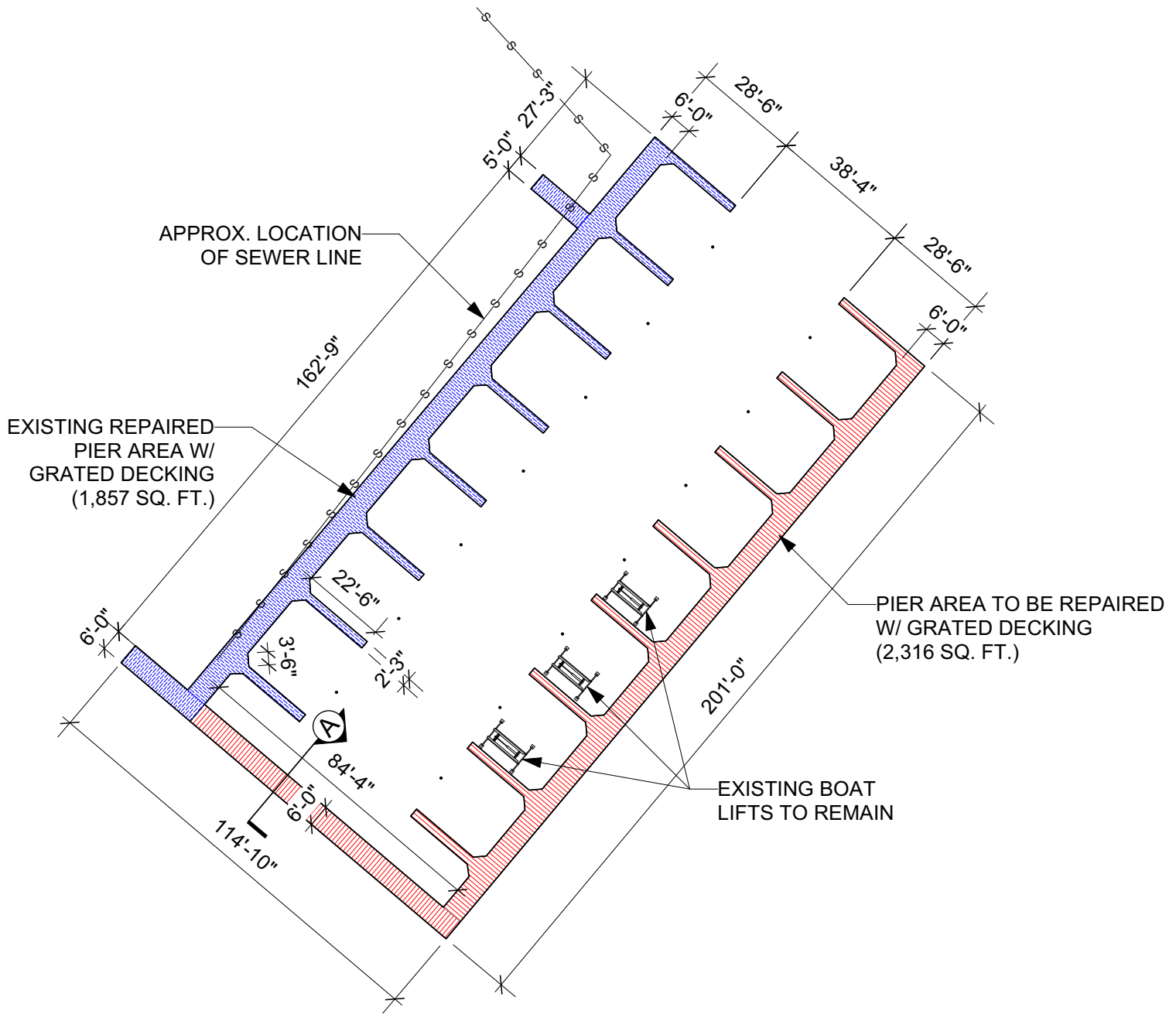


Reference: NWS-2019-972  
Applicant: Mercerwood Shore Club  
Proposed: Repair Piers  
Location: Mercer Island, WA



**LEGEND**

-  SECTION OF PIER THAT HAS ALREADY BEEN REPAIRED WITH GRATED DECKING
-  SECTION OF PIER TO BE REPAIRED



**PIER A - REPAIR PLAN**

SCALE 1" = 40'-0"



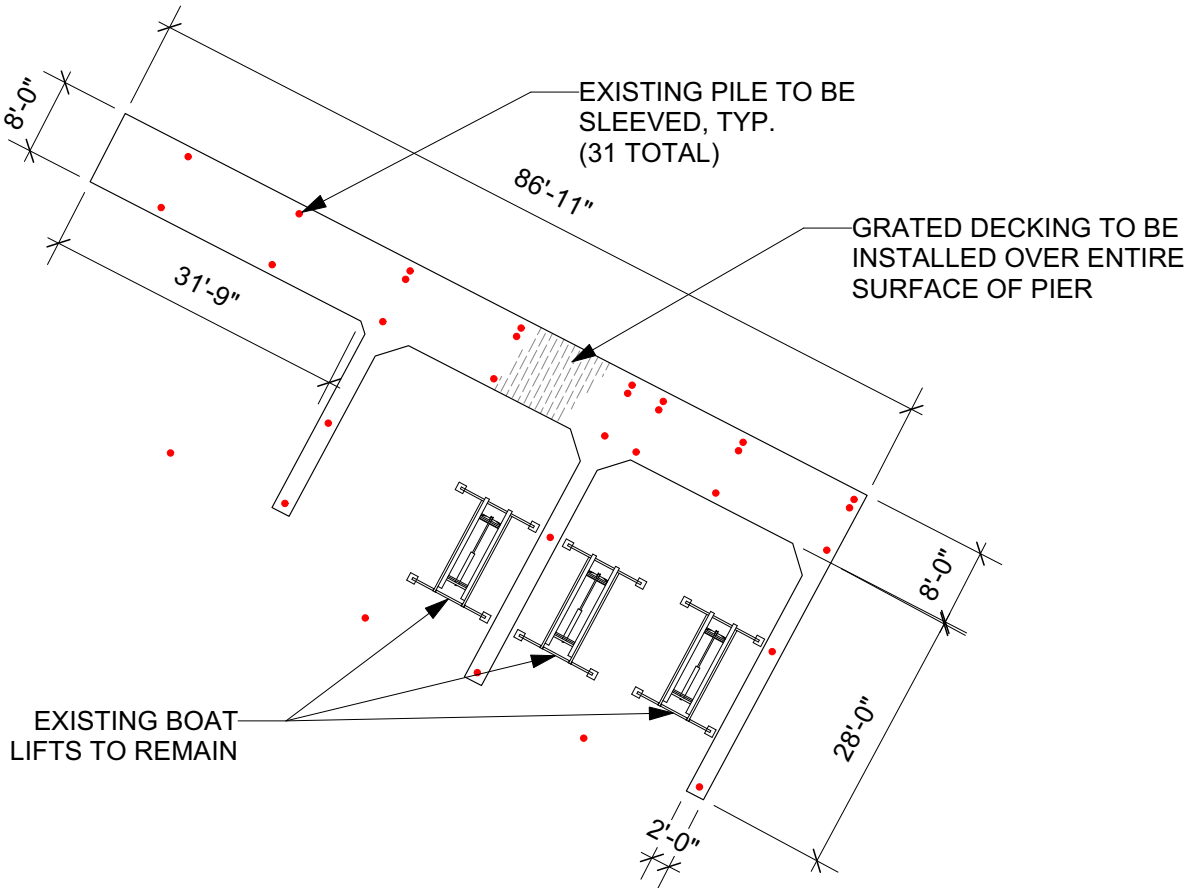
Reference: NWS-2019-972  
 Applicant: Mercerwood Shore Club  
 Proposed: Repair Piers  
 Location: Mercer Island, WA

**PIER B:**

28 - PILES TO BE REPAIRED AS DETAILED

3 - MOORING PILE TO BE REPAIRED AS DETAILED

867 SQ FT - EXISTING OVER WATER COVERAGE

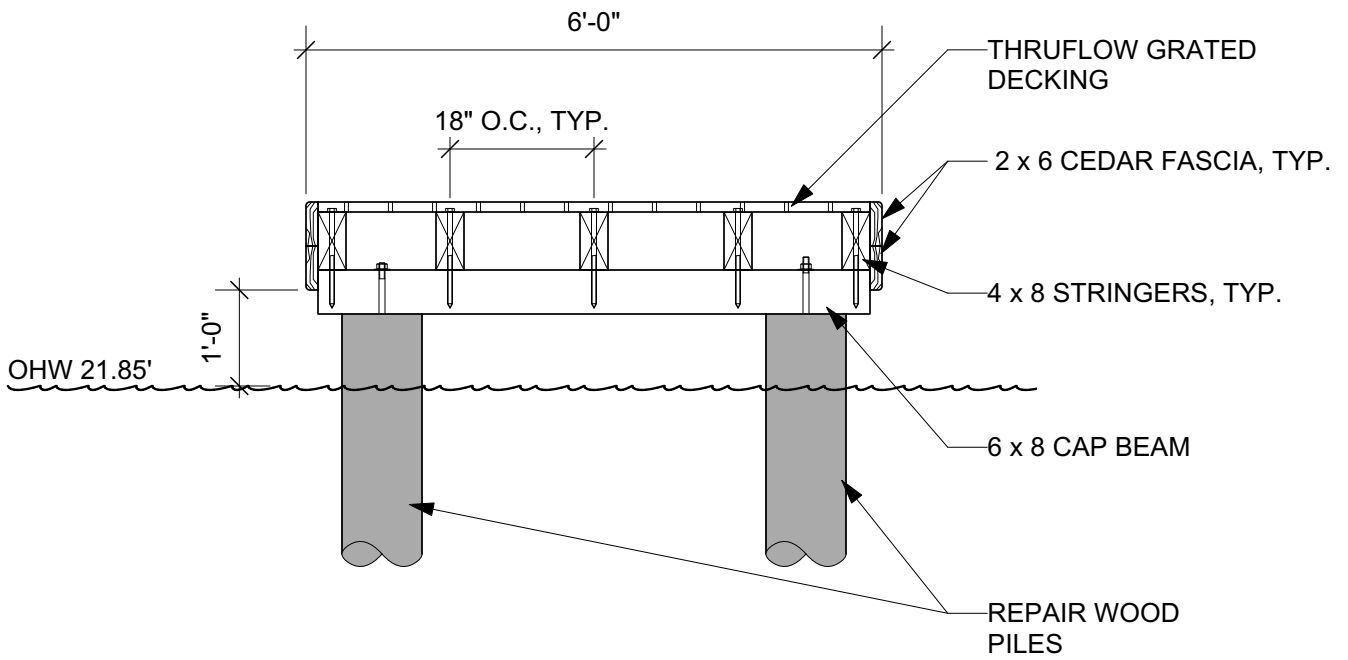


**PIER B - PILE PLAN**

SCALE 1" = 20'-0"



**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA

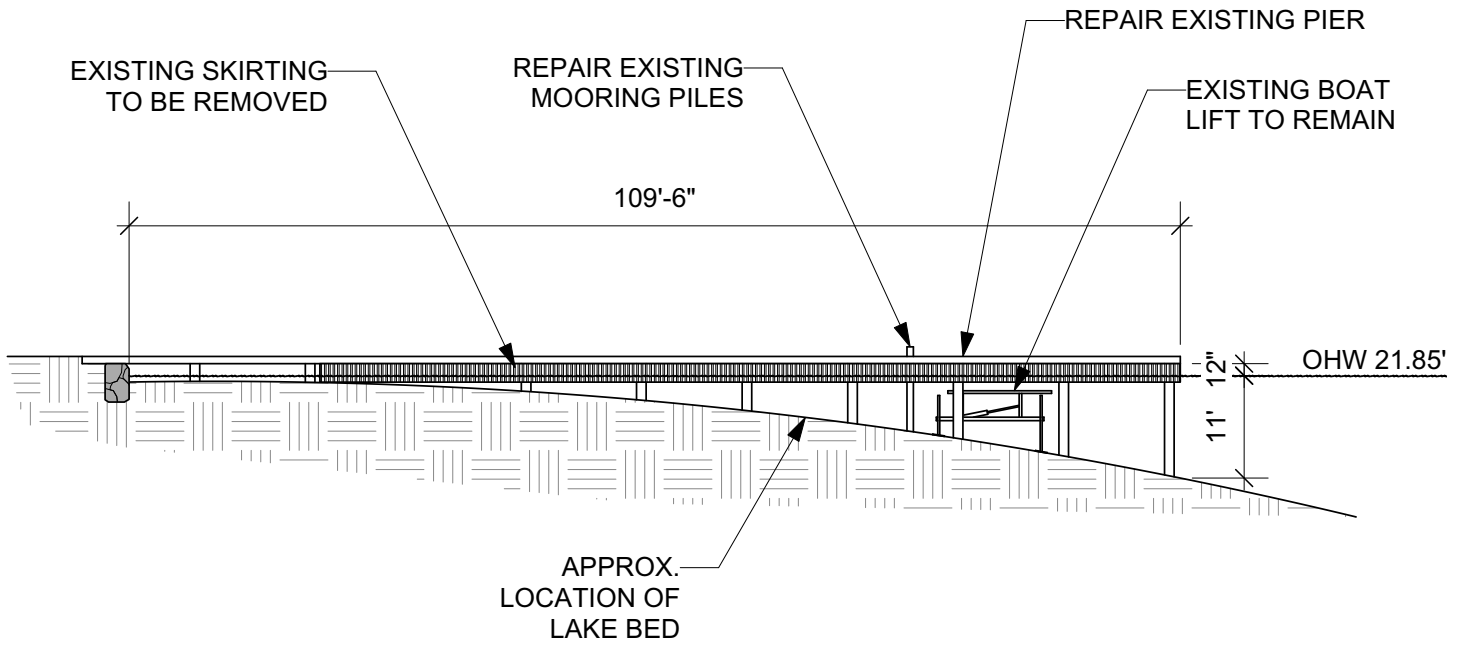


**PIER SECTION A**

SCALE 1/2"=1'-0"



**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA

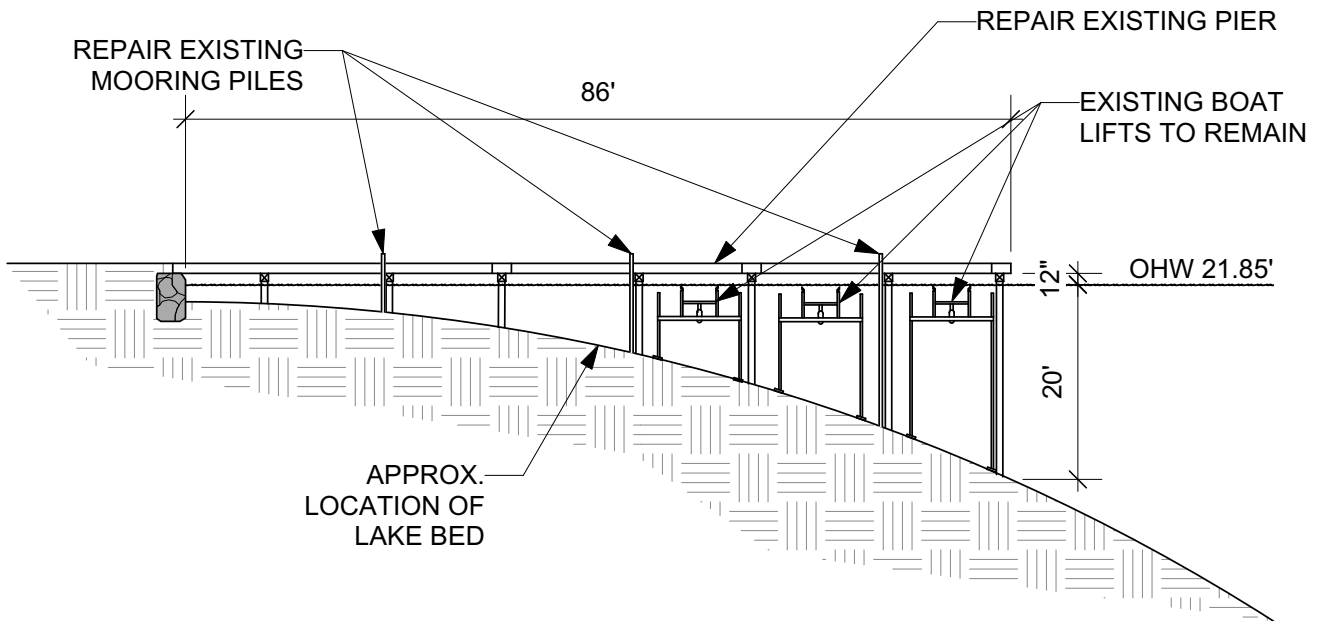


# **PIER A - ELEVATION**

SCALE 1" = 20'-0"



**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA

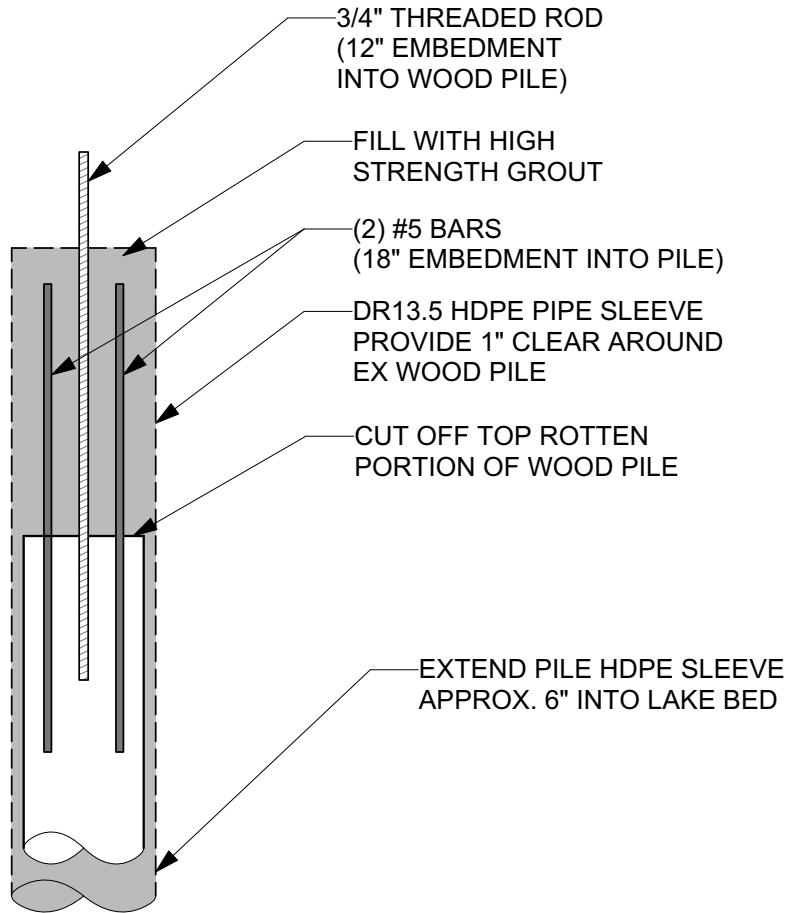


## **PIER B - ELEVATION**

SCALE 1" = 20'-0"



**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA

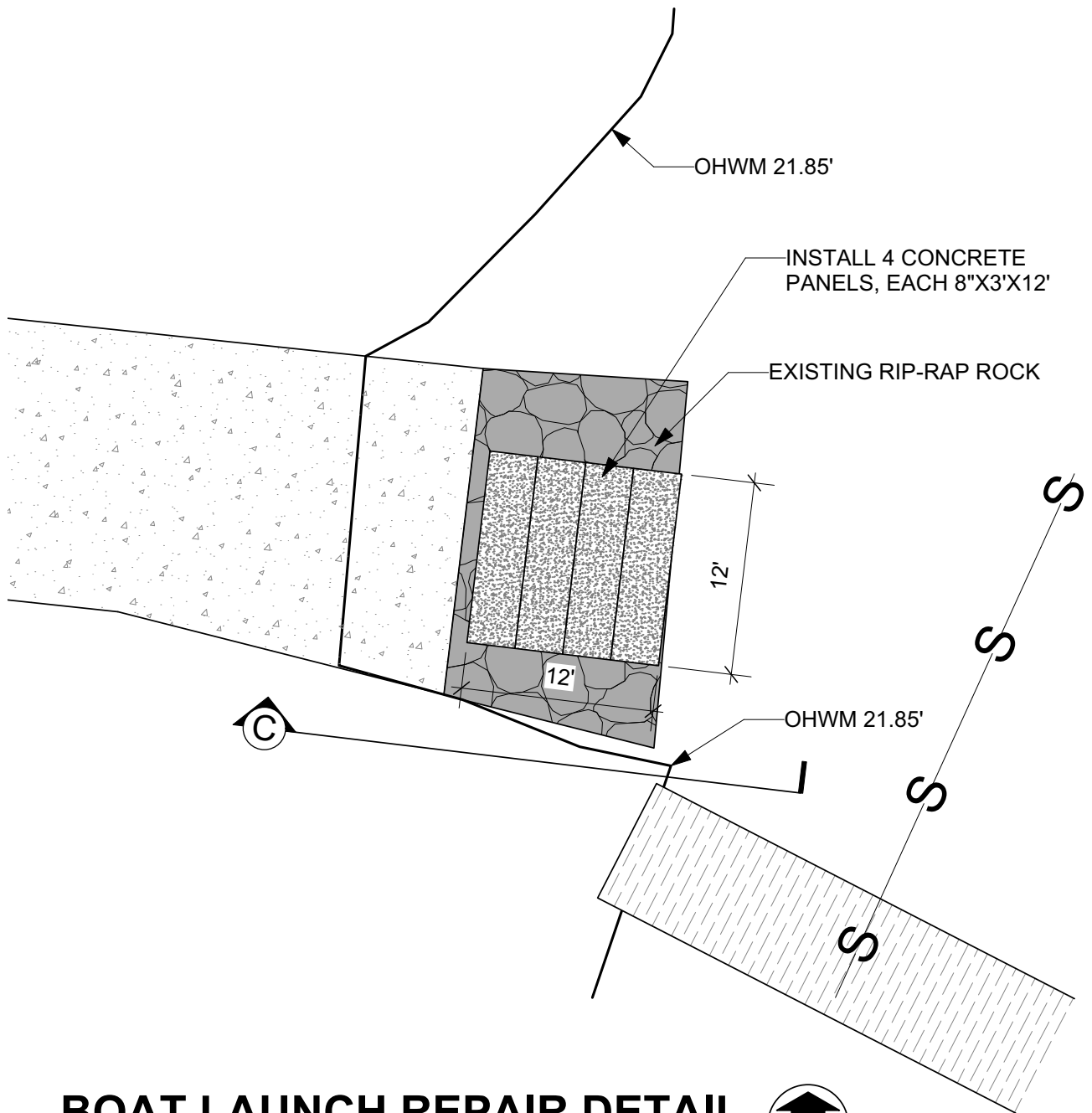


## **PILE SLEEVE DETAIL**

SCALE 3/4" = 1'-0"

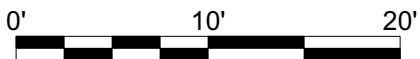


**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA

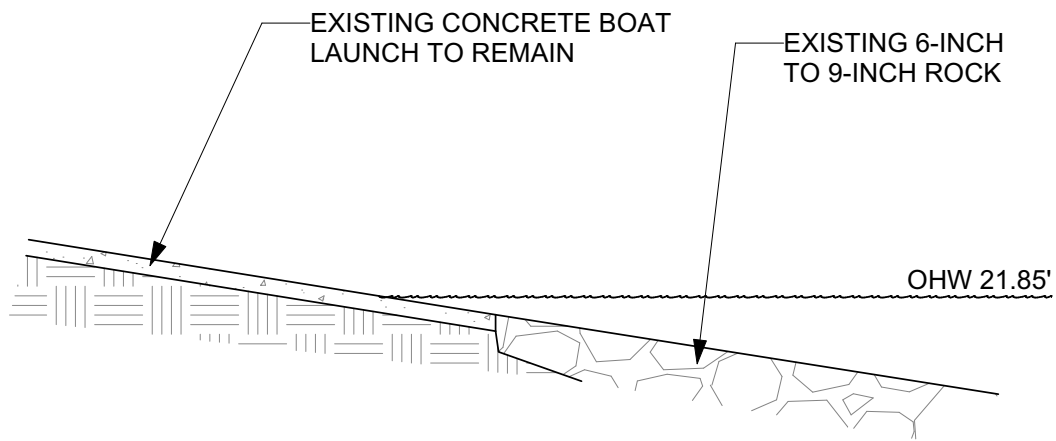


# **BOAT LAUNCH REPAIR DETAIL**

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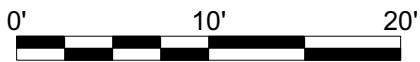


**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA



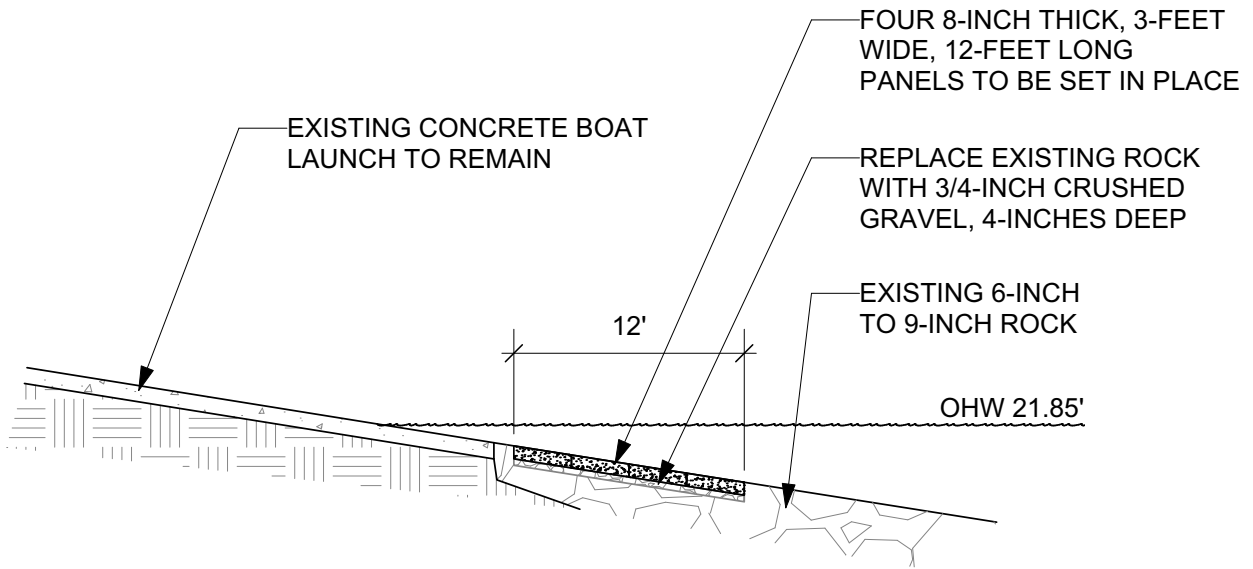
## **BOAT LAUNCH SECTION C - EXISTING**

SCALE 1" = 10'-0"



**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA





## **BOAT LAUNCH SECTION C - PROPOSED**

SCALE 1" = 10'-0"

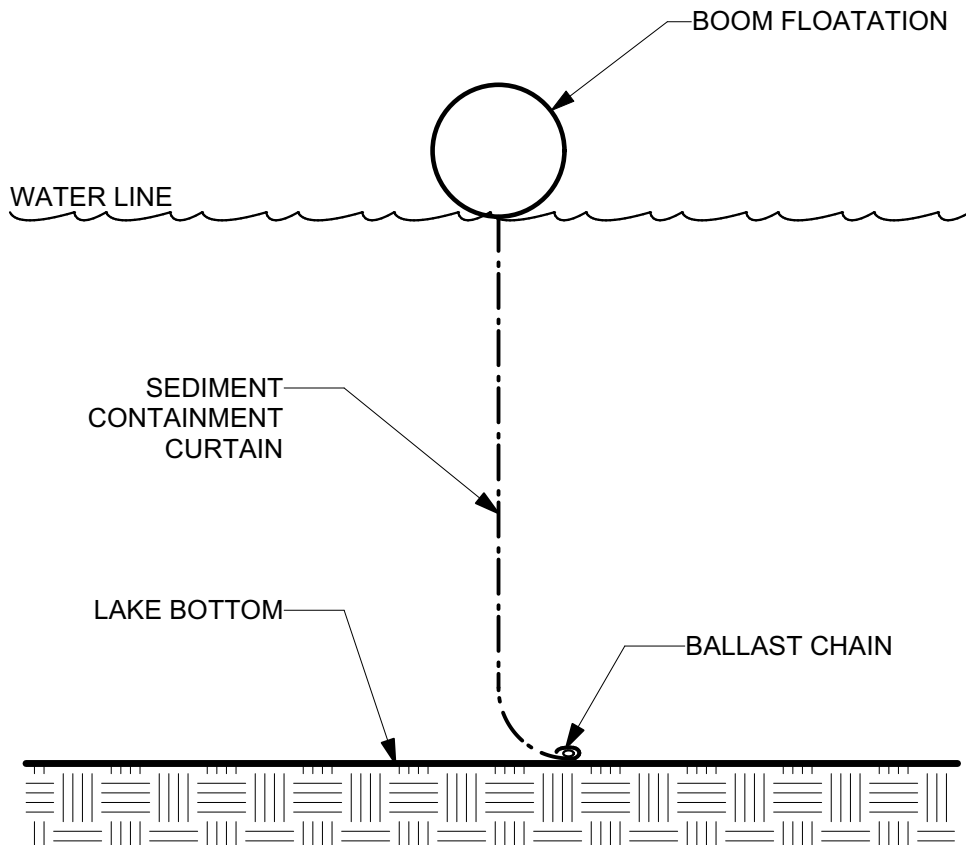


**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA

# BMP DETAILS

- 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. Impact pile driving shall employ “soft-start” techniques. At the start of driving operations (or after any break in operations of more than an hour), the hammer will be operated at the lowest practicable power setting for the first few strikes, and gradually increased to full power after that.
  6. 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. All project-related materials and equipment to be placed in the water shall be free of pollutants.
  3. 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.
  4. To the greatest extent practicable, utilize biodegradable oils for equipment that would be operated in or near water.
  5. 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.
  6. 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.
  7. All wastes shall be collected and contained for proper disposal at approved upland disposal sites appropriate for the material(s).
  8. When removing creosote piles and other similarly treated wood, containment booms 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.
  9. 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 booms.
  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.

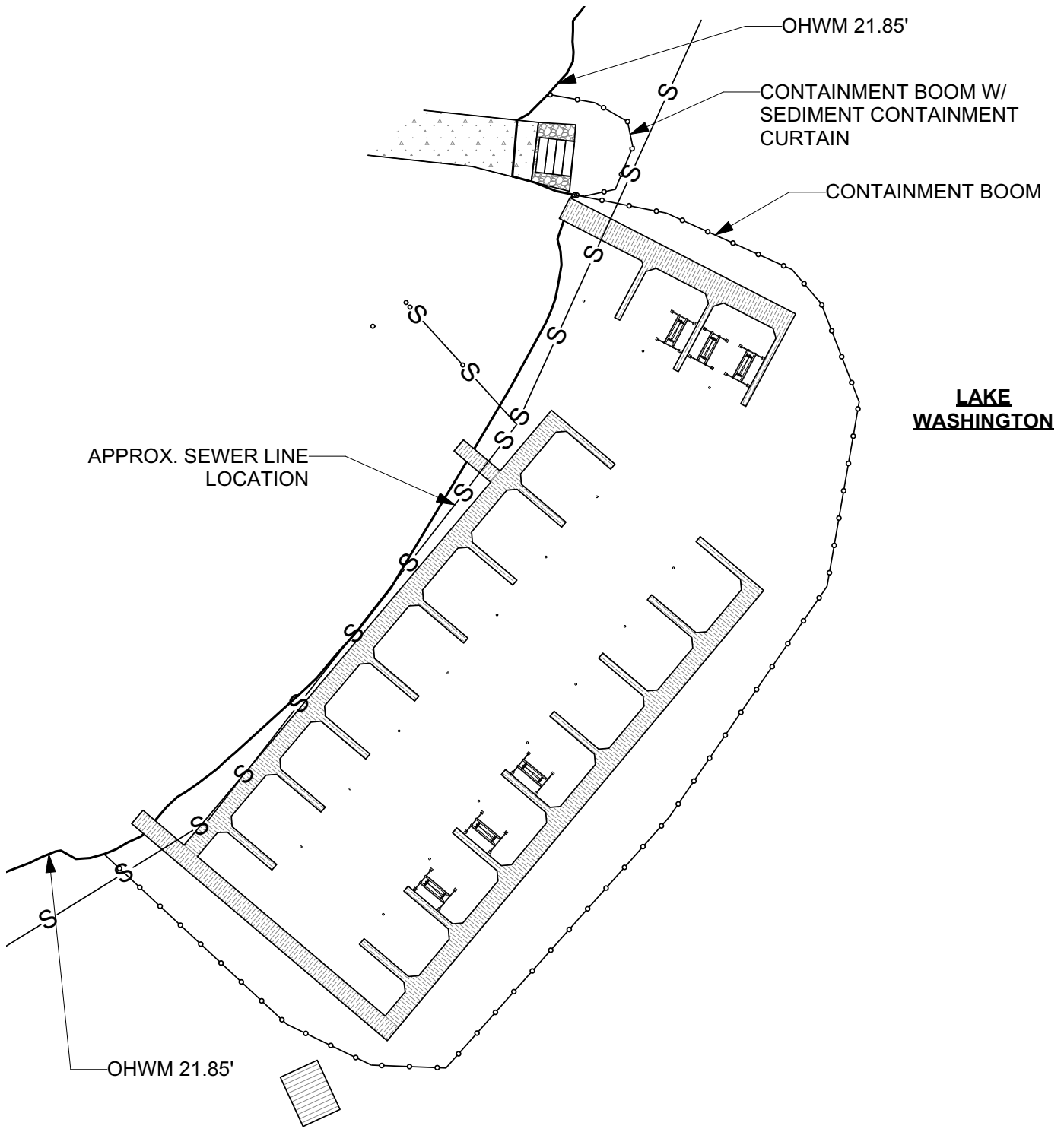
**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA



## **CONTAINMENT BOOM W/ SEDIMENT CURTAIN DETAIL**

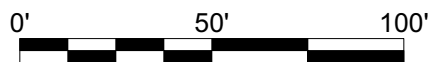
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**Reference:** NWS-2019-972  
**Applicant:** Mercerwood Shore Club  
**Proposed:** Repair Piers  
**Location:** Mercer Island, WA



**BMP PLAN**

SCALE 1" = 50'-0"



Reference: NWS-2019-972  
 Applicant: Mercerwood Shore Club  
 Proposed: Repair Piers  
 Location: Mercer Island, WA

## **Appendix B: Site Photographs**

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Photo 1 - Existing Pier A looking waterward.



Photo 2 - Pier A looking landward showing shoreline conditions.





Photo 3 - Shoreline conditions along Pier A.



Photo 4 - Pier A looking landward.





Photo 5 - Existing Pier A conditions.



Photo 6 - Pier A existing conditions.





Photo 7 - Conditions north of the site.



Photo 8 - Conditions south of the site.



Photo 9 - Existing boat ramp from Pier B.