Ecological No Net Loss Assessment Report

Prepared for

James Routos
4713 Forest Ave S,
Mercer Island, WA 98040

Prepared by

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

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Purpose

The purpose of this report is to fulfill the requirements of City of Mercer Island Municipal Code (MICC) 19.13 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 modification and associated moorage improvements.

Location

The subject property is located at 4713 Forest Avenue South (King County parcel number 404500-0045) in the City of Mercer Island, Washington (see Appendix A – Sheet 1 of 13). The parcel is on the waterfront of Lake Washington, a shoreline of the state, that contains several endangered fish species listed under the Endangered Species Act and Washington State designated priority fish species.

Project Description

The deck and framing from the existing dock will be removed. One of the existing timber piles will be repaired by using the pile splicing method. A 120 square foot finger section of the pier and 3 associated timber piling (2 6-inch and 1 12-inch) will be removed. The framing will be reconstructed using the existing piles and the entire deck surface will be re-decked using ThruFlow grated decking.

A new 140 square foot platform lift will be installed on the landward side of the existing ell. The platform lift will be installed with grated decking. A new free standing boat lift will be installed on the southern side of the existing dock.

A 6-foot wide stair access will be constructed into the existing rock bulkhead. (See Appendix A – Sheets 2 to 10 of 13)

During construction, a floating boom will surround the work barge and dock and a silt curtain will be used for the bulkhead modification. (See Appendix A – Sheets 11 to 12 of 13)

A shoreline vegetation plan is proposed, that will add 4 native willows and 3 native shrubs. (See Appendix A – Sheet 13 of 13).

Project drawings are included in Attachment A.

Approach

Northwest Environmental Consulting LLC (NWEC) biologist Brad Thiele conducted a site visit on October 25, 2024 to evaluate conditions on site and adjacent to the site. NWEC 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 a shoreline tract in a residential neighborhood. It has shoreline on its western boundary with single-family homes to the east and west along the shoreline.

The only existing structures on the property are the house and dock.

The shoreline is armored with a basalt bulkhead. The property is landscaped with some lawn with planting beds with Himalayan blackberry and bamboo. Existing trees and shrubs along the shoreline include 3 Douglas fir, a paper birch and mountain ash. The substrates along the shore are sand and gravel. No aquatic vegetation was observed.

The neighboring shorelines are landscaped with bulkheads and docks. See attached photos in Appendix B- Photos.

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. The shoreline is not mapped as a Sockeye spawning location.

Other than the aquatic species mentioned above, the Priority Habitats and Species mapping does not indicate any terrestrial priority species as occurring at the site.

The City of Mercer Island GIS Portal does not show any environmental layers on or adjacent to the property.

Project Impacts and Conservation Measurements

Direct Impacts:

Sediments: Sediment disturbance may occur below the OHWM during pile repair and removal and during bulkhead alteration to create the stairs. Additionally, the tug and barge propwash may disturb sediments temporarily when making trips to and from the site.

Impacts to sediments should be minimal from piling repair and removal, a silt curtain will be used around the site during repair and removal of the bulkhead. The project will meet state water quality standards.

Shoreline: Planting native vegetation, including native willows and shrubs, will increase the habitat functions of the shoreline by creating shade along the shoreline that will be an improvement from 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 sheet 11 of 11).

Installing stairs will create a 6-foot section of bulkhead that is slanted away from the shoreline. The small staircase will decrease the instances of reflecting waves which will help reduce shoreline erosion slightly.

Lakebed: Construction of the dock includes removing 3 piling (2 6-inch and 1 12-inch). This will result in 1.2 square feet of lake bottom being restored.

The boatlift will be placed approximately 30 to 45 feet from shore in water 8 to 14 feet deep. Placing the moorage as far away from shore as possible and in the deepest water possible minimizes potential impacts to the salmonid using the Lake and reduces the chance of propwash causing disturbance during castoff and docking.

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 petroleum spills that can occur with any equipment operation. The risk of impact to the aquatic environment is expected to be minimized because a trained crew will be onsite that will implement spill containment measures should a spill occur. The crew will report any spills as specified in permits.

Shading: The proposal will increase overwater coverage by 20 square feet. The existing 120 square foot finger pier will be removed and a 140 square foot platform lift will be added.

The existing dock and platform lift will be decked with 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:

Table 1 – Effective coverage

	Existing solid decking	Proposed grated decking	Conversion	Effective coverage	Reduction in effective coverage
Existing dock (SF)	540		n/a		
Finger removed (SF)	120		n/a		
New platform lift (SF)	0	140	0.57	80	60
Remaining dock (SF)	0	420	0.57	239	181
Change	-120	560		319	241

The use of grated decking at the site reduces the effective coverage of the new structure by 241 square feet from construction of the new platform lift and re-decking the existing dock.

Recreational Boating: The project supports continued recreational boating, which has been identified as a limiting factor for salmonid populations in Lake Washington. Modifying the dock 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 and silt curtain around the in-water work area, to contain any floating debris and potential turbidity 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.

In-lieu Fee: The shoreline on the subject property will be planted with 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 required by NMFS 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 Water & Land Resources Division. This funding has been used to remove 350 derelict piles from the mouth of the Cedar River in Lake Washington.

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 and long-term impacts will occur from maintaining an overwater structure.

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.

Construction of the dock includes removing 3 piling (2 6-inch and 1 12-inch). This will result in 1.2 square feet of lake bottom being restored.

Overwater structures may slow juvenile salmonid outmigration times and provide habitat for predatory fish. The proposal will increase overwater coverage by 20 square feet after removing the existing 120 square-foot solid decked finger pier and constructing a new 140 square foot platform lift.

The use of grated decking at the site reduces the effective coverage of the repaired structure and platform lift by 241 square feet. This is a reduction in effective overwater coverage of 319 square feet over the existing condition at the site and may reduce predatory fish habitat and reduce the chance of juvenile salmonids from hesitating while passing under the structure.

Boatlifts reduce shading by allowing light under the boat when on the lift. In addition boat lifts reduce boat maintenance that can add cleaning chemicals to the lake and can preserve zinc anodes. A cleaner hull on a boat also reduces drag that increase fuel use.

Removing a 6-foot section of the bulkhead and constructing stairs will layback the bulkhead at the location of the stairs. This will slightly decrease reflecting waves that helping reduce shoreline erosion and sorting of lakebed substrates improving the aquatic environment.

A shoreline planting plan will be implemented that will add 4 native willows and 3 native shrubs to the shoreline that will provide natural shading, allochthonous food sources and will eventually be a source of woody materials that 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** at the site long-term over the existing condition.

Document Preparers

Brad Thiele	Biologist	30 years of experience	Northwest Environmental Consulting, LLC (NWEC)

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

King County. 2024. King County iMap. Online database. Accessed January 2024 at https://gismaps.kingcounty.gov/iMap/

Washington Department of Fish and Wildlife (WDFW). 2024. Priority Habitats and Species. Online database. Accessed January 2023 at http://apps.wdfw.wa.gov/phsontheweb/

WDFW. 2024. SalmonScape. Online database. Accessed January 2024 at http://apps.wdfw.wa.gov/salmonscape/

Appendix A:
Project Drawings

PROJECT INFORMATION

OWNER:
JAMES ROUTOS

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

SITE ADDRESS:
4713 FOREST AVE SE
MERCER ISLAND, WA 98040

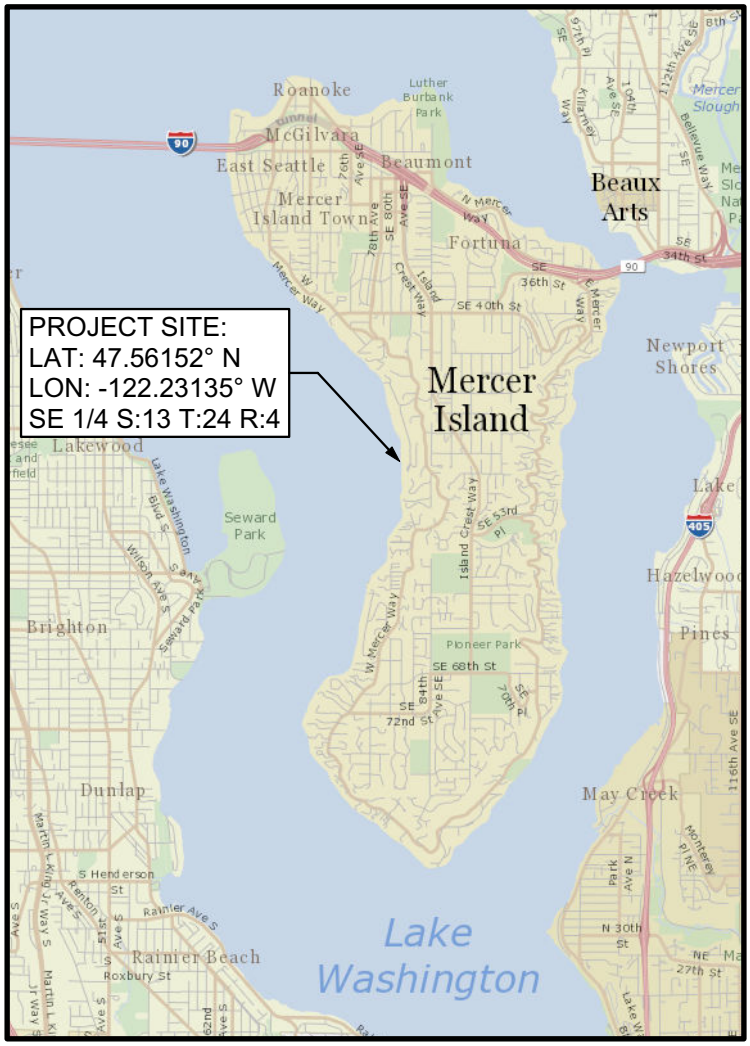
PARCEL NUMBER:
404500-0045

BODY OF WATER:
LAKE WASHINGTON

LEGAL DESCRIPTION:
LAKE ISLE ADD & SH LDS ADJ
PLAT LOT: 9-10

PROJECT DESCRIPTION:
REPAIR AN EXISTING PIER BY SPLICING ONE PILE, RE-FRAMING, AND RE-DECKING WITH THRUFLOW GRATED DECKING. REMOVE A SECTION OF THE PIER. INSTALL A NEW BOAT LIFT AND PLATFORM LIFT. INSTALL LAKE ACCESS STAIRS. PLANT NATIVE VEGETATION PER THE PLANTING PLAN.

VICINITY MAP



REFERENCE:

DATUM: C.O.E. Locks Datum

ADJACENT PROPERTY OWNERS:
1. Paul & Kelly Rogan
2. Keyvan & Parvin Naficy

APPLICANT: James Routos

LOCATION: 4713 Forest Ave SE
Mercer Island, WA 98040

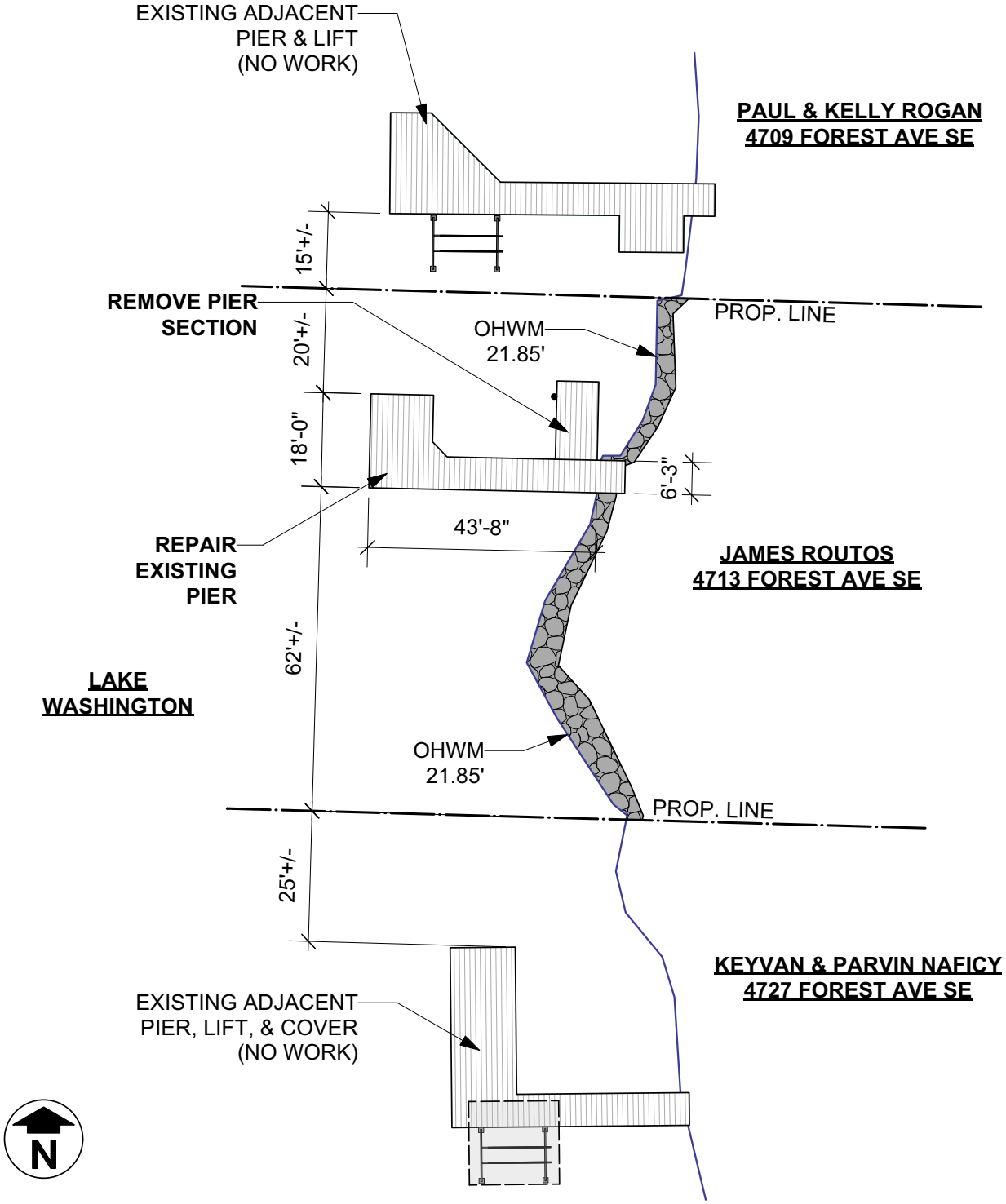
LAT/LONG: 47.56152°/-122.23135°

PROPOSED PROJECT:
Pier Repair, Lifts, & Stairs
IN: Lake Washington
NEAR/AT: Mercer Island
COUNTY: King **STATE:** WA

SHEET 1 of 14

DATE: May 16, 2024

PLEASE NOTE THAT THE SHORELINE CONFIGURATION AND PROPERTY LINE LOCATIONS ARE APPROXIMATE ONLY. PROPERTY LINES ARE BASED ON SURVEY BY DAVID EVANS & ASSOCIATES INC. DATED 6/23/2021.



EXISTING SITE PLAN

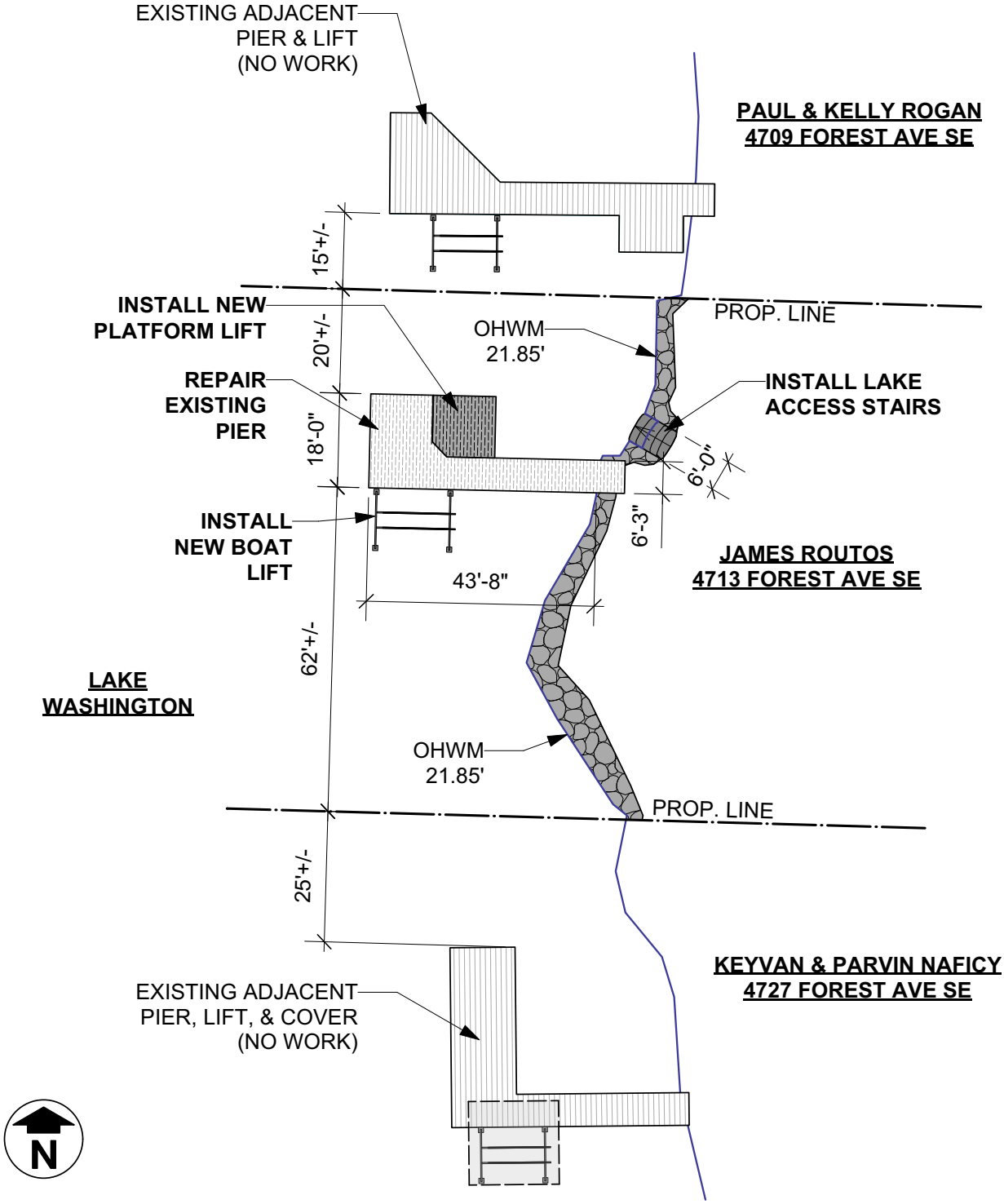
SCALE 1" = 30'-0"

0' 30' 60'

Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA

PLEASE NOTE THAT THE SHORELINE CONFIGURATION AND PROPERTY LINE LOCATIONS ARE APPROXIMATE ONLY. PROPERTY LINES ARE BASED ON SURVEY BY DAVID EVANS & ASSOCIATES INC. DATED 6/23/2021.



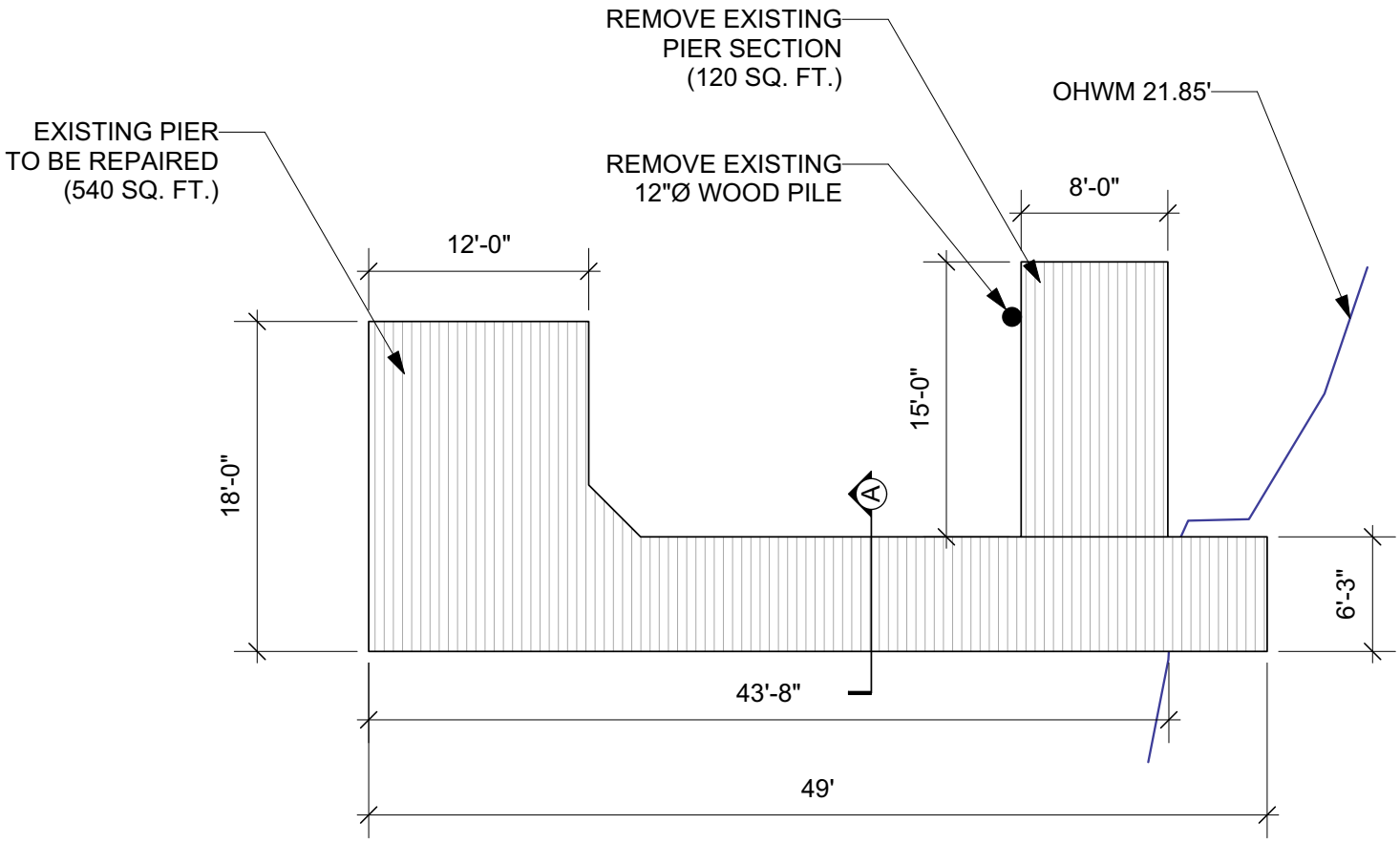
PROPOSED SITE PLAN

SCALE 1" = 30'-0"

0' 30' 60'

Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA



EXISTING PIER PLAN

SCALE 1" = 10'-0"

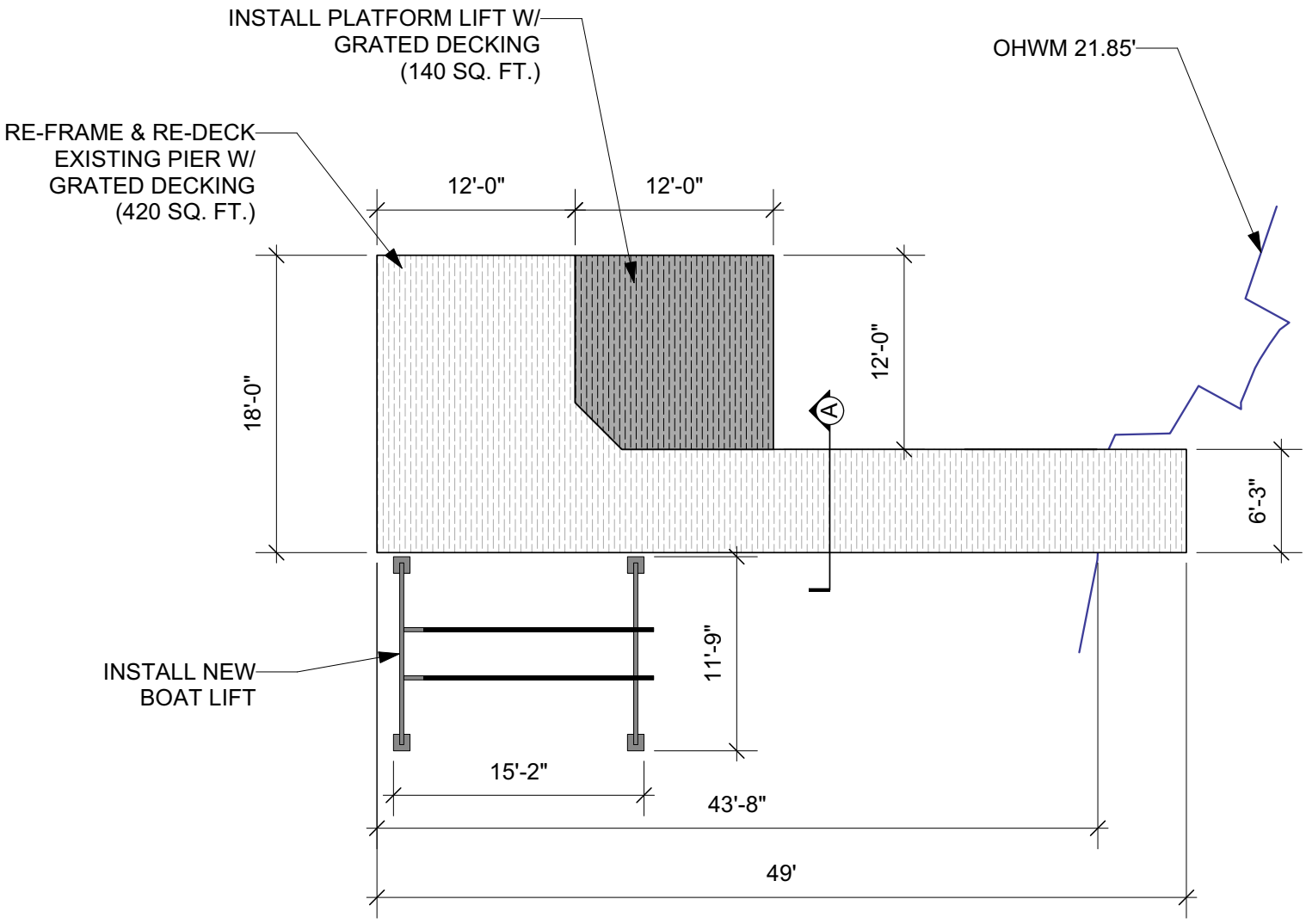
N

0' 10' 20'

Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA

 Date: 5/16/2024



PROPOSED PIER PLAN

SCALE 1" = 10'-0"

N

0' 10' 20'

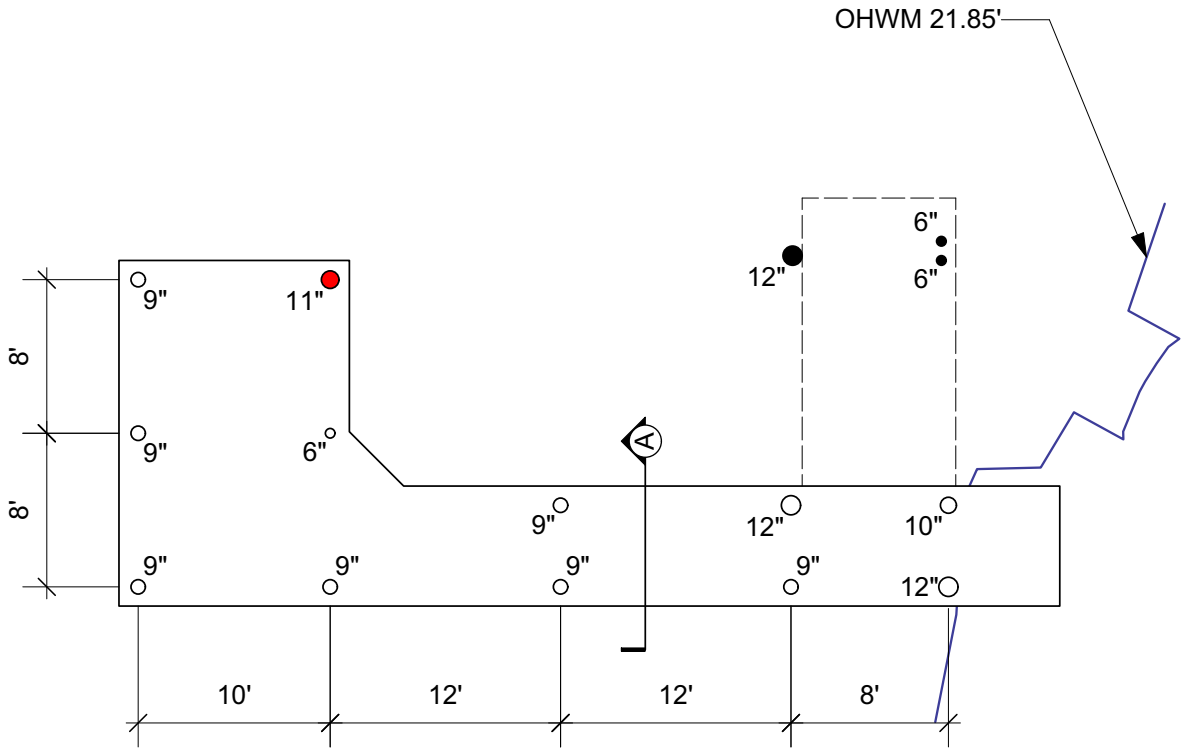
Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA

 Date: 5/16/2024

LEGEND

- EXISTING UNTREATED WOOD PILE TO REMAIN (11 TOTAL)
- EXISTING UNTREATED WOOD PILE TO BE SPLICED (1 TOTAL)
- EXISTING UNTREATED WOOD PILE TO BE REMOVED (3 TOTAL)



PILE PLAN

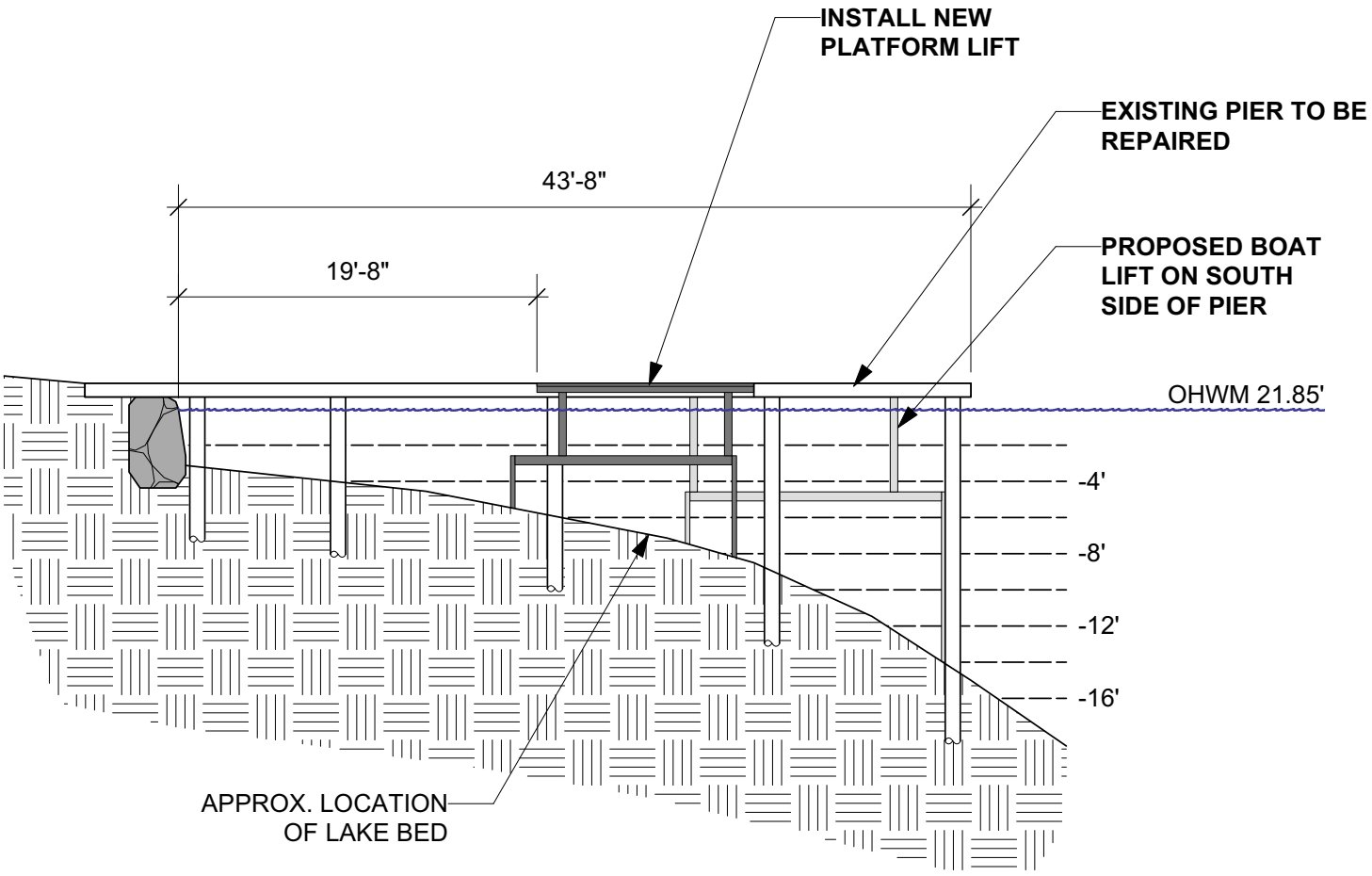
SCALE 1" = 10'-0"

N

0' 10' 20'

Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA



ELEVATION

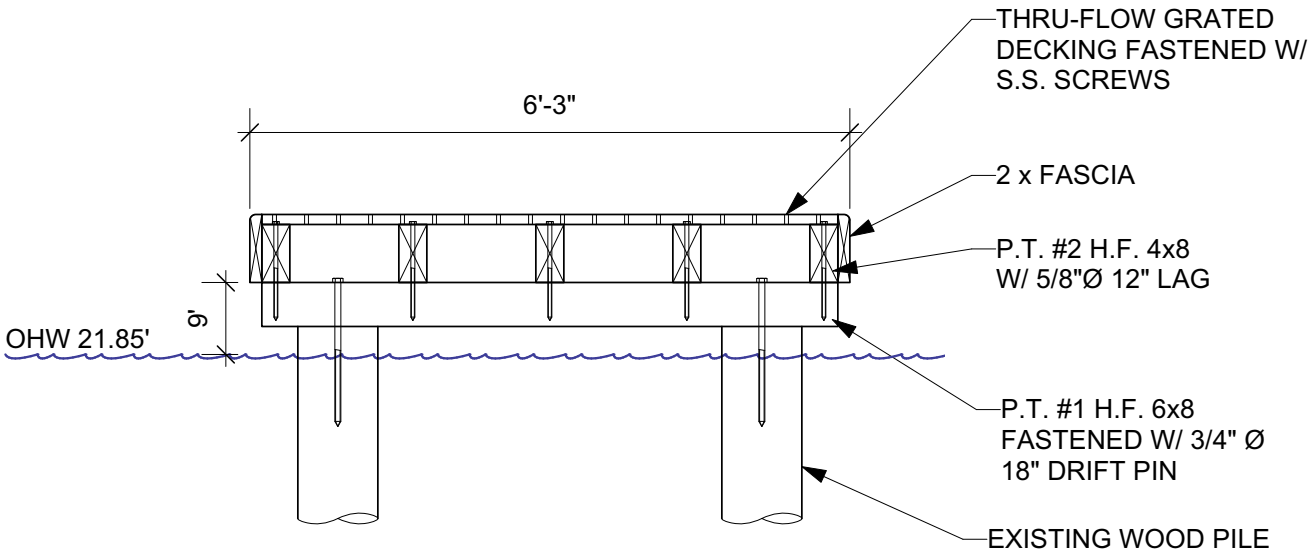
SCALE 1" = 10'-0"

0' 10' 20'

Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA

 Date: 5/16/2024



PIER WALKWAY SECTION A (PROPOSED)

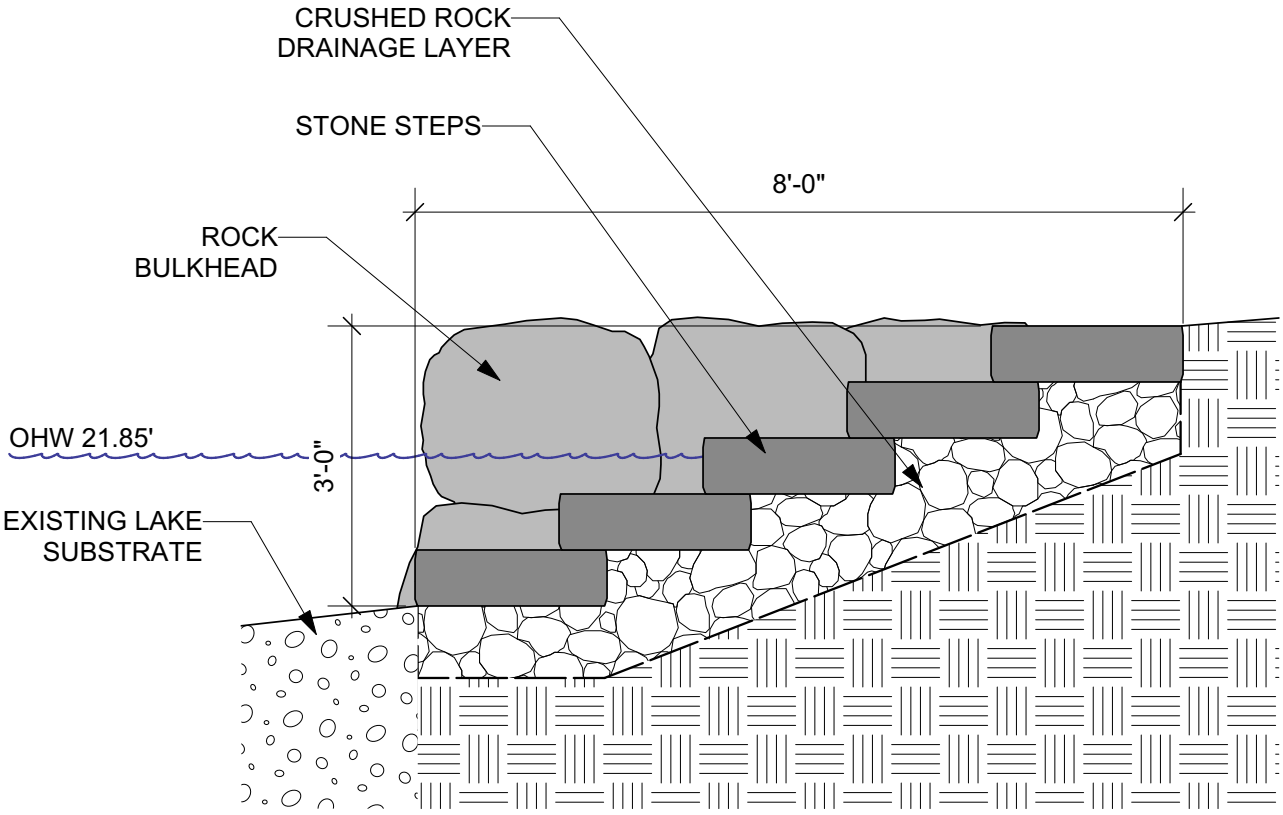
SCALE 1/2" = 1'-0"

0' 2' 4'

Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA

 Date: 5/16/2024



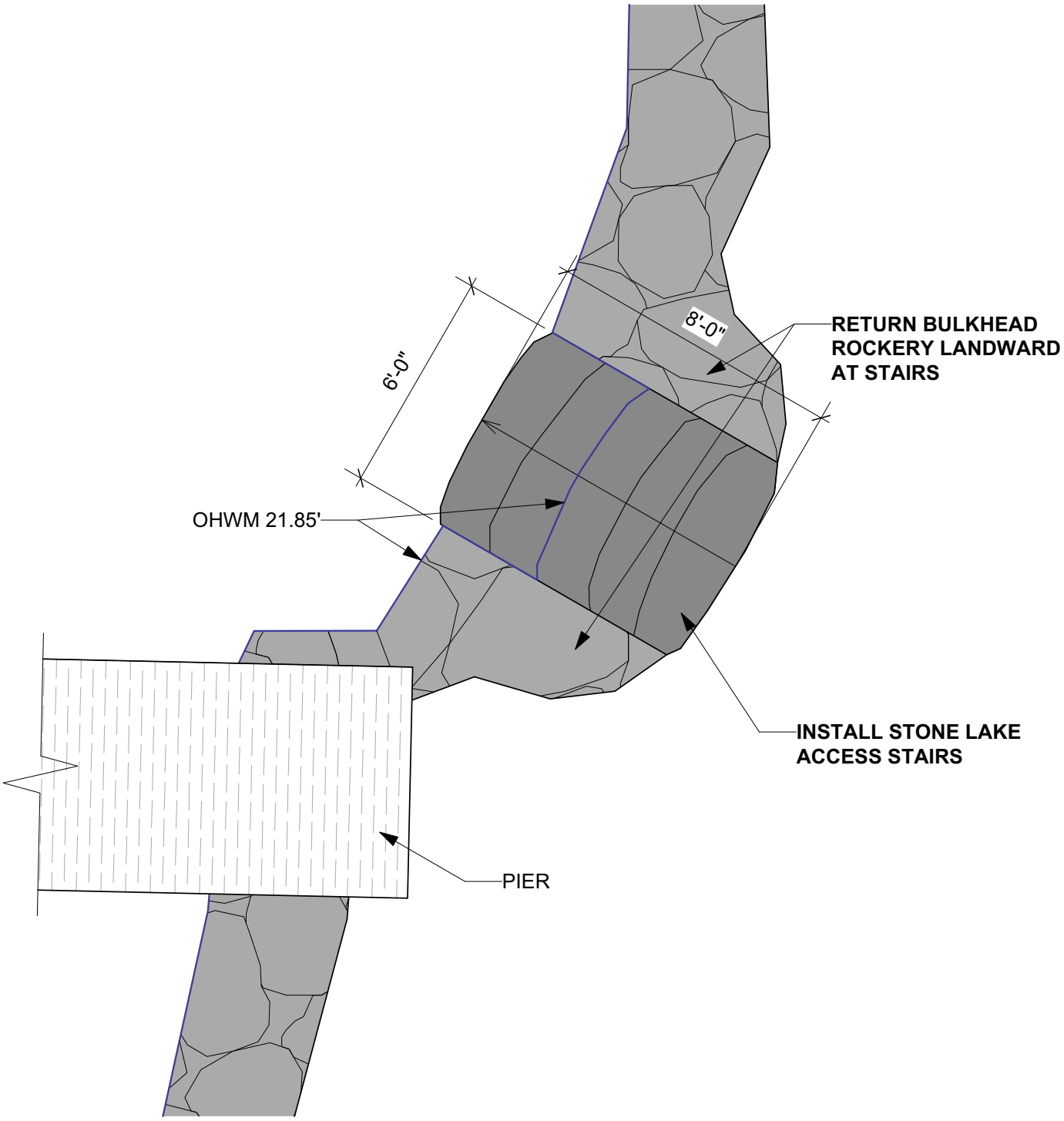
ROCK BULKHEAD SECTION

SCALE 1/2" = 1'-0"

0' 2' 4'

Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA



STAIR PLAN

SCALE 1/4" = 1'-0"

N

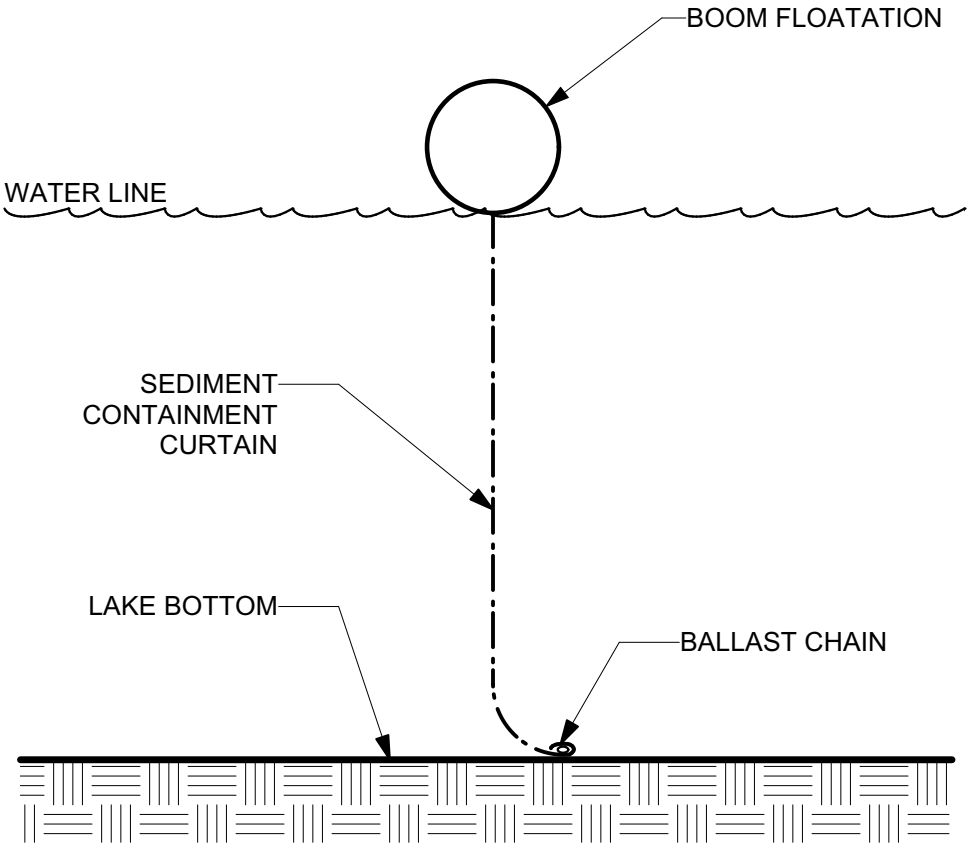
0' 4' 8'

Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA

Best Management Practicies

1. In water work shall be restricted to work windows established by Washington Department of Fish and Wildlife and US Army Corps of Engineers.
2. No stockpiling or staging of material will occur below OHW.
3. No solvents or other chemicals will be used in or over the water during the construction or operation of the proposed action.
4. No waste material, including material associated with treated wood decks, will enter the waterbody.
5. All waste material and construction debris will be collected and disposed of at an approved facility that is in compliance with the Endangered Species Act.
6. All floating debris generated during construction will be retrieved, removed, and disposed of at an approved upland location.
7. All equipment that will operate over water or below OHWM or MHHW will be cleaned of accumulated grease, oil, or mud. All leaks will be repaired prior to arriving on site. Equipment will be inspected daily for leaks, accumulations of grease, etc., and any identified problems will be fixed before operating over water or below the OHWM or MHHW.
8. Two oil absorbing floating booms, appropriate for the size of the work area, will be available onsite whenever heavy equipment operates within 150 feet of open water and there is a potential for hazardous materials to enter surface waters. The booms will be stored in a location that facilitates immediate deployment in the event of a spill.
9. Work done by barge will be done with a crane and a guide on the end of the barge for placement of the piling in specific locations. The working barge will be kept in place with steel spuds or large steel piles that act as anchors at each corner of the barge to prevent the barge from grounding out. The barge will not ground or rest on the substrate or be over or within 25 feet of vegetated shallows (except where such vegetation is limited to State-designated noxious weeds).
10. Fueling and servicing of equipment will be confined to an established staging area that is at least 150 feet from open water or wetlands. Spill containment systems must be adequate to contain all fuel leaks.
11. Equipment and vehicles will be stored in established staging areas when not in use (excluding cranes, which cannot be easily moved).
12. A written spill prevention, control, and countermeasures plan will be prepared for activities that include the use of heavy equipment. The plan will describe measures to prevent or reduce impacts from accidental leaks or spills, and will contain a description of all hazardous materials that will be used, proper storage and handling, and monitoring methods. A spill kit will be available onsite during construction and stored in a location that facilitates immediate deployment if needed.
13. Treated wood and other material shall be the least toxic according to industry standards. Treated wood used shall be applied and used in accordance with the American Wood Preserver Association (AWPA) standards for aquatic use. Wood treated with pentachlorophenol, creosote, chromate copper arsenate (CCA), or comparably toxic compounds is prohibited for decking or piling.
14. A floating boom with sediment curtain will be put in place around the area of work for the stair installation to contain turbidity. The boom and curtain will be kept in working order until construction of the stairs is complete.



CONTAINMENT BOOM W/ SEDIMENT CURTAIN DETAIL

NO SCALE

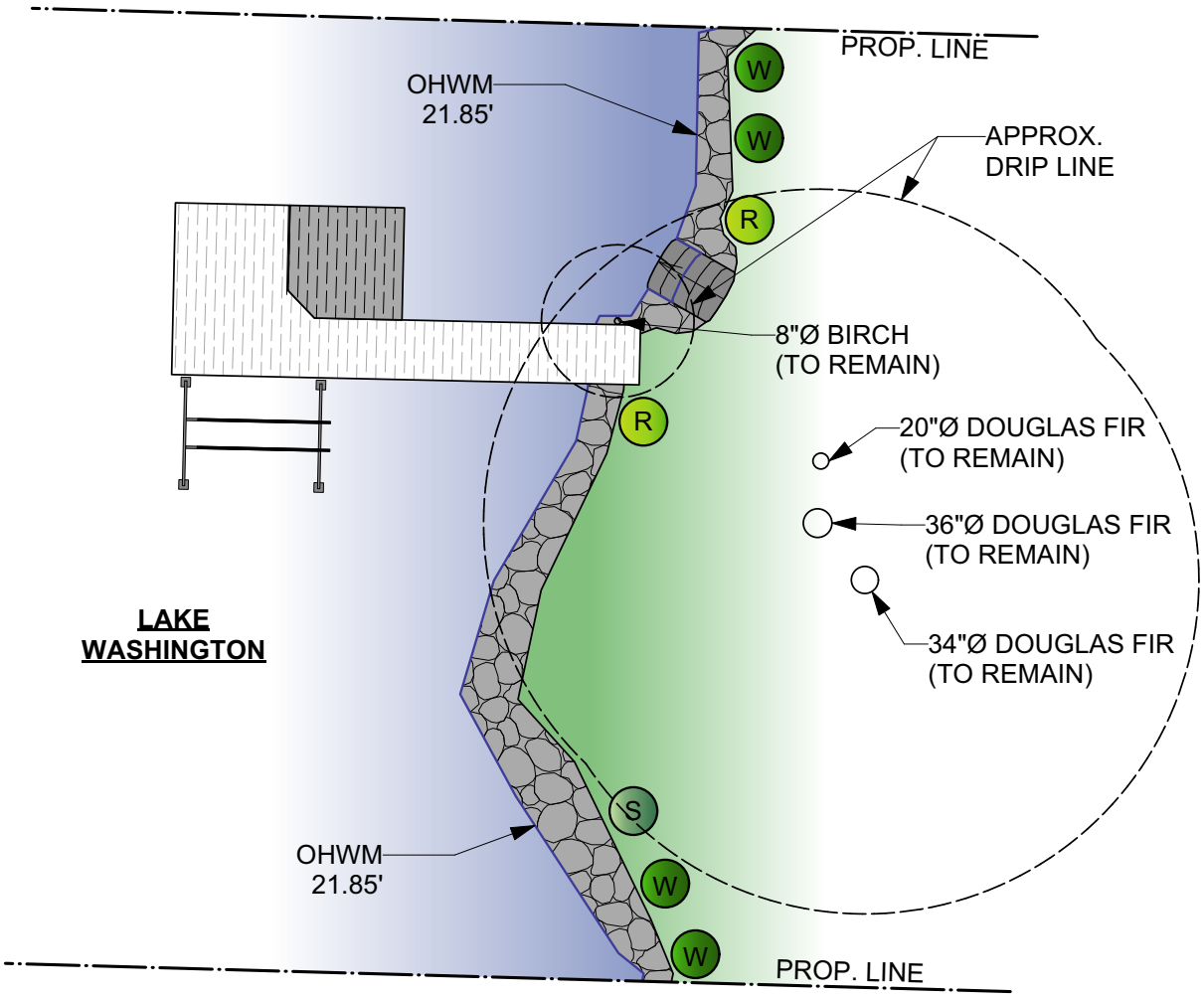
Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA

PLANTING LEGEND

- W — SCOULER WILLOW (4 TOTAL)
- R — RED-FLOWERING CURRANT (2 TOTAL)
- S — SNOWBERRY (1 TOTAL)

NOTE: SHRUBS TO BE PLANTED AT 5' ON CENTER MINIMUM.



PLANTING PLAN

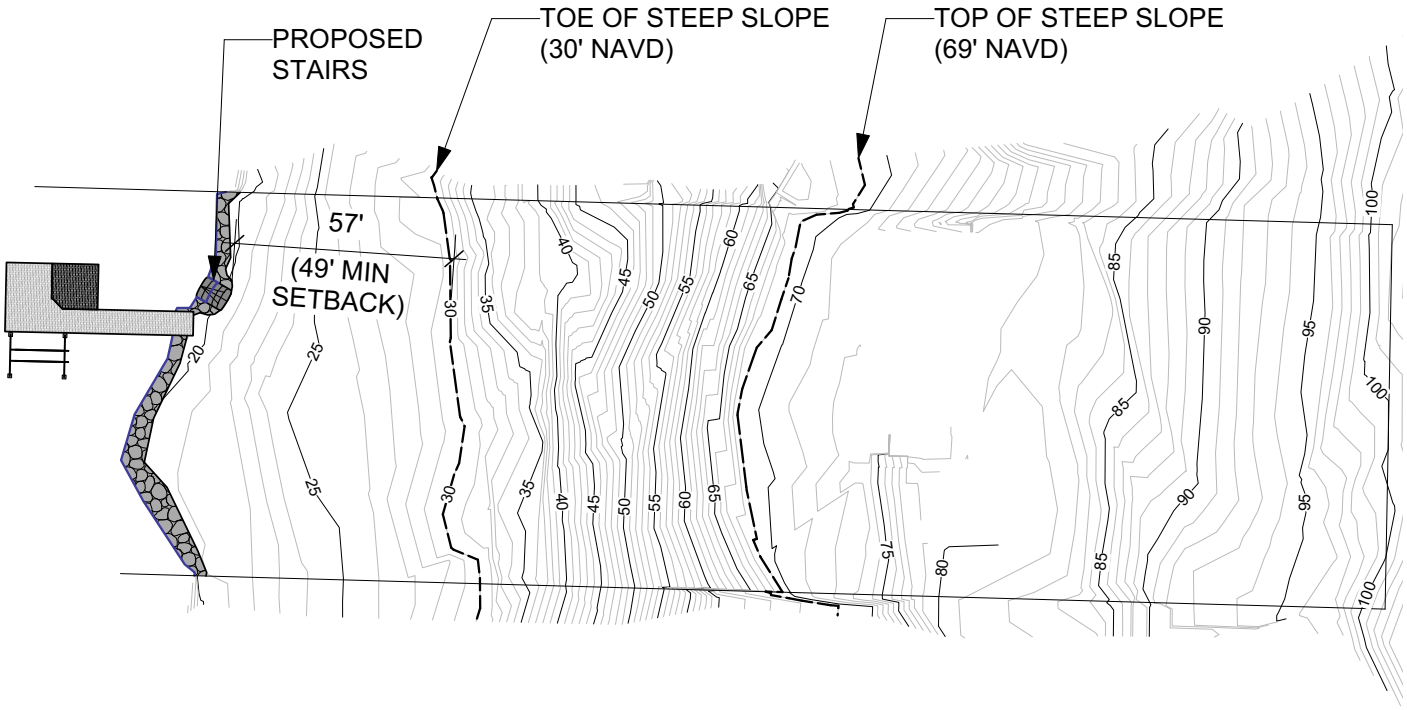
SCALE 1" = 20'-0"

N

0' 20' 40'

Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA



STEEP SLOPE SETBACK DIAGRAM

SCALE 1" = 50'-0"

Reference:
Applicant: James Routos

Proposed: Pier Repair, Lifts, & Stairs
Location: Mercer Island, WA

Sheet 14 **of** 14 **Date**: 5/16/2024

Appendix B:
Site Photographs

Photo 1 - Existing conditions looking waterward.

Photo 2 - Existing conditions looking landward.

Photo 3 - Existing shoreline looking north.

Photo 4 - Existing shoreline looking south.

Photo 5 - Existing conditions north of the project.

Photo 6 - Existing conditions south of the site.