

Ecological No Net Loss Assessment Report

Prepared for

**Eckhard Evers Residence
4456 Ferncroft Road
Mercer Island, WA 98040**

Prepared by



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

July 2022

Purpose

The purpose of this report is to fulfill the requirements of City of Mercer Island Municipal Code (MICC) 19.07.110 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 repair and reconfiguration and removal of existing boat lifts.

Location

The subject property is located at 4456 Ferncroft Road (King County parcel number 8106100105) in the City of Mercer Island, Washington (see Appendix A – Sheet A1.0). 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 work on the dock will include repairing and reconfiguring the existing dock and pile repair. The existing dock will be removed and reconstructed. The work will include narrowing the dock within the first 30 feet from 6 feet wide to 4 feet wide. The finger pier and ell will be removed on the north side of the dock and the two existing boat lifts removed. A new finger pier and access pier will be constructed on the south side of the dock. The existing moorage cover and shed will remain and one of the existing lifts. Thirty-seven of the existing timber piles will be replaced with 20 new 8-inch steel piles and 2 4-inch pin piles. Two approximately 12-inch timber mooring piles will be removed and replaced with two 10-inch steel mooring piles.

The reconfiguration in the first 30 feet of the shoreline will include removal of existing concrete stairs and concrete groin as mitigation. The existing wood decking will be replaced with thruflow grated decking on existing and new decked areas. Project drawings are included in Attachment A.

During construction, a floating boom will surround the work barge and dock. (See Appendix A – Sheets A6.0)

A shoreline vegetation plan is proposed, that will add two native conifer trees and 3 native deciduous shrubs. These shoreline plantings will provide shade and allow allochthonous material to enter the lake along the shoreline and improve shoreline conditions (see Appendix A – Planting Plan).

Approach

Northwest Environmental Consulting LLC (NWEC) biologist Brad Thiele conducted a site visit on June 3, 2022 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 northern boundary with single-family homes to the north and south along the shoreline and waterward of the parcel.

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

The shoreline is landscaped with lawn to ornamental beds along the landward side of the bulkhead. Vegetation includes azaleas, boxwoods, hydrangeas, and groundcovers. The bulkhead is concrete and has steps down to the beach. The substrates are sand and gravel along the shore shifting with cobble mixing in about 20 feet from shore. Milfoil is present about 75 feet from the shore.

The neighboring properties are similar in shoreline conditions and have docks. See attached 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 lake'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 mapped as a sockeye salmon spawning location.

Priority Habitats and Species mapping does not list any priority species or habitats within 1,000 feet of the project other than Lake Washington as mentioned above.

The Mercer Island GIS does not show any environmental layers at the location.

Project Impacts and Conservation Measurements

Direct Impacts:

Sediments: Sediment disturbance will occur below the OHWM and along the shoreline of Lake Washington during pile installation, removal and removal of boat lifts. Additionally, the tug and

barge propwash may disturb sediments temporarily when making trips to/from the site.

Impacts to sediments should be minimal from installation of the pilings and lifts and are expected to stay within State Water Quality Standards.

Removal of the concrete groin and steps has the potential to create a sediment plume. A floating silt fence will surround the work area and prevent and suspended solids from leaving the area.

Shoreline: Planting additional native vegetation, especially a native cedar tree and native willow trees, 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 A – Planting Plan).

Lakebed: Installation of 20 new 8-inch diameter piles and 2 10-inch steel mooring piles will displace 8.1 square feet of lake bed. The removal of 37 12-inch timber piles and 2 12-inch timber piles will restore 31.6 square feet of lakebed resulting restoration of 22.5 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.

Potential spills: Short-term risks include the potential for petroleum spills that can occur with any equipment operation. The level of impact to the aquatic environment is expected to be reduced because a crew competent using spill containment measures will be on site and employ these measures should a spill occur.

Indirect Impacts:

Shading: The proposed decking will be ThruFlow grated decking. Grated decking allows more light to penetrate the waters below a 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.

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.

The existing 1,383 square-foot wood deck will be replaced with ThruFlow grated decking. The dock will also be narrowed within the first 30 feet of the shoreline reducing the main dock by 49.4 square feet. The existing 311 square-foot finger pier and ell on the north side of the dock will be removed and a new 300-foot finger/access pier will be constructed on the south side of the dock removing an additional 11 square feet of overwater coverage resulting in 60.4 square feet of overwater coverage. Using ThruFlow decking will reduce the effective overwater coverage at the site by 763 square feet.

In addition, reducing the overwater coverage within the first 30 feet of shoreline may reduce salmon outmigration times. Juvenile salmon follow the shoreline and overwater coverage may cause them to hesitate before passing under the structure.

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 April 30). 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. A silt curtain will be installed around the shoreline during removal of existing concrete to prevent turbidity from leaving the work area.

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.

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 project will improve shoreline conditions by removing approximately 115 (SF) of concrete from the shoreline. The concrete groin modifies beach flows and acts as a barrier to juvenile fish migration. The reconfiguration of the dock will result in a decrease in overwater coverage by 60 square feet, in addition narrowing the dock within 30 feet of shore may reduce the occurrence of

juvenile salmonid from hesitating to pass under the dock increasing outmigration times. The new dock surface will be grated with Thru-flow decking resulting in a decrease of 763 square feet of effective overwater coverage. The project will also result in net decrease of 17 pilings and restore 22.5 square feet of lakebed. The grating reduces the hard shadows favored by salmonid predators and increases productivity under the pier. Two boat lifts will be removed from the site.

A shoreline planting plan will be implemented and will add 2 native trees and 3 shrubs to the shoreline that will provide 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 to offset temporary construction impacts.

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.

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.**

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

King County. 2022. King County iMap. Online database. Accessed June 2022 at <https://gismaps.kingcounty.gov/iMap/>

Washington Department of Fish and Wildlife (WDFW). 2022. Priority Habitats and Species. Online database. Accessed April 2021 at <http://apps.wdfw.wa.gov/phsontheweb/>

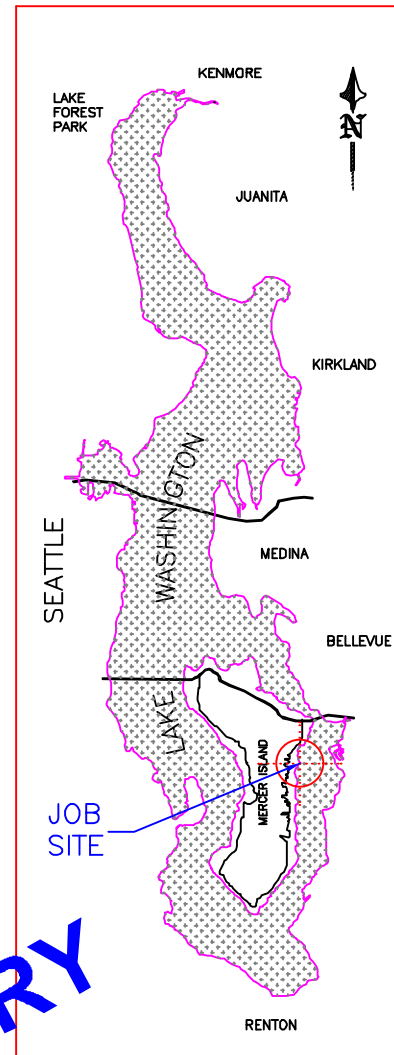
WDFW. 2022. SalmonScape. Online database. Accessed June 2022 at <http://apps.wdfw.wa.gov/salmonscape/>

Appendix A: Project Drawings

VICINITY MAP/NO SCALE



AREA MAP/NO SCALE



LEGAL DESCRIPTION

SECTION: SE-18-24-05 LAT: 47.565560 (47° 33' 56.016" N)
 TAXLOT #: 004610-0453 LONG: -122.208440 (122° 12' 30.384" W)

ADAMS LAKE WASHINGTON TRS POR OF N 22.12 FT OF 6 & OF S 17.88 FT OF 5 E OF LN RNNG N 00 DEG 43 MIN 30 SEC W FR PT ON S LN SD POR OF 6 314.41 FT E OF C/L OF PRIVATE RD & SH LDS ADJ & POR OF S 20 FT OF N 42.12 FT OF 6 E OF LN RNNG S 00 DEG 43 MIN 30 SEC E FR PT ON N LN SD S 20 FT 285.41 FT E OF C/L OF PRIVATE RD SH LDS ADJ

PRELIMINARY

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ADJACENT OWNERS:

- ① ERIKA ONEIL
4452 FERNCROFT ROAD
MERCER ISLAND, WA 98040
- ② LAWRENCE HILE
4508 FERNCROFT ROAD
MERCER ISLAND, WA 98040

APPLICATION#:

PROPOSED: PIER REPAIR

PURPOSE: RESTORE STRUCTURAL INTEGRITY

DATUM: C.O.E. MLLW=0.0'

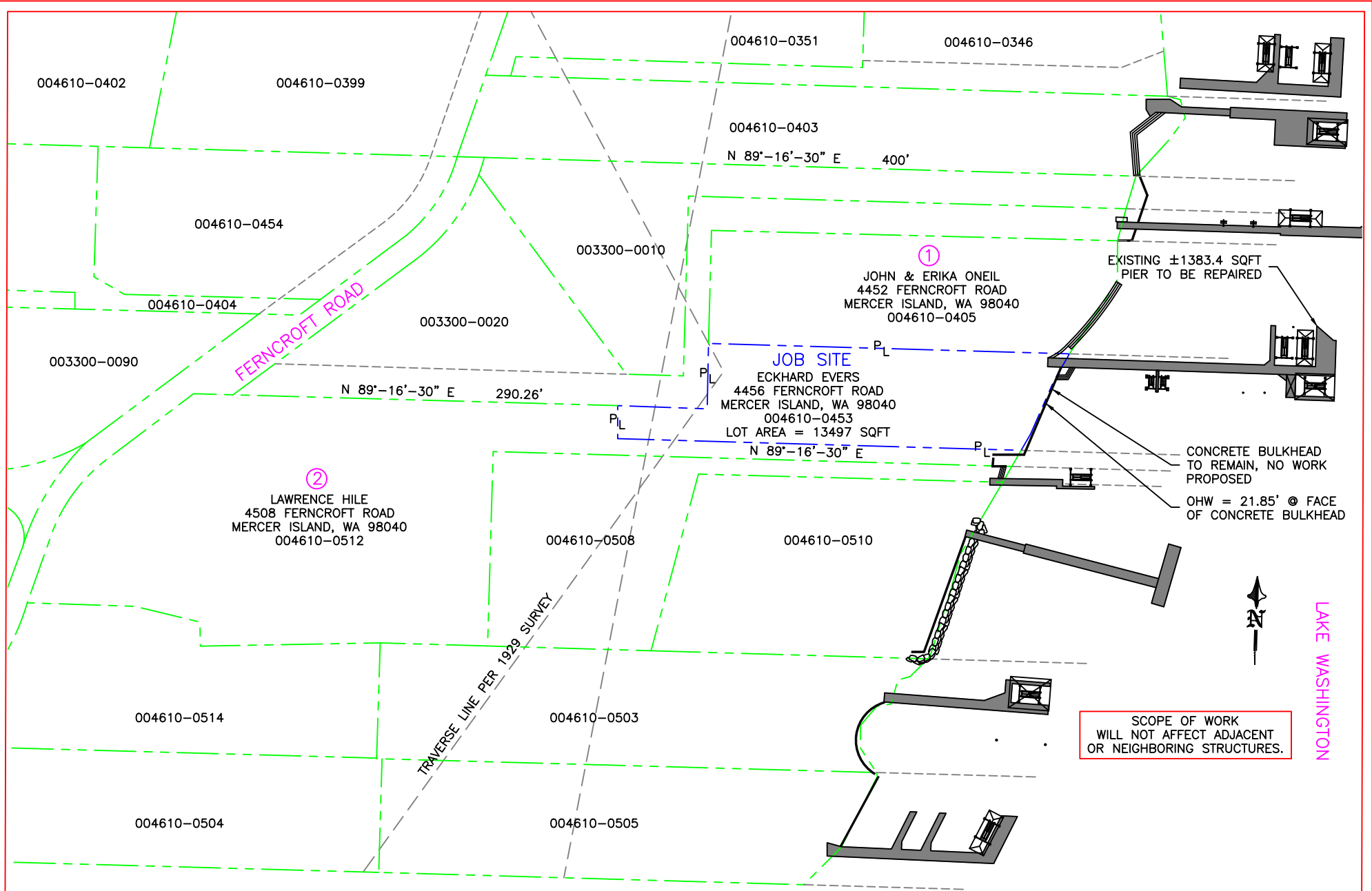
DWG#: 21-32061-A1-1

APPLICANT: ECKHARD EVERS

SITE ADD. 4456 FERNCROFT ROAD
MERCER ISLAND, WA 98040

MAIL ADD. (SAME AS ABOVE)

PAGE: 1 OF: 10 DATE: 04/26/2022



FERNCROFT ROAD

②
LAWRENCE HILE
4508 FERNCROFT ROAD
MERCER ISLAND, WA 98040
004610-0512

①
JOHN & ERIKA ONEIL
4452 FERNCROFT ROAD
MERCER ISLAND, WA 98040
004610-0405

JOB SITE
ECKHARD EVERS
4456 FERNCROFT ROAD
MERCER ISLAND, WA 98040
004610-0453
LOT AREA = 13497 SQFT

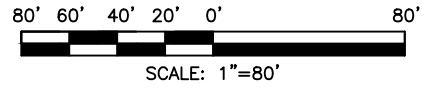
EXISTING ±1383.4 SQFT
PIER TO BE REPAIRED

CONCRETE BULKHEAD
TO REMAIN, NO WORK
PROPOSED
OHW = 21.85' @ FACE OF
CONCRETE BULKHEAD

SCOPE OF WORK
WILL NOT AFFECT ADJACENT
OR NEIGHBORING STRUCTURES.

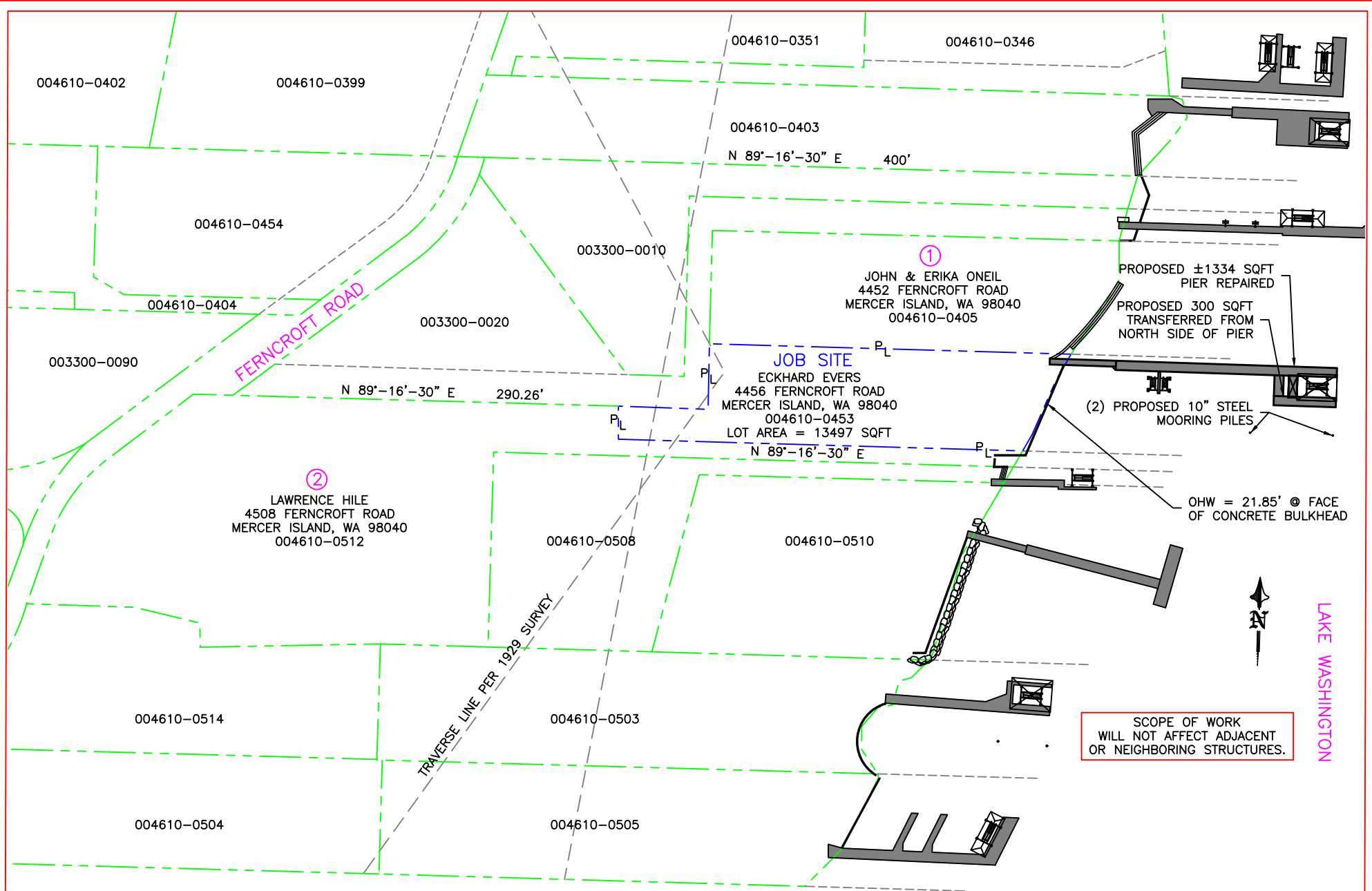
LAKE WASHINGTON

EXISTING SITE PLAN

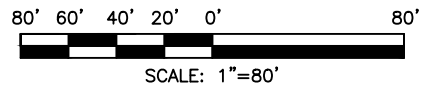


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PROPOSED: PIER REPAIR	
SHEET: 2	OF: 10
DATE: 04/26/2022	NEAR/AT: MERCER ISLAND
	DWG# 21-32061-A1-2



PROPOSED SITE PLAN

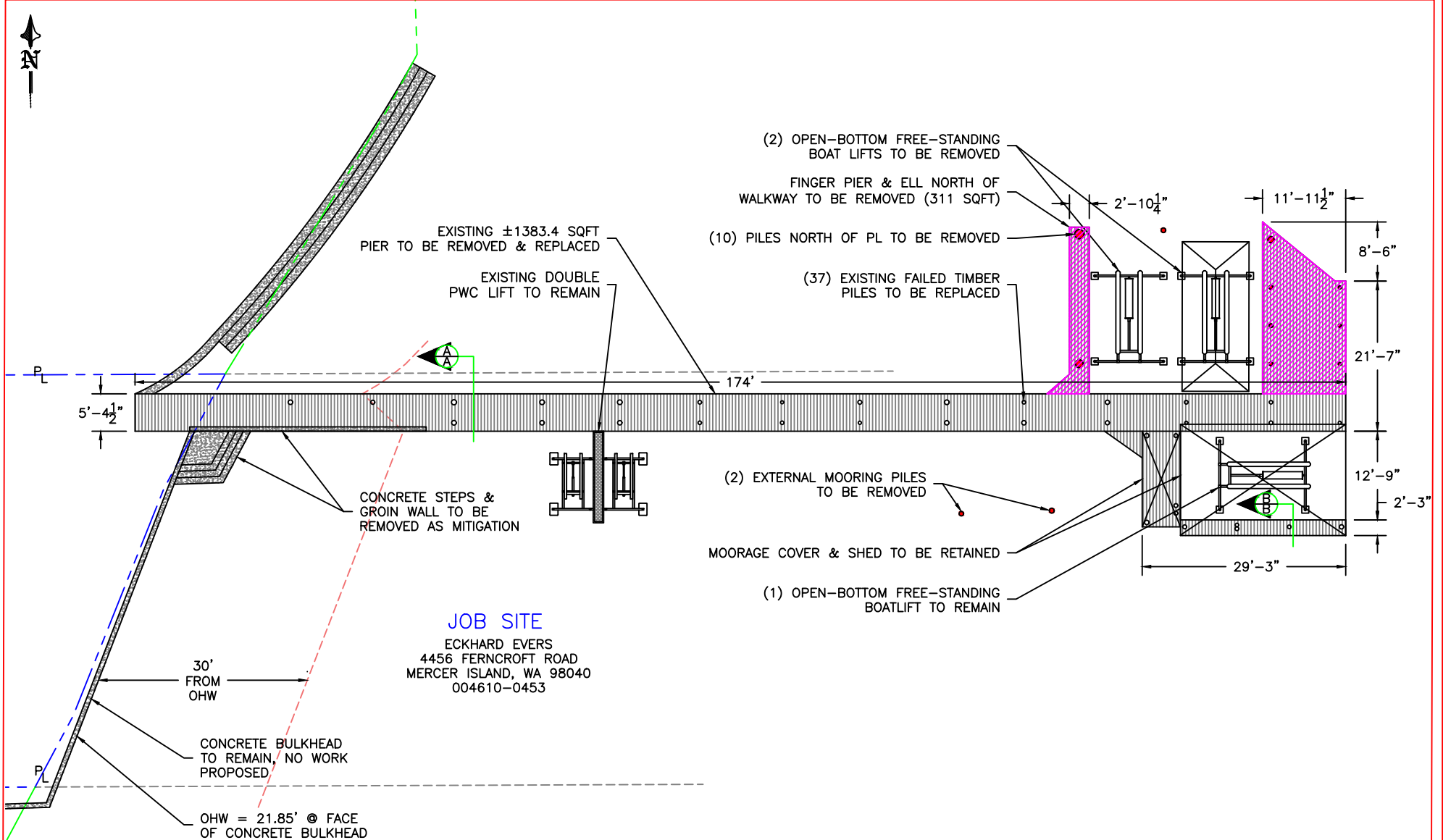


SCOPE OF WORK
WILL NOT AFFECT ADJACENT
OR NEIGHBORING STRUCTURES.

LAKE WASHINGTON

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PROPOSED:	PIER REPAIR
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NEAR/AT:	MERCER ISLAND
DATE:	04/26/2022
DWG#:	21-32061-A1-3



EXISTING ±1383.4 SQFT
PIER TO BE REMOVED & REPLACED

EXISTING DOUBLE
PWC LIFT TO REMAIN

(2) OPEN-BOTTOM FREE-STANDING
BOAT LIFTS TO BE REMOVED

FINGER PIER & ELL NORTH OF
WALKWAY TO BE REMOVED (311 SQFT)

(10) PILES NORTH OF PL TO BE REMOVED

(37) EXISTING FAILED TIMBER
PILES TO BE REPLACED

CONCRETE STEPS &
GROIN WALL TO BE
REMOVED AS MITIGATION

(2) EXTERNAL MOORING PILES
TO BE REMOVED

MOORAGE COVER & SHED TO BE RETAINED

(1) OPEN-BOTTOM FREE-STANDING
BOATLIFT TO REMAIN

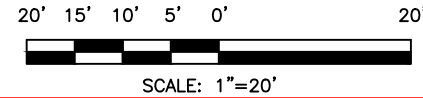
JOB SITE
ECKHARD EVERS
4456 FERNCROFT ROAD
MERCER ISLAND, WA 98040
004610-0453

30'
FROM
OHW

CONCRETE BULKHEAD
TO REMAIN, NO WORK
PROPOSED

OHW = 21.85' @ FACE
OF CONCRETE BULKHEAD

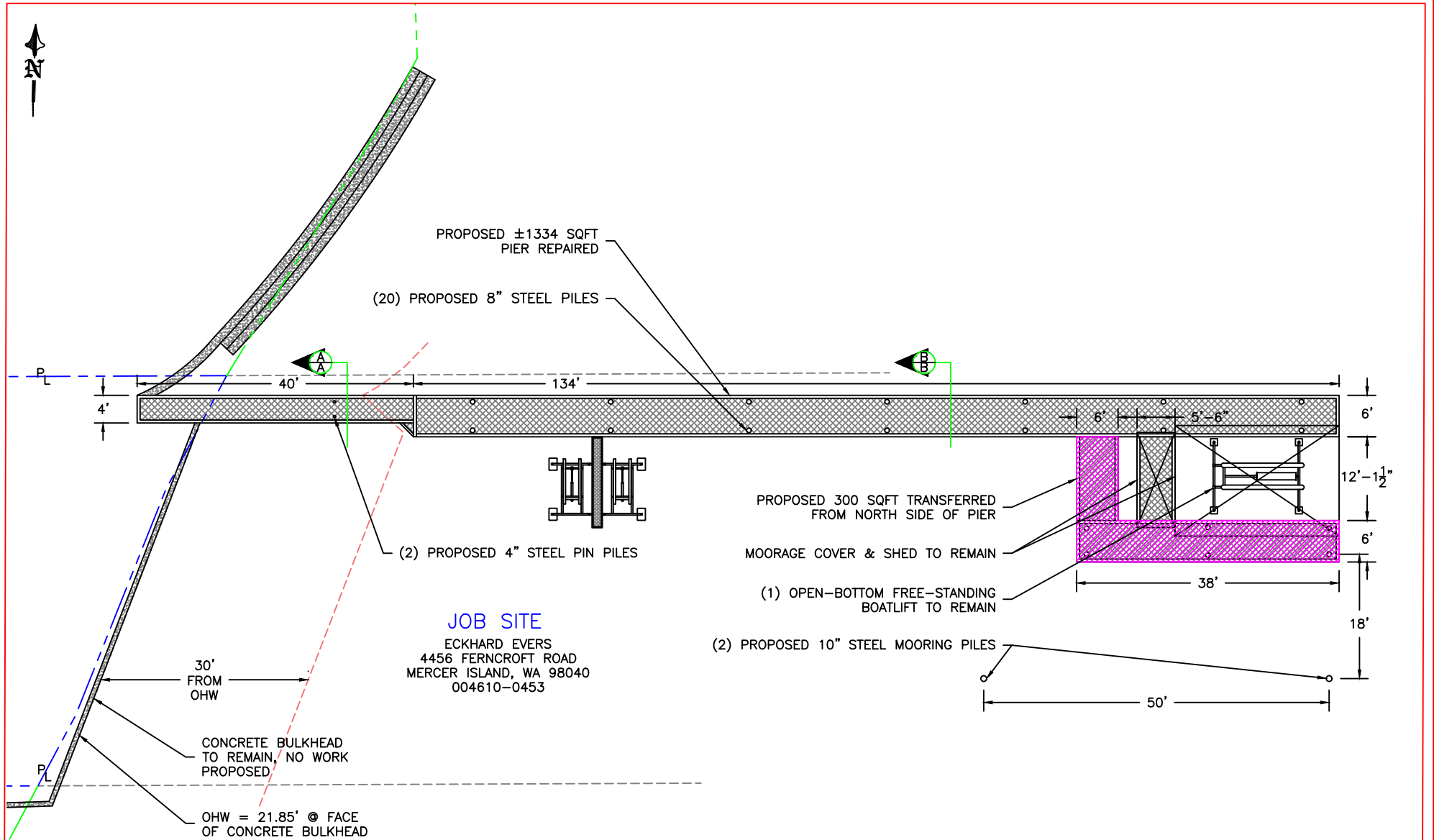
EXISTING SITE PLAN DETAIL



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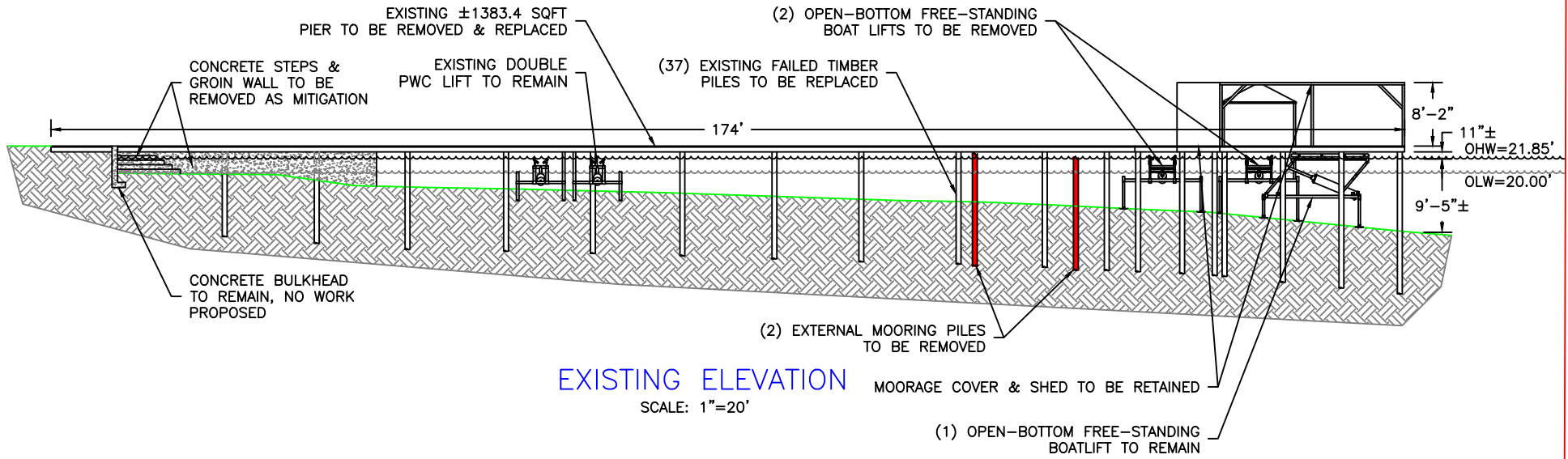
JOB SITE
 ECKHARD EVERS
 4456 FERNCROFT ROAD
 MERCER ISLAND, WA 98040
 004610-0453

PROPOSED SITE PLAN DETAIL



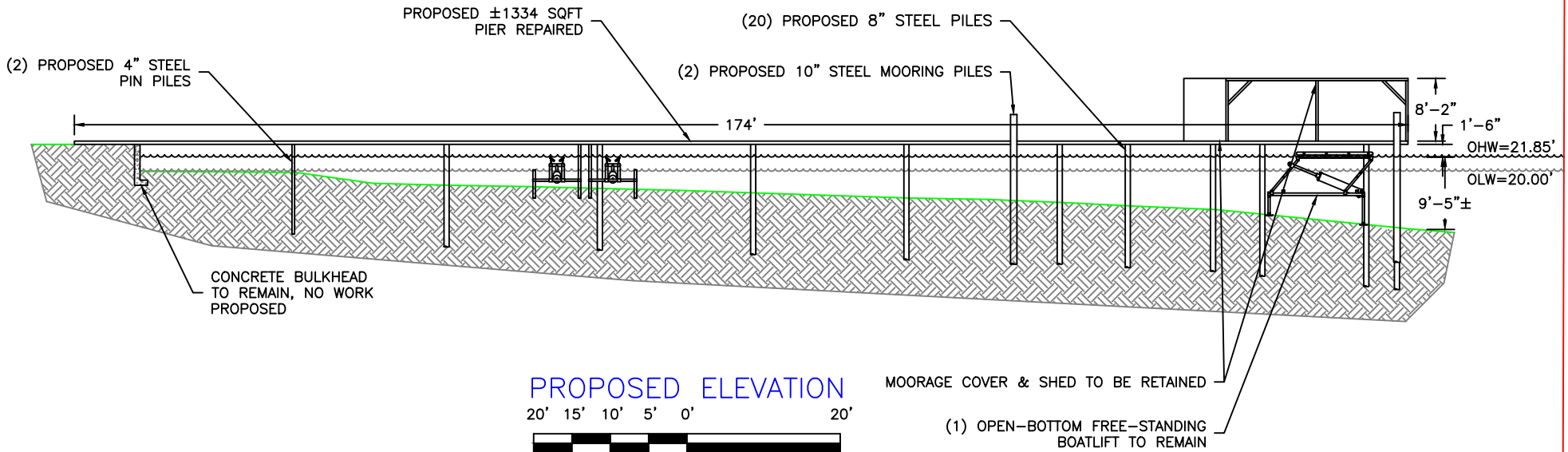
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NEAR/AT: MERCER ISLAND	
DATE: 04/26/2022	DWG#: 21-32061-A1-5



EXISTING ELEVATION

SCALE: 1"=20'



PROPOSED ELEVATION

20' 15' 10' 5' 0' 20'



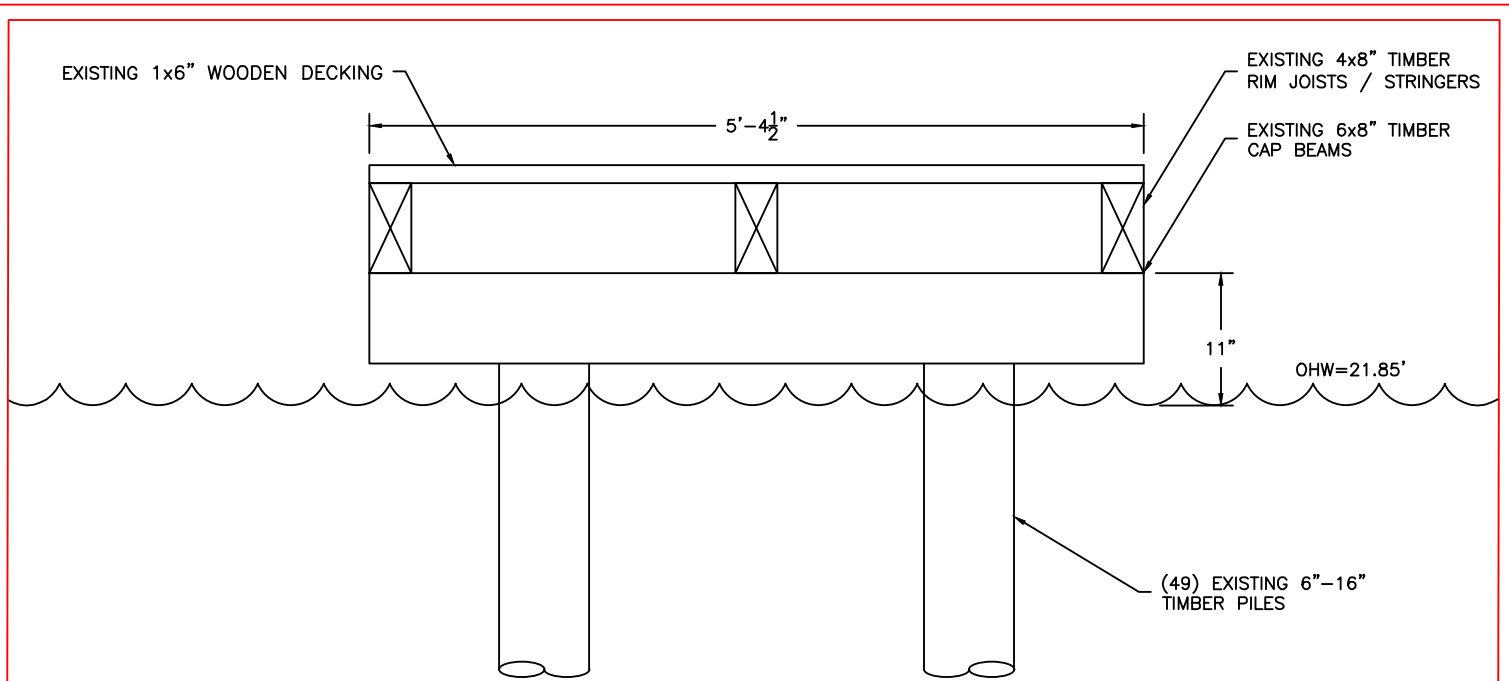
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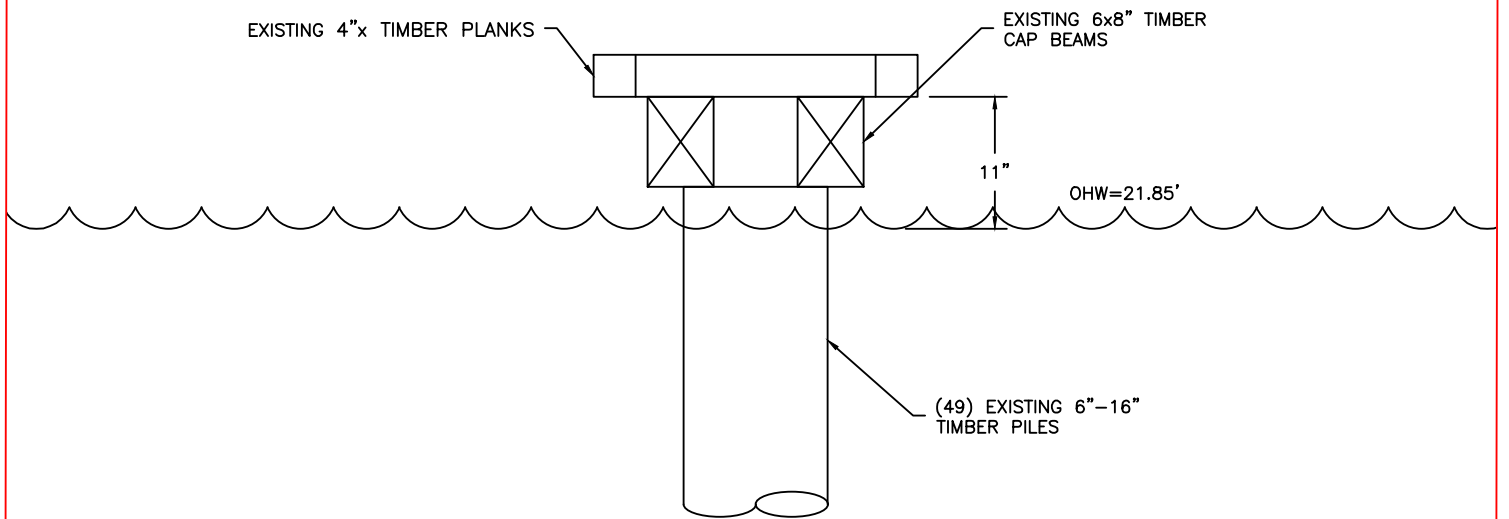
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DATE: 04/26/2022	DWG#: 21-32061-A1-6	



EXISTING SECTION A-A
SCALE: 3/4"=1'



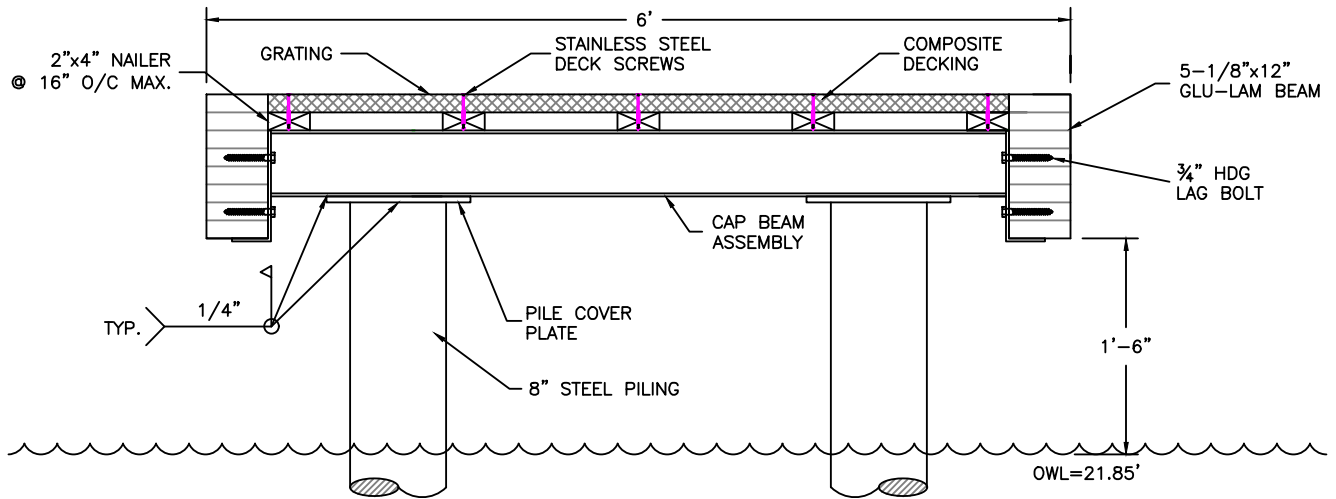
EXISTING SECTION B-B
 12" 6" 3" 0' 1'
 SCALE: 3/4"=1'

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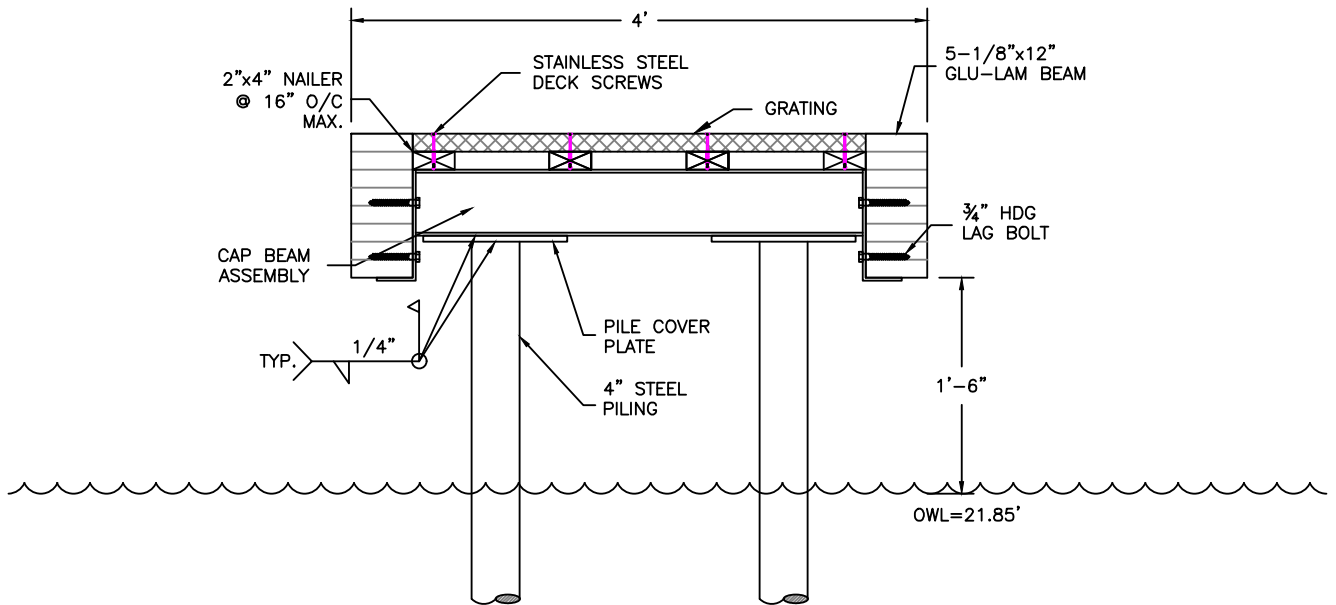
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DATE: 04/26/2022	DWG#: 21-32061-A1-7	

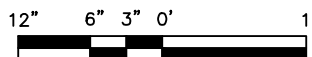


PROPOSED SECTION A-A

SCALE: 3/4"=1'



PROPOSED SECTION B-B



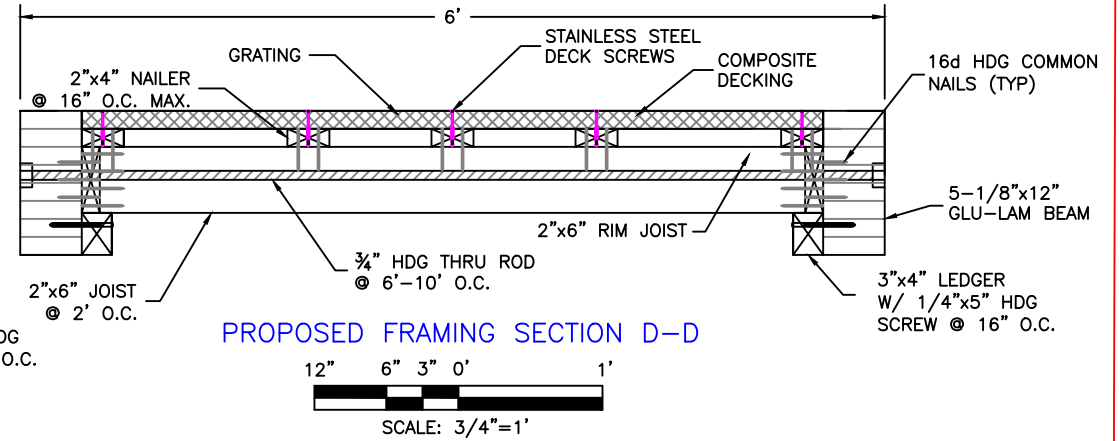
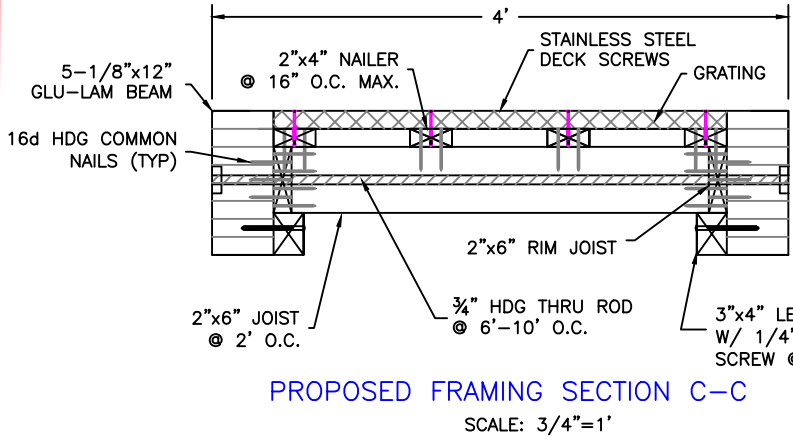
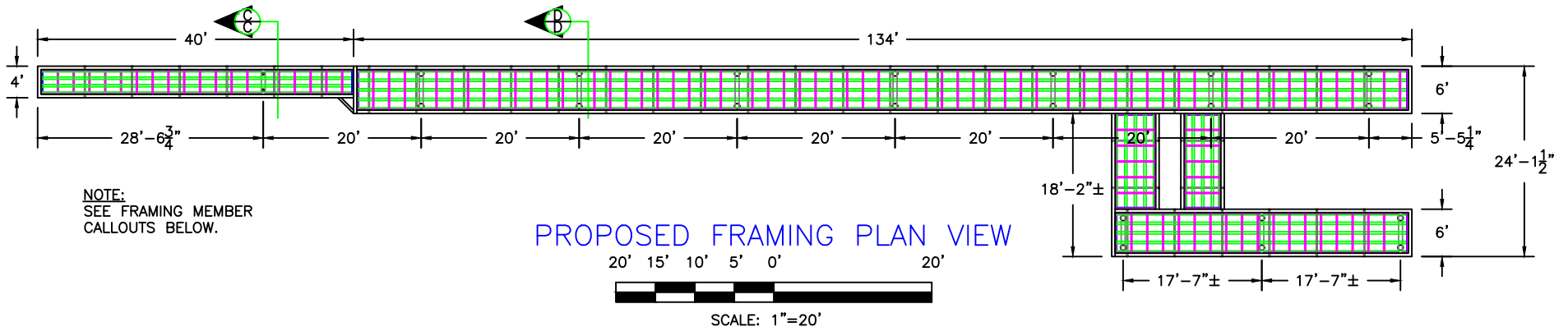
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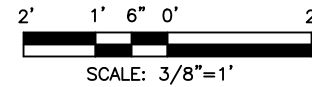
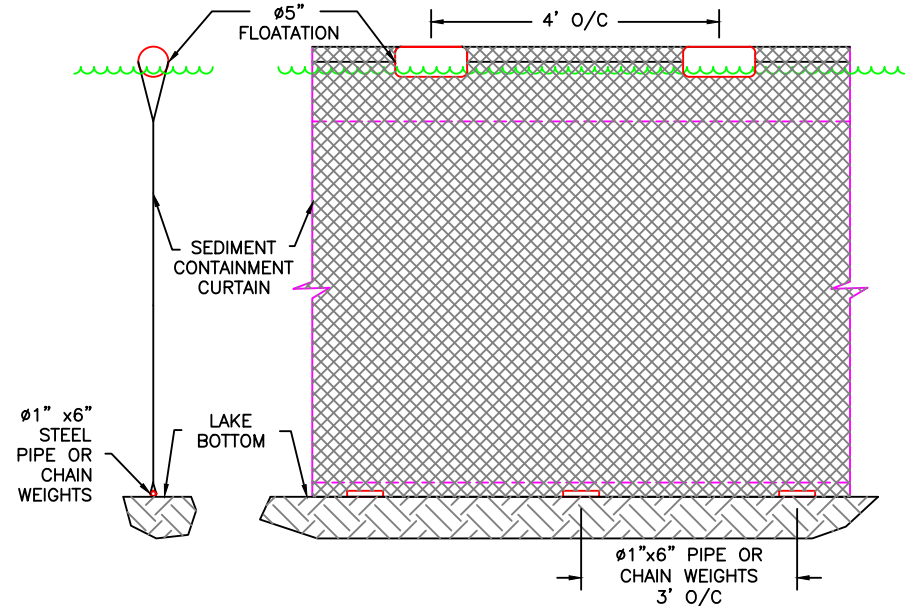
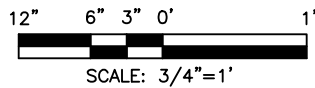
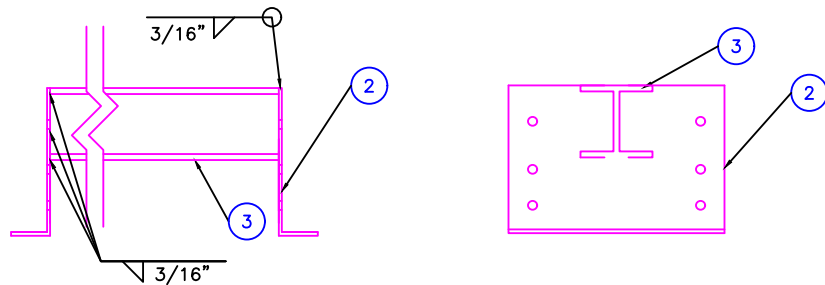
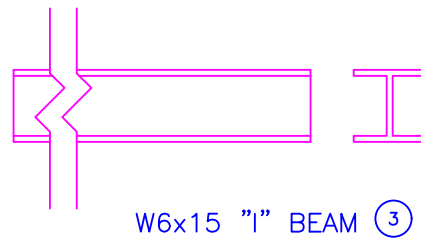
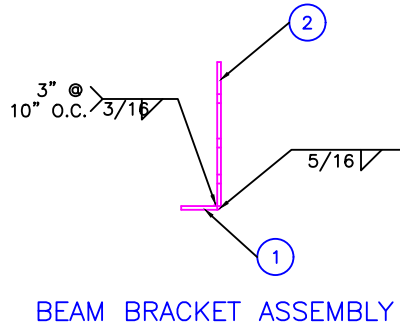
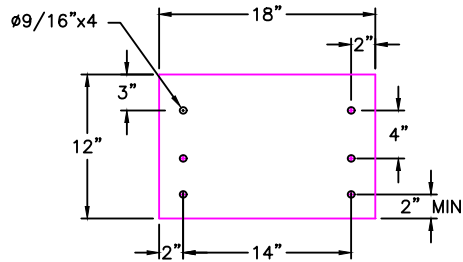
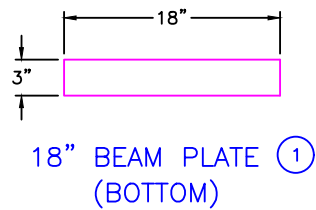
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SHEET: 9	OF: 10
NEAR/AT: MERCER ISLAND	
DATE: 04/26/2022	DWG#: 21-32061-A1-9



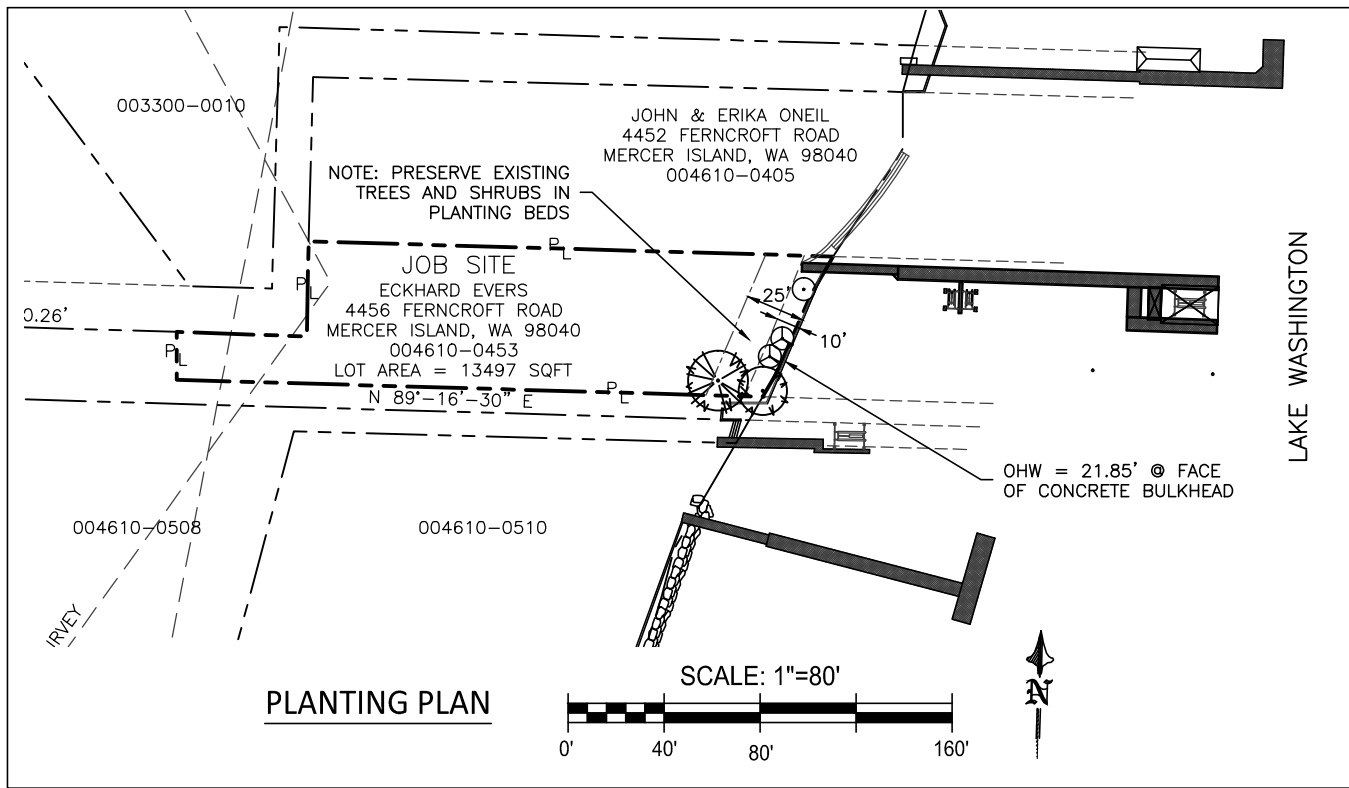
MATERIAL LIST

PART	SPECS	TREATMENT
NAILERS	2"x4" DF #2 OR BTR	ACZA
LEDGERS	3"x4" DF #2 OR BTR	ACZA
GRATING	MOLDED PLASTIC	NONE
HARDWARE	STEEL	STAINLESS OR HDG.
PILING	X-STRONG 4", 8" & 10"	EPOXY-COATED
CAPS	W6x15 "1" BEAM	GALVANIZED
GLU-LAMS	5 1/8"x12" DF	ACZA
JOIST	2"x6" DF #2 OR BTR	ACZA
RIM JOIST	2"x6" DF #2 OR BTR	ACZA

PART #	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION
3	W6x15 "1" BEAM	6" 15 LB PER FOOT I-BEAM
2	18" BACK BEAM PLATE	18"x18"x5/16" STEEL PLATE
1	18" BOTTOM BEAM PLATE	18"x3"x5/16" STEEL PLATE

PROJECT DESIGNED BY:
Waterfront Construction Inc.
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REFERENCE #:	
APPLICANT:	ECKHARD EVERS
PROPOSED:	PIER REPAIR
SHEET:	10 OF 10
NEAR/AT:	MERCER ISLAND
DATE:	04/26/2022
DWG#:	21-32061-A1-10



LAKE WASHINGTON

PLANTING PLAN

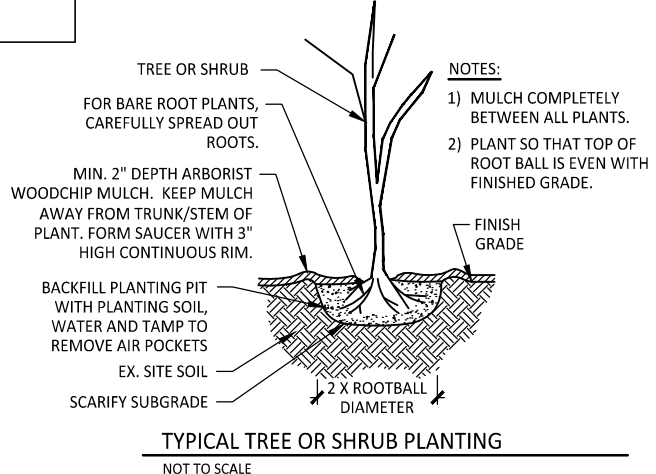
PLANTING NOTES:

1. REMOVE ALL HIMALAYAN BLACKBERRY, JAPANESE KNOTWEED, BAMBOO, AND ENGLISH IVY FROM PLANTING AREA USING KING COUNTY RECOMMENDATIONS. RETAIN AND PROTECT ALL EXISTING NATIVE VEGETATION.
2. PLANT MATERIAL SHALL BE LOCALLY GROWN (PUGET SOUND REGION) AND CONFORM TO THE MOST RECENT ANLA STANDARDS. THE OWNER RESERVES THE RIGHT TO REFUSE ANY AND ALL PLANT MATERIAL THAT DOES NOT MEET STANDARDS.
3. PLANT LOCATIONS ARE SCHEMATIC AND MAY NEED ADJUSTMENT TO MEET ACTUAL FIELD CONDITIONS. WHEN A CONFLICT WITH FIELD CONDITIONS OCCURS CONSULT WITH THE PROJECT BIOLOGIST. MAINTAIN A MINIMUM OF 2 FEET FROM EXISTING SHRUBS, AND 3 FEET FROM EXISTING TREES.

PLANT SCHEDULE						
Symbol	Common Name	Scientific Name	Size	Condition	Qty	
	Douglas Fir	<i>Pseudotsuga menziesii</i>	6'-8' height	Bare root or container	1	
	Shore Pine	<i>Pinus contorta</i>	6'-8' height	Bare root or container	1	
	Red Elderberry	<i>Sambucus racemosa</i>	#2	Container	1	
	Red Flowering Current	<i>Ribes sanguineum</i>	#2	Container	2	
				Total Trees:	2	
				Total Shrubs:	3	
				Total Plants:	5	

PLANTING SEQUENCE:

1. PLANTING AREA SHALL BE PLANTED WITH THE SPECIES INDICATED IN THE PLANTING SCHEDULE. DIG A HOLE FOR EACH PLANT THAT IS TWICE THE SIZE OF THE ROOT BALL OR PLANT CONTAINER. REMOVE LARGE ROCKS AND OTHER DEBRIS INCLUDING ROOTS FROM PIT. SOAK PIT WITH WATER BEFORE PLANTING. BARK MULCH SHOULD NOT BE USED TO BACKFILL THE PLANTING HOLE.
2. PULL BACK MULCH FROM PLANTINGS TO CREATE A MULCH RING AROUND PLANTS.
3. PLANTINGS SHOULD BE WATERED THROUGHOUT THE SUMMER MONTHS IF DROUGHT CONDITIONS OCCUR.
4. TWO 5-GALLON BUCKETS OF ARBORIST CHIPS OR MULCH SHALL BE PLACED AROUND EACH PLANTING.



PROJECT DESIGNED BY:



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SEATTLE, WA 98103
206-634-9193

REFERENCE #:		
APPLICANT: ECKHARD EVERS		
PROPOSED: PIER REPAIR		
SHEET: 11	OF: 11	NEAR/AT: MERCER ISLAND
DATE: 12/19/2022	DWG#: 21-32061-A1-3	

Appendix B: Site Photographs



Photo 1 - Existing dock looking waterward.



Photo 2 - Existing dock looking landward.



Photo 3 - Shoreline conditions north of dock



Photo 4 - Shoreline conditions south of dock. Note concrete stairs to be removed.



Photo 5 - Shoreline conditions south of the site. Note broken mooring piles to be removed.



Photo 6 - Shoreline conditions north of the site.