

Ecological No Net Loss Assessment Report

Prepared for

**Douglas and Deborah Rosen
5995 SE 30th Street
Mercer Island, WA 98040**

Prepared by



**Northwest Environmental Consulting, LLC
3639 Palatine Avenue North
Seattle, WA 98103
206-234-2520**

February 2020

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.”

Location

The subject property is located at 5995 SE 30th Street (King County parcel number 2174500100) in the City of Mercer Island, Washington (see Appendix A – Sheet 1 of 10). 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 landowner is proposing to replace the decking and fascia on the pier, repair timber piles, and replace the moorage cover and support piles on the property’s waterfront. The existing pier is 1,320 square feet in area, with a main walkway, an ell, two finger piers, and a 380-square-foot moorage cover. The walkways are 5 to 12 feet wide. The total overwater coverage is 1,800 square feet. See Appendix A - Sheets 2 and 4 of 10.

During the proposed work, 13 existing piles will be spliced, corbels will be installed to raise the dock from 11 inches to 18 inches above the OHWL, new 4-foot by 8-foot stringers will be installed, the solid wood decking will be replaced with Sunwalk grated decking and the fascia will be replaced. The damaged timber piles used to support the former moorage cover will be replaced and a new translucent polycarbonate roof will be installed. All dock accessories and lifts will be reinstalled.

Approach

Northwest Environmental Consulting LLC (NVEC) biologist Courtney Straight conducted a site visit on November 13, 2019 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

Site Description

The subject property is in a residential neighborhood on the western shoreline of Mercer Island. The parcel is surrounded on all other sides by single-family houses. An aerial drawing of the site is included as Sheet 2 of 10 in Appendix A. Pictures of the site are included in Appendix B.

Existing structures on the property include a single-family residence, a guest house, and the existing pier. As described above, the pier is 1,320 square feet with two boat lifts, a 100-square-foot platform lift, a jet ski lift, a diving board, and a 380-square-foot moorage cover (which has been damaged). The pier is 89 feet long, with 41-foot-long finger piers (Sheet 4 of 10). The pier sits in water up to 13 feet deep (Sheet 4 of 10).

The shoreline on the property is armored with a poured concrete and rock bulkhead (see Photos 2 through 5). One set of stairs with a gravel beach is inset into the bulkhead for water access. The yard is landscaped with planted trees, shrubs, herbaceous species, and a mowed lawn. Plants present are primarily ornamentals. The north end of the property is lined with ornamental grasses, a birch tree and other ornamental trees, Japanese spurge, and English laurel. The south end of the property contains a rhododendron, David viburnum (*Viburnum davidii*), Japanese spurge, birch trees, and an arborvitae hedge. There is an inkberry holly (*Ilex glabra*) mixed with a grape vine which overhangs the water next to the pier.

The adjacent parcel to the north has a rock bulkhead and pier. The parcel to the south has a mix of rock bulkhead and a beach cove with a weeping willow tree with a pier.

Substrates along the shoreline consist of angled rock (up to 15 inches long) within 5 to 10 feet of the bulkhead, and smooth rock, with cobble and sand. No aquatic vegetation was visible within 10 feet of the pier, at the time of the site visit.

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 clarki*), 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. There is a spawning site for sockeye salmon mapped along the shoreline adjacent to the project. 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, but specific critical habitat for these species is not present at the subject parcel.

There are no other priority habitats directly associated with the project site, for aquatic or terrestrial species.

Project Impacts and Conservation Measurements

Direct Impacts:

Sediments: Sediment disturbance will occur below the OHWL and along the shoreline of Lake Washington. Additionally, the tug and barge propwash may disturb sediments temporarily when making trips to/from the site. Some sedimentation may also be caused during pile driving.

Sediments have been shown to be minimally disturbed during pile driving activities. Small salmonids could be temporarily displaced or stressed by increased turbidity. A silt curtain will be placed along the shoreline that contain turbidity plumes to the project site. The silt curtain is expected to effectively contain this turbidity to a small area. The project will meet state water quality standards.

Noise: Construction equipment and pile driving 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.

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 minor because of the small amount of petroleum products available for spillage during typical construction activities, and because of spill containment measures that will be employed should a spill occur.

Pile Splicing. The new pilings and pile splices will be steel per Best Management Practices.

Indirect Impacts:

Shading: The existing dock, moorage cover, and platform lift cover about 1,800 square feet of the lake surface. The existing moorage cover roof will be replaced with translucent polycarbonate to allow light penetration to the water under the entire moorage cover. In addition, this cover will be 16 feet above the water’s surface and will have less impact than the dock.

The effective overwater shading will be reduced by using grated decking throughout, instead of solid decking (as is present on the existing surfaces). Grated decking allows more light to penetrate the waters below a 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.

Sunwalk grated decking has measured performance at 43 percent light penetration (Sunwalk, 2020). Thus, effective coverage of a pier with Sunwalk grating is about 57% of the total area. A summary of how this will affect this project’s shading is shown below:

Existing pier area (1,320 sq. ft. pier + 380 sq. ft. moorage cover + 100 s. ft. platform lift)	1,800 sq. ft.
Effective overwater coverage with solid decking, moorage cover, and platform lift (100% of area)	1,800 sq. ft.
Decking, moorage cover, and platform lift area after reconfigurations	1,675 sq. ft.
Effective overwater coverage with Sunwalk decking (57% of area) and translucent moorage cover (100% of area)	838 sq. ft.

Thus, grating the deck surfaces and translucent moorage cover will result in effective shading that is less than half that of the existing conditions.

The project supports continued recreational boating, which has been identified as a limiting factor for salmonid populations in Lake Washington. The repairs 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.

Best Management Practices: Applicable BMPs will be used such as a silt curtain (floating and anchored) around the in-water work area will contain any silt and sediment that may escape during demolition and construction. A floating boom will contain any floating debris and the barge will contain a perimeter containment sock to absorb oil and grease that may 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.

Conclusion

Juvenile Chinook salmon and other salmonids rear and migrate along the Lake Washington shoreline, and the shoreline adjacent to the property is mapped by WDFW as containing sockeye spawning habitat.

The project will overall have a net benefit to the nearshore environment. There will be temporary impacts from noise and disturbed sediments during construction of the reconfigured pier and pile driving for the new moorage cover. However, these impacts are offset in the long-term by a 125-square-foot reduction in total overwater shading, and a 962-square-foot functional reduction of the pier's shading by installing Sunwalk grated decking throughout. This grating will reduce the hard shadows favored by salmonid predators and increase productivity in waters under the pier. In addition, the pier will be raised by 7 inches which will naturally allow more light under the pier, further reducing impacts. The existing solid boat moorage will be removed and replaced with a translucent roof reducing 380 square feet of shading.

The project will follow the prescribed fish windows and use applicable BMPs to prevent construction spills and turbidity from occurring. The project will also replace four aging treated piles with steel piles removing a source of harmful chemicals from the lake.

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.

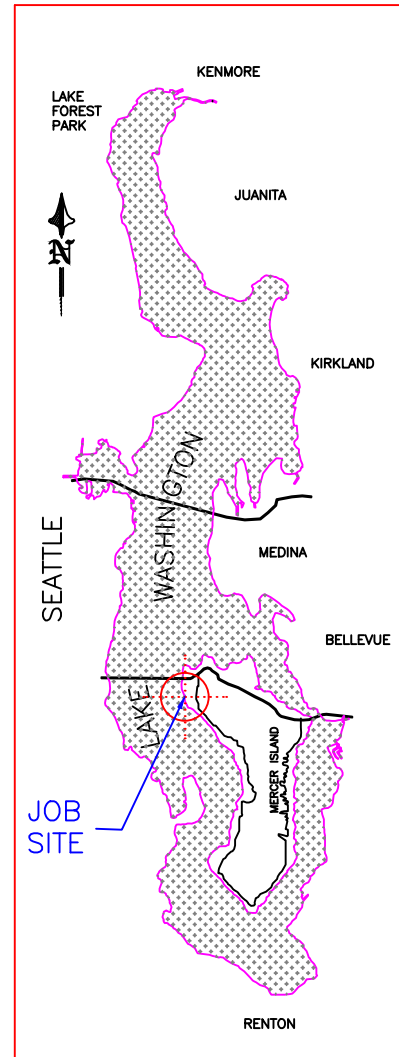
REFERENCES

- Sunwalk. 2020. Sunwalk 45 Series – The original bi-directional dock surface panel. Online. Accessed February 2020 at <http://www.sunwalkdocks.com/product-page-1/>.
- 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). 2020. Priority Habitats and Species. Online database. Accessed February 2020 at <http://apps.wdfw.wa.gov/phsontheweb/>
- WDFW. 2020. SalmonScape. Online database. Accessed February 2020 at <http://apps.wdfw.wa.gov/salmonscape/>

Appendix A: Figures and Project Drawings



VICINITY MAP/NO SCALE



AREA MAP/NO SCALE

LEGAL DESCRIPTION

SECTION: NE-11-24-4 LAT: 47.583370 (47° 35' 0.132" N)
 TAXLOT #: 217450-0100 LONG: -122.252240 (122° 15' 8.064" W)

EAST SEATTLE ADD LOT 1 & SH LDS ADJ MERCER ISLAND SHORT PLAT
 NO 83-09-32 REC NO 8403019001 SD SHORT PLAT DAF - LOTS
 19-20-21 & 22 BLK 1 SD ADD & VAC ST ADJ

PROJECT DESIGNED BY:

Waterfront Construction Inc.

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ADJACENT OWNERS:

- ① GARFIELD LANDING
CITY OF MERCER ISLAND
MERCER ISLAND, WA 98040
- ② ALMA HOLDINGS, LLC
3019 60TH AVE SE
MERCER ISLAND, WA 98040

APPLICATION#:

PROPOSED: PIER REPAIR

PURPOSE: RESTORE PIER INTEGRITY

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

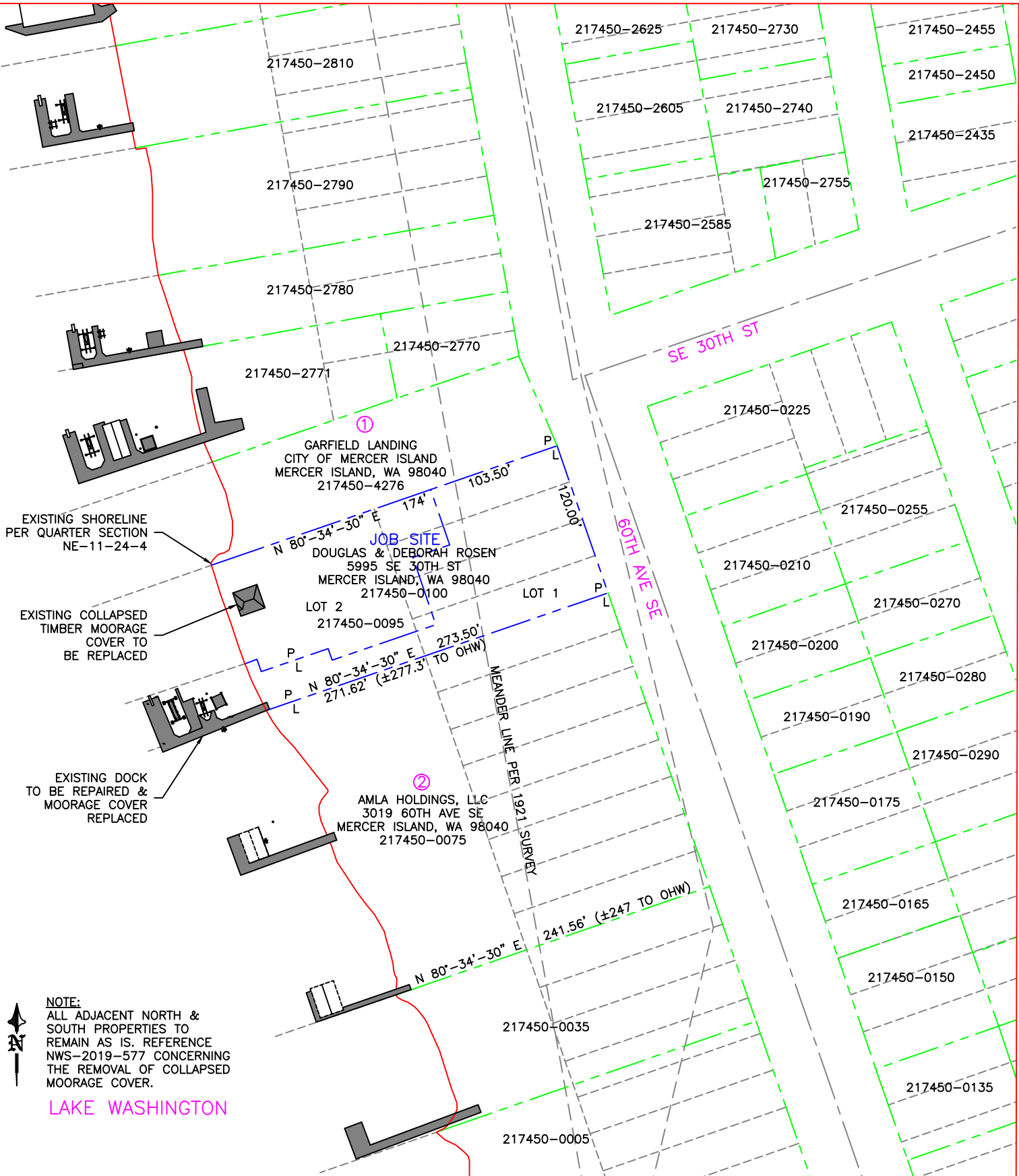
DWG#: 19-31042-A1-1

APPLICANT: DOUGLAS ROSEN

SITE ADD. 5995 SE 30TH STREET
MERCER ISLAND, WA 98040

MAIL ADD. 5995 SE 30TH STREET
MERCER ISLAND, WA 98040

PAGE: 1 OF: 10 DATE: 2-7-2020



EXISTING SHORELINE
PER QUARTER SECTION
NE-11-24-4

EXISTING COLLAPSED
TIMBER MOORAGE
COVER TO
BE REPLACED

EXISTING DOCK
TO BE REPAIRED &
MOORAGE COVER
REPLACED

①
GARFIELD LANDING
CITY OF MERCER ISLAND
MERCER ISLAND, WA 98040
217450-4276

JOB SITE
DOUGLAS & DEBORAH ROSEN
5995 SE 30TH ST
MERCER ISLAND, WA 98040
217450-0100

LOT 2
217450-0095

LOT 1
217450-0095

②
AMLA HOLDINGS, LLC
3019 60TH AVE SE
MERCER ISLAND, WA 98040
217450-0075

MEANDER LINE PER 1921 SURVEY

NOTE:
ALL ADJACENT NORTH &
SOUTH PROPERTIES TO
REMAIN AS IS. REFERENCE
NWS-2019-577 CONCERNING
THE REMOVAL OF COLLAPSED
MOORAGE COVER.

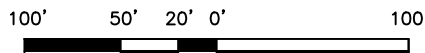
LAKE WASHINGTON

EXISTING SITE PLAN

PROJECT DESIGNED BY:

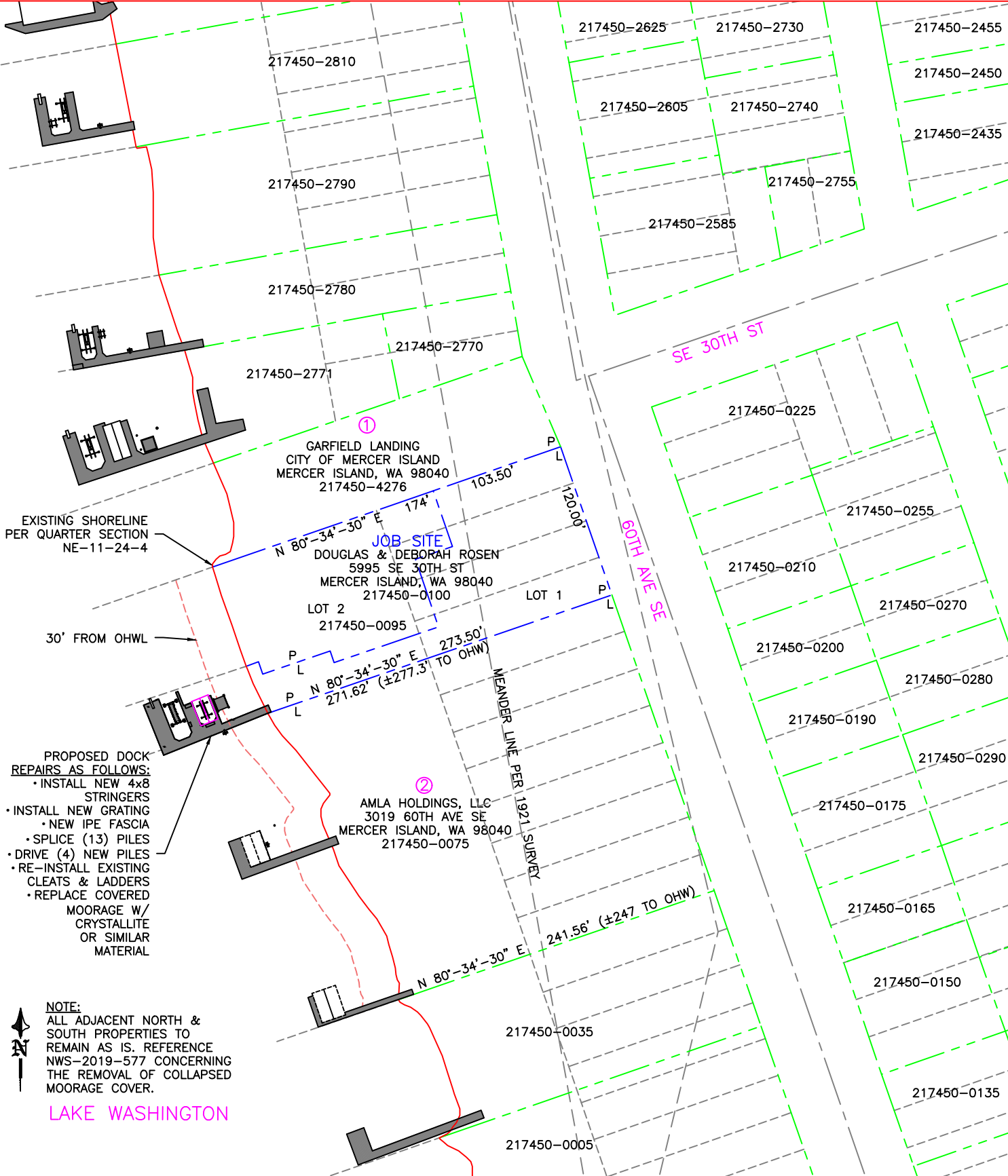
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SCALE: 1"=100'

REFERENCE #:		
APPLICANT: DOUGLAS ROSEN		
PROPOSED: PIER REPAIR		
SHEET: 2	OF: 10	NEAR/AT: MERCER ISLAND
DATE: 2-7-2020	DWG#: 19-31042-A1-2	

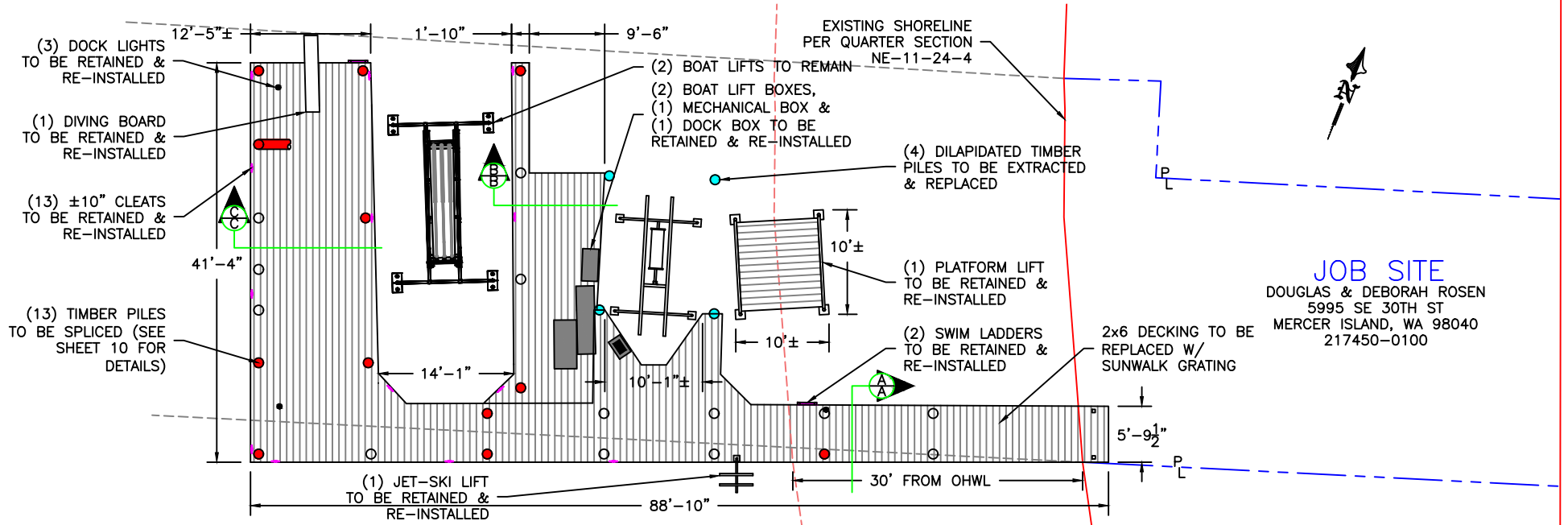


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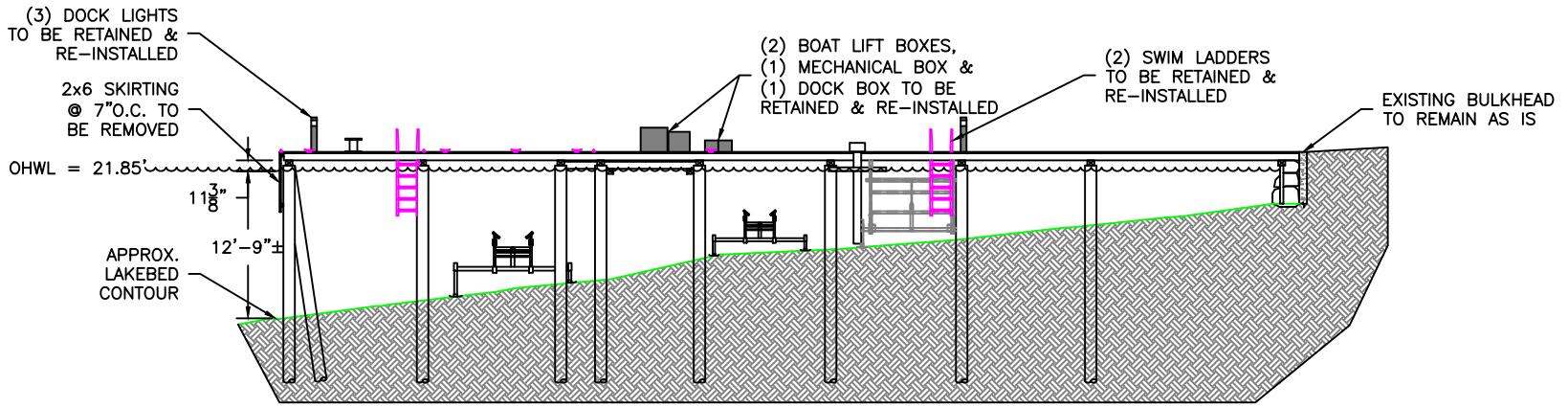
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EXISTING DETAIL VIEW
SCALE: 1/16"=1'

EXISTING SQUARE FOOTAGE = 1319.7 SF

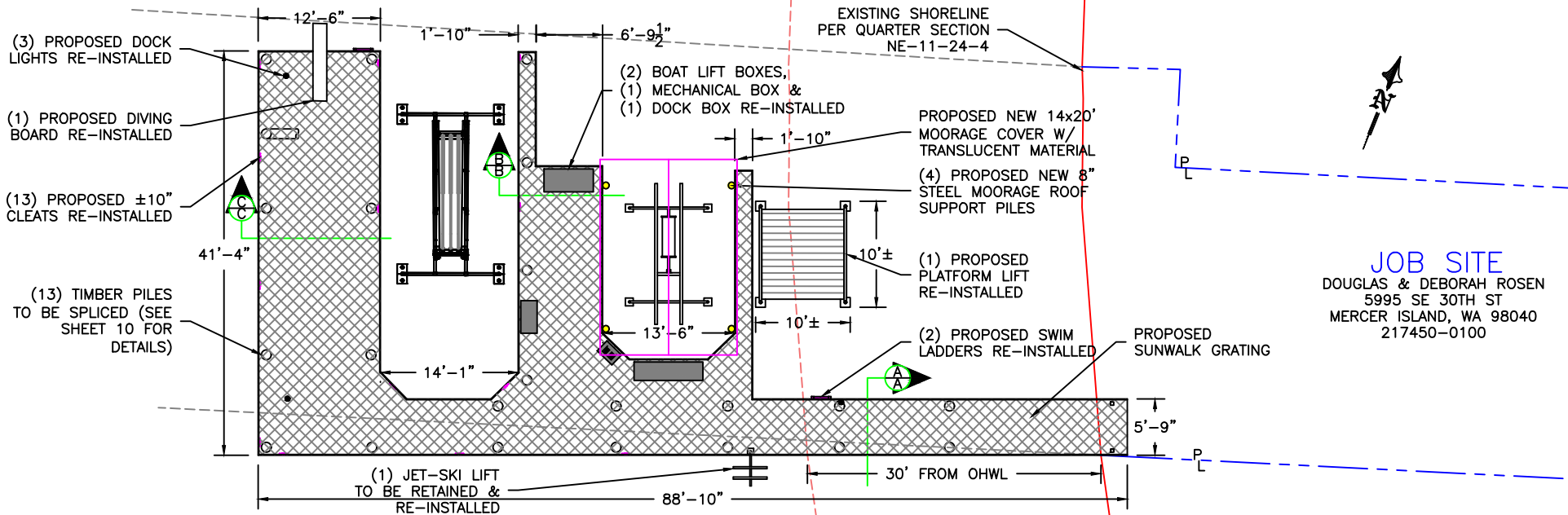
JOB SITE
DOUGLAS & DEBORAH ROSEN
5995 SE 30TH ST
MERCER ISLAND, WA 98040
217450-0100



EXISTING ELEVATION VIEW
SCALE: 1/16"=1'

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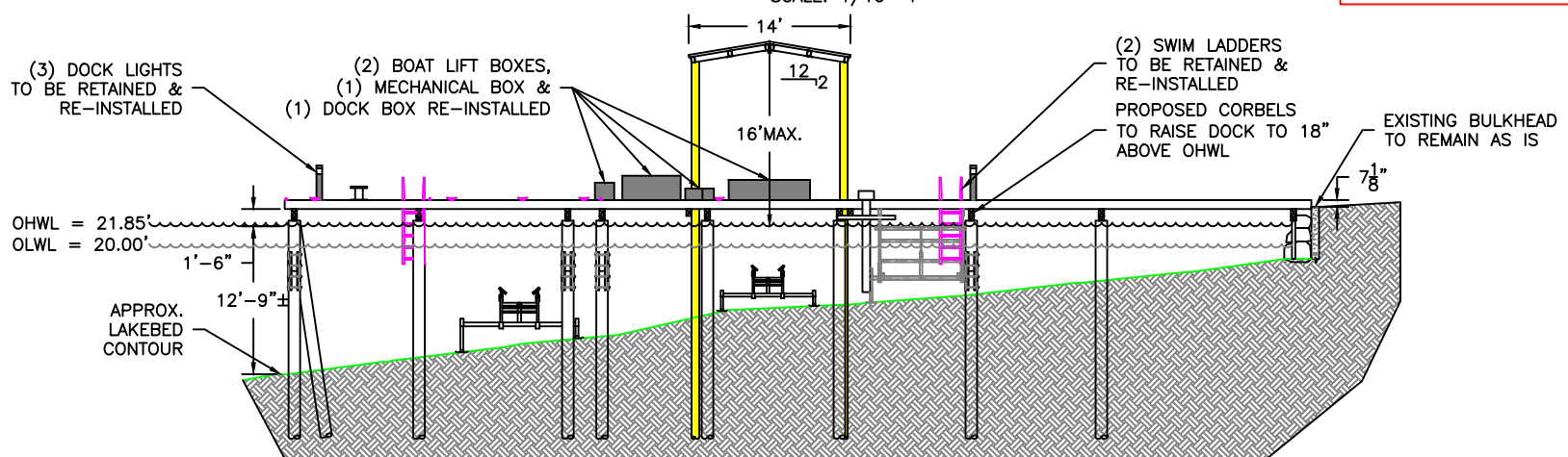


JOB SITE
 DOUGLAS & DEBORAH ROSEN
 5995 SE 30TH ST
 MERCER ISLAND, WA 98040
 217450-0100

PROPOSED DETAIL VIEW

SCALE: 1/16"=1'

PROPOSED SQUARE FOOTAGE = 1295.4 SF

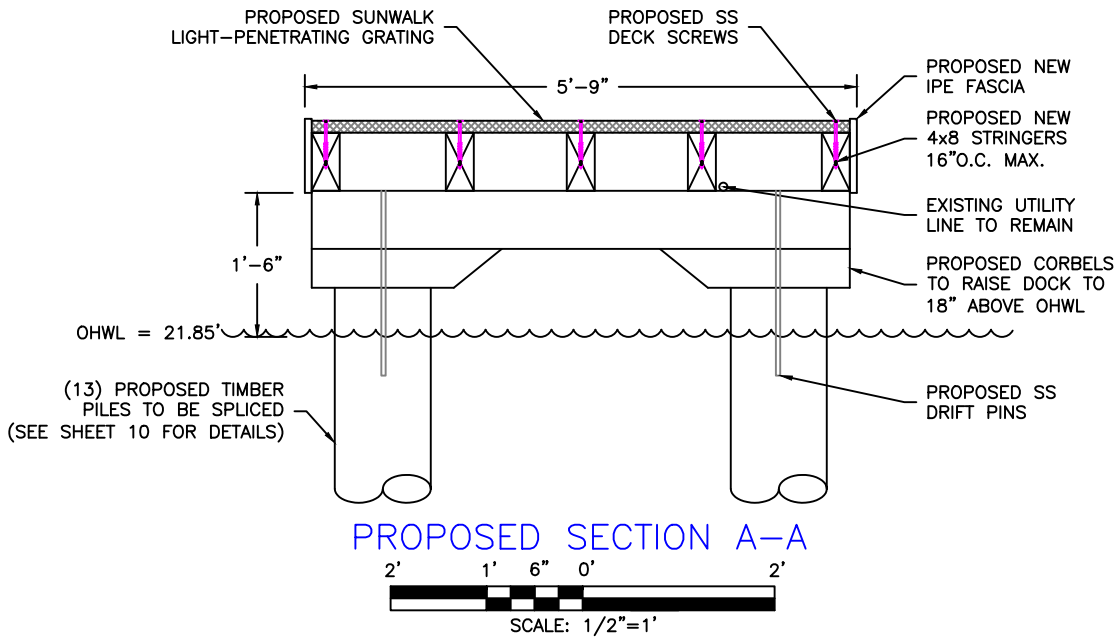
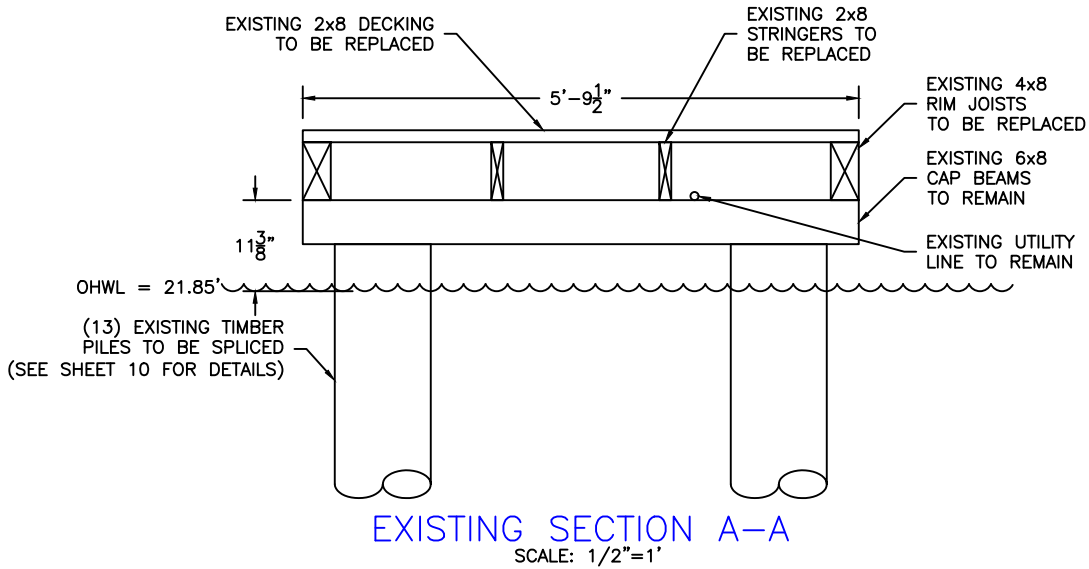


PROPOSED ELEVATION VIEW

SCALE: 1/16"=1'

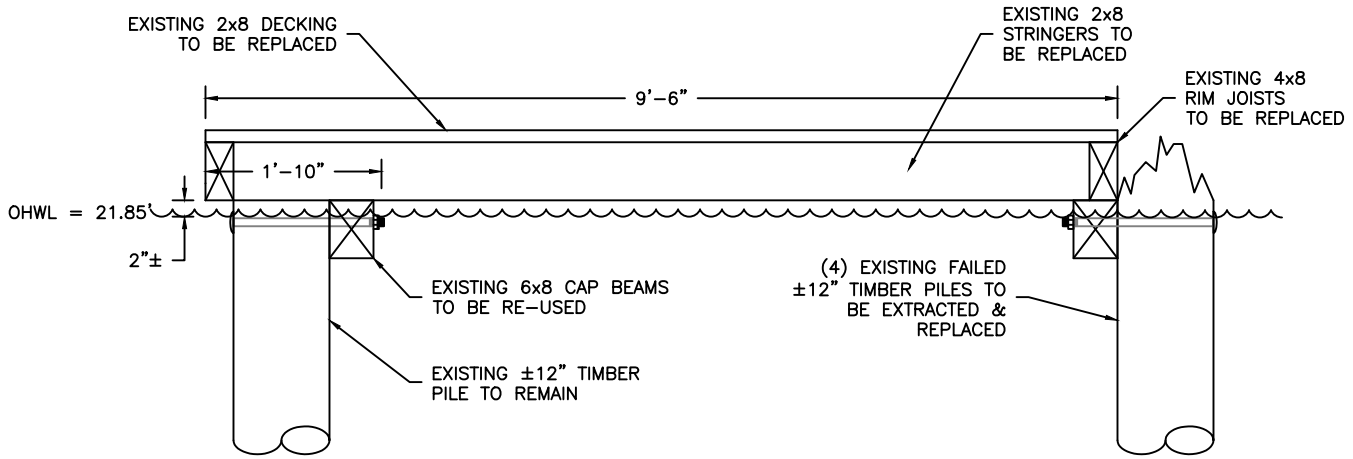
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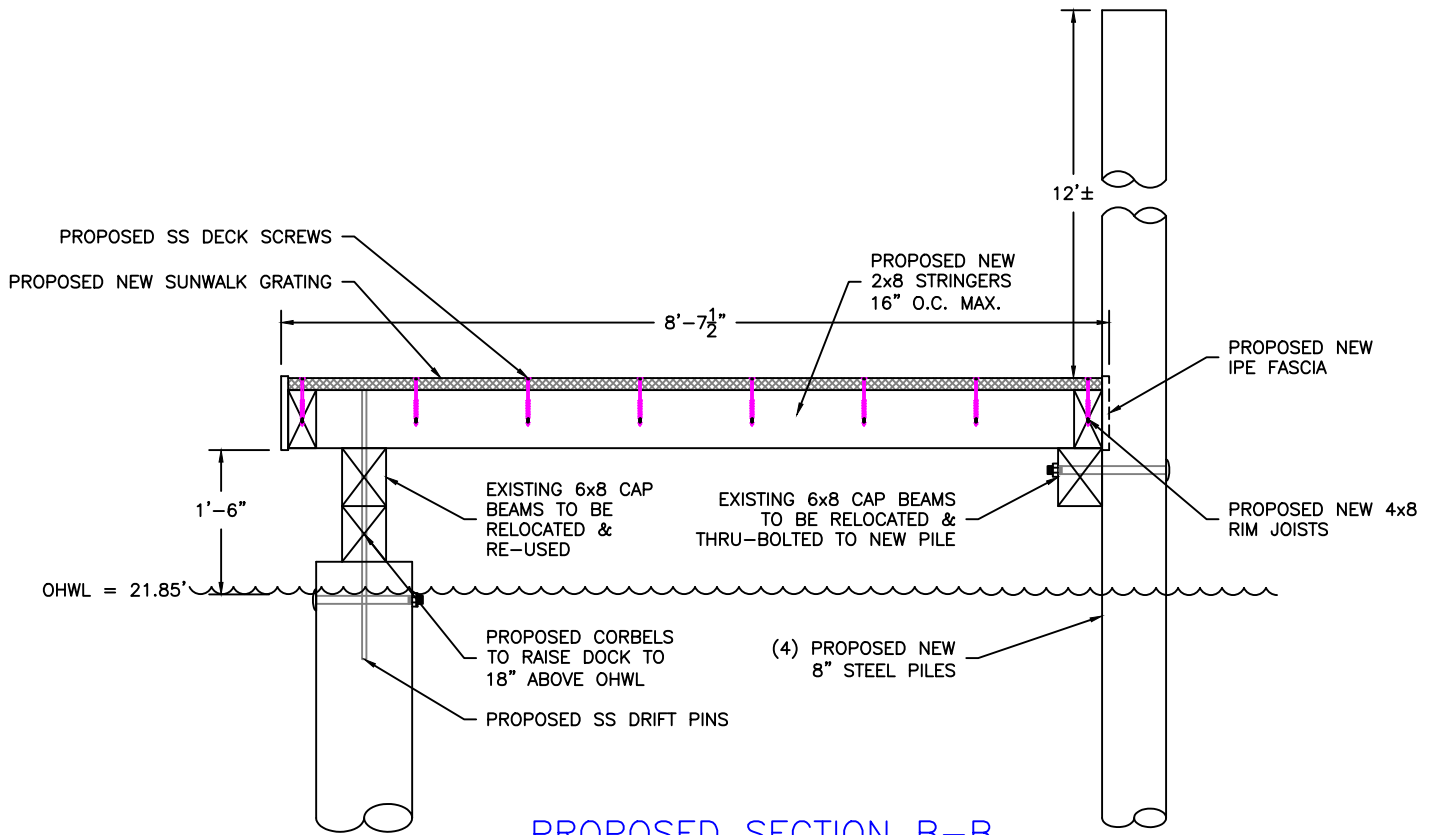


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EXISTING SECTION B-B
SCALE: 1/2"=1'



PROPOSED SECTION B-B
SCALE: 1/2"=1'

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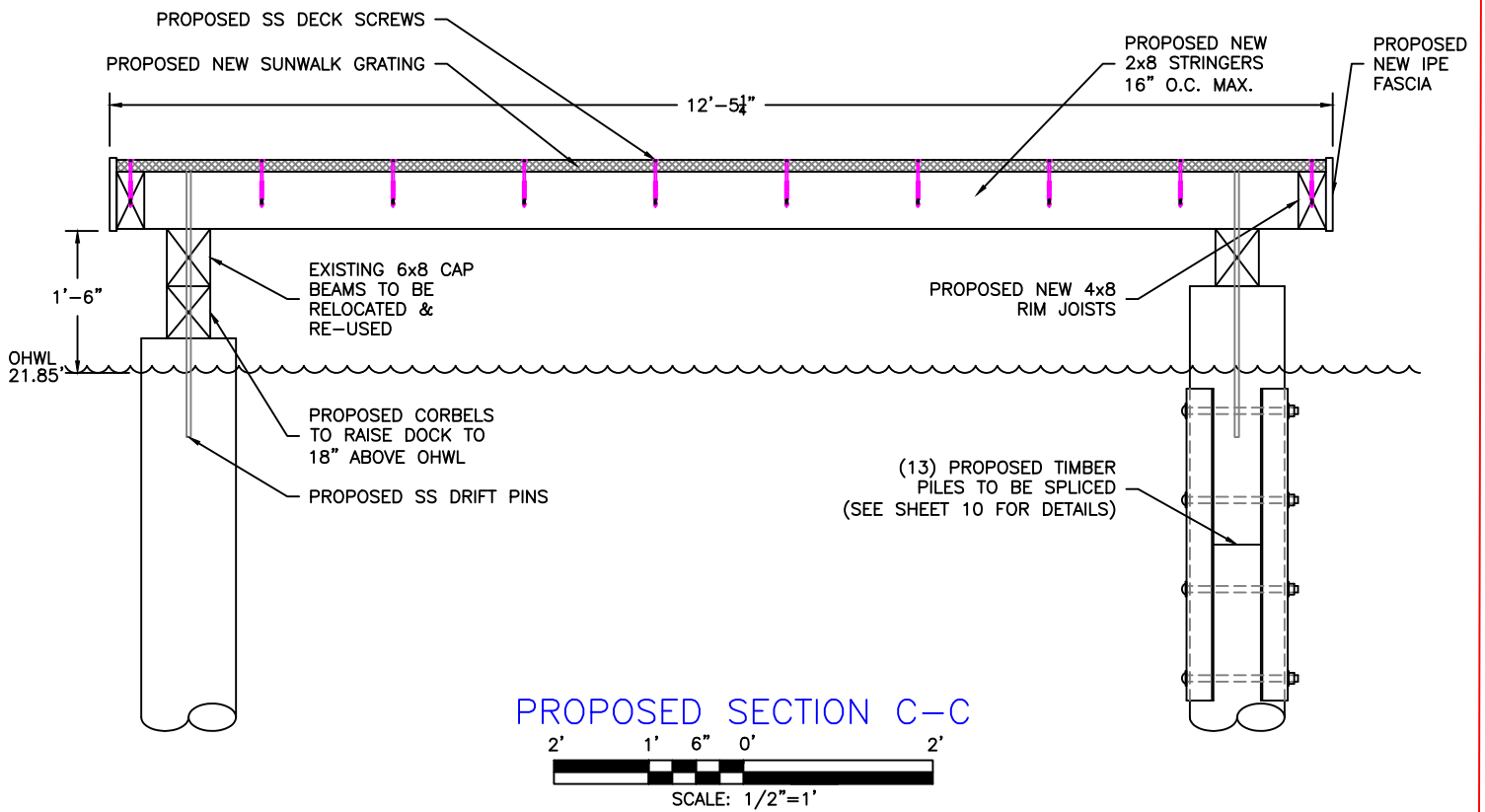
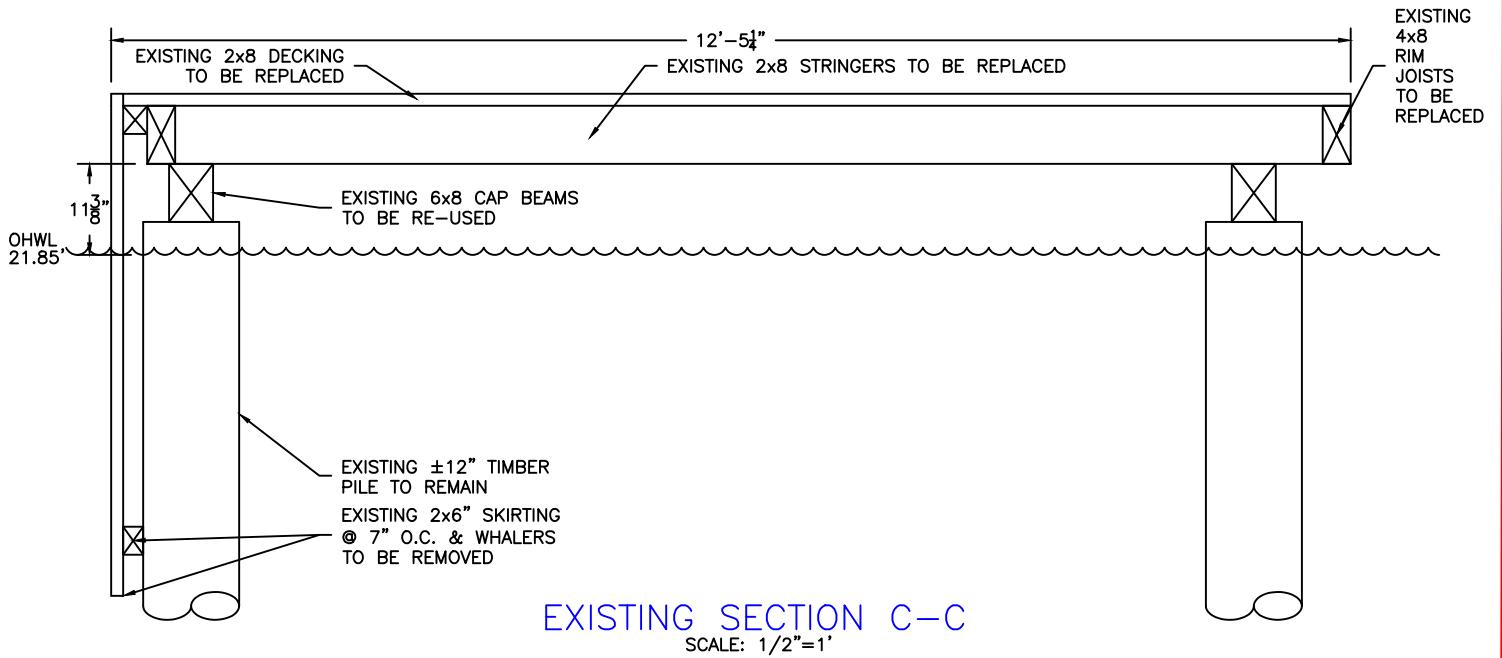
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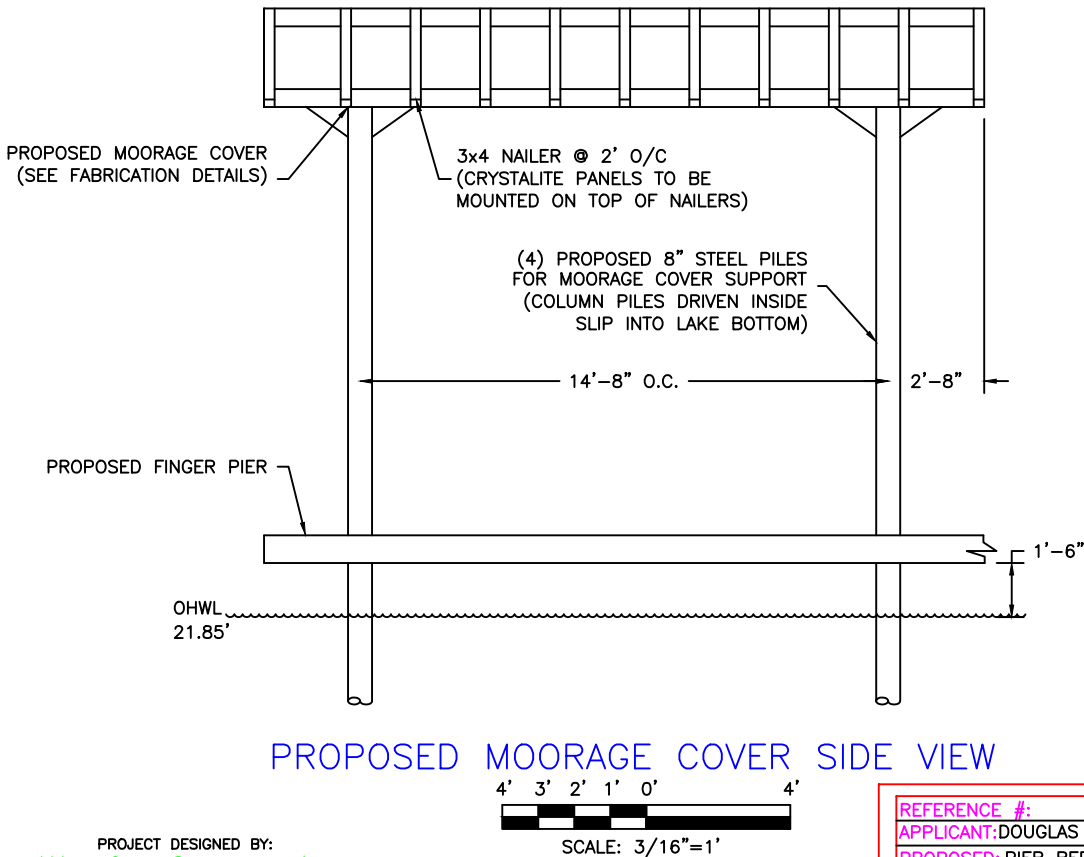
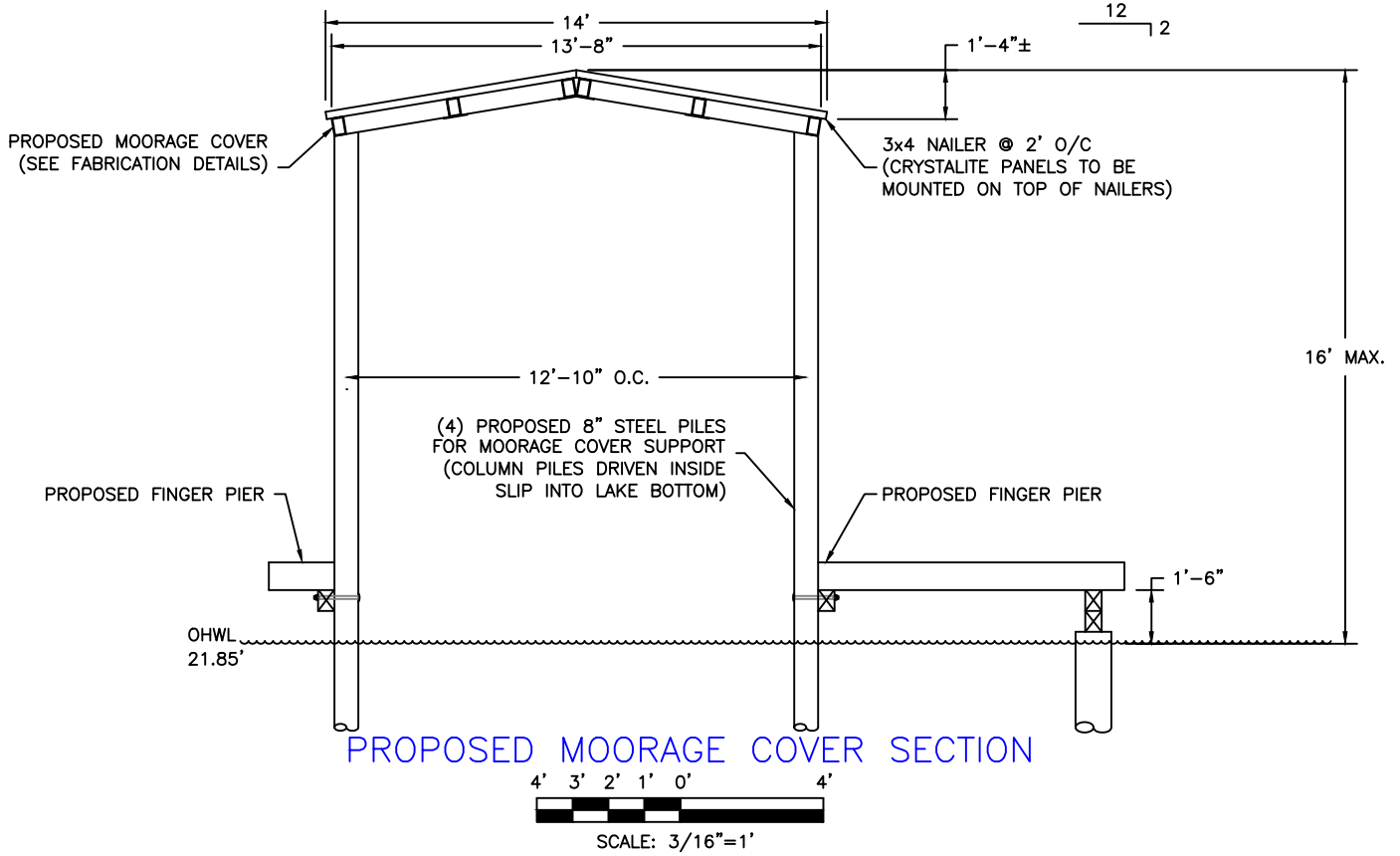
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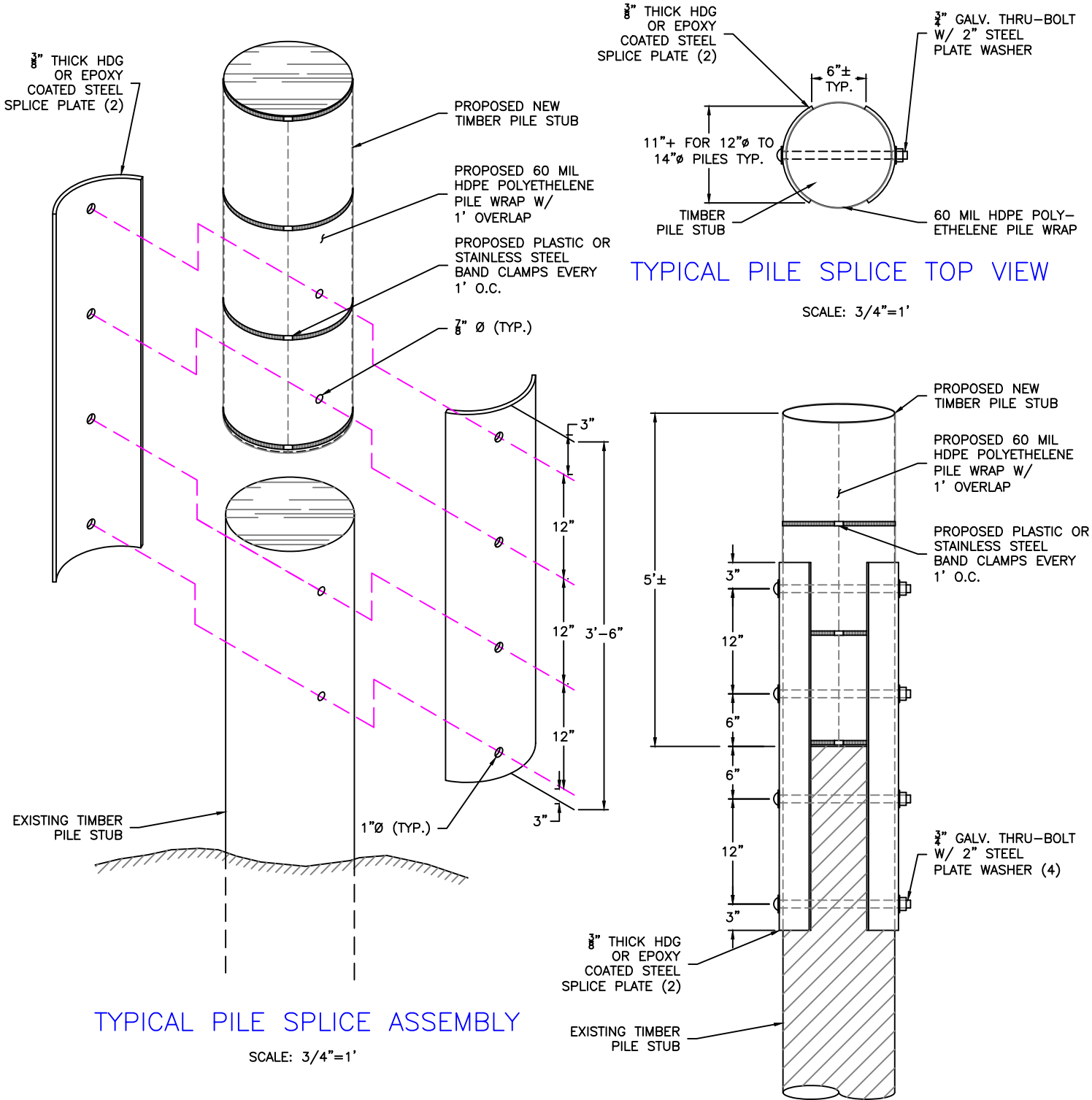
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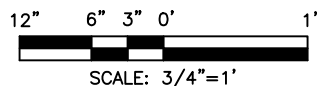
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TYPICAL PILE SPLICE TOP VIEW

SCALE: 3/4"=1'

TYPICAL PILE SPLICE SIDE VIEW



SCALE: 3/4"=1'

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DATE: 2-7-2020	NEAR/AT: MERCER ISLAND
	DWG#: 19-31042-A1-10

Appendix B: Site Photographs



Photo 1. View of pier from southwest corner looking northwest.

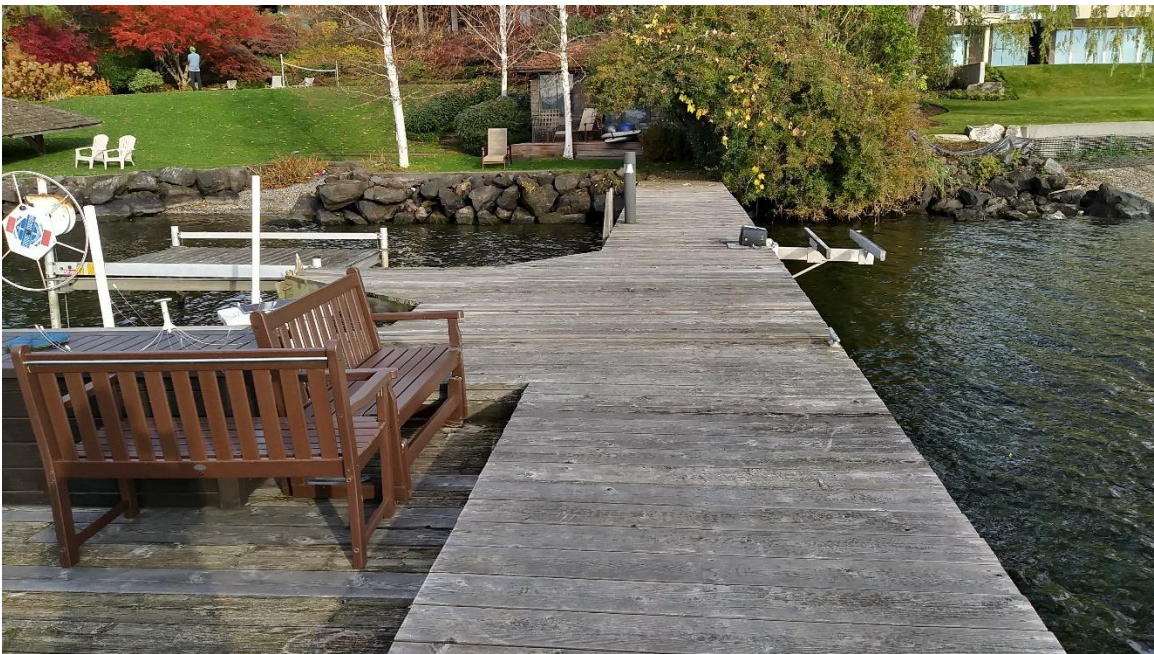


Photo 2. View of pier from west end looking east.



Photo 3. View of pier from south shoreline.



Photo 4. View from pier of south shoreline and adjacent property to the south.



Photo 5. View of north shoreline and adjacent shoreline to the north.



Photo 6. View of shoreline from northwest corner of pier looking east.