



Drainage Report For Hatley Residence

Date Prepared: July 30, 2023
Site Address: 4114 83rd Ave SE
Mercer Island, WA 98040
Parcel Number: 362650-0035

Prepared By:
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Drainage Report for
Hatley Residence
4114 83rd Ave SE, Mercer Island, WA 98040

Legal Description:

ISLAND RIDGE TRS, Plat Block: 1, Plat Lot:7

EXECUTIVE SUMMARY:

The proposal is to construct a new single-family home with an attached garage and two covered patios on parcel #3626500035. The lot is 0.32 acres (14,078 sf) in size and currently contains a single-family residence and driveway. The existing residence and driveway will be demolished, and a new concrete driveway and walkway will be created for the proposed residence. Figure 1 shows the location of the site and nearby streets.

The property is zoned R-9.6 and is surrounded by similarly sized parcels containing single-family homes. The site slopes gradually to the southwest with a lot slope of 4.8%. The site is located outside of the FEMA flood plain (Figure 4) and is not mapped within any critical areas by Mercer Island's GIS Portal.

The proposed house will be in approximately the same location as the existing residence. Four trees will be removed and replaced to accommodate the proposed structure. The total impervious surface area after construction will be 5,892 square feet. The total lot coverage, consisting of the house and driveway, will be 4,998 square feet (35.5% of the lot area), while the total hardscape, consisting of the walkway and planter area, will be 894 feet (6.4% of the lot area). For properties zoned R-9.6 with slopes less than 15%, the maximum allowable lot coverage is 40 percent, and the maximum hardscape is 9 percent. A summary of the impervious surfaces onsite is shown in the table below.

| | |
|--------------------------|-----------|
| Lot Area: | 14,078 SF |
| Existing Conc. Planters: | 797 SF |
| Proposed House Roof: | 4,261 SF |
| Proposed Driveway: | 737 SF |
| Proposed Conc. Walk: | 97 SF |
| Total Impervious: | 5,892 SF |

Stormwater runoff from the proposed house roof and driveway will be detained in 36-inch diameter detention pipes before being piped to the existing stormwater system within 83rd Ave SE. The detention pipe will be split into three rows of 45-foot-long pipes for a total length of 135 feet. The detention system outlet will discharge to an existing catch basin in front of the property.

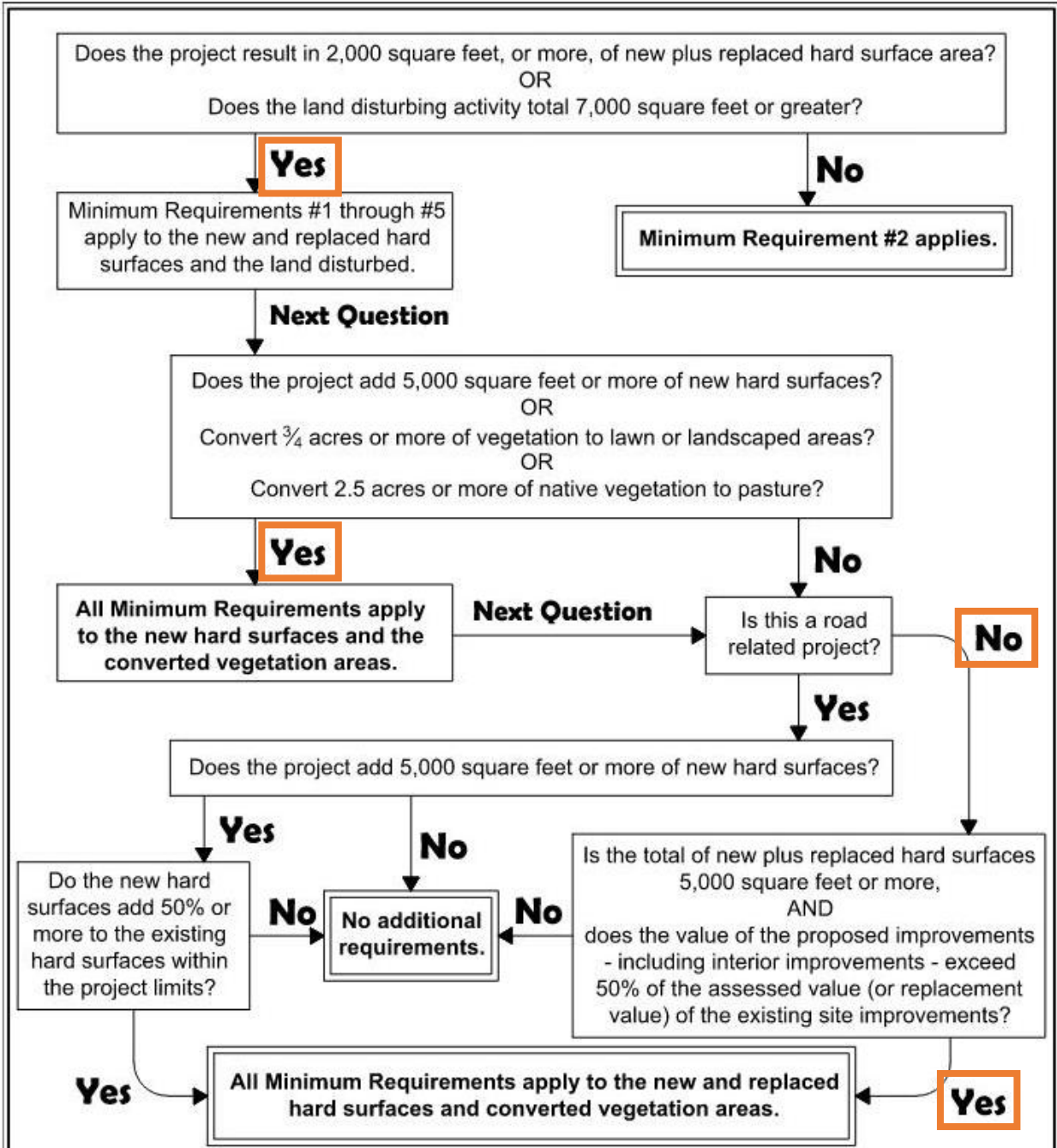


Figure I-2.4.2
Flow Chart for Determining Requirements for Redevelopment

Revised June 2015

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Minimum Requirement 1: Preparation of Storm Water Site Plans

Site Analysis: Collect and Analyze information on Existing Conditions

Boundary Survey and Topographic Map

- A site plan with boundary and topographic data was prepared by Architects Northwest from Woodinville, WA.
- The site slopes gradually to the southwest at slopes of 0 to 15 percent, from an elevation of 280' at its northeast corner to an elevation of 274' at its southwest corner.
- The site contains an existing single-family home with a rear patio and a driveway. A concrete planter area is located near the northeast corner of the property.

Vegetation and Utility Infrastructure

- Vegetation on the property consists of trees and grass lawn. Four trees will be removed to accommodate the proposed house and driveway. These trees will be replaced with native trees.
- Water and sewer service are provided to the site from 83rd Ave SE.

Soils Report

- Three test borings were drilled by PanGEO Incorporated on June 14, 2022. Two test pits were explored and the site was found to contain Topsoil/Fill underlain by Vashon Till and Pre-Fraser Deposit.
- Since the tests were done in June and found high water, infiltration will be considered infeasible.
- The USDA web soils survey map lists the onsite soils as Type B (Arents, Alderwood Material).

Perform off-site (upstream and downstream) analysis

Upstream Analysis

The upstream area was determined using LIDAR imagery and was observed during a site visit. The upstream area stretches east to the edge of Island Crest Way and north to the edge of SE 41st Street, covering portions of neighboring residential properties. The upstream area can be seen in Figure 3.

Downstream Analysis

Stormwater onsite currently sheet flows southwest to the edge of 83rd Ave SE, where it enters a catch basin. The runoff then flows through a series of stormwater pipes and ditches, eventually outfalling to a stream that carries the runoff west to Lake Washington. The downstream area is shown in Figure 2.

Determination of Applicable Minimum Requirements

Minimum Requirements #1-#9 are applicable as follows:

The total impervious area proposed is greater than the 5,000 square-foot threshold, thus the 2014 Department of Ecology Stormwater Manual for Western Washington Minimum Requirements #1-#9 apply to this drainage plan per Figure 1-2.4.1 of the manual.

Preparation of Permanent Stormwater Control Plan

The elements required for permanent Stormwater control are provided in the Stormwater pollution protection plan.

Preparation of Stormwater Pollution Prevention Plan (SWPPP)

The SWPPP narrative is included in this report below in Minimum Requirement 2.

Completion of the Stormwater site plan:

A Permanent Stormwater Site Plan prepared by Harbert Engineers is included with the submittal for this project.

Minimum Requirement 2: Preparation of Stormwater Pollution Prevention Plan (SWPPP)**Stormwater Pollution Prevention Plan Narrative**

A stormwater Pollution Prevention Plan (SWPPP) is required as part of the construction Stormwater permit requirements. The site is 14,078 square feet in size located in the City of Mercer Island, off the east side of 83rd Ave SE. The project proposes construct a new single-family home and driveway.

The purpose of the SWPPP is to describe all temporary and permanent erosion and sediment control (TESC) measures, pollution prevention measures, inspection/monitoring activities, and record keeping that will be implemented during the proposed project. This project's certified Erosion and Sediment Control Specialist to amend this document as needed during construction. Applications of these elements are shown on the TESC Plan Sheet.

Stormwater Pollution Prevention Plan Elements

1. Preserve Vegetation/Mark Clearing Limits – Clearing limits are shown on the plans and the contractor should stay within these limits.
2. Establish Construction Access – The existing driveway will serve as the construction entrance.
3. Control Flow Rates – Silt fence or Straw wattles will be installed on the downstream sides of the project to control flow rates.
4. Install Sediment Controls – The silt fence or straw wattles, visqueen covering, and mulch will serve as sediment controls.
5. Stabilize Soils – The contractor should install mulch on any disturbed soils, that are not established, if left uncovered for 14 days or if significant rains are forecasted.
6. Protect Slopes – Slopes that are disturbed and will be left uncovered for more than 24 hours shall be protected with jute matting.
7. Protect Drain Inlets – Protect all storm drain inlets immediately off site in the right-of-way during construction so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment. Clean or remove and replace inlet protection devices when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).
8. Stabilize Channels and Outlets – Temporary and permanent conveyance systems and their outlets shall be protected and stabilized to prevent erosion during and after construction.
9. Control Pollutants – The contractor shall make sure to keep the workplace clean of trash and keep his materials neat as to not leave any behind.

10. Control Dewatering – In the case groundwater is encountered, the contractor should pump the water to a 10-foot perforated pipe encased in filter fabric and capped at the end. This will allow the water to flow away from the project in a clean matter. The filter fabric should be checked daily to make sure it is not clogged or torn. Replace filter fabric when it becomes ½ full.
11. Maintain BMPs – All BMPs must be maintained. Silt fence should be inspected weekly and after significant rainfalls to make sure it is standing vertically and that the silt behind it is no more than 6” in height. Mulch should be replenished if the area is bare. Visqueen should be replaced if it becomes ripped. Replenish construction entrance rock when the dirt is covering half of the rocks.
12. Manage the Project – The contractor should watch the weather and do most earth work when it will not impact the surroundings. The contractor should maintain, update and implement the CSWPPP at all times.
13. Protect Low Impact Development BMPs – No LID BMPs are proposed on the site, but any disturbed soils will need to be amended per BMP T5.13.

Minimum Requirement 3: Source Control of Pollution

BMPs are shown on the Stormwater Pollution Prevention Plan which include silt fence or straw wattles around where the work will occur. The disturbed soils will be replaced with amended soils as required. The contractor should not disturb areas outside the limits of the disturbance. The contractor should also limit his disturbance to reduce the amount of required amended soils.

All stockpiled soils left onsite during construction should be covered with visqueen.

The contractor should make sure to keep the site clean of garbage.

Minimum Requirement 4: Preservation of Natural Drainage Systems and Outfalls

The site and its neighboring parcels are residential properties containing single-family homes. Stormwater onsite currently runs southwest to a catch basin along the edge of 83rd Ave SE, from which it passes through a series of pipes and ditches to a stream that flows west to Lake Washington. Runoff from the proposed impervious surfaces will be piped to the existing stormwater system within 83rd Ave SE.

Minimum Requirement 5: On-site Storm Water Management

Projects triggering Minimum Requirements #1 through #9, such as this project, shall use on-site stormwater management BMPs from List #2 of the SWMMWW.

BMPs for Lawn and Landscaped Areas:

1. Post-Construction Soil Quality and Depth in accordance with BMP T5.13.

BMPs for Roofs:

1. Full Dispersion in accordance with BMP T5.30, or Downspout Full Infiltration Systems in accordance with BMP T5.10A.
 - *The property does not have enough space for the 100-foot flow path required for full dispersion. This is evident by looking at the lot dimensions. Using a 5-foot setback from the proposed house, the maximum flow path available in the front yard is about 20 feet. The maximum available flow path in the backyard is 75 feet. The backyard slopes towards the house and would require a pump.*
 - *Infiltration BMPs are infeasible due to the high groundwater encountered during the test borings.*
2. Bioretention BMPs
 - *This was ruled out since infiltration is infeasible.*
3. Downspout Dispersion Systems in accordance with BMP T5.10B.
 - *There is not sufficient space downslope of the proposed residence for a dispersion flow path. The maximum flow path length in the front yard is approximately 20 feet. Splash blocks require a flow path of 50 feet while dispersion trenches require a flow path of 25 feet. Dispersion in the backyard is infeasible because the backyard slopes towards the house.*

Since no roof BMPs are feasible, runoff from the proposed roof area will be piped to a 36" diameter by 135-foot-long detention pipe before being discharged to the existing stormwater system within 83rd Ave SE. This detention system was designed in accordance with the City of Mercer Island On-Site Detention Requirements for projects with less than 9,500 square feet of impervious surface.

BMPs for Other Hard Surfaces:

1. Full Dispersion in accordance with BMP T5.30.

The property does not have enough space for the 100-foot flow path required for full dispersion. This is evident by looking at the lot dimensions. The maximum flow path length from the proposed driveway is around 13 feet.
2. Permeable Pavement in accordance with BMP T5.15.

This was ruled out since infiltration is infeasible. High groundwater was encountered during the test borings.
3. Bioretention BMPs

This was ruled out since infiltration is infeasible.
4. Sheet Flow Dispersion in accordance with BMP T5.12 or Concentrated Flow Dispersion in accordance with BMP T5.11.

Sheet flow dispersion is not feasible because the city of Mercer Island requires all driveway runoff to pass through an oil water separator. Concentrated flow dispersion is not feasible because the maximum flow path length from the proposed driveway is around 13 feet.

Since no BMPs are feasible, runoff from the proposed driveway area will be pumped to the 36" diameter by 135-foot-long detention pipe before being discharged to the existing stormwater system within 83rd Ave SE. This detention system was designed in accordance with the City of Mercer Island On-Site Detention Requirements for projects with less than 9,500 square feet of impervious surface.

Minimum Requirement 6: Runoff Treatment

This project does not result in over 5,000 square feet of pollution-generating hard surface, so it does not meet the threshold for requiring stormwater runoff treatment. All runoff from the proposed driveway will be collected in a trench drain and pass through an oil water separator in accordance with the requirements of MICC 15.09.050.

Minimum Requirement 7: Flow Control

On type B soils, New plus replaced impervious surfaces exceeding 8,500 square feet trigger Minimum Requirement 7. This project does not result in 8,500 square feet or more of impervious surface, and therefore does not meet the threshold for requiring flow control.

Minimum Requirement 8: Wetland Protection

There are no wetlands on the project.

Minimum Requirement 9: Operation and Maintenance

| Maintenance Component | Defect | Conditions When Maintenance is Needed | Results Expected When Maintenance is Performed |
|--|---|--|---|
| Storage Area | Plugged Air Vents | One-half of the cross section of a vent is blocked at any point or the vent is damaged. | Vents open and functioning. |
| | Debris and Sediment | Accumulated sediment depth exceeds 10% of the diameter of the storage area for 1/2 length of storage vault or any point depth exceeds 15% of diameter. | All sediment and debris removed from storage area. |
| | | (Example: 72-inch storage tank would require cleaning when sediment reaches depth of 7 inches for more than 1/2 length of tank.) | |
| | Joints Between Tank/Pipe Section | Any openings or voids allowing material to be transported into facility. | All joint between tank/pipe sections are sealed. |
| | | (Will require engineering analysis to determine structural stability). | |
| | Tank Pipe Bent Out of Shape | Any part of tank/pipe is bent out of shape more than 10% of its design shape. (Review required by engineer to determine structural stability). | Tank/pipe repaired or replaced to design. |
| Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab | Cracks wider than 1/2-inch and any evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determines that the vault is not structurally sound. | Vault replaced or repaired to design specifications and is structurally sound. | |
| | Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or any evidence of soil particles entering the vault through the walls. | No cracks more than 1/4-inch wide at the joint of the inlet/outlet pipe. | |
| Manhole | Cover Not in Place | Cover is missing or only partially in place. Any open manhole requires maintenance. | Manhole is closed. |
| | | Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread (may not apply to self-locking lids). | Mechanism opens with proper tools. |
| | Locking Mechanism Not Working | One maintenance person cannot remove lid after applying normal lifting pressure. Intent is to keep cover from sealing off access to maintenance. | Cover can be removed and reinstalled by one maintenance person. |
| | Cover Difficult to Remove | Ladder is unsafe due to missing rungs, misalignment, not securely attached to structure wall, rust, or cracks. | Ladder meets design standards. Allows maintenance person safe access. |
| Catch Basins | See Table V-A.5: Maintenance Standards - Catch Basins | See Table V-A.5: Maintenance Standards - Catch Basins | See Table V-A.5: Maintenance Standards - Catch Basins |

Table V-A.4: Maintenance Standards - Control Structure/Flow Restrictor

| Maintenance Component | Defect | Condition When Maintenance is Needed | Results Expected When Maintenance is Performed |
|-----------------------|--|--|---|
| | Trash and Debris (Includes Sediment) | Material exceeds 25% of sump depth or 1 foot below orifice plate. Structure is not securely attached to manhole wall. | Control structure orifice is not blocked. All trash and debris removed. Structure securely attached to wall and outlet pipe. |
| General | Structural Damage | Structure is not in upright position (allow up to 10% Connections to outlet pipe are not watertight and show signs of rust. Any holes - other than designed holes - in the Cleanout gate is not watertight or is missing. | Structure in correct position. Connections to outlet pipe are water tight; structure repaired or replaced and works as designed. Structure has no holes other than designed holes. Gate is watertight and works as designed. |
| Cleanout Gate | Damaged or Missing | Gate cannot be moved up and down by one Chain/rod leading to gate is missing or damaged. Gate is rusted over 50% of its surface area. | Gate moves up and down easily and is watertight. Chain is in place and works as designed. Gate is repaired or replaced to meet design standards. |
| Orifice Plate | Damaged or Missing | Control device is not working properly due to missing, out of place, or bent orifice plate. | Plate is in place and works as designed. |
| Overflow Pipe | Obstructions | Any trash, debris, sediment, or vegetation blocking the Any trash or debris blocking (or having the potential of blocking) the overflow pipe. | Plate is free of all obstructions and works as designed. Pipe is free of all obstructions and works as designed. |
| Manhole | See Table V-A.3: Maintenance Standards - Closed Detention Systems (Tanks/Vaults) | See Table V-A.3: Maintenance Standards - Closed Detention Systems (Tanks/Vaults) | See Table V-A.3: Maintenance Standards - Closed Detention Systems (Tanks/Vaults) |
| Catch Basin | See Table V-A.5: Maintenance Standards - Catch Basins | See Table V-A.5: Maintenance Standards - Catch Basins | See Table V-A.5: Maintenance Standards - Catch Basins |

Table V-A.5: Maintenance Standards - Catch Basins

| Maintenance Component | Defect | Conditions When Maintenance is Needed | Results Expected When Maintenance is performed |
|-----------------------------|--|---|---|
| | | Trash or debris which is located immediately in front of the catch basin opening or is blocking inletting capacity of the basin by more than 10%. | No Trash or debris located immediately in front of catch basin or on grate opening. |
| | | Trash or debris (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe. | No trash or debris in the catch basin. |
| Trash & Debris | | Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height. | Inlet and outlet pipes free of trash or debris. |
| | | Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane). | No dead animals or vegetation present within the catch basin. |
| General | Sediment | Sediment (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches | No sediment in the catch basin |
| | Structure Damage to Frame and/or Top Slab | Top slab has holes larger than 2 square inches or cracks wider than 1/4 inch. (Intent is to make sure no material is running into basin). | Top slab is free of holes and cracks. |
| | | Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached | Frame is sitting flush on the riser rings or top slab and firmly attached. |
| | Fractures or Cracks in Basin Walls/ Bottom | Maintenance person judges that structure is unsound. | Basin replaced or repaired to design standards. |
| | Settlement/ Misalignment | Grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks. | Pipe is regouted and secure at basin wall. |
| | Vegetation | if failure of basin has created a safety, function, or design problem. | Basin replaced or repaired to design standards. |
| | | Vegetation growing across and blocking more than 10% of the basin opening. | No vegetation blocking opening to basin. |
| | | Vegetation growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart. | No vegetation or root growth present. |
| Contamination and Pollution | | See Table V-A.1: Maintenance Standards - Detention Ponds | No pollution present. |

| | | | | |
|--|------------------------------|-------------------------------|---|---|
| | Catch Basin Cover | Cover Not in Place | Cover is missing or only partially in place. Any open catch basin requires maintenance. | Cover/grate is in place, meets design standards, and is secured |
| | | Locking Mechanism Not Working | Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread. | Mechanism opens with proper tools. |
| | | Cover Difficult to Remove | One maintenance person cannot remove lid after applying normal lifting pressure. | Cover can be removed by one maintenance person. |
| | Ladder | Ladder Rungs Unsafe | (Intent is keep cover from sealing off access to maintenance.) Ladder is unsafe due to missing rungs, not securely attached to basin wall, misalignment, rust, cracks, or sharp edges. | Ladder meets design standards and allows maintenance person safe access. |
| | | Grate opening Unsafe | Grate with opening wider than 7/8 inch. | Grate opening meets design standards. |
| | Metal Grates (If Applicable) | Trash and Debris | Trash and debris that is blocking more than 20% of grate surface inletting capacity. | Grate free of trash and debris. |
| | | Damaged or Missing. | Grate missing or broken member(s) of the grate. | Grate is in place, meets the design standards, and is installed and aligned with the flow path. |

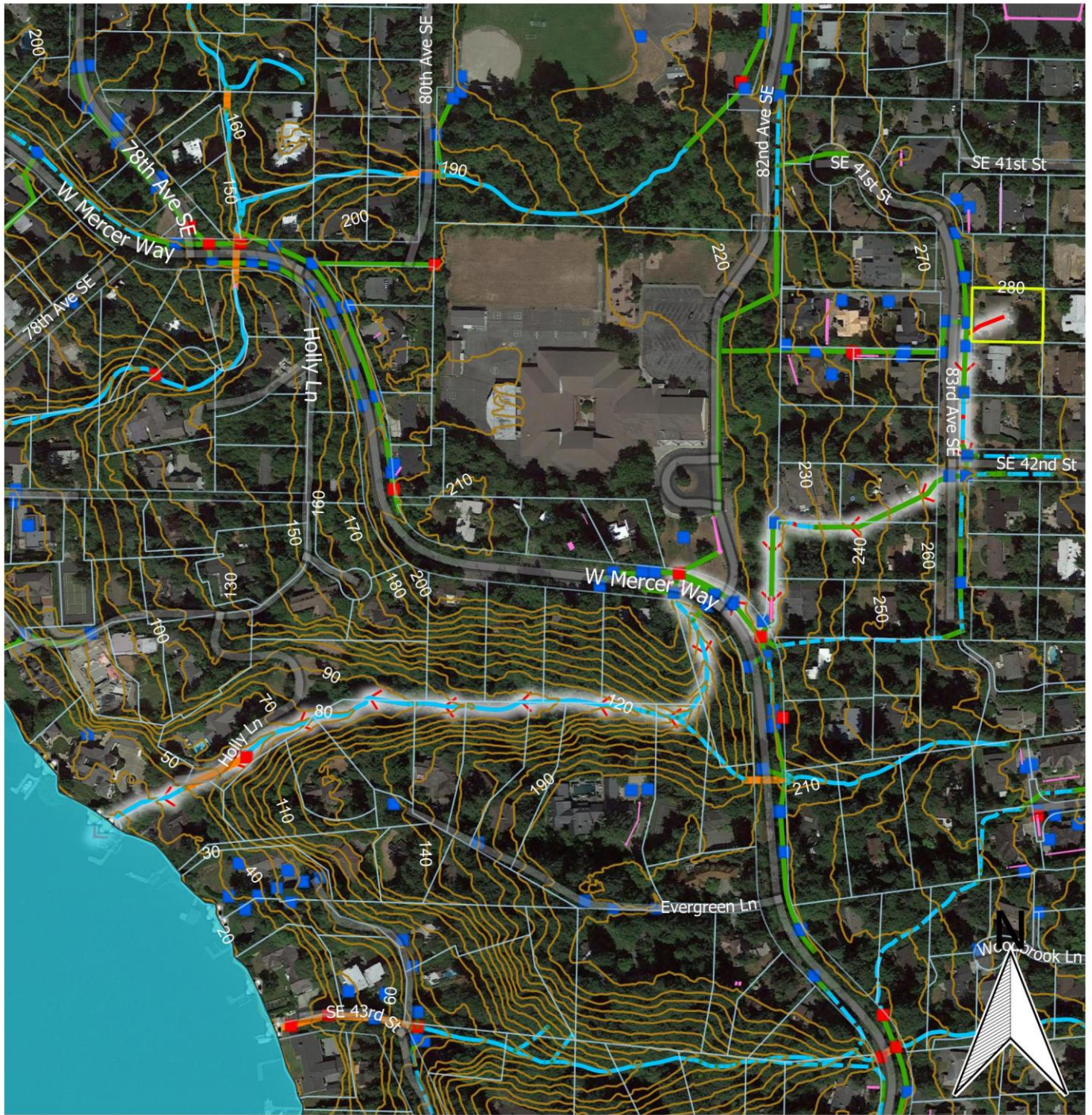


Legend

- Site
- Parks



Figure 1: Site Vicinity Map

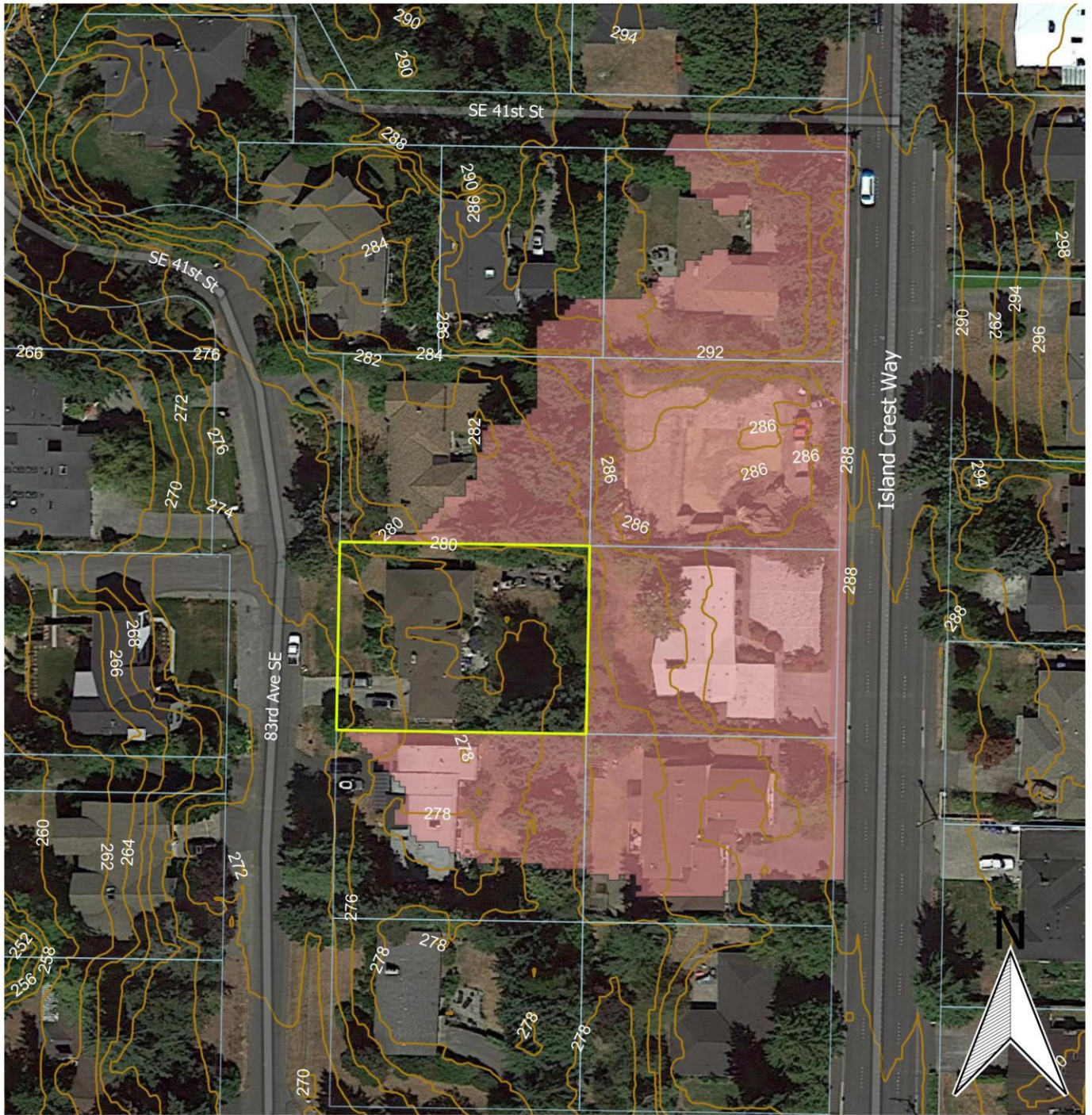


Legend

- Site
- Downstream Flow
- Pipe
- Open Watercourse
- Piped Watercourse
- Ditch
- Type 1
- Type 2 / MH



Figure 2: Downstream Flow Path



Legend

- Site
- Upslope Area

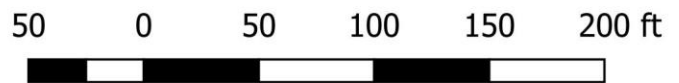
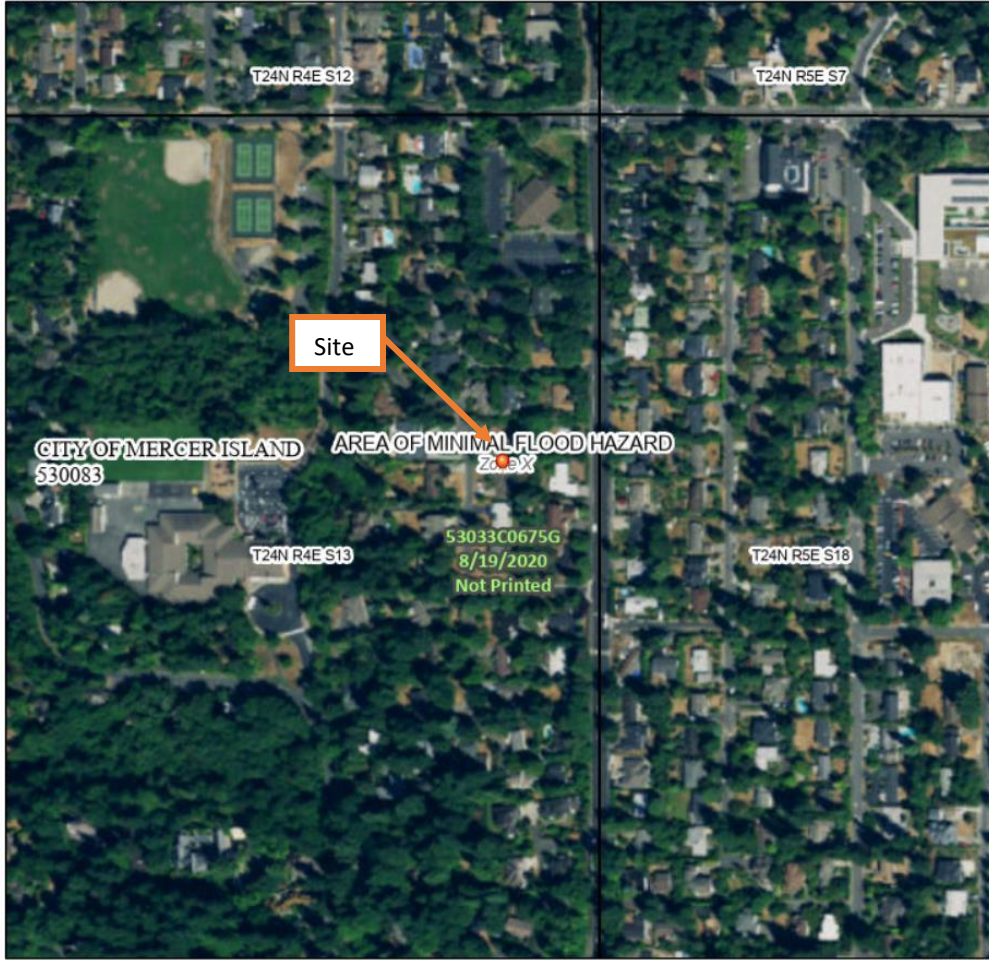


Figure 3: Upstream Area

National Flood Hazard Layer FIRMette



122°13'59"W 47°34'31"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

| | |
|------------------------------------|---|
| SPECIAL FLOOD HAZARD AREAS | <ul style="list-style-type: none"> Without Base Flood Elevation (BFE) <i>Zone A, V, AB9</i> With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i> Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | <ul style="list-style-type: none"> 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i> Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i> Area with Reduced Flood Risk due to Levee. See Notes, <i>Zone X</i> Area with Flood Risk due to Levee <i>Zone D</i> |
| OTHER AREAS | <ul style="list-style-type: none"> NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i> Effective LOMRs Area of Undetermined Flood Hazard <i>Zone D</i> |
| GENERAL STRUCTURES | <ul style="list-style-type: none"> Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall |
| OTHER FEATURES | <ul style="list-style-type: none"> <u>20.2</u> Cross Sections with 1% Annual Chance Water Surface Elevation <u>17.8</u> Water Surface Elevation Coastal Transect Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Transect Baseline Profile Baseline Hydrographic Feature |
| MAP PANELS | <ul style="list-style-type: none"> Digital Data Available No Digital Data Available Unmapped |

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/4/2022 at 4:25 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Figure 4: FEMA Flood Map

APPENDIX A

Test Boring Logs

VERTICAL DATUM

ELEVATIONS SHOWN ON THIS DRAWING WERE DERIVED FROM INFORMATION PROVIDED BY WCCS SURVEY CONTROL DATABASE.

THE MARK IS A MONUMENT IN CASE AT THE INTERSECTION OF ISLAND CREST WAY AND SE 42ND STREET.

POINT ID NO. 3060;
ELEVATION: 304.936 FEET NAVD 88

2.0' CONTOUR INTERVAL - THE EXPECTED VERTICAL ACCURACY IS EQUAL TO 1/2 THE CONTOUR INTERVAL OR PLUS / MINUS 1.0' FOR THIS PROJECT.

LEGAL DESCRIPTION

LOT 7, BLOCK 1, ISLAND RIDGE TRACTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 47 OF PLATS, PAGE 71, RECORDS OF KING COUNTY, WASHINGTON;

SITUATE IN THE CITY OF MERCER ISLAND, COUNTY OF KING, STATE OF WASHINGTON.

BASIS OF BEARING

THE PLAT OF ISLAND RIDGE TRACTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 47 OF PLATS, PAGE 71, RECORDS OF KING COUNTY, WASHINGTON

OWNER

CHARLES HATELY
4114 83RD AVE SE, MERCER ISLAND, WA 98040
PH: 425-894-0201

ARCHITECT

ARCHITECTS NORTHWEST / SARAH WEIGHT, PM
18915-142ND AVE NE / #100, WOODINVILLE, WA 98072
PH: 425 485 4900 / EM: SARAH@ARCHITECTSNW.COM

STRUCTURAL ENGINEER

TBD

SITE ADDRESS

4114 83RD AVE SE, MERCER ISLAND, WA 98040

PARCEL NUMBER

362650-0035
14,078 S.F. (0.323 ACRES) AS SURVEYED

ZONING

R-9.6

LOT COVERAGE

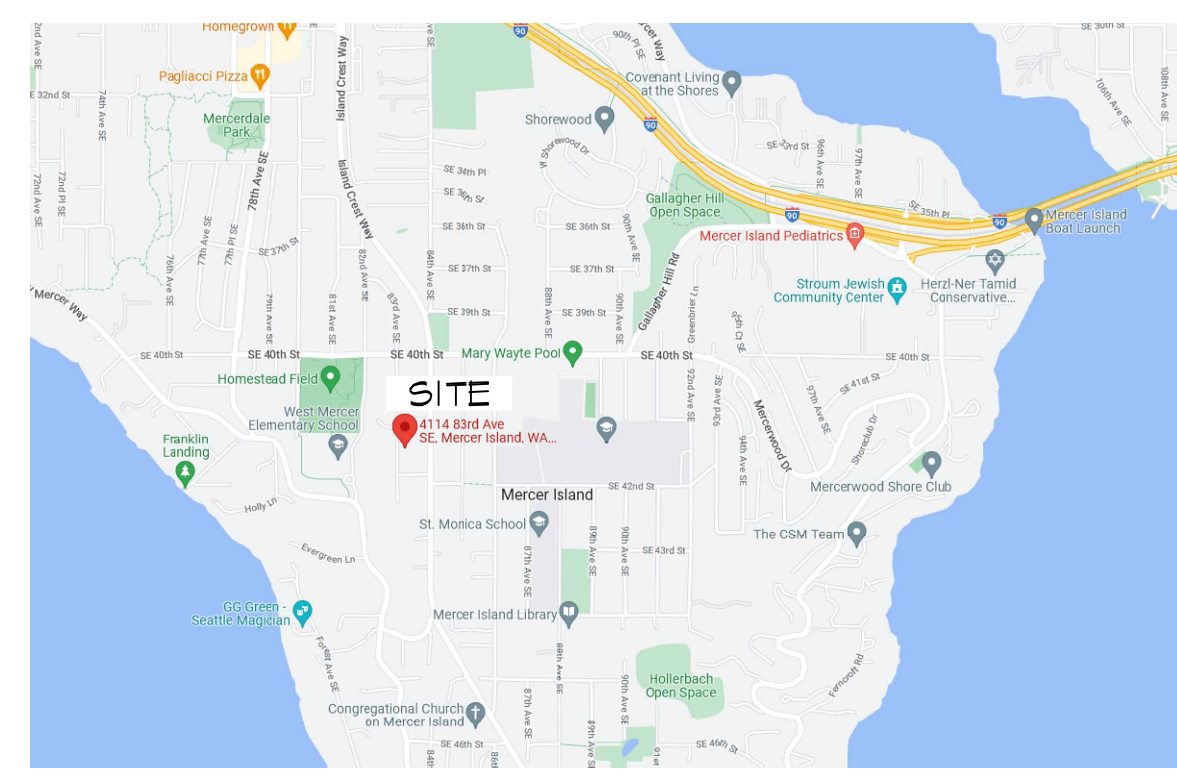
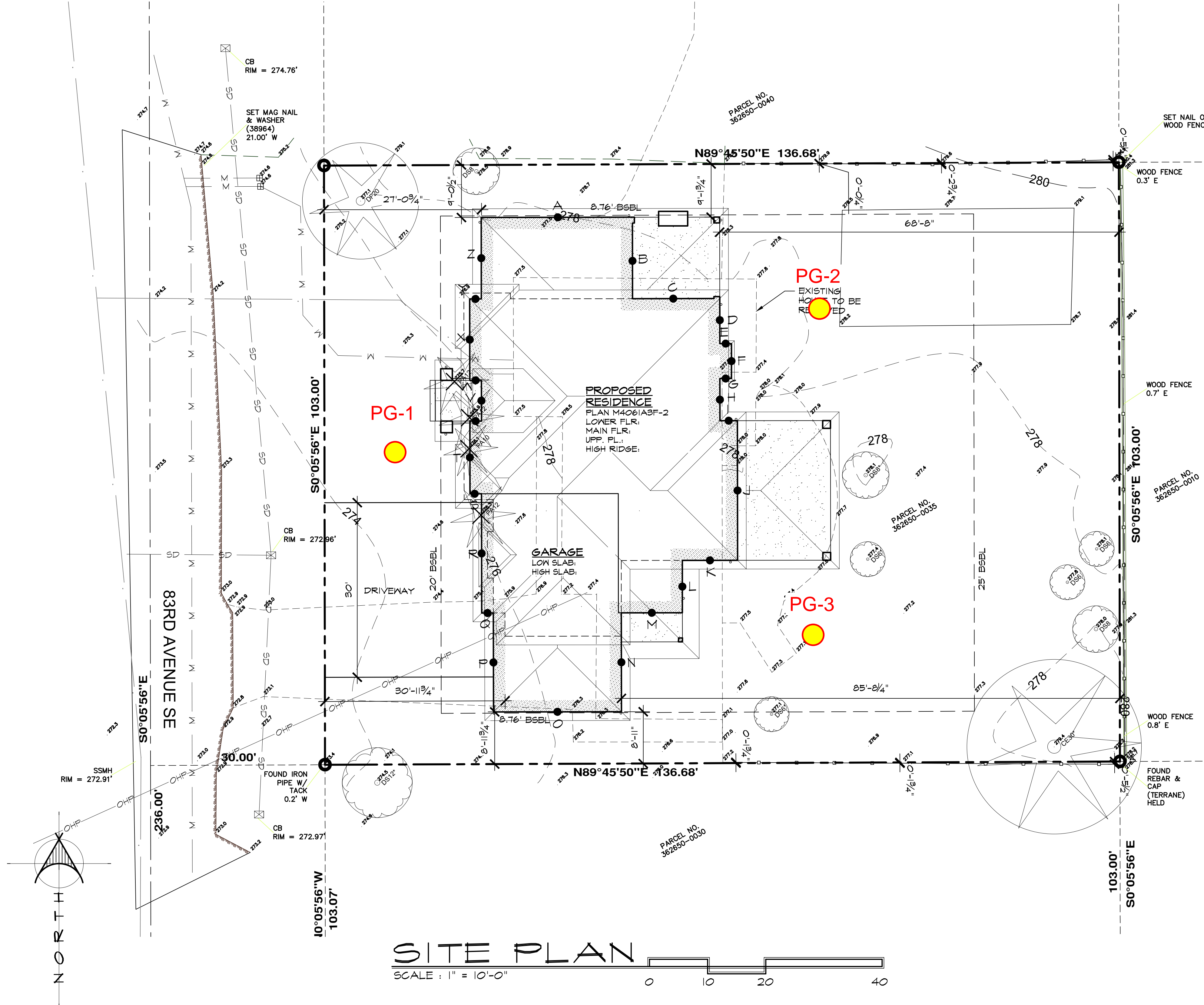
| | |
|-------------------------------|---------------|
| LOT AREA | 14078.00 S.F. |
| MAX LOT COVERAGE ALLOWED: 40% | 5631.20 S.F. |
| PROPOSED COVERAGE AREA | |
| HOUSE FOOTPRINT | 3021.00 S.F. |
| TOTAL PROPOSED COVERAGE AREA: | 3021.00 S.F. |
| | 21.46% |
| HARDSCAPES | |
| LOT AREA | 14078.00 S.F. |
| MAX HARDSCAPES ALLOWED: 9% | 1267.02 S.F. |
| PROPOSED COVERAGE AREA | |
| COVERED PATIOS | 710.00 S.F. |
| TOTAL PROPOSED COVERAGE AREA: | 710.00 S.F. |
| | 5.04% |

HEIGHT CALCULATION

| WALL SEGMENT | MIDPOINT ELEVATION | WALL LENGTH | PRODUCT |
|--------------|--------------------|-------------|---------|
| A | 278.00 | 26.00 | 7228.00 |
| B | 278.00 | 14.00 | 3892.00 |
| C | 278.00 | 15.00 | 4170.00 |
| D | 278.00 | 7.75 | 2154.50 |
| E | 278.00 | 2.00 | 556.00 |
| F | 278.00 | 6.00 | 1668.00 |
| G | 278.00 | 2.00 | 556.00 |
| H | 278.00 | 7.25 | 2015.50 |
| I | 278.00 | 3.00 | 834.00 |
| J | 278.00 | 24.00 | 6672.00 |
| K | 278.00 | 9.50 | 2641.00 |
| L | 278.00 | 9.00 | 2502.00 |
| M | 278.00 | 10.50 | 2919.00 |
| N | 277.00 | 17.00 | 4709.00 |
| O | 276.30 | 22.00 | 6078.60 |
| P | 275.00 | 17.00 | 4675.00 |
| Q | 275.00 | 2.00 | 550.00 |
| R | 275.00 | 20.50 | 5637.50 |
| S | 276.00 | 2.00 | 552.00 |
| T | 276.00 | 12.50 | 3450.00 |
| U | 276.00 | 2.00 | 552.00 |
| V | 276.00 | 7.00 | 1932.00 |
| W | 275.70 | 2.00 | 551.40 |
| X | 276.30 | 14.00 | 3868.20 |
| Y | 277.00 | 2.00 | 554.00 |
| Z | 277.50 | 14.00 | 3885.00 |
| TOTALS: | 270.00 | 74802.70 | |

AVERAGE EXG GRADE = TOTAL PRODUCTS / TOTAL WALL LENGTHS:
74802.7 / 270.00 = 277.05 AVG. BLDG ELEV.

MAX HT. ALLOWABLE = 30.00
MAX ELEVATION @ RIDGE = 307.05
PROPOSED RIDGE ELEVATION = 304.75
PROPOSED RIDGE = 2.30 BELOW HT. LIMIT



SITE PLAN

SCALE: 1" = 10'-0"

REGISTERED ARCHITECT
5046
SARAH WEIGHT
ARCHITECTS NORTHWEST
ARCHITECTS NORTHWEST
18915-142nd AVENUE NE SUITE 100 WOODINVILLE, WA 98072
OFFICE: (425) 485-4900 FAX: (425) 487-6885
WWW.ARCHITECTSNW.COM

HATELY RESIDENCE
4114 83RD AVE SE, MERCER ISLAND, WA 98040
PLAN M406IA3F-2FB

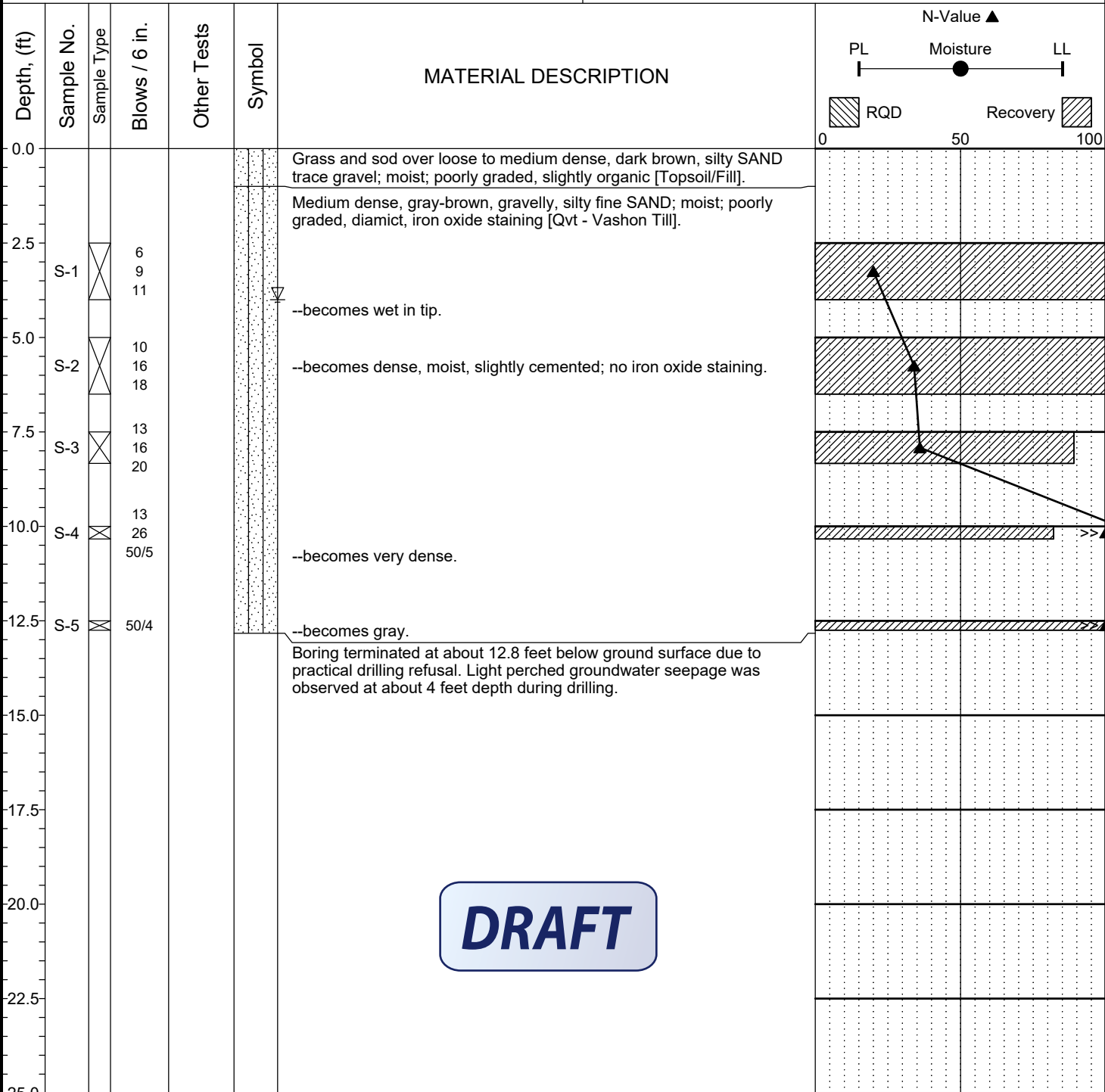
DESIGNED BY: JdeR DATE: 2012
DRAWN BY: JM DATE: 5/1/2012

PROJECT MANAGER: SARAH WEIGHT
REVISED BY: JSC DATE: 4/14/22

LATERAL BY: DATE:
LATERAL JOB NUMBER:

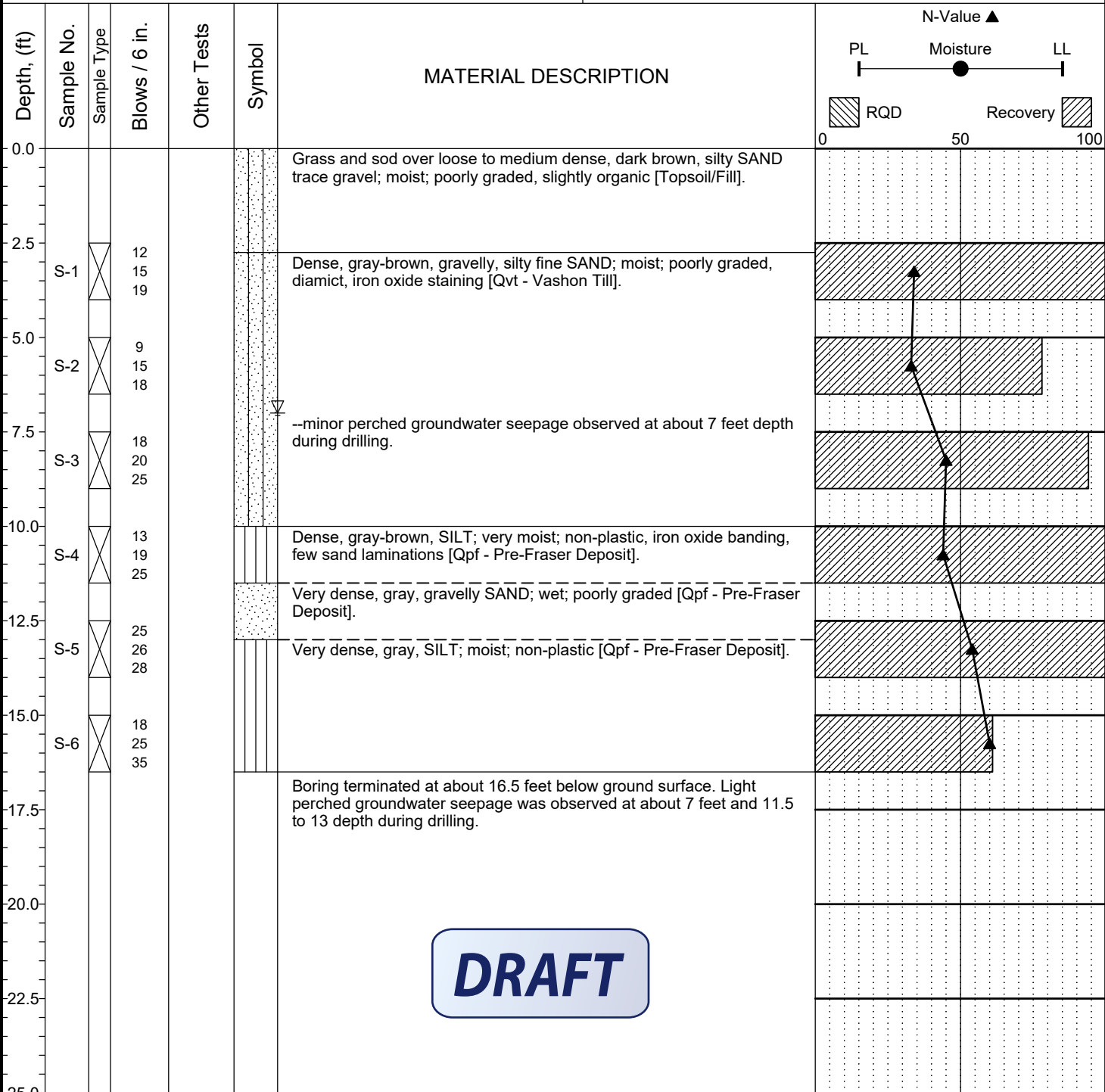
AO
A13
ANW WOODINVILLE OFFICE
JOB NUMBER:
220006

| | | | |
|--------------|--------------------------------------|----------------------|---------|
| Project: | Proposed SFR | Surface Elevation: | 275.0ft |
| Job Number: | 22-268 | Top of Casing Elev.: | N/A |
| Location: | 4114 - 83rd Ave SE, Mercer Island | Drilling Method: | HSA |
| Coordinates: | Northing: 47.572, Easting: -122.2281 | Sampling Method: | SPT |



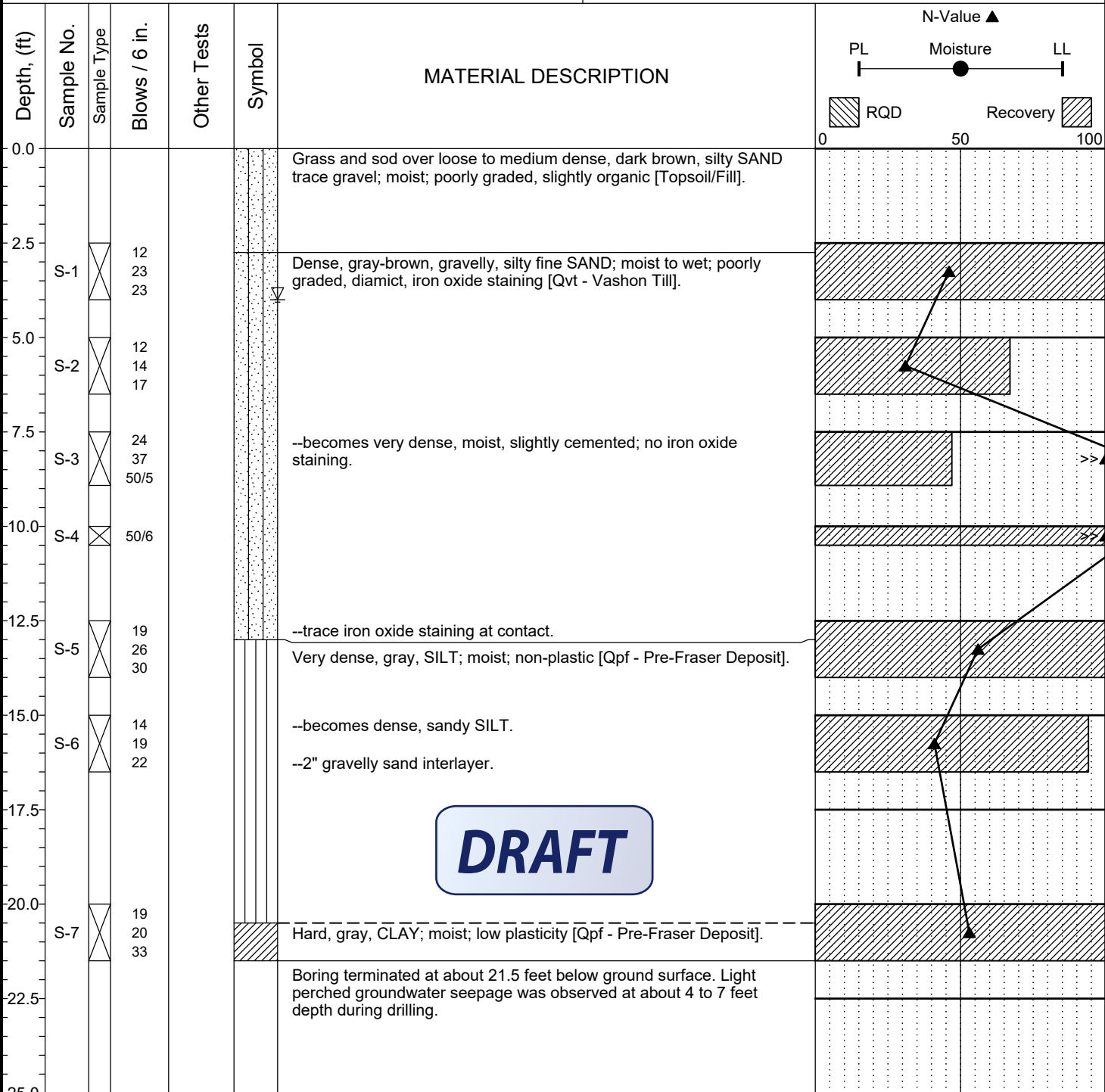
| | | |
|--------------------------|-------------------------|--|
| Completion Depth: | 12.8ft | Remarks: Boring drilled using a Bobcat track drill rig. Standard penetration test (SPT) sampler driven with a 140 lb. safety hammer. Hammer operated with a rope and cathead mechanism. Surface elevation estimated from Site Plan by Architects Northwest dated April 14, 2022. |
| Date Borehole Started: | 6/14/22 | |
| Date Borehole Completed: | 6/14/22 | |
| Logged By: | B. Weitering | |
| Drilling Company: | Geologic Drill Partners | |

| | | | |
|--------------|---|----------------------|---------|
| Project: | Proposed SFR | Surface Elevation: | 278.0ft |
| Job Number: | 22-268 | Top of Casing Elev.: | N/A |
| Location: | 4114 - 83rd Ave SE, Mercer Island | Drilling Method: | HSA |
| Coordinates: | Northing: 47.57208, Easting: -122.22775 | Sampling Method: | SPT |



| | | |
|--------------------------|-------------------------|--|
| Completion Depth: | 16.5ft | Remarks: Boring drilled using a Bobcat track drill rig. Standard penetration test (SPT) sampler driven with a 140 lb. safety hammer. Hammer operated with a rope and cathead mechanism. Surface elevation estimated from Site Plan by Architects Northwest dated April 14, 2022. |
| Date Borehole Started: | 6/14/22 | |
| Date Borehole Completed: | 6/14/22 | |
| Logged By: | B. Weitering | |
| Drilling Company: | Geologic Drill Partners | |

| | | | |
|--------------|--|----------------------|---------|
| Project: | Proposed SFR | Surface Elevation: | 277.0ft |
| Job Number: | 22-268 | Top of Casing Elev.: | N/A |
| Location: | 4114 - 83rd Ave SE, Mercer Island | Drilling Method: | HSA |
| Coordinates: | Northing: 47.5719, Easting: -122.22775 | Sampling Method: | SPT |



| | | |
|--------------------------|-------------------------|--|
| Completion Depth: | 21.5ft | Remarks: Boring drilled using a Bobcat track drill rig. Standard penetration test (SPT) sampler driven with a 140 lb. safety hammer. Hammer operated with a rope and cathead mechanism. Surface elevation estimated from Site Plan by Architects Northwest dated April 14, 2022. |
| Date Borehole Started: | 6/14/22 | |
| Date Borehole Completed: | 6/14/22 | |
| Logged By: | B. Weitering | |
| Drilling Company: | Geologic Drill Partners | |