

**STORMWATER DRAINAGE REPORT**

*for*

**WISHWAS SFR REMODEL**  
**8203 Avalon Drive**  
**Mercer Island, WA**

**MERCER ISLAND #: 2505-004**

*ISSUE DATE: 02/04/2025*

*REVISION DATE: 07/24/2025*

*PREPARED BY:*

**BRADLEY M. EHLERS, E.I.T.**

*REVIEWED BY:*

**TIMOTHY A. SARKELA, P.E.**



**07/24/25**

**CLIENT**

ATTN: Jen Tamblin, Architect  
Madhuri Koushik & Wishwas Kumar  
Gummanur Mohan, Trustees  
2441 66<sup>th</sup> Ave SE  
Mercer Island, WA 98040

**ENGINEER**

WESI Land Use Consultants  
Job # 24-1102-A

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## **Minimum Requirement # 1: Stormwater Site Plan**

### **Executive Summary**

The proposed project is to remodel a single-family residence. The one-story structure with basement will have its interior taken out and reconfigured while replacing the roof. The existing garage will remain attached via breezeway. The finished structure will be a two-story single-family residence with a basement and detached garage sharing a common roof. No landscaping or additional driveway areas are proposed. Drainage management consists of utilizing the existing tight-line downspout drainage for the roofs.

The project is to be designed according to the current SWMMWW Ecology manual.

### **Existing Conditions Summary**

The property is a one tax parcel and currently contains a single-family residence with a detached garage sharing a common roof. A single vehicle asphalt driveway gives access to Avalon Drive to the south, and runs through the property connecting to the garage located on the back of the SFR.

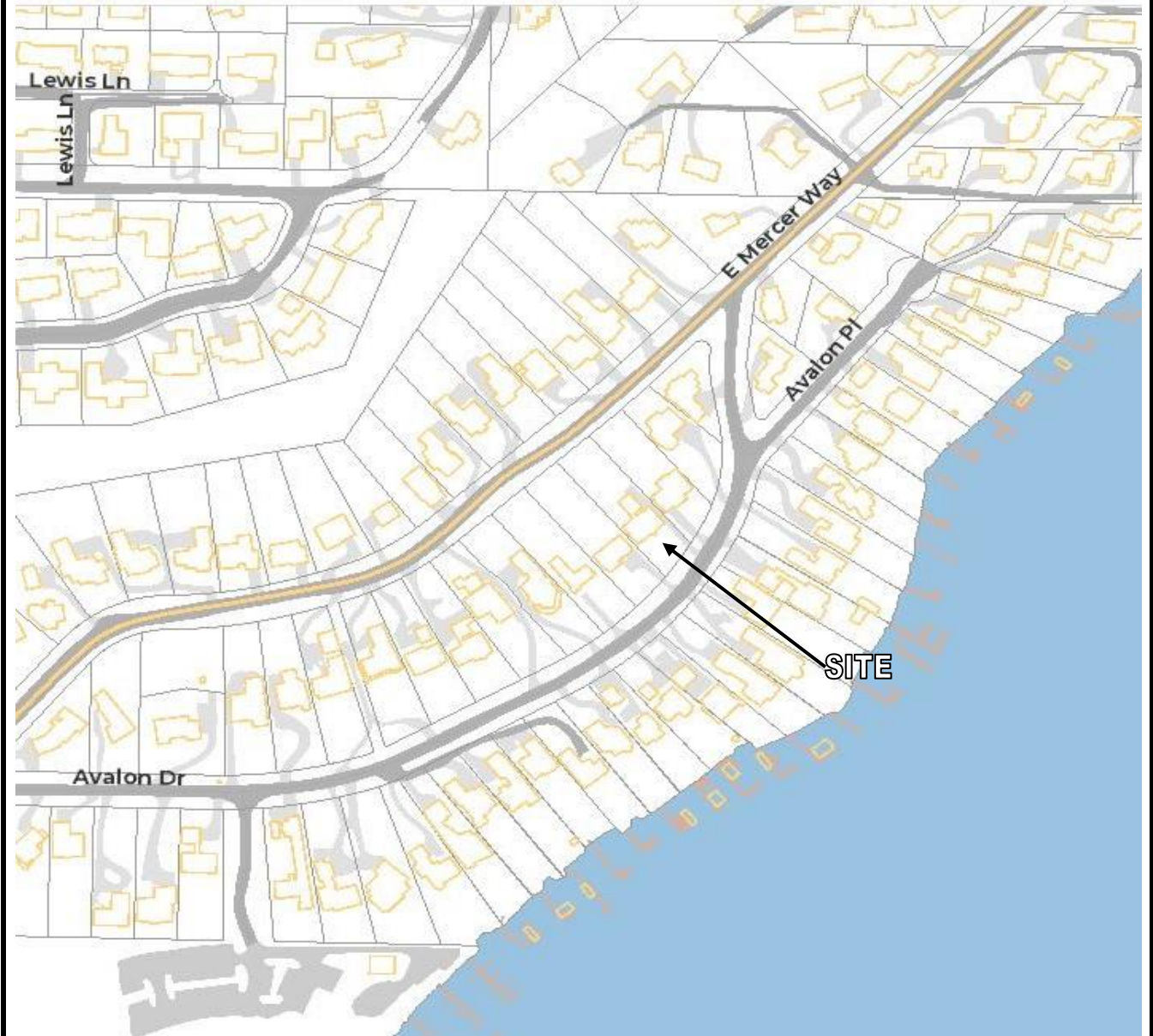
Slopes on-site are severe on the north (back) ranging from 40% to 50%, flat in the middle just less than 5%, and moderate towards Avalon Drive to the south (front) ranging from 8% to 12%. Soils from the USDA found Kitsap silt loam in this vicinity. This soil type has a Class C Hydrologic Soil Group and the Drainage Class is moderately well drained.

Surrounding parcels are developed with existing residences and driveways. Vegetation in the surrounding area is comprised primarily of ornamental lawns and gardens. Avalon Drive NE runs adjacent to the southern property line and East Mercer Way runs adjacent to the northern property line.

Erosion problem areas have been identified per Mercer Island iMAP. There are two Landslide locations on the north portion of the site and the entire site is considered a landslide area. Also, the north portion of the site is a protected slope area.

### VICINITY MAP

FIGURE 1: MAP TAKEN FROM MERCER ISLAND iMAP



**WISHWAS SFR ADD  
8203 Avalon Drive  
Mercer Island, WA**

<b>SCALE:</b> N.T.S.	<b>DATE:</b> 01/29/25	<b>CHECKED:</b> TAS
<b>BY:</b> BME	<b>JOB NUMBER:</b> 24-1102-A	

### **Upstream Analysis**

From available topographic elevation information from Mercer Island iMAP, upstream runoff originating from adjacent northern parcels enters East Mercer Way from the down sloping driveways (southerly) where individual open grated catch basins collecting the stormwater. No erosion due to existing runoff was observed. Therefore, minimal runoff appears to enter the site.

### **Downstream Analysis**

Runoff flows tends to down slop to the southern portion of the site uniformly. The driveway stormwater flow is capture in an open grated catch basin. Any other flow from the landscaped yard will also flow onto Avalon Drive flowing towards the same catch basin or the neighboring driveway catch basin to the west. Once surface stormwater flow reaches a catch basin, it continues to flow westerly along Avalon Drive for about 200 feet. It then crosses under Avalon Drive continuing its way between two residential lots through a series of other stormwater infrastructure before terminating at an outfall flowing directly into Lake Washington; the total length of travel is approximately 550 feet. See Figure 2 showing stormwater infrastructure for the surrounding area.

### **Drainage Complaints**

There are no found drainage complaints for this site.

**BASIN AND AERIAL  
MAPS**



**DOWNSTREAM  
PHOTOGRAPHS**

## DOWNSTREAM PHOTOGRAPHS



**PHOTO 1 (left):**  
Looking westerly from  
Avalon Drive

**PHOTO 2 (right):**  
Looking southerly from  
Avalon Drive



WISHWAS SFR ADD  
8203 Avalon Drive  
Mercer Island, WA

SCALE:	N.T.S.	DATE:	01/30/25	SHEET:	1 OF 1
BY:	BME	JOB NUMBER:	24-1102-A		

## **Minimum Requirement # 2: SWPPP Narrative**

**See Separate SWPPP Report.**

## **Minimal Requirement # 3: Water Pollution Source Control**

All proposed development is to consist of residential construction. No water pollution source control is needed.

## **Minimum Requirement # 4: Preservation of Natural Drainage Systems and Outfalls, and provisions of off-site mitigation**

No changes to the existing drainage systems and outfalls are proposed with this development. All proposed runoff from the project area will connect to existing drainage features on-site, which flows to the natural drainage course.

## **Minimum Requirement #5 On-Site Storm Water Management**

Due to the project proposing less than 5,000 sf of new hard surfaces, Minimum Requirements 1 through 5 must be evaluated. The project has chosen to fulfill the requirements of List #1 and the following BMPs must be implemented when feasible. However, this project is proposing a retrofit to an existing system.

### **Lawn and landscaped areas:**

- Post-Construction Soil Quality and Depth BMP T5.13.

### **Roofs feasibility description:**

1. Full Dispersion BMP T5.30 or Downspout Full Infiltration BMP T5.10A.
  - i. Full Dispersion is not recommended due to this only being a retrofit to an existing house.
  - ii. Full Infiltration is not recommended due to this only being a retrofit to an existing house.
2. Rain Garden BMP T5.14A or Bioretention BMP T7.30.
  - i. Rain Garden infiltration is not recommended due to this only being a retrofit to an existing house.
3. Downspout Dispersion Systems BMP T5.10B.
  - i. A dispersion trench is not recommended due to this only being a retrofit to an existing house.
4. Perforated Stub-out Connections BMP T5.10C.
  - i. Stub-out connections is not recommended due to this only being a retrofit to an existing house. Instead, the existing downspouts will continue to run into the existing on-site drainage system.

**Other Hard Surfaces feasibility description:**

1. Full Dispersion per BMP T5.30
  - i. Full Dispersion is not recommended due to the lack of native forest for 65% area retention on-site.
2. Permeable Pavement per BMP T5.15
  - i. Permeable Pavement is not needed due to there being no new proposed driveway areas.
3. Biorention per Volume V, Chapter 7.
  - i. Biorention cells are not needed due to there being no new proposed driveway areas.
4. Sheet Flow Dispersion in accordance with BMP T5.12 or BMP T5.11.
  - i. Driveway dispersion BMPs are not needed due to there being no new proposed driveway areas. What little deck is proposed will sheet flow southerly across more than 60 feet of lawn.

**Minimum Requirement # 6: Runoff Treatment**

Due to the site proposing less than 5,000 sf. of new/replaced pollution generating impervious surfaces, runoff treatment is not required.

**Minimum Requirement # 7: Flow Control**

Due to the site proposing less than 5,000 sf. of new/replaced impervious surfaces, the evaluation of flow control measures are not required.

**Existing and Developed Site Summary**

Existing Property Area = 18,225 sf. (0.418 Ac.)

**Existing Site**

**On-Site Hardscape Area:**

*Existing Driveway	= 1,615 sf.
Existing SFR Roof	= 2,350 sf.
Existing Garage Roof	= 850 sf.
<b>Total</b>	<b>= 4,815 sf. (0.111 Ac.)</b>

\*Note: Does not include areas covered by roof overhangs

**On-Site Pervious Area:**

Res. Lawn and Landscaping = 13,410 sf. (0.308 Ac.)

**Proposed Site**

**On-Site Hardscape Area:**

*Existing Driveway	=	1,650 sf.
Remodeled SFR Roof	=	2,500 sf.
Remodeled Garage Roof	=	850 sf.
*Proposed Deck Addition	=	200 sf.
<u>Total</u>	=	5,200 sf. (0.119 Ac.)

\*Note: Does not include areas covered by roof overhangs

**On-Site Pervious Area:**

Res. Lawn and Landscaping	=	13,025 sf. (0.299 Ac.)
---------------------------	---	------------------------

Total New/Replaced Hardscape Surface = 385 sf. (0.009 Ac.)

**Minimum Requirement # 8: Wetland Protection**

No known wetlands are onsite or within 300 feet of the site; however, any potential downstream wetlands will be protected with onsite BMPs. Wetland protection is not required.

**Minimum Requirement # 9: Operation and Maintenance**

**BMP T5.13 Post-Construction Soil Quality and Depth**

**Maintenance**

- Soil quality and depth should be established toward the end of construction and once established, should be protected from compaction, such as from large machinery use, and from erosion.
- Soil should be planted and mulched after installation.
- Plant debris or its equivalent should be left on the soil surface to replenish organic matter.

**No. 5 – Catch Basins**

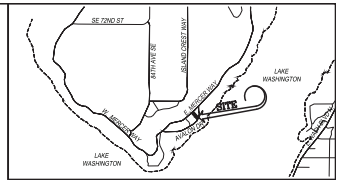
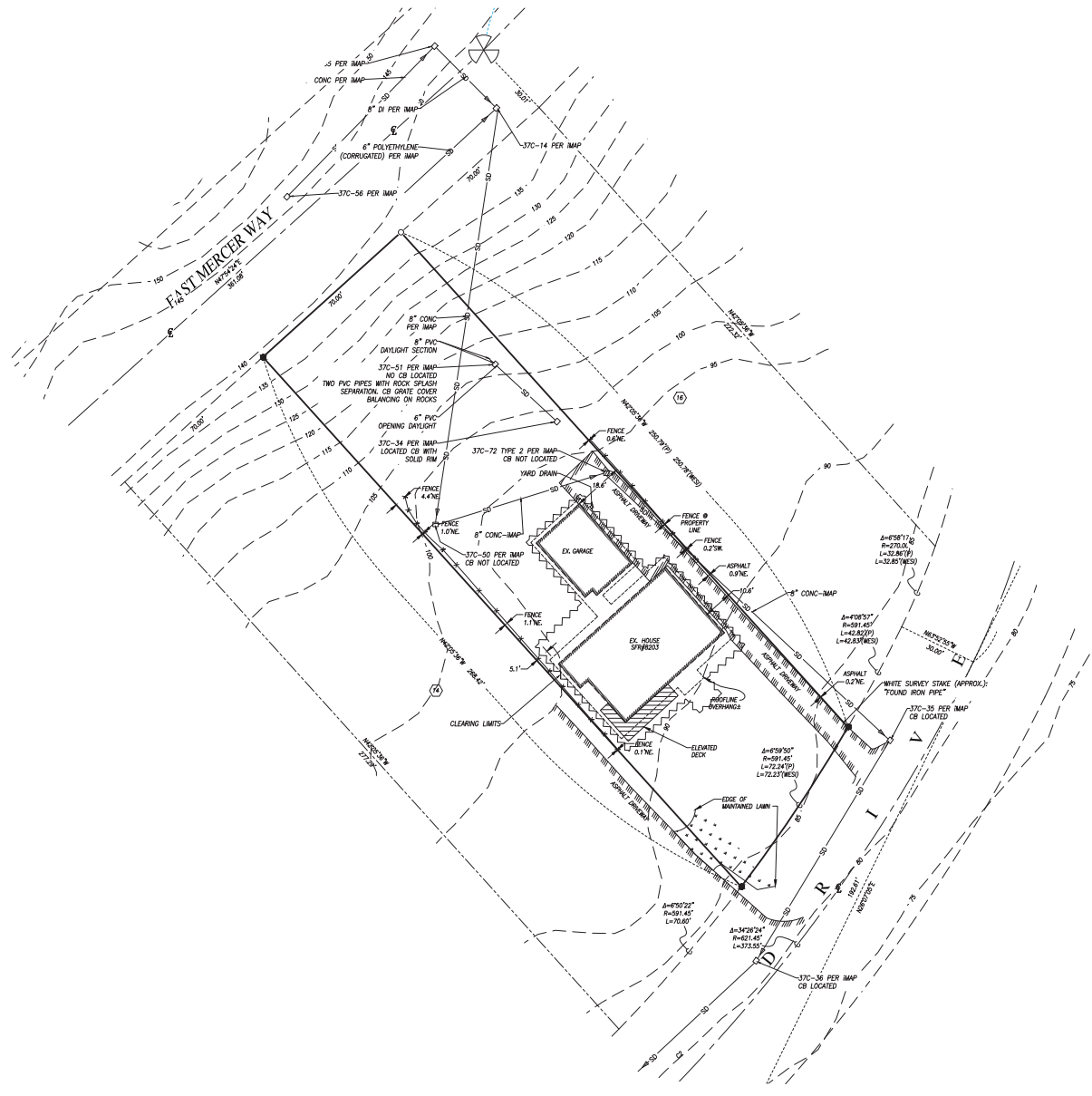
<b>Maintenance Component</b>	<b>Defect</b>	<b>Conditions When Maintenance is Needed</b>	<b>Results Expected When Maintenance is performed</b>
General	Sediment & Debris	Sediment, trash, and/or other debris material is located immediately in front of the catch basin opening or is blocking inletting capacity of the basin by more than 10%.	No sediment or debris is located immediately in front of catch basin or on grate opening.
		Sediment, trash, and/or other debris material (located in the catch basin) exceeds 60 percent of the sump depth as measured from the bottom of the 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 sediment or debris is in the catch basin.
		Sediment, trash, and/or other debris material located in any inlet or outlet pipe is blocking more than 1/3 of its height.	Inlet and outlet pipes are free of sediment and debris.
		Dead animals or vegetation that impair catch basin function or that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No dead animals or vegetation are present within 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 seeping into the catch basin).	Top slab is free of holes and cracks. No water and/or soil is seeping into the catch basin
		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	Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks, or qualified maintenance or inspection personnel determine that the vault is not structurally sound.	Catch basin is replaced or repaired to design standards.
		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.
	Settlement/ Misalignment	Settlement of misalignment of the catch basin causes a safety, function, or design problem.	Catch basin is replaced or repaired to design standards.
		Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants  Note: Coordinate removal/cleanup with local and/or state water quality response agency.
Access Hole Cover	Cover Not in Place	Cover is missing or only partially in place. Any open catch basin requires maintenance.	Catch basin cover is fully in place
	Locking Mechanism Not Working	Locking mechanism cannot be opened or lock bolts cannot be removed by one maintenance person with proper hand tools.	Mechanism or lock bolts open with proper hand tools.
	Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure with proper hand tools. Intent is keep cover from sealing off access to maintenance.	Cover can be removed and reinstalled by one maintenance person with proper hand tools.

**No. 5 – Catch Basins**

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is performed
Ladder	Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, cracked/broken rungs, rungs not securely attached to basin wall, misalignment, rust, cracks, or sharp edges.	Ladder meets design standards and allows maintenance person safe access.
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 and meets design standards.

# **APPENDIX I**

## **Drainage Plan**



VICINITY MAP  
SCALE: 1" = 2,000'



**EQUIPMENT AND PROCEDURE:**  
 METHOD OF SURVEY:  
 SURVEY PERFORMED BY FIELD TRIANGULAR  
 INSTRUMENTATION:  
 LEICA TORN-1105 ELECTRONIC TOTAL STATION  
 PRECISION:  
 MEETS OR EXCEEDS STATE STANDARDS WAC 322-130-090  
 BASIS OF BEARINGS:  
 THE CENTERLINE OF EAST MERCER WAY HAS THE BEARING OF N44°54'24"E PER THE PLAT OF AVILON PARK, AS PER THE PLAT RECORDED IN VOLUME 49 OF PLATS ON PAGE 64 AND 65, RECORDS OF KING COUNTY

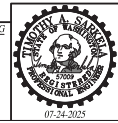
**LEGAL DESCRIPTION**  
 AS PER STATUTORY WARRANTY DEED KING COUNTY INSTRUMENT NO. 2024102800000  
 LOT 15 IN BLOCK 2 OF AVILON PARK, AS PER PLAT RECORDED IN VOLUME 49 OF PLATS ON PAGES 64 AND 65, RECORDS OF KING COUNTY;  
 SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.  
 SUBJECT TO: COVENANTS, CONDITIONS, RESTRICTIONS, EASEMENTS AND ENCUMBRANCES, IF ANY, AFFECTING TITLE, WHICH MAY APPEAR IN THE PUBLIC RECORD INCLUDING THOSE SHOWN ON ANY RECORDED PLAT OF SURVEY.

<b>ENGINEER/SURVEYOR</b>	WESI LAND USE CONSULTANTS, LLC 1000 CEDAR AVENUE MARYSVILLE, WA 98270 PHONE: (425) 356-2700
<b>DEVELOPER/APPLICANT/CONTACT</b>	JENNIFER TAMBUN 8033 AVILON DRIVE MERCER ISLAND, WA 98040 PHONE: (425) 478-0327 EMAIL: JENNBORRY@AOL.COM
<b>TAX ACCOUNT NO. (S)</b>	8233 AVILON DRIVE MERCER ISLAND, WA 032110090
<b>PERMIT #</b>	2505-004

**CALL 811 TWO (2) BUSINESS DAYS BEFORE YOU DIG**

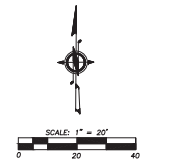
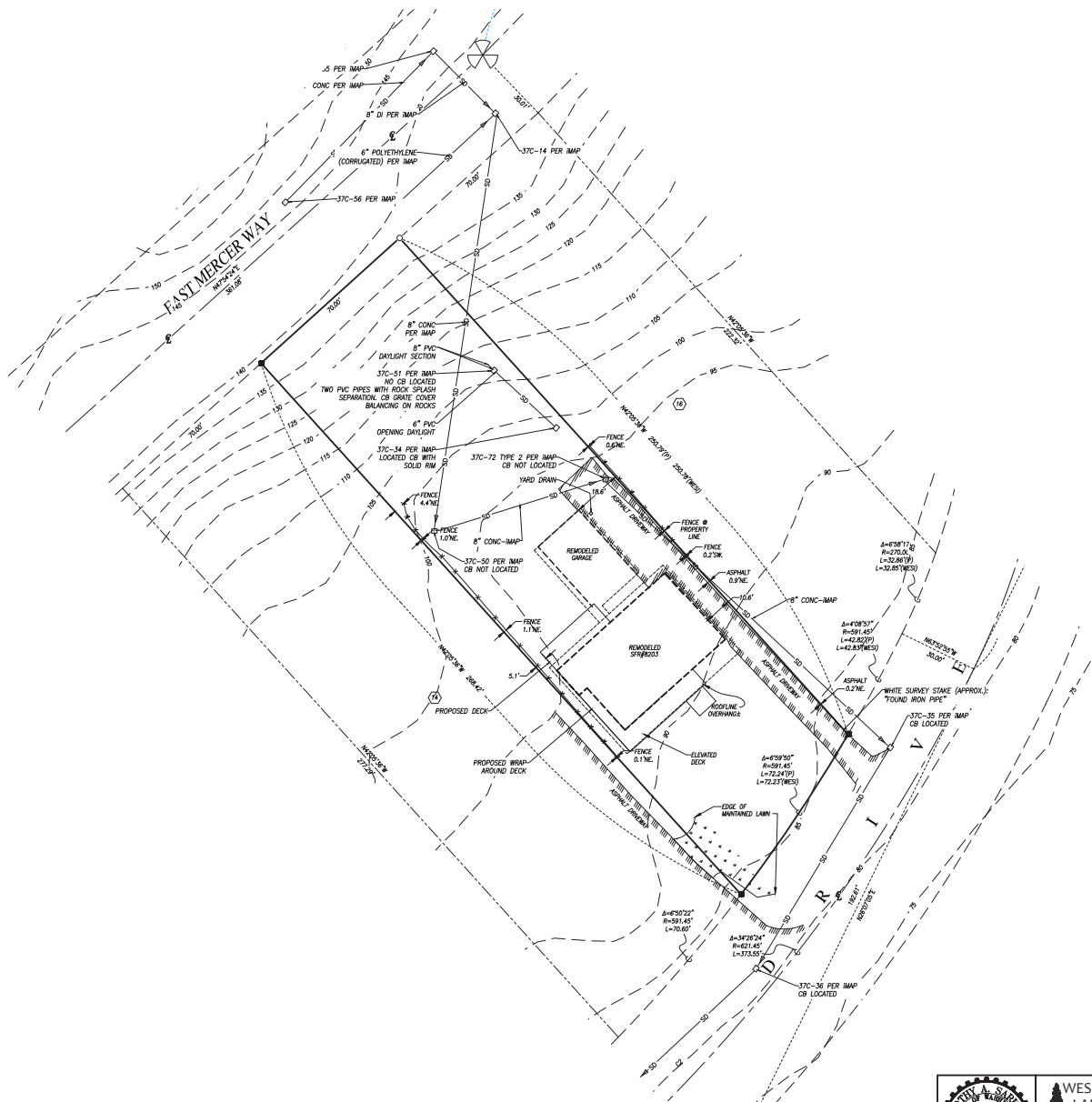
**GRADING QUANTITIES**  
 CUT: 5 CUBIC YARDS  
 FILL: 5 CUBIC YARDS  
 (GRADING QUANTITIES ARE ROUGH CALCULATIONS WHICH DO NOT ACCOUNT FOR SOIL SWELLING & SHRINKAGE)  
 EXCESS CUT MAY BE SPREAD ON SITE. ALL MATERIAL REMOVED FROM SITE SHALL BE HAULED TO A COUNTY APPROVED SITE.

**VEGETATION BEFORE CLEARING & GRADING**  
 RESIDENTIAL LAWN AND LANDSCAPING  
**VEGETATION AFTER CLEARING & GRADING**  
 RESIDENTIAL LAWN AND LANDSCAPING  
 NRCS SOIL CLASSIFICATION  
 VTRMP SLT LOU (60)



**WESI LAND USE CONSULTANTS** (425) 356-2700  
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 VISIT OUR WEBSITE AT: WWW.WESI.CO

**GRADING AND SWPPP PLAN FOR: WISHWAS SFR ADD**  
 NE 1/4, NW 1/4, SEC. 31, T. 24N, R. 05E, W.M. MERCER ISLAND, WASHINGTON  
 DRAWN BY: TDS DATE: 06/04/25 REV. BY: TDS DATE: 07/24/25 PROJECT MANAGER: T. SARKELA SCALE: 1"=20'  
 DRAWING FILE NAME: 241102BASE.DWG CHECKED BY: TDS JOB NUMBER: 24-1102-A SHEET NO.: 1 OF 2



- LEGEND**
- EXISTING STORM DRAIN CATCH BASIN (CB)
  - ▭ EXISTING BUILDING
  - EXISTING PROPERTY BOUNDARY
  - EXISTING CENTERLINE
  - EXISTING CONTOUR (MAJOR)
  - EXISTING CONTOUR (MINOR)
  - EXISTING EDGE OF ASPHALT
  - EXISTING FENCE
  - EXISTING LOT LINE
  - EXISTING HIGH-OF-WAY
  - EXISTING STORM DRAIN LINE

**HARDSCAPE AREA CALCULATION**  
 TOTAL PROPERTY AREA: 18,225 SF (0.418 AC)

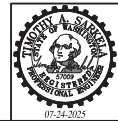
**ON-SITE HARDSCAPE**

EXISTING DRIVEWAY	1,650 SF
REMODELED SFR ROOF	2,200 SF
REMODELED GARAGE ROOF	800 SF
REMODELED DECK ADDITION	300 SF
TOTAL	5,300 SF

TOTAL NEW/REPLACED HARDSCAPE: 385 SF.

**CALL 811 TWO (2) BUSINESS DAYS BEFORE YOU DIG**

TAX ACCOUNT NO. IS: 032110090  
 PERMIT #2505-004  
 SITE ADDRESS: 8233 WILDON DRIVE, MERCER ISLAND, WA



**WESLI LAND USE CONSULTANTS** (425) 356-2700  
 PLANNING • ENGINEERING • SURVEYING  
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 VISIT OUR WEBSITE AT: WWW.WESLI.CO

DRAWN BY	DATE	REV. BY	DATE	PROJECT MANAGER	SCALE
TAS	06/04/25	01 TAS	07/24/25	T. SARKELA	1"=20'
DRAWING FILE NAME	241102BASE.DWG	CHECKED BY/FIR. NO.	TAS	JOB NUMBER	SHEET NO.
				24-1102-A	2 OF 2

**APPENDIX II**  
**SOIL INFORMATION**

**SOIL LOG INFO**

None taken.

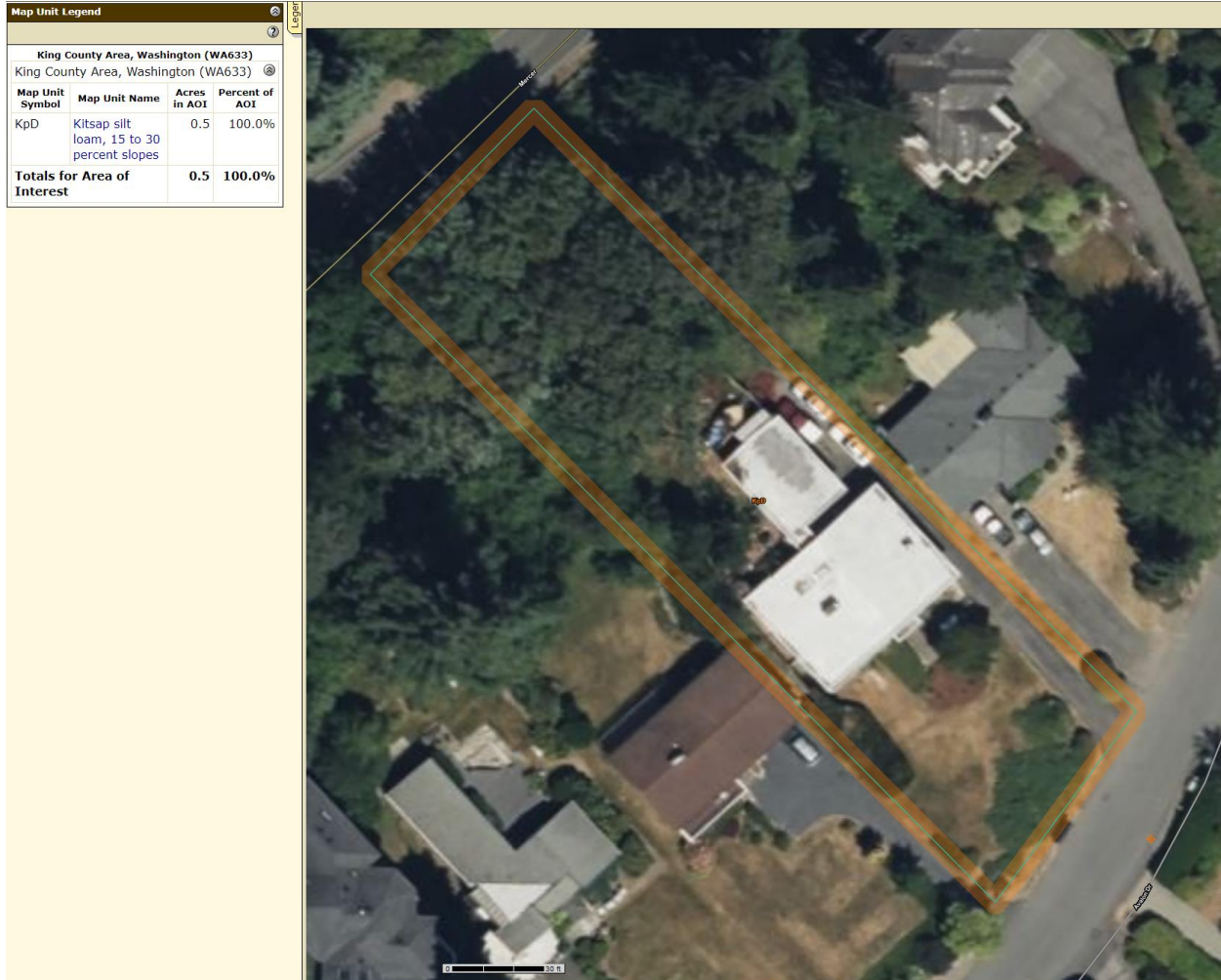
Weather: n/a.

**Soil Log Info:**

Soil Log 1 (SL1)

x”:	x
x”:	x

**SOIL LOG INFO**



**KpD—Kitsap silt loam, 15 to 30 percent slopes**

**Map Unit Setting**

- *National map unit symbol:* 1hmtc
- *Elevation:* 0 to 590 feet
- *Mean annual precipitation:* 37 inches
- *Mean annual air temperature:* 50 degrees F
- *Frost-free period:* 160 to 200 days
- *Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

- *Kitsap and similar soils:* 97 percent
- *Minor components:* 3 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Kitsap**

**Setting**

- *Landform:* Terraces
- *Parent material:* Lacustrine deposits with a minor amount of volcanic ash

**Typical profile**

- *H1 - 0 to 5 inches:* silt loam
- *H2 - 5 to 40 inches:* silt loam
- *H3 - 40 to 60 inches:* stratified silt to silty clay loam

**Properties and qualities**

- *Slope:* 15 to 30 percent
- *Depth to restrictive feature:* More than 80 inches
- *Drainage class:* Moderately well drained
- *Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
- *Depth to water table:* About 18 to 36 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Available water supply, 0 to 60 inches:* High (about 11.4 inches)

**Interpretive groups**

- *Land capability classification (irrigated):* None specified
- *Land capability classification (nonirrigated):* 4e
- *Hydrologic Soil Group:* C
- *Ecological site:* F002XA004WA - Puget Lowlands Forest
- *Forage suitability group:* Sloping to Steep Soils (G002XN702WA)
- *Other vegetative classification:* Sloping to Steep Soils (G002XN702WA)
- *Hydric soil rating:* No

**Minor Components**

**Tukwila**

- *Percent of map unit:* 1 percent
- *Landform:* Depressions
- *Other vegetative classification:* Wet Soils (G002XN102WA)
- *Hydric soil rating:* Yes

**Bellingham**

- *Percent of map unit:* 1 percent
- *Landform:* Depressions
- *Other vegetative classification:* Wet Soils (G002XN102WA)
- *Hydric soil rating:* Yes

**Seattle**

- *Percent of map unit:* 1 percent
- *Landform:* Depressions
- *Other vegetative classification:* Wet Soils (G002XN102WA)
- *Hydric soil rating:* Yes