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Engineering & Planning

Lacey

August 31, 2023

Seattle

Thurston County Public Works
Development Review

RE: 12913140200– 7125 Libby Rd NE, Olympia WA 98506
Project Summary

This letter is to summarize how we addressed the Thurston County 2022 Stormwater Manual requirements for the project located at 7125 Libby Rd NE in the NE Olympia area.

The project includes construction of a new home, detached garage, driveway, septic and well. Access is from Libby Rd NE to the east. Clearing will occur onsite for the improvements proposed, while keeping a majority of trees onsite in the native condition. The property is undeveloped and currently forested with a portion near Libby Rd cleared prior to obtaining a permit. Land Services NW has been retained to prepare a mitigation and replanting plan for the clearing and development that has and will occur near the existing wetland. The lot gently slopes to the west. Soils are found to be Kapowsin silt loam, and Bellingham silty clay loam, both class C/D soils. Based on the soil maps and near by wetland, infiltration is not feasible. Full Dispersion BMPs are proposed for the project, with the driveway using sheet flow dispersion through a grass filter strip prior to the forested dispersion areas. The roof area will utilize splash blocks for dispersion.

Under the Thurston County Drainage Manual, this project will address core requirements 1 through 11. The project proposes a total of 6855 sf of new plus replaced hardscape areas.

Grading for this project is approximately 200 CY foundation work.

Short form SWPPP will be provided.

AREA SUMMARY:

Home	3000SF
Shop	900 SF
Gravel Driveway	2955 SF
TOTAL	6855 SF

Conditions and Requirements Summary

CORE REQUIREMENT #1: Stormwater Site Planning

A set of Stormwater Site Plans is included with this submittal.

CORE REQUIREMENT #2: Construction Stormwater Pollution Prevention (SWPPP)

A Short form Construction SWPPP is included with this submittal.

CORE REQUIREMENT #3: Source Control of Pollution

Residential Source Control Plan is provided to the Owners.

CORE REQUIREMENT #4: Preservation of Natural Drainage System

Stormwater from the site will follow the existing path to the west.

CORE REQUIREMENT #5: On-site Stormwater Management

The new roof areas and driveway will be directed east to the existing native vegetation for full dispersion.

Per List 2:

2.4.6.3.1 Lawn and landscaped areas:

- Post-Construction Soil Quality and Depth in accordance with BMP LID.02 in Chapter 2 of Volume V. – *Feasible. Top soil will be stockpiled onsite and placed back.*

2.4.6.3.2 Roofs:

1. Full Dispersion in accordance with BMP LID.11 in Chapter 2 of Volume V, or Downspout Full Infiltration Systems in accordance with BMP LID.04 in Chapter 2 of Volume V. – *feasible full dispersion is proposed. The proposed impervious area is less than 10% (3.4%) of the site total area. Flow paths exceed 100' in length and slopes are approximately 2-5%*

2.4.6.3.3 Other Hard Surfaces:

1. Full Dispersion in accordance with BMP LID.11 in Chapter 2 of Volume V. – *feasible Over 65% of the site is retained in Native vegetation. Driveway impervious area is less than 10% TDA draining to the native vegetation retained after clearing, driveway will sheetflow over lawn before dispersing into native vegetation.*

CORE REQUIREMENT #6: Runoff Treatment

Treatment is not required for the roof area. Runoff for the driveway will sheet flow to a grass area for treatment and on to native vegetation for dispersion.

CORE REQUIREMENT #7: Flow Control

LID 11 is proposed for driveway runoff.

LID 11 is proposed for the roof areas.

CORE REQUIREMENT #8: Wetlands Protection

Wetlands are found in the western portion, see report by Land Services NW

CORE REQUIREMENT #9: Operation and Maintenance

A Residential maintenance agreement and O&M checklist is proved to the Owners.

CORE REQUIREMENT #10: Financial Liability

Bond and liability assurances will be provided by the Owner or a representative of the Owner (Contractor) prior to start of construction.

CORE REQUIREMENT #11 Offsite Analysis and Mitigation

The project will disperse runoff onsite and this lot direction ultimately discharges to Puget Sound some 8000 ft to the southwest after crossing Boston harbor Rd. Downstream mitigation is not required.



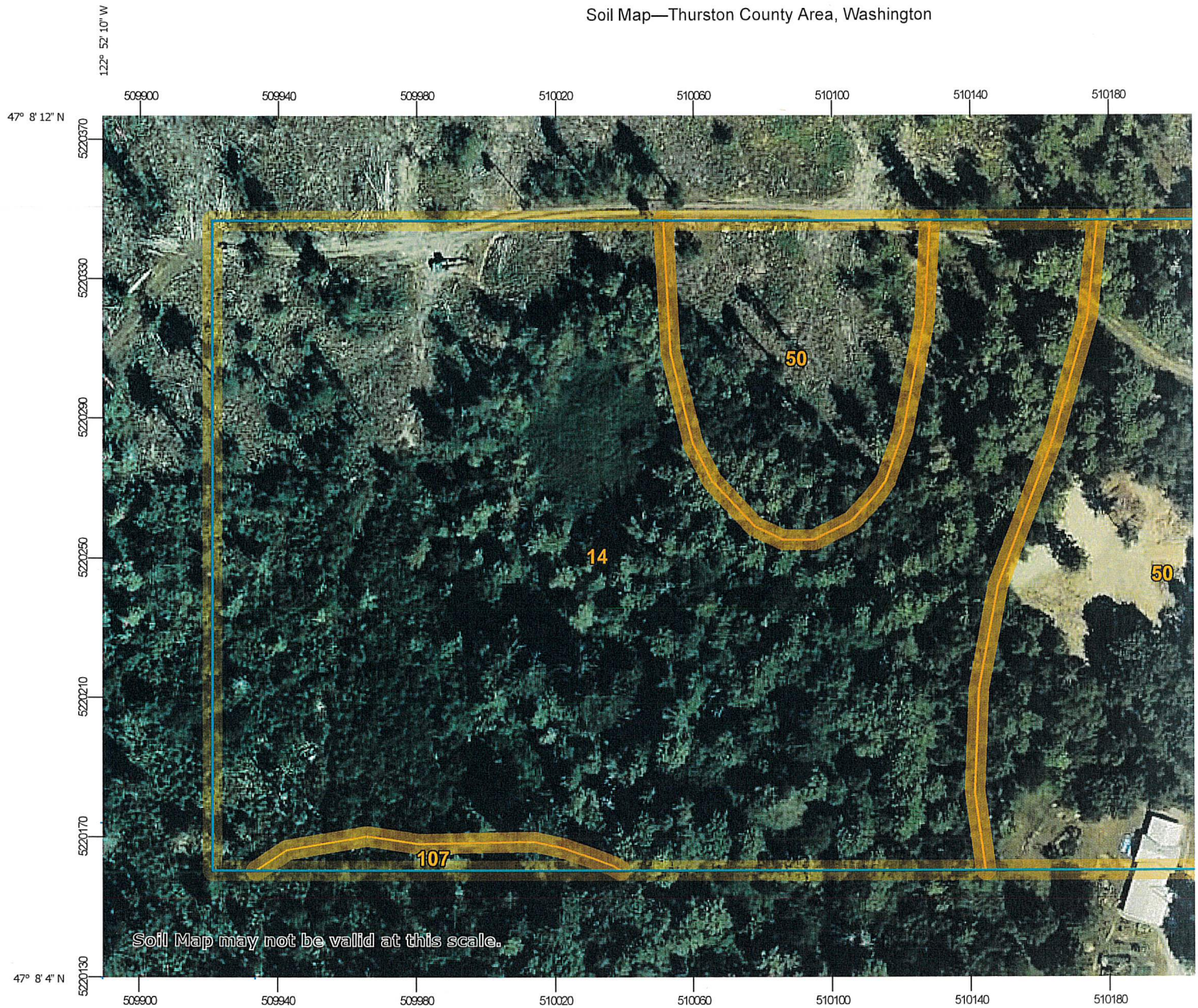
Any issues caused by possible runoff from properties upgrade have not been found.

Sincerely,
Patrick Harron & Associates, LLC

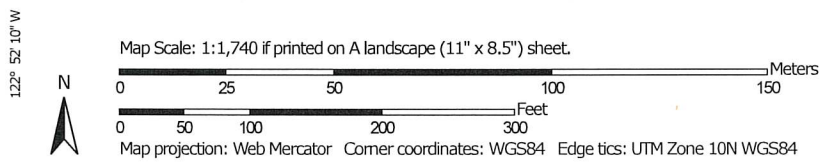
A handwritten signature in blue ink, appearing to read 'Ch Cramer'.

Chris Cramer, PE

Soil Map—Thurston County Area, Washington



Soil Map may not be valid at this scale.



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

MAP INFOR

Area of Interest (AOI)



Area of Interest (AOI)

Soils



Soil Map Unit Polygons



Soil Map Unit Lines



Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

The soil surveys that comprise your map are at a scale of 1:24,000.

Warning: Soil Map may not be valid

Enlargement of maps beyond the scale may lead to a misunderstanding of the detail of map unit placement. The maps do not show contrasting soils that could have been at the scale.

Please rely on the bar scale on each map for measurements.

Source of Map: Natural Resources

Web Soil Survey URL:

Coordinate System: Web Mercator

Maps from the Web Soil Survey are projected, which preserves direction, distance, and area. A projection that uses the Albers equal-area conic projection, which is more accurate for calculations of distance or area.

This product is generated from the latest version of the version date(s) listed below.

Soil Survey Area: Thurston County

Survey Area Data: Version 16, September 2022

Soil map units are labeled (as space permits) at a scale of 1:50,000 or larger.

Date(s) aerial images were photographed: 2022

The orthophoto or other base map on which the soil map is compiled and digitized probably differs from the imagery displayed on these maps. As a result, shifting of map unit boundaries may occur.



Natural Resources
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National Cooperative Soil Survey

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
14	Bellingham silty clay loam	9.3	63.4%
50	Kapowsin silt loam, 0 to 3 percent slopes	5.2	35.4%
107	Skipopa silt loam, 0 to 3 percent slopes	0.2	1.2%
Totals for Area of Interest		14.6	100.0%

Thurston County Area, Washington

50—Kapowsin silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2nd96

Elevation: 50 to 900 feet

Mean annual precipitation: 30 to 50 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 220 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Kapowsin and similar soils: 85 percent

Minor components: 8 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kapowsin

Setting

Landform: Till plains

Parent material: Compact basal till

Typical profile

H1 - 0 to 4 inches: silt loam

H2 - 4 to 22 inches: silt loam

H3 - 22 to 30 inches: gravelly loam

H4 - 30 to 34 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 20 to 40 inches to densic material

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: About 12 to 24 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: C/D

Ecological site: F002XA004WA - Puget Lowlands Forest

Forage suitability group: Limited Depth Soils (G002XS301WA)

Other vegetative classification: Limited Depth Soils (G002XS301WA)

Hydric soil rating: No

Minor Components

Bellingham, undrained

Percent of map unit: 2 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

Mckenna

Percent of map unit: 2 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XS101WA)

Hydric soil rating: Yes

Dupont, undrained

Percent of map unit: 2 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XS101WA)

Hydric soil rating: Yes

Tisch, undrained

Percent of map unit: 1 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XS101WA)

Hydric soil rating: Yes

Skipopa

Percent of map unit: 1 percent

Other vegetative classification: Seasonally Wet Soils
(G002XN202WA)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Thurston County Area, Washington

Survey Area Data: Version 16, Sep 8, 2022

Thurston County Area, Washington

14—Bellingham silty clay loam

Map Unit Setting

National map unit symbol: 2ndbg

Elevation: 20 to 600 feet

Mean annual precipitation: 25 to 60 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 200 days

Farmland classification: Prime farmland if drained

Map Unit Composition

Bellingham, drained, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bellingham, Drained

Setting

Landform: Depressions

Parent material: Alluvium and lacustrine deposits

Typical profile

H1 - 0 to 5 inches: silty clay loam

H2 - 5 to 60 inches: clay

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly 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 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 11.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Ecological site: F002XA007WA - Puget Lowlands Wet Forest

Forage suitability group: Wet Soils (G002XN102WA)

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

Minor Components

Bellingham, undrained

Percent of map unit: 5 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XN102WA)
Hydric soil rating: Yes

Mukilteo, undrained

Percent of map unit: 4 percent
Landform: Depressions
Other vegetative classification: Wet Soils (G002XS101WA)
Hydric soil rating: Yes

Mckenna

Percent of map unit: 3 percent
Landform: Depressions
Other vegetative classification: Wet Soils (G002XS101WA)
Hydric soil rating: Yes

Skipopa

Percent of map unit: 3 percent
Other vegetative classification: Seasonally Wet Soils
(G002XN202WA)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Thurston County Area, Washington
Survey Area Data: Version 16, Sep 8, 2022