DETERMINATION OF NON-SIGNIFICANCE
(DNS) TUM-23-0883
BODENHAMMER SEWER EXTENSION

Description of Proposal: Extend sewer to Sapp Road from adjacent industrial parcel for future subdivision.

Applicant: Rob Rice, 1868 State Ave. NE, Olympia, WA 98506.

Location of Proposal: 3220, 3224, 3228 and 3230 Sapp Rd. SW, Tumwater, WA 98502 and 3215 Cougar Lane SW, Tumwater, WA 98512.

Lead agency: City of Tumwater, Community Development Department.
As provided by RCW 43.21C.240 and WAC 197-11-158, the lead agency has determined that the requirements for environmental analysis, protection, and mitigation measures have been adequately addressed in the applicable development regulations and comprehensive plan adopted under RCW 36.70A and in other local, state, or federal laws or rules. Therefore, this proposal is not likely to have a probable significant adverse impact on the environment. An Environmental Impact Statement is not required under RCW 43.21C.030(2)(c), and the lead agency will not require additional mitigation measures under SEPA. This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

This DNS is issued under WAC 197-11-355, the optional DNS process. No comment period is provided with this DNS pursuant to WAC 197-11-355(4)(a).

Date: February 16, 2024

Responsible Official:

Mike Matlock, AICP
Community Development Director

Contact person: Alex Baruch, Senior Planner, 360-754-4180
555 Israel Road SW Tumwater, WA 98501

Appeals of this DNS must be made to the City Clerk, no later than February 23, 2024, by 5:00 p.m. All appeals shall be in writing, be signed by the appellant, be accompanied by a filing fee of $175, and set forth the specific basis for such appeal, error alleged and relief requested.

CITY OF TUMWATER
555 ISRAEL RD. SW, TUMWATER, WA 98501
Email: cdd@ci.tumwater.wa.us
(360) 754-4180

TUM-23 - 1807

12-01-2023
DATE STAMP

RECEIVED BY: Kerri

Any person proposing to develop in the incorporated limits of the City of Tumwater is required to submit an environmental checklist unless the project is exempt as specified in WAC 197-11-800 (Categorical Exemptions) of the State Environmental Policy Act Rules. **SUBMITTAL REQUIREMENTS** are as follows:

1. **A COMPLETE ENVIRONMENTAL CHECKLIST.** If the project is located within the Port of Olympia property, the checklist must also be signed by a representative of the Port.
2. **FEE OF $880.00 TO BE PAID UPON SUBMITTAL.** This includes the Public Notice fee.
3. **NAME AND ADDRESS LIST OF PROPERTY OWNERS WITHIN 300 FEET OF THE SUBJECT PROPERTY.**

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization, or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. **You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown.** You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to **all parts of your proposal,** even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for lead agencies

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold

determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B, plus the Supplemental Sheet for Nonproject Actions (Part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in “Part B: Environmental Elements” that do not contribute meaningfully to the analysis of the proposal.

A. Background Find help answering background questions

1. **Name of proposed project, if applicable:**

   Bodenhammer Plat – Off-Site Sanitary Sewer Extension

2. **Name of applicant:**

   Rob Rice Homes

3. **Address and phone number of applicant and contact person:**

   1868 State Avenue NE, Olympia, WA 98506 – (360) 754-7010 – Rob Rice

4. **Date checklist prepared:**

   July 31, 2023

5. **Agency requesting checklist:**

   City of Tumwater

6. **Proposed timing or schedule (including phasing, if applicable):**

   Summer 2025

7. **Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

   Yes. The proposed sewer extension is necessary for future subdivision of a property controlled by the applicant approximately .75 miles southwest of the sewer extension project.

8. **List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

   Critical Areas Report and topographic survey.

9. **Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

   None.

10. **List any government approvals or permits that will be needed for your proposal, if known.**

A right-of-way permit and sewer extension permit are required to be issued by the City of Tumwater and Hydraulic Project Approval (HPA) by the Department of Fish and Wildlife.

11. **Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)**

    Extension of a 10-inch PVC sewer line 697 feet, including 4 new manholes.

12. **Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.**

    The sewer line extension is proposed within an existing ingress/egress and utility easement between Thurston County tax parcel numbers 12832110102 – 3220 Sapp Road SW, Tumwater, 12832110100 – 3230 Sapp Road SW, Tumwater, 12832110104 – 3224 Sapp Road SW, Tumwater, and 12832110103 – 3228 Sapp Road SW, Tumwater all in a portion of the NE ¼ of the NE ¼ ,Section 32, Township 18 North, Range 2 WWM.

B. Environmental Elements

1. Earth Find help answering earth questions

a. General description of the site:

The sewer alignment route if proposed to follow an existing private road serving the four parcels identified in question A.12 above.

Circle or highlight one: Flat, rolling, hilly, steep slopes, mountainous, other:

b. What is the steepest slope on the site (approximate percent slope)?

The steepest slope on the existing driveway is approximately 7%.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat,

muck)? If you know the classification of agricultural soils, specify them, and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The entire sewer extension corridor is mapped as Alderwood Gravelly Sany Loam per the United State Department of Agriculture Soil Conservation Service maps.

Soils will be excavated and backfilled for installation of the sewer pipe. The project will have no impact on agricultural land of long-term commercial significance.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

Installation of the sewer line will require excavation of a trench. The excavation will be 6' wide by an average of 7' deep and 700' long. Total quantity of material is on the order of 1,100 cubic yards.

Approximately 200 lineal feet of the sewer extension will required Controlled Density Fill (CDF) due to the location of domestic wells within 100' of the sewer extension corridor. CDF is a mixture of Portland Cement, Aggregates, Admixtures, Fly Ash and water. The CDF will be sourced from a local licensed supplier.

f. Could erosion occur because of clearing, construction, or use? If so, generally describe.

Erosion and sedimentation are always a possibility during earthwork associated with a construction project due to mechanized grading and excavation coupled with precipitation and wind.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

The proposal will not result in any new impervious surfaces.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any.

An engineered erosion control plan will be prepared for the project in accordance with the current City of Tumwater Drainage Design and Erosion Control Manual. Erosion and sediment

control Best Management Practice (BMP's) will be implemented including, but not limited to, silt fences, temporary sedimentation basins, straw waddles, and plastic covering of exposed soils.

2. Air Find help answering air questions

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

During construction of the project exhaust emissions from construction vehicles, mechanized equipment and fueled power tools will be produced. Windborne dust is also a possibility during construction of the project.

Emissions after project completion will be limited to City of Tumwater maintenance vehicles to service the sewer line.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No.

c. Proposed measures to reduce or control emissions or other impacts to air, if any.

Use of vehicles, mechanized equipment and fuel powered tools with properly functioning emissions systems.

3. Water Find help answering water questions

a. Surface Water: Find help answering surface water questions

1. **Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

   Yes. A Type ns stream crosses under the existing private road where the sewer line will be installed. There are two existing culverts at the road crossing, one 10" and one 12".

   The Type ns stream has associated wetlands on either side of the existing driveway crossing that are rated as Category III.

2. **Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

   Yes. Installation of the sewer line is proposed under the existing private roadbed.

3. **Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

   None.

4. **Will the proposal require surface water withdrawals or diversions? Give a general description, purpose, and approximate quantities if known.**

   No. Work will be scheduled during the dry season when there is no flow in the ns stream.

5. **Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

   No.

6. **Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

   No.

b. Ground Water: Find help answering ground water questions

1. **Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give a general description, purpose, and approximate quantities if known.**

   No.

2. **Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (domestic sewage; industrial, containing the following chemicals…; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

   None.

c. Water Runoff (including stormwater):

a) **Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

b) Could waste materials enter ground or surface waters? If so, generally describe.

No.

c) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

No.

d) Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any.

Installation of the sewer line will not change the existing runoff pattern.

An engineered erosion control plan will be prepared for the project in accordance with the current City of Tumwater Drainage Design and Erosion Control Manual. Erosion and sediment control Best Management Practice (BMP's) will be implemented including, but not limited to, silt fences, temporary sedimentation basins, straw waddles, and plastic covering of exposed soils.

4. Plants Find help answering plants questions

a. Check the types of vegetation found on the site:

- ☒ **deciduous tree: alder, maple, aspen, other**
- ☒ **evergreen tree: fir, cedar, pine, other**
- ☒ **shrubs**
- ☒ **grass**
- ☐ **pasture**
- ☐ **crop or grain**
- ☐ **orchards, vineyards, or other permanent crops.**
- ☒ **wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other**
- ☐ **water plants: water lily, eelgrass, milfoil, other**
- ☐ **other types of vegetation**

b. What kind and amount of vegetation will be removed or altered?

None.

c. List threatened and endangered species known to be on or near the site.

None known.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any.

None.

e. List all noxious weeds and invasive species known to be on or near the site.

None.

5. Animals Find help answering animal questions

a. List any birds and other animals that have been observed on or near the site or are known to be on or near the site.

Examples include:

- **Birds: hawk, heron, eagle, songbirds, other:**
- **Mammals: deer, bear, elk, beaver, other:**
- **Fish: bass, salmon, trout, herring, shellfish, other:**

Other typical urban mammals would include rabbit, raccoon, squirrel, opossum, rats, mice, moles, voles, coyote, bats, frogs and salamanders.

b. List any threatened and endangered species known to be on or near the site.

None known.

c. Is the site part of a migration route? If so, explain.

Western Washington is a part of the Pacific Flyway for migratory bird species.

d. Proposed measures to preserve or enhance wildlife, if any.

None.

e. List any invasive animal species known to be on or near the site.

None known.

6. Energy and Natural Resources Find help answering energy and natural resource questions

1. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

None.

2. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

3. **What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any.**

   None.

7. Environmental Health Find help with answering environmental health questions

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur because of this proposal? If so, describe.

None.

1. **Describe any known or possible contamination at the site from present or past uses.**

   A search of the WA State Dept. of Ecology Toxic Cleanup database and the contaminated site layer on the Thurston Geodata website resulted in no known contaminated sites in the vicinity of the project.

2. **Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.**

   None.

3. **Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.**

   None.

4. **Describe special emergency services that might be required.**

   None.

5. **Proposed measures to reduce or control environmental health hazards, if any.**

   None.

b. Noise

A

1. **What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?**

   None.

2. **What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site)?**

   Short-term construction noise of equipment. No long-term noise is anticipated.

3. **Proposed measures to reduce or control noise impacts, if any.**

   None.

8. Land and Shoreline Use Find help answering land and shoreline use questions

a. **What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.**

   The utility route is an existing private road serving 4 separate properties. Adjacent properties are single-family homes and vacant land.

b. **Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses because of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?**

   The site has not been used as working farm or forest lands. No working farmland or forest land will be converted to another use.

   1. **Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how?**

      No.

c. **Describe any structures on the site.**

   The sewer corridor route is an existing private road serving three existing single-family homes and one vacant lot.

d. Will any structures be demolished? If so, what?

Two existing culverts under the private road may be removed and replaced.

e. What is the current zoning classification of the site?

Single Family Low-Density.

f. What is the current comprehensive plan designation of the site?

Single-Family Low Density.

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

Historic county records show a Type ns stream bisecting the existing private road that will be used as the sewer extension corridor.

i. Approximately how many people would reside or work in the completed project?

None.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any.

None.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any.

The proposed sewer extension is consistent with the City Sewer Comprehensive Plan and Thurston County Sewerage General Plan.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any.

None.

9. Housing Find help answering housing questions

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any.

None.

10. Aesthetics Find help answering aesthetics questions

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Not applicable.

b. What views in the immediate vicinity would be altered or obstructed?

None.

c. Proposed measures to reduce or control aesthetic impacts, if any.

None proposed.

11. Light and Glare Find help answering light and glare questions

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

None.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light and glare impacts, if any.

None.

12. Recreation Find help answering recreation questions

a. What designated and informal recreational opportunities are in the immediate vicinity?

Kennydale Park/Black Lake.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any.

None.

13. Historic and Cultural Preservation Find help answering historic and cultural preservation questions

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.

No.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

No.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

DAHP Predictive Model map the sewer corridor route has a moderately low risk of encountering historic/cultural resources.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and

disturbance to resources. Please include plans for the above and any permits that may be required.

August

An Inadvertent Discovery Plan will be developed for the sewer project per TMC 18.40.065.

14. Transportation Find help with answering transportation questions

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The private road where the sewer pipe will be installed is served from Sapp Road SW.

b. Is the site **or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?**

No. The nearest transit stop is approximately 1 mile to the northeast at the Thurston County Family Court Complex.

c. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle, or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

No.

d. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

There is a rail line approximately 500 feet west of the site.

e. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

None.

f. Will the proposal interfere with, affect, or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No.

g. Proposed measures to reduce or control transportation impacts, if any.

15. Public Services Find help answering public service questions

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

No.

b. Proposed measures to reduce or control direct impacts on public services, if any.

None.

16. Utilities Find help answering utilities questions

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other:

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

A 10-inch PVC sanitary sewer line with 4 manholes will be installed. When installation is completed the sewer line will be dedicated to the City of Tumwater for operation and maintenance.

C. Signature Find help about who should sign

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

X Chris Carlson

Type name of signee: Chris Carlson Click or tap here to enter text.

Position and agency/organization: Planning Manager, Hatton-Godat-Pantier Click or tap here to enter text.

Date submitted: Click or tap to enter a date. August 22, 2023

Reviewed by: Alex Baruch, Planner, City of Tumwater February 13, 2024

D. Supplemental sheet for nonproject actions Find help for the nonproject actions worksheet

IT IS NOT REQUIRED to use this section for project actions.

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. **How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?**

   - **Proposed measures to avoid or reduce such increases are:**

2. **How would the proposal be likely to affect plants, animals, fish, or marine life?**

   - **Proposed measures to protect or conserve plants, animals, fish, or marine life are:**

3. **How would the proposal be likely to deplete energy or natural resources?**

   - **Proposed measures to protect or conserve energy and natural resources are:**

4. **How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection, such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?**

   - **Proposed measures to protect such resources or to avoid or reduce impacts are:**

5. **How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?**

- **Proposed measures to avoid or reduce shoreline and land use impacts are:**

6. **How would the proposal be likely to increase demands on transportation or public services and utilities?**

   - **Proposed measures to reduce or respond to such demand(s) are:**

7. **Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.**

BODENHAMMER SEWER LINE

CITY OF TUMWATER, WASHINGTON

CRITICAL AREAS REPORT

Prepared By:

Curtis Wambach, M.S.
Senior Biologist and Principal

EnviroVector
OPTIMIZE USABLE LAND

9 August 2023

360-790-1559

www.envirovector.com

BODENHAMMER SEWER LINE

CRITICAL AREAS REPORT

Prepared For:

Rob Rice

Prepared By:

Curtis Wambach, M.S.,
Senior Biologist and Principal
EnviroVector
Olympia, WA 98502

(360) 790-1559

www.envirovector.com

9 August 2023

Table of Contents

1.0 INTRODUCTION

1.1 Purpose

The purpose of this Critical Areas Report is to identify and map Critical Areas along a portion of the proposed sewer line route. Potential impacts to wetlands, streams, and buffers have been evaluated as a result of the proposed sewer line project. This Critical Areas Report has been prepared to satisfy City of Tumwater regulatory requirements.

1.2 Property Location

The study area is located in the City of Tumwater, Thurston County WA (**Figure 1; Table 1**).

Table 1. Study Area

No#	Address	Parcel Number	Map Coordinates	Area
1	3230 SW SAPP RD	12832110100	S32, T18N, R2W, WM	1.4 acres
2	3220 SW SAPP RD	12832110102		0.85 acre
3	3224 SW SAPP RD	12832110104		1.69 acres
3 Parcels	Total Size			3.94 acres

The permitting jurisdiction is the City of Tumwater.

1.3 Site Evaluation

A wetland and stream evaluation was performed on the study area on:

- 28 July 2023

1.4 Study Area Description

The study area consists of residential lots and a private road (**Appendix A, Photos 1-8**). The private road services multiple residential lots. The majority of the study area is forested by Oregon ash (*Fraxinus latifolia*, FACW), Douglas fir (*Pseudotsuga menzeisii*, FACU), and bitter cherry (*Prunus emarginata*, FACU) (**Appendix A, Photos 5 & 6**). A private road is very well established and extends through the central portion of the study area in the north-south direction (**Appendix A, Photos 3, 4, 7, & 8**). A twelve (12) inch culvert consisting of a corrugated metal pipe (CMP) extends under the private road facilitating the movement of winter water (**Appendix A, Photo 16**). A ten (10) inch CMP occurs north of the twelve (12) inch CMP.

2.0 METHODOLOGY

This report is based on a review of existing information and field investigations. The goal of these efforts is to collect and document existing information that reflects current site conditions for assessing potential impacts.

2.1 Review of Existing Literature

Prior to conducting fieldwork, biologists reviewed existing information to identify wetlands, streams, vegetation patterns, topography, soils, wildlife habitats, and other natural resources in the study area. Existing data sources that were reviewed for this report included but were not limited to the following:

- Washington. U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Soil Survey
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), online wetlands mapper
- Washington Department of Fish and Wildlife (WDFW) Salmonscape Database
- Washington Department of Fish and Wildlife (WDFW) Priority and Habitat Species Database
- Washington State Department of Natural Resources (DNR) Natural Heritage Database
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) and Flood Insurance Studies

2.2 Field Investigation

A wetland evaluation was performed onsite as well as offsite to determine if wetlands, streams, or their buffers extend onto the study area. The routine on-site determination method was used to identify potential wetlands using the procedures outlined in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the 2010 USACE Regional Wetland Supplement.

2.3 Wetland Identification

Prior to 2010, biologists delineated wetlands according to the methods specified in the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory 1987). At that time, these methods complied with those in the Washington State Wetland Identification and Delineation Manual (Washington State Department of Ecology [Ecology] 1997).

Following 2010, biologists evaluate wetlands according to the methods specified in the USACE's Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010). These methods comply with those adopted by Washington State pursuant to Washington Administrative Code (WAC) 173-22-035, Revised Code of Washington (RCW) 90.58.380.

2.3.1 Vegetation

The dominant plants and their wetland indicator status were evaluated to determine whether the vegetation is hydrophytic. Hydrophytic vegetation is generally defined as vegetation adapted to prolonged saturated soil conditions. To meet the hydrophytic vegetation criterion, more than 50 percent of the dominant plants must be facultative, facultative wetland, or obligate, according to the plant indicator status category assigned to each plant species by the USACE National Wetland Plant List. **Table 2** provides the definitions of the indicator status categories. The scientific and common names for plants follow the currently accepted nomenclature. Dominant plant species were observed and recorded on wetland determination data forms for each data plot (**Appendix K**).

Table 2. Key to Plant Indicator Status Categories

Plant Indicator Status Category	Symbol	Description
Obligate Wetland Plants	OBL	Plants that almost always (>99% of the time) occur in wetlands but may rarely (<1% of the time) occur in non-wetlands
Facultative Wetland Plants	FACW	Plants that often (67% to 99% of the time) occur in wetlands but sometimes (1% to 33% of the time) occur in non-wetlands
Facultative Plants	FAC	Plants with a similar likelihood (33% to 66% of the time) of occurring in both wetlands and non-wetlands
Facultative Upland Plants	FACU	Plants that sometimes (1% to 33% of the time) occur in wetlands but occur more often (67% to 99% of the time) in non-wetlands
Upland Plants	UPL	Plants that rarely (<1% of the time) occur in wetlands and almost always (> 99% of the time) occur in non-wetlands

2.3.2 Soils

Soils were excavated to 18 inches or more below the surface within test pits to evaluate soil characteristics and hydrological conditions throughout the property. Soil chroma (color) is evaluated using the *Munsell Color Chart* (Munsell Color, 1988). Generally, an area must have hydric soils to be considered a wetland. Hydric soil forms when soils are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper portion. Biological activities in saturated soil result in reduced concentrations of oxygen that in turn result in a preponderance of organisms that use anaerobic processes for metabolism. Over time, anaerobic biological processes result in certain soil color patterns, which are used as indicators of hydric soil. Typically, low-chroma colors are formed in the matrix of hydric soil. Bright-colored redoximorphic features form within the matrix under a fluctuating water table. Other important hydric soil indicators include organic matter accumulations in the surface layer, reduced sulfur odors, and organic matter staining in the subsurface.

2.3.3 Hydrology

The study area was examined for evidence of hydrology. The U.S. Army Corps of Engineers (2005) provides a technical standard for monitoring hydrology on such sites. This standard requires 14 or more consecutive days of flooding or ponding, or a water table 12 in. (30 cm) or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10 (50 percent or higher probability). The USACE 2010 Regional Supplement provides a list of hydrology indicators to evaluate whether the hydrology standard is satisfied. If wetland hydrology, including pooling, ponding, and soil saturation, is not clearly evident, hydrological conditions may be observed through surface or soil indicators. Indicators of hydrological conditions include oxidized root channels, drainage patterns, drift lines, sediment deposition, watermarks, historic records, visual observation of saturated soils, and visual observation of inundation.

2.4 Wetland Classification and Rating

Delineated wetlands, if identified, would be classified according to the USFWS Classification of Wetlands and Deepwater Habitats of the United States. Hydrogeomorphic classifications were assigned to wetlands using USACE methods established in 'A Hydrogeomorphic Classification for Wetlands.' Wetlands were rated using the revised Washington State Wetland Rating System for Western Washington.

3.0 STUDY RESULTS

3.1 Background Information

3.1.1 NRCS Soil Survey for Thurston County

One (1) of the two (2) soil units mapped in the study area is listed as hydric by the NRCS Soil Survey (**Table 3; Appendix B**).

Table 3. NRCS Soils Survey

Soil Unit	Hydric	Comments
Norma Silt Loam	Yes	NW corner of the SW parcel
Alderwood gravelly sandy loam, 3 to 15% slopes	No	Almost entire property

3.1.2 Thurston County Geodata Center Wetlands

One (1) wetland has been mapped in the study area by the Thurston County Geodata Center database (**Appendix C**). The wetland is mapped to extend east and west of the study area.

3.1.3 Thurston County Geodata Center Contours

A shallow ravine is mapped on the central portion of the study area by the Thurston County Geodata Center database (**Appendix D**). The northern portion of the study area is mapped relatively flat.

3.1.4 Department of Natural Resources (DNR) Water Typing Database

No streams are mapped in the study area or within three hundred (≤300) feet of the study area by the State Department of Natural Resources (DNR) Water Typing Database (**Appendix E**).

3.1.5 The WDFW PHS Database

No priority species have been mapped in the study area or within one thousand (≤1,000) feet of the study area by the Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database (**Appendix F**).

3.1.6 303(d) Water

No 303(d) listed water has been mapped within one (≤1) mile downgradient of the study area by the Department of Ecology Water Quality Atlas database (**Appendix G**).

3.1.7 TMDL

A TMDL is mapped on the study area by the Department of Ecology Water Quality Atlas Database (**Appendix H**).

3.1.8 Potential Flooding

No High Groundwater Hazard Areas or flooding are mapped in the study area by the Thurston County Geodata Center database (**Appendix I**). Flooding is mapped further downstream.

3.2 Field results

Two (2) wetlands, labeled Wetland A & Wetland B, and one (1) stream, labeled Stream Sa, were identified in the study area using the Routine Onsite Determination Method in compliance with the USACE (2010) Regional Supplement (**Figures 2 & 3; Table 4**).

Table 4. Summary of Critical Areas Results

WETLANDS						
Wetlands	Area of Wetland		Veg Class Hydroperiod	Buffer Condition	Habitat Features	Comments
	Onsite	Total				
Wetland A	1,441 sf (0.03 acre)	37,096 sf (0.85 acres)	PFOC[1] PSSC[2]	Forest, road, single-family residences	Logs, snags, Amphibian habitat	Twelve (12) inch culvert under private road between Wetlands A & B. A ten (10) inch culvert north of the Twelve (12) inch culvert.
Wetland B	13,465 sf (0.31 acre)	110,337 sf (2.53 acre)	PFOC[1]	Forest, road, single-family residences	Logs, snags, Amphibian habitat	
STREAM						
Drainages	Reach in Study Area	Channel Width	Channel Depth	Stream Bottom	Fish Presence	Comments
Stream Sa	469 ft	2-4 ft	2 Inches to 1 foot	Mud	No	Stream bed dry during site evaluation. Stream flows through twelve (12) inch culvert under private road.

1. PFOC: Palustrine Forested Seasonally-flooded
2. PSSC: Palustrine Scrub-shrub Seasonally-flooded

3.2.1 Wetland A

The Wetland A boundary has been marked using orange ribbon flagging tied to vegetation and labeled A-1 through A-8 (**Figure 4; Appendix A, Photos 9-15**). Wetland flags were GNSS located using a Trimble Geo 7x with sub-foot accuracy.

3.2.1.1 Conditions

The eastern portion of Wetland A is relatively undisturbed. The western portion of Wetland A extends through residential areas. Understory vegetation in Wetland A is dominated by the non-native invasive weed reed canarygrass (*Phalaris arundinacea*; FACW) (**Appendix A, Photos 15-20**).

The Cowardin (1979) classification of Wetland A is (**Table 4**):

- Palustrine Forested Seasonally-flooded (PFOC)
- Palustrine Scrub-shrub Seasonally-flooded (PSSC)

The wetland boundary on Wetland A is well-defined and consistent throughout (**Appendix A, Photos 9-15**). Hydroperiods and vegetation classes used in the DOE (2014) *Wetland Rating System* are illustrated in **Figure 7**. Land uses within one (1) km of Wetland A are represented in **Figure 9**. Less than ten percent (<10%) of the area within one hundred fifty (150) feet of Wetland A contains potential sources of pollutants (**Figure 8**). The wetland contributing basin is shown in **Figure 10**.

3.2.1.2 Hydrology

Hydrology derives from local precipitation and Stream Sa.

3.2.1.3 Vegetation

Two (2) vegetation classes occur in Wetland A that include forested and shrub-shrub (**Figure 7; Appendix A, Photos 17-20**). The scrub-shrub portion of Wetland A is dominated by salmonberry (*Rubus spectabilis*, FAC), Douglas spirea (*Spiraea douglasii*; FACW), jewel weed (*Impatiens capensis*, FACW), and reed canarygrass (FACW). The forested portion contains a canopy of black cottonwood (*Populus trichocarpa*, FAC), red alder (*Alnus rubra*, FAC), and Oregon ash (*Fraxinus latifolia*, FACW), over understory species found in the scrub-shrub portion.

Dominant plant species identified in Wetland A include:

- Oregon ash (*Fraxinus latifolia*, FACW)
- Red alder (*Alnus rubra*, FAC)
- Black cottonwood (*Populus trichocarpa*, FAC)
- Western red cedar (*Thuja plicata*, FAC)
- Himalayan blackberry (*Rubus armeniacus*; FAC)
- Reed canarygrass (*Phalaris arundinacea*, FACW)
- Salmonberry (*Rubus spectabilis*; FAC)
- Jewel weed (*Impatiens capensis*, FACW)
- Douglas spirea (*Spiraea douglasii*; FACW)
- Slough sedge (*Carex obnupta*, OBL)

Dominant plant species adjacent to Wetland A include (**Appendix A, Photos 21 & 22**):

- Big-leaf maple (*Acer macrophyllum*, FACU)
- Bitter cherry (*Prunus emarginata*; FACU)
- Douglas fir (*Pseudotsuga menzeisii*, FACU)
- Himalayan blackberry (*Rubus armeniacus*; FAC)
- Beaked hazelnut (*Corylus cornuta*, FACU)
- English Ivy (*Hedera helix*, FACU)
- Sword fern (*Polystichum munitum*, FACU)
- Trailing blackberry (*Rubus ursinus*, FACU)
- Sweet vernal grass (*Anthoxanthum odoratum*, FACU)
- Common bentgrass (*Agrostis stolonifera*, FAC)
- Red fescue (*Festuca rubra*, FAC)
- Hairy cat's ear (*Hypochaeris radicata*, FACU)
- Common Plantain (*Plantago lancelata*, FACU)
- Scotch broom (*Cytisus scoparius*, FACU)

3.2.1.4 Soils

Soils in Wetland A consist of a very dark gray (10YR 3/1) sandy loam from zero (0) to twenty (20) inches in depth.

Soils adjacent to the wetland consist of a very dark grayish brown (10YR 3/2) sandy silt from zero (0) to six (6) inches in depth and a dark brown (10YR 3/3) sandy silt loam from six (6) to twenty (20) inches or the surface.

3.2.1.5 Habitat Features

Habitat features in Wetland A include fallen logs, some snags, and a seasonal stream.

3.2.2 Wetland B

The Wetland B boundary has been marked using orange ribbon flagging tied to vegetation and labeled B-1 through B-17 (**Figure 4; Appendix A, Photos 23-34**). Wetland flags were GNSS located using a Trimble Geo 7x with sub-foot accuracy.

3.2.2.1 Conditions

Wetland B is relatively undisturbed.

The Cowardin (1979) classification of Wetland B is (**Table 4**):

- Palustrine Forested Seasonally-flooded (PFOC)

The wetland boundary on Wetland B is well-defined and consistent throughout (**Appendix A, Photos 23-32**). Hydroperiods and vegetation classes used in the DOE (2014) *Wetland Rating System* are illustrated in **Figure 7**. Land uses within one (1) km of Wetland A are represented in **Figure 9**. Less than ten percent (<10%) of the area within one hundred fifty (150) feet of Wetland A contains potential sources of pollutants (**Figure 8**). The wetland contributing basin is shown in **Figure 10**.

3.2.2.2 Hydrology

Hydrology derives from local precipitation and Stream Sa.

3.2.2.3 Vegetation

One (1) vegetation class occurs in Wetland B, specifically forested (**Figure 7**). Wetland B contains a canopy of black cottonwood (*Populus trichocarpa*, FAC), red alder (*Alnus rubra*, FAC), and Oregon ash (*Fraxinus latifolia*, FACW), over understory dominated by salmonberry (*Rubus spectabilis*, FAC), Douglas spirea (*Spiraea douglasii*; FACW), jewel weed (*Impatiens capensis*, FACW), and reed canarygrass (FACW) (**Appendix A, Photos 23-36**).

Dominant plant species identified in Wetland B include:

- Oregon ash (*Fraxinus latifolia*, FACW)
- Red alder (*Alnus rubra*, FAC)
- Black cottonwood (*Populus trichocarpa*, FAC)
- Western red cedar (*Thuja plicata*, FAC)
- Himalayan blackberry (*Rubus armeniacus*; FAC)
- Reed canarygrass (*Phalaris arundinacea*, FACW)
- Salmonberry (*Rubus spectabilis*; FAC)
- jewel weed (*Impatiens capensis*, FACW)
- Douglas spirea (*Spiraea douglasii*; FACW)
- Slough sedge (*Carex obnupta*, OBL)

Dominant plant species adjacent to Wetland B include:

- Big-leaf maple (*Acer macrophyllum*, FACU)
- Bitter cherry (*Prunus emarginata*; FACU)
- Douglas fir (*Pseudotsuga menzeisii*, FACU)
- Osoberry (*Oemleria cerasiformis*, FACU)
- Himalayan blackberry (*Rubus armeniacus*; FAC)
- Beaked hazelnut (*Corylus cornuta*, FACU)
- English Ivy (*Hedera helix*, FACU)
- Sword fern (*Polystichum munitum*, FACU)
- Trailing blackberry (*Rubus ursinus*, FACU)
- Sweet vernal grass (*Anthoxanthum odoratum*, FACU)
- Common bentgrass (*Agrostis stolonifera*, FAC)
- Red fescue (*Festuca rubra*, FAC)
- Hairy cat's ear (*Hypochaeris radicata*, FACU)
- Common Plantain (*Plantago lancelata*, FACU)
- Scotch broom (*Cytisus scoparius*, FACU)

3.2.2.4 Soils

Soils in Wetland B consist of a dark gray (10YR 4/1) sandy loam from zero (0) to twenty (20) inches in depth (**Appendix A, Photos 33 & 34**).

Soils adjacent to the wetland consist of a dark yellowish brown (10YR 3/4) sandy loam from zero (0) to (20) inches or the surface (**Appendix A, Photos 36-38**).

3.2.2.5 Habitat Features

Habitat features in Wetland B include fallen logs, some snags, and a seasonal stream.

3.2.3 Stream Sa

One (1) small seasonal stream, labeled Stream Sa, has been identified and GNSS-located in the study area (**Appendix A, Photos 39-52**). No fish have been mapped in this small stream. Stream Sa has not been mapped on any agency databases. The stream channel has been measured at three (3) to four (4) feet wide and two (2) inches to one (1) foot deep. The stream bottom consists of mud and does not contain gravels. No structural diversity occurs in the stream channel, other than some small sticks and minor logs (**Appendix A, Photo 50**).

The right bank has been delineated through Wetland A and the left bank of the stream has been delineated through Wetland B using pink ribbon flagging fastened to vegetation and labeled sequentially Sa-1 to Sa-11 (**Appendix A, Photos 39-49, 51, & 52**).

4.0 REGULATORY CONSIDERATIONS

Wetland regulatory considerations have been summarized in **Table 5**.

Table 5. Summary of Regulatory Considerations

WETLANDS							
Wetland	Area of Wetland		Category	Habitat Score	Total Rating Score	Standard Buffer	Comments
	Onsite	Total					
Wetland A	1,441 sf (0.03 acre)	37,096 sf (0.85 acres)	III	7 (MMH)	19	110 ft	The wetland buffer does not extend onto the road under TMC 16.28.170(D)
Wetland B	13,465 sf (0.31 acre)	110,337 sf (2.53 acre)	III	6 (LMH)	18	110 ft	
STREAMS							
Drainages	DNR Database	Stream Typing Tumwater Code	WDFW Mapped Fish Presence	Tumwater Stream Type		Stream Buffer	Comments
Stream Sa	None	None	No	Type 5 (DNR Type Ns)		50 ft	The riparian area buffer does not extend onto the road under TMC 16.32.065(C)

4.1 Wetlands

4.1.1 Wetland A

Wetland A has been classified as a Category III wetland by the 2014 Department of Ecology Wetland Rating Form for Western Washington as required under Chapter 16.28.090---*Wetlands Rating System*. Wetland A is a depressional wetland under the 2014 Department of Ecology Wetland Rating System.

Under City of Tumwater Municipal Code (TMC) Title 16---*Environment*, Chapter 16.28.090---*Wetlands Rating System*, wetland buffers are calculated based on category of wetland and the habitat score determined by the 2014 Washington State Department of Ecology Wetland Rating System publication 14-06-029, effective January 2015), as revised. Wetland A scored for habitat a "Medium (M)" potential to provide habitat, a "Medium (M)" landscape potential to support habitat, and a "High (H)" potential value to society. Wetlands that rate as an M, M, H receive a score of seven (7) points for total habitat functions (**Appendix J**).

The standard buffer for Category III wetlands under moderate intensity land use that score between five (5) and seven (7) points for Habitat Functions require a buffer width of one hundred ten (110) feet (TMC Chapter 16.28.170---*Wetland buffers*, Table 16.28.170(3)---*Category III Wetland Buffer Width*) (**Figure 5, Table 5**).

4.1.2 Wetland B

Wetland B has been classified as a Category III wetland by the 2014 Department of Ecology Wetland Rating Form for Western Washington as required under Chapter 16.28.090---*Wetlands Rating System*. Wetland B is a Depressional wetland under the 2014 Department of Ecology Wetland Rating System.

Under City of Tumwater Municipal Code (TMC) Title 16---*Environment*, Chapter 16.28.090---*Wetlands Rating System*, wetland buffers are calculated based on category of wetland and the habitat score determined by the 2014 Washington State Department of Ecology Wetland Rating System publication 14-06-029, effective January 2015), as revised. Wetland B scored for habitat a "Low (L)" potential to provide habitat, a "Medium (M)" landscape potential to support habitat, and a "High (H)" potential value to society. Wetlands that rate as an L, M, H receive a score of six (6) points for total habitat functions (**Appendix J**).

The standard buffer for Category III wetlands under moderate intensity land use that score between five (5) and seven (7) points for Habitat Functions require a buffer width of one hundred ten (110) feet (TMC Chapter 16.28.170---*Wetland buffers*, Table 16.28.170(3)---*Category III Wetland Buffer Width*) (**Figure 5, Table 5**).

4.2 Wetland Buffer Does Not Extend on Road

Under TMC 16.28.170(D)---*Reductions in Buffer Widths Where Existing Roads or Structures Lie Within the Buffer*, where a legally established, nonconforming use of the buffer exists, such as a road or structure that lies within the width of buffer recommended for that wetland, proposed actions in the buffer may be permitted as long as they do not increase the degree of nonconformity. This means no significant increase in the impacts to the wetland from activities in the buffer.

4.3 New Utilities Crossing Watercourses

Under TMC 16.32.070(I)---*Utility Facilities*, new utility lines and facilities may be permitted to cross watercourses in accordance with an approved Critical Area Report, if they comply with the following standards:

1. Fish and wildlife habitat areas shall be avoided to the maximum extent possible;
2. Installation shall be accomplished by boring beneath the scour depth and hyporheic zone of the water body and channel migration zone, where feasible;
3. The utilities shall cross at an angle less than thirty degrees of the centerline of the channel in streams or perpendicular to the channel centerline whenever boring under the channel is not feasible;
4. Crossings shall be contained within the footprint of an existing road or utility crossing where possible;
5. The utility route shall avoid paralleling the stream or following a down-valley course near the channel; and
6. The utility installation shall not increase or decrease the natural rate of shore migration or channel migration.

4.4 Stormwater Conveyance Facilities

Under TMC 16.32.070(L)---*Stormwater Conveyance Facilities*, conveyance structures may be permitted in accordance with an approved critical area report subject to the following standards:

1. No other feasible alternatives with less impact exist;
2. Mitigation for impacts is provided;
3. Stormwater conveyance facilities shall incorporate fish habitat features; and
4. Vegetation shall be maintained and, if necessary, added adjacent to all open channels and ponds to retard erosion, filter out sediments, and shade the water.

4.5 Allowable Installation of Utilities

Under TMC 16.28.110---*Allowed activities*, the following uses which require no specific permit shall be allowed within a wetland or wetland buffer to the extent that they are not prohibited by any other chapter or law and provided they are conducted using best management practices, except where such activities result in the conversion of a regulated wetland or wetland buffer to a use to which it was not previously subjected and provided further that forest practices and conversions shall be governed by Chapter 76.09 RCW and its rules:

Under TMC 16.28.110(H), the following uses which require no specific permit under this chapter can occur within wetlands and/or wetland buffers after review by the community development department; provided, that wetland impacts are minimized and that disturbed areas are immediately restored, or where no feasible alternative location exist:

Under TMC 16.28.110(H)(3)---*Activities within the Improved Right-of-Way*, replacement, modification, installation, or construction of utility facilities, lines, pipes, mains, equipment, or appurtenances, not including substations, when such facilities are located within the improved portion of the public right-of-way or a city authorized private roadway except those activities that alter a wetland or watercourse, such as culverts or bridges, or result in the transport of sediment or increase stormwater; subject to retention and replanting of native vegetation wherever possible along the right-of-way improvement and resulting disturbance.

4.6 Stream Sa

Stream Sa is classified as a Type 5 under the City of Tumwater Code Chapter 16.32.065---*Riparian habitat areas – Buffers*, which is equivalent to and consistent with the DNR classification of Type Ns (**Insert 1**). Under the City of Tumwater, Type 5 Streams maintain a 50-foot buffer. Type 5 streams do not have surface flow during at least some portion of the year, and do not meet the physical criteria of a Type F stream.

Insert 1. Department of Natural Resources Forest Practices Water Typing

Water Type Classifications

The following table provides a general description of forest practices water type classifications currently in use.

Type	Description
Type"S"= Shoreline	Streams and waterbodies that are designated "shorelines of the state" as defined in chapter 90.58.030 RCW. **(formerly type 1)**
Type "F" = Fish	Streams and waterbodies that are known to be used by fish, or meet the physical criteria to be potentially used by fish. Fish streams may or may not have flowing water all year; they may be perennial or seasonal. **(formerly type 2 or 3)**
Type"Np"= Non-Fish	Streams that have flow year round and may have spatially intermittent dry reaches downstream of perennial flow. Type Np streams do not meet the physical criteria of a Type F stream. This also includes streams that have been proven not to contain fish using methods described in Forest Practices Board Manual Section 13. **(formerly type 4)**
Type"Ns"= Non-Fish Seasonal	Streams that do not have surface flow during at least some portion of the year, and do not meet the physical criteria of a Type F stream. **(formerly type 5)**

Type X is a symbol on DNR maps that identifies various water features (for example: irrigation ditches, sanitation ponds, pipeline, etc.) which are not part of the above classifications.
Type U is a symbol on DNR maps that identifies unknown water features that need to be verified and identified on proposed forest practices activity maps.

4.7 Isolated Stream Buffer

16.32.065(C)---*Isolated Riparian Areas,* if topographic breaks (e.g., bluffs) or a legally established road, railroad or other lineal facility or barrier (not including logging roads) functionally isolates a portion of the riparian area, the approval authority may allow the riparian habitat area width to be reduced to the minimum extent needed to exclude the isolated area established prior to the effective date of these regulations if:

1. It does not perform any biological, geological, or hydrological functions related to the undisturbed portions of the riparian habitat area or stream; and
2. It does not provide protection of the riparian habitat area.

5.0 LAND USE ACTION

The proposed project consists of extending a sewer line through the study area within the footprint of the existing private road allowable under TMC 16.32.070(I) & TMC 16.28.110(H)(3) (**Figure 6**). The proposed sewer line would be installed within the existing private road with no new impacts on wetlands, streams, or buffers. The existing twelve (12) inch culvert under the private road would be temporarily removed and then replaced either in kind or by a new culvert of the same dimensions if the existing one could not be saved (**Figure 6, Appendix A, Photos 16, 42, & 43**). The ten (10)-inch culvert under the road would also be removed and replaced.

Because the stream and wetland buffers end at the edge of the road and do not extend over the road as stated under TMC 16.28.170(D) & TMC 16.32.065(C), no wetland and wetland buffer impacts are anticipated. The portion of the road where the sewer line would be installed would be completely restored to existing conditions.

The design of the sewer line installation has avoided and minimized potential impacts to the greatest extent practicable by routing the sewer line to avoid Critical Areas and by installing the sewer line within the footprint of the existing private road. No wetland impacts are anticipated as a result of this project. No wetland buffer impacts are anticipated as a result of installing the sewer line within the road.

The culvert removal and replacement would occur in the dry when no water occurs in the stream to minimize any potential impacts. Erosion and Sedimentation Control Best Management Practices (BMPs) would be applied to prevent turbid runoff or sedimentation during construction. However, no erosion or sedimentation would be anticipated during construction because construction would occur when the stream and wetland are dry with no standing or flowing water.

6.0 SUMMARY & CONCLUSION

The purpose of this Critical Areas Report is to identify and map Critical Areas along a portion of the sewer line route. Potential impacts to wetlands, streams, and buffers have been evaluated as a result of the proposed sewer line project. This Critical Areas Report has been prepared to satisfy City of Tumwater regulatory requirements.

The study area consists of residential lots and a private road (**Appendix A, Photos 1-8**). The private road services multiple residential lots. The majority of the study area is forested by Oregon ash (*Fraxinus latifolia*, FACW), Douglas fir (*Pseudotsuga menzeisii*, FACU), and bitter cherry (*Prunus emarginata*, FACU) (**Appendix A, Photos 5 & 6**). A private road is very well established and extends through the central portion of the study area in the north-south direction (**Appendix A, Photos 3, 4, 7, & 8**). A twelve (12) inch culvert consisting of a corrugated metal pipe (CMP) extends under the private road facilitating the movement of winter water (**Appendix A, Photo 16**). A smaller ten (10) inch CMP would also be removed and replaced.

Two (2) wetlands, labeled Wetland A & Wetland B, and one (1) stream were identified in the study area using the Routine Onsite Determination Method in compliance with the USACE (2010) Regional Supplement (**Figures 2 & 3; Table 4**).

Wetlands A & B rated as Category III wetlands with a Habitat Score of between five (5) and seven (7) points. The standard buffer for Category III wetlands under moderate intensity land use that score between five (5) and seven (7) points for Habitat Functions require a buffer width of one hundred ten (110) feet (TMC Chapter 16.28.170---*Wetland buffers*, Table 16.28.170(3)---*Category III Wetland Buffer Width*) (**Figure 5, Table 5**).

Stream Sa is classified as a Type 5 under the City of Tumwater Code Chapter 16.32.065---*Riparian habitat areas – Buffers*, which is equivalent to and consistent with the DNR classification of Type Ns (**Insert 1**). Under the City of Tumwater, Type 5 Streams maintain a 50-foot buffer. Type 5 streams do not have surface flow during at least some portion of the year, and do not meet the physical criteria of a Type F stream.

The proposed project consists of extending a sewer line through the study area within the footprint of the existing private road allowable under TMC 16.32.070(I) & TMC 16.28.110(H)(3) (**Figure 6**). The proposed sewer line would be installed completed within the existing private road with no new impacts on wetlands, streams, or buffers. The existing twelve (12) inch culvert under the private road would be temporarily removed and then replaced either in kind or by a new culvert of the same dimensions if the existing one could not be saved (**Figure 6, Appendix A, Photos 16, 42, & 43**).

Because the stream and wetland buffers end at the edge of the road and do not extend over the road as stated under TMC 16.28.170(D) & TMC 16.32.065(C), no wetland and wetland buffer impacts are anticipated. The portion of the road where the sewer line would be installed would be completely restored to existing conditions.

The design of the sewer line installation has avoided and minimized potential impacts to the greatest extent practicable by routing the sewer line along a path that avoids Critical Areas and by installing the sewer line within the footprint of the existing private road. No wetland impacts are anticipated as a result of this project. No wetland buffer impacts are anticipated as a result of installing the sewer line within the road footprint.

The culvert removal and replacement would occur in the dry when no water occurs in the stream to minimize any potential impacts. Erosion and Sedimentation Control Best Management Practices (BMPs) would be applied to prevent turbid runoff or sedimentation during construction. However, no erosion or sedimentation would be anticipated during construction because construction would occur when the stream and wetland are dry with no standing or flowing water.

7.0 REFERENCES

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service, Department of the Interior. FWSOBS-70/31.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Miss.

Hitchcock, C.L., and A. Cronquist. 1973. *Flora of the Pacific Northwest*. University of Washington Press. 730 pp.

Iowa State University. 1995. Hydric Soils of Washington State. U.S. Department of Agriculture, Natural Resources Conservation Service. December 5.

Munsell Color. 1988. *Munsell Soil Color Charts*. Kollmorgen Instruments Corp., Baltimore, Maryland.

Reed, P.B. Jr. 1988. *National List of Plant Species that Occur in Wetlands: Northwest (Region 9)*. USF&WS Biol. Report 88.

Reed, P.B. Jr. 1993. Supplement to: *National List of Plant Species that Occur in Wetlands: Northwest (Region 9)*. USF&WS Biol. Report 88.

Reed, P.B. Jr. 1998. National List of Plant Species that Occur in Wetlands: Northwest (Region 9). USF&WS Update.

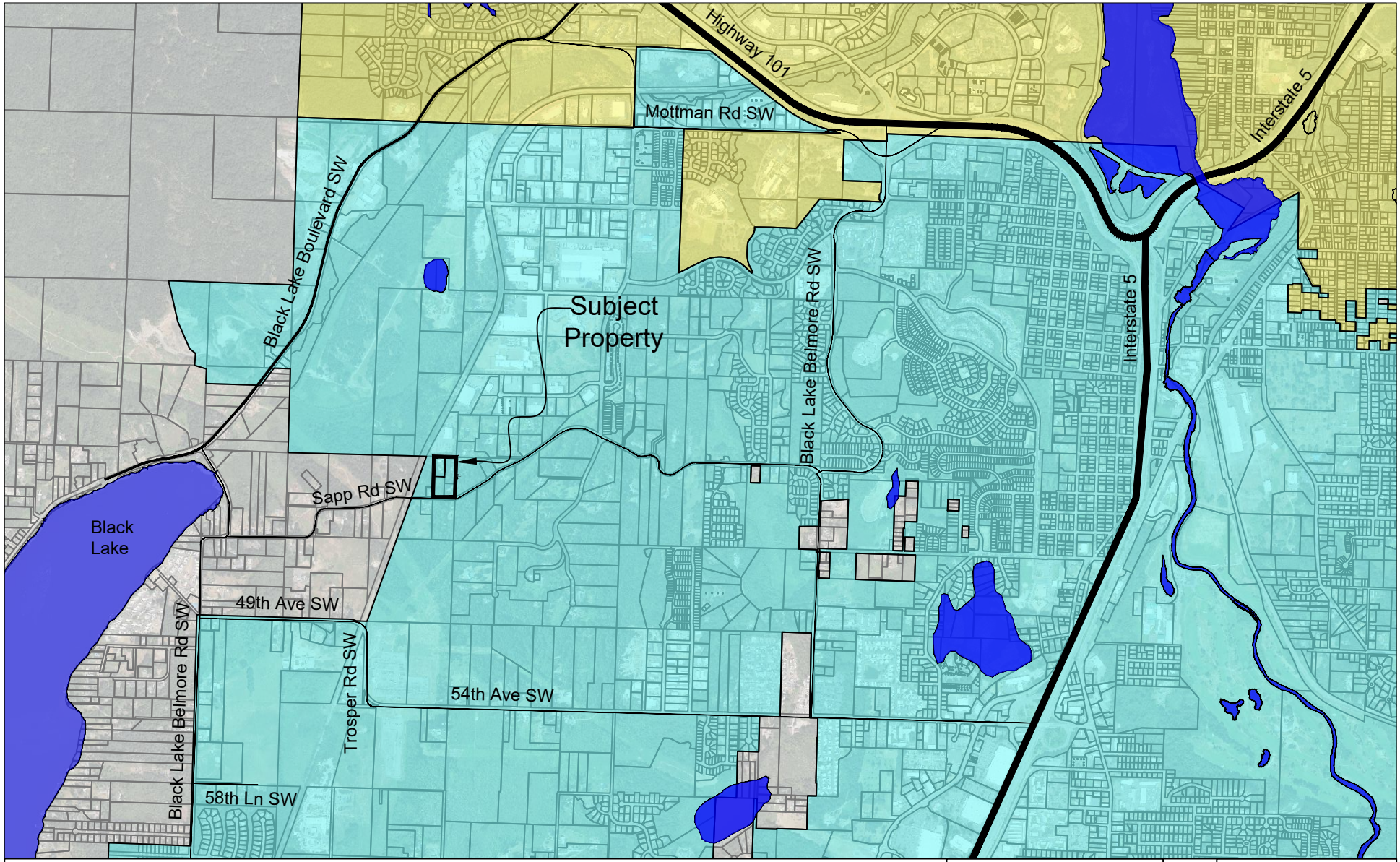
U.S. Department of Agriculture, Soil Conservation Service. June, 1991. *Hydric Soils of the United States.*

U.S. Department of Agriculture, Soil Conservation Service. Thurston County Area Soil Survey.

Washington State Department of Ecology. 1997. Washington State Wetland Identification and Delineation Manual. March.

Washington State Department of Ecology. 2004. Washington State Wetland Rating System for Western Washington. Ecology Publication # 04-06-025. August.

FIGURES



EnviroVector
OPTIMIZE USABLE LAND
curtis@envirovector.com
www.envirovector.com
360-790-1559

City of Tumwater
City of Olympia

Figure 1

Bodenhamer Sewer Line

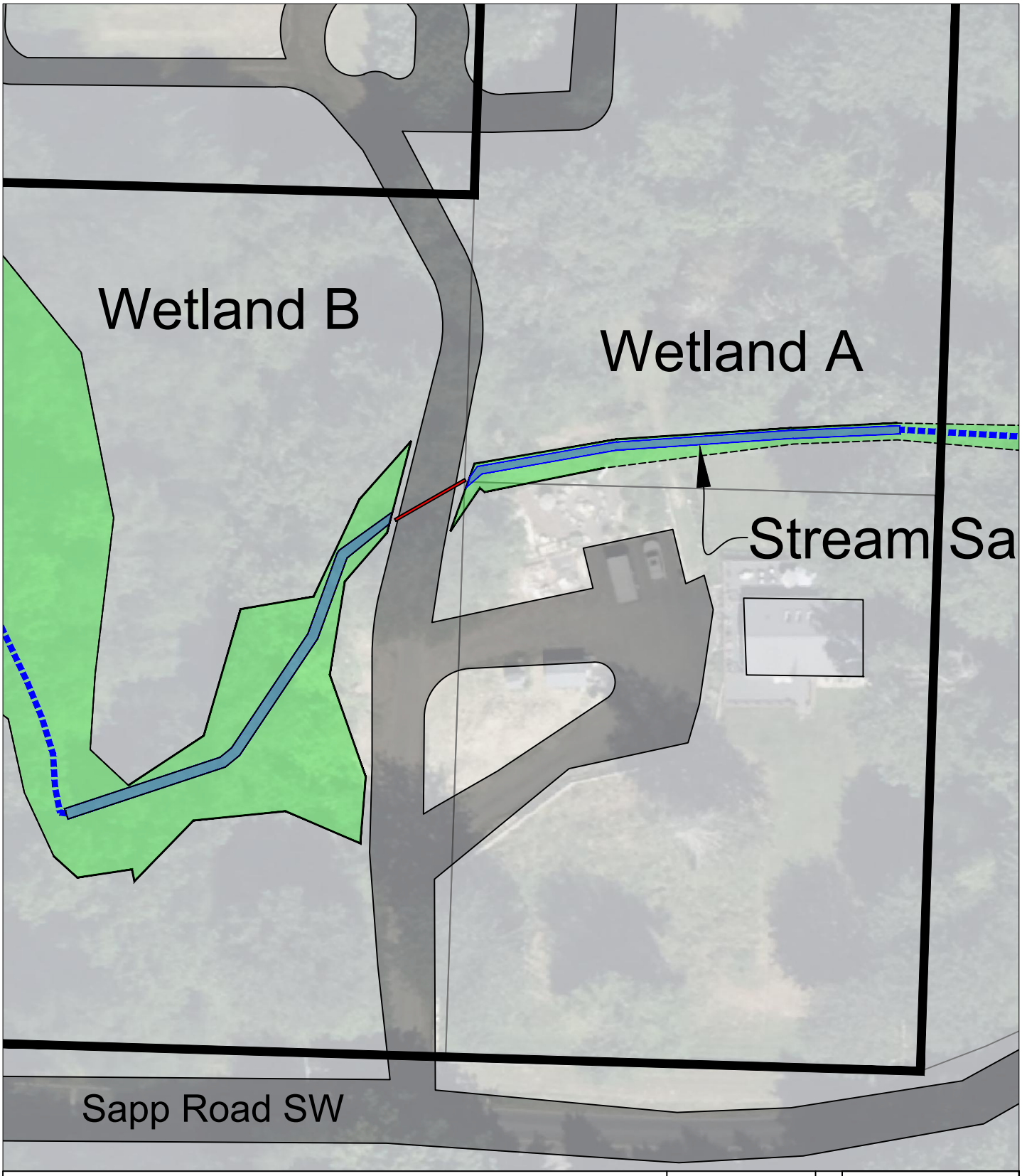
Vicinity Map

N

Scale: 1" = 2200'

0 2200'

28 July 2023



EnviroVector
OPTIMIZE USABLE LAND
curtis@envirovector.com
www.envirovector.com
360-790-1559

Wetland (Delineated)
Wetland (Not Delineated)
Stream (Delineated)
Stream (Assumed Location)
Culvert (12" CMP)

Figure 2

Bodenhamer Sewer Line

Wetlands and Stream

Scale: 1" = 50'

0 50'

28 July 2023

EnviroVector
OPTIMIZE USABLE LAND
curtis@envirovector.com
www.envirovector.com
360-790-1559

Wetland (Verified)
Wetland (Unverified)
Stream (Delineated)
Stream (Assumed Location)
Culvert (12" CMP)
Roads (Approximate Location)

Figure 3

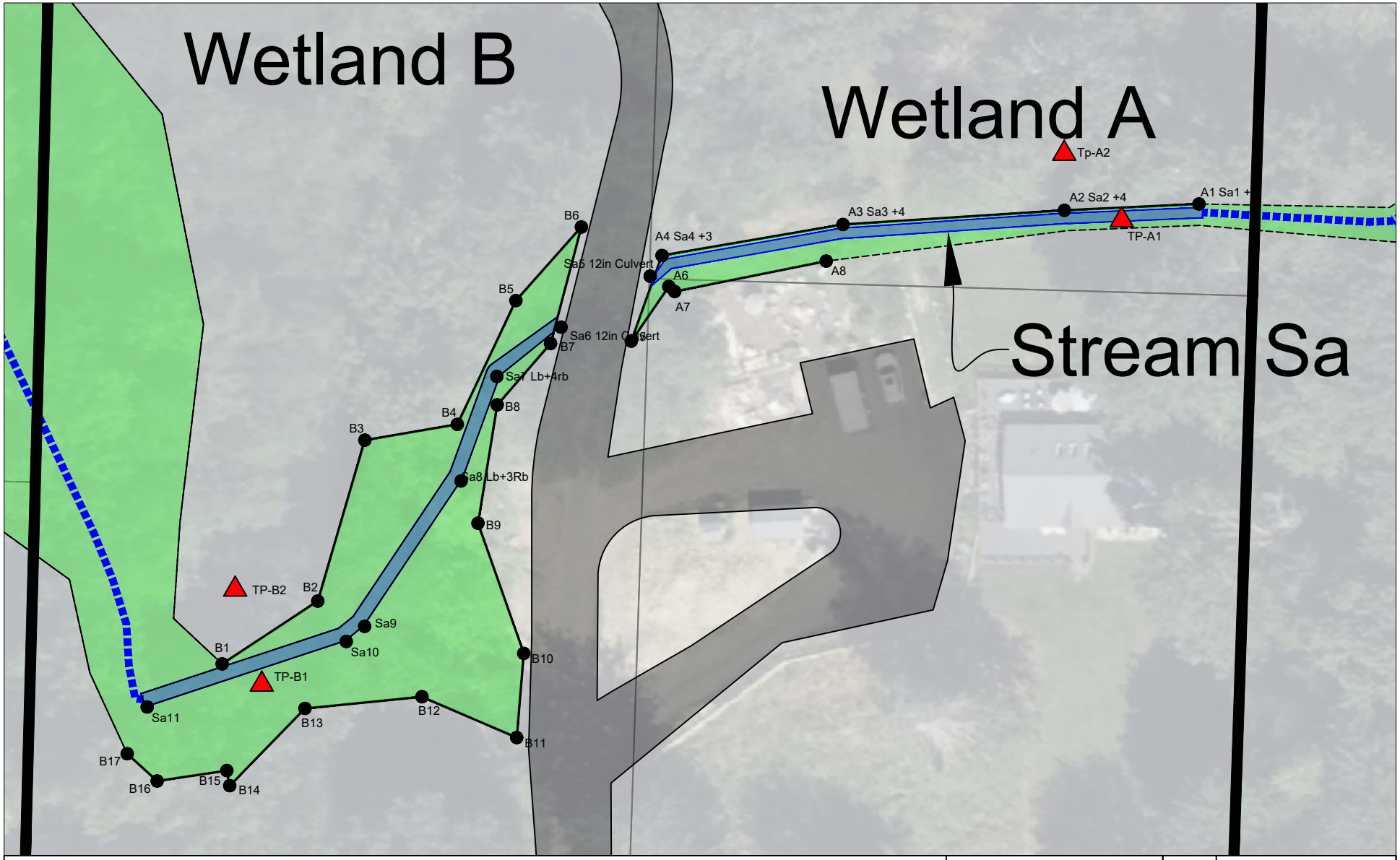
Bodenhamer
Sewer Line

Existing Conditions

Scale: 1"= 120'

0 120'

28 July 2023



EnviroVector
OPTIMIZE USABLE LAND
curtis@envirovector.com
www.envirovector.com
360-790-1559

Wetland (Delineated)

Wetland (Mapped by LiDAR and County Database)

A1 A2 Wetland Delineation

TP A2 Test Plot

Figure 4

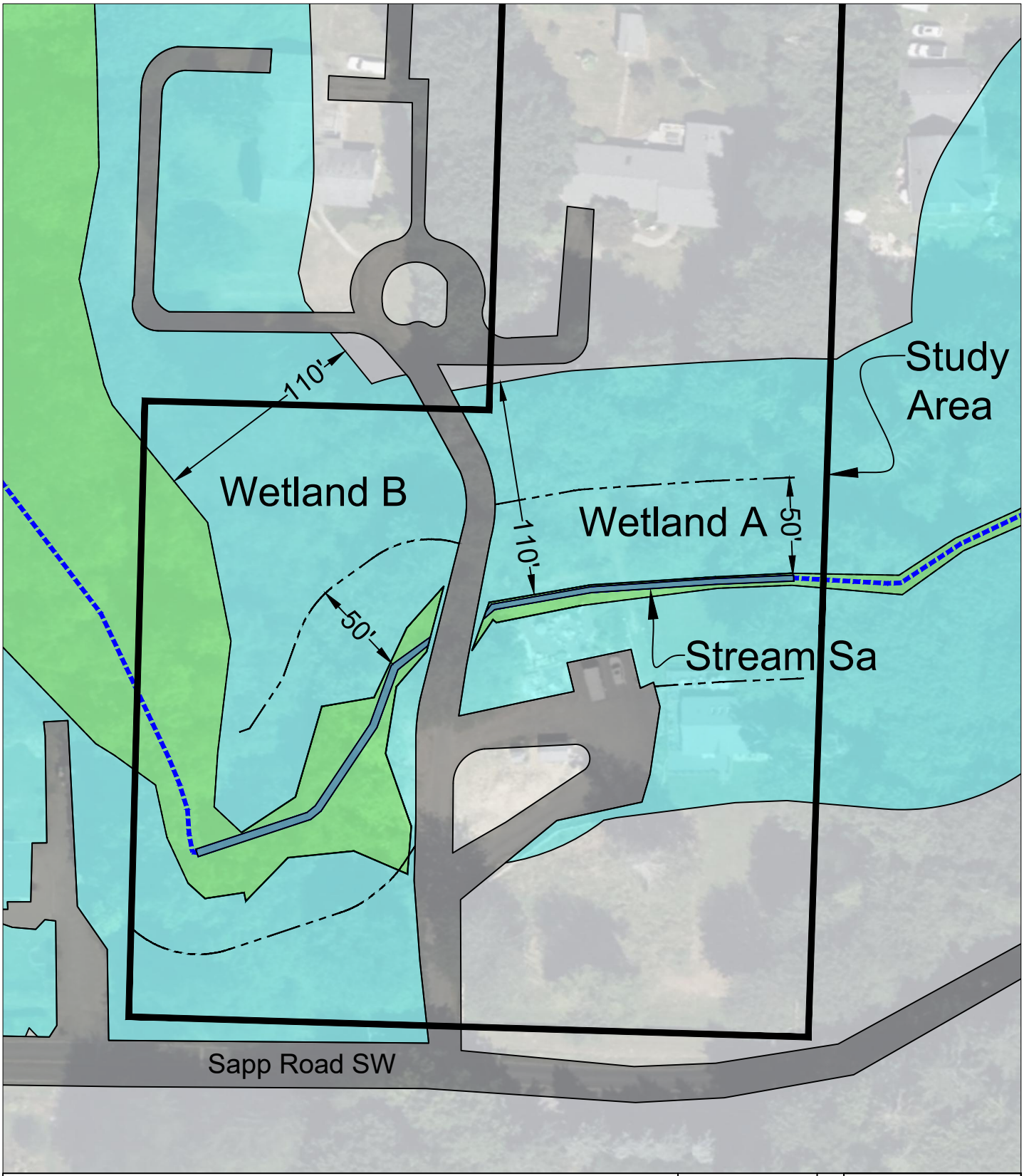
Bodenhamer Sewer Line

Delineation

Scale: 1"= 40'

0 40'

28 July 2023



EnviroVector
OPTIMIZE USABLE LAND
curtis@envirovector.com
www.envirovector.com
360-790-1559

Wetland (Delineated)
Wetland (Not Delineated)
Stream (Delineated)
Stream (Assumed Location)
Culvert (12" CMP)
Roads (Approximate Location)
Wetland Buffer
Stream Buffer

Figure 5

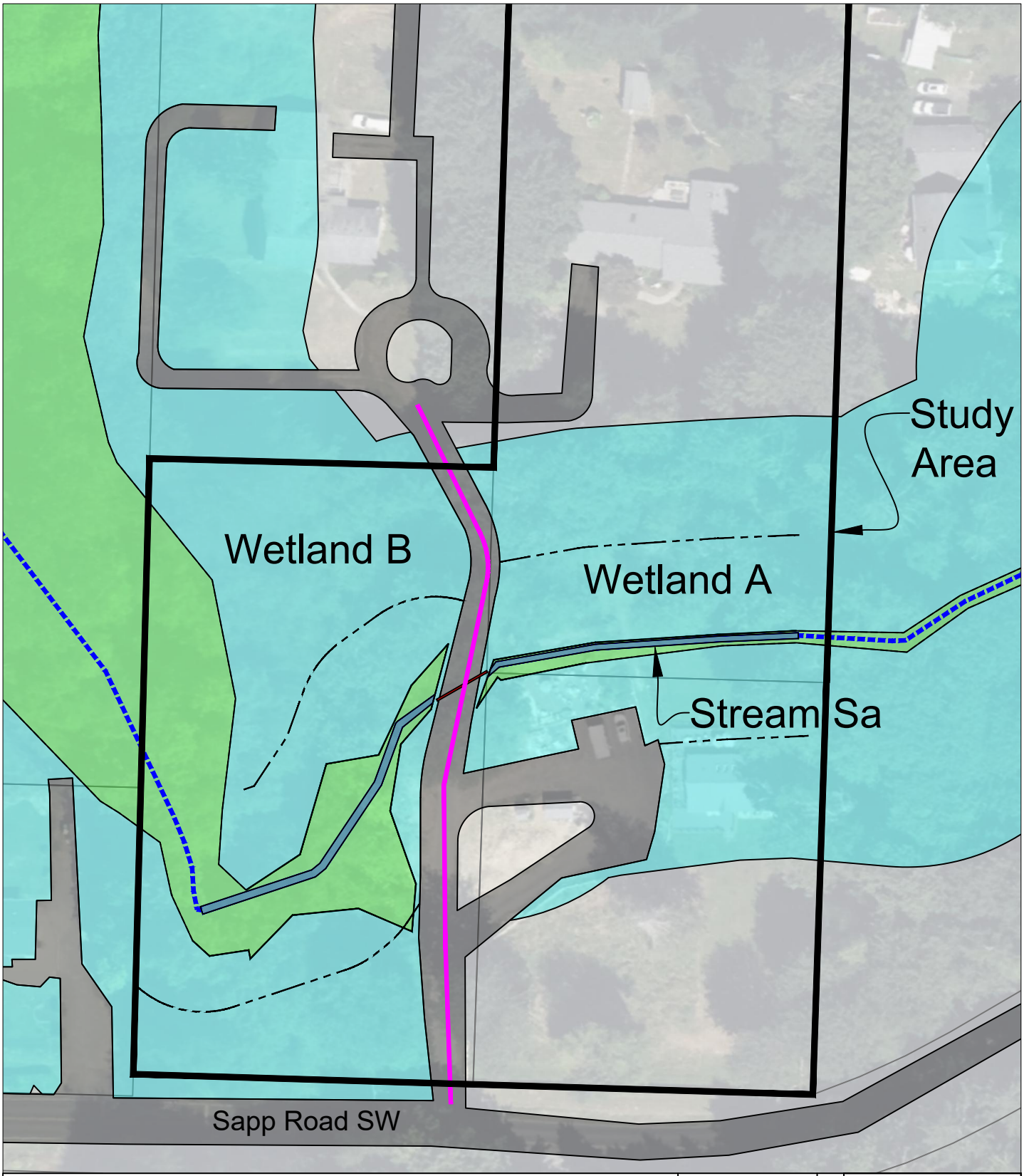
Bodenhamer Sewer Line

Wetland & Stream Buffers

Scale: 1" = 70'

0 70'

28 July 2023



EnviroVector
OPTIMIZE USABLE LAND
curtis@envirovector.com
www.envirovector.com
360-790-1559

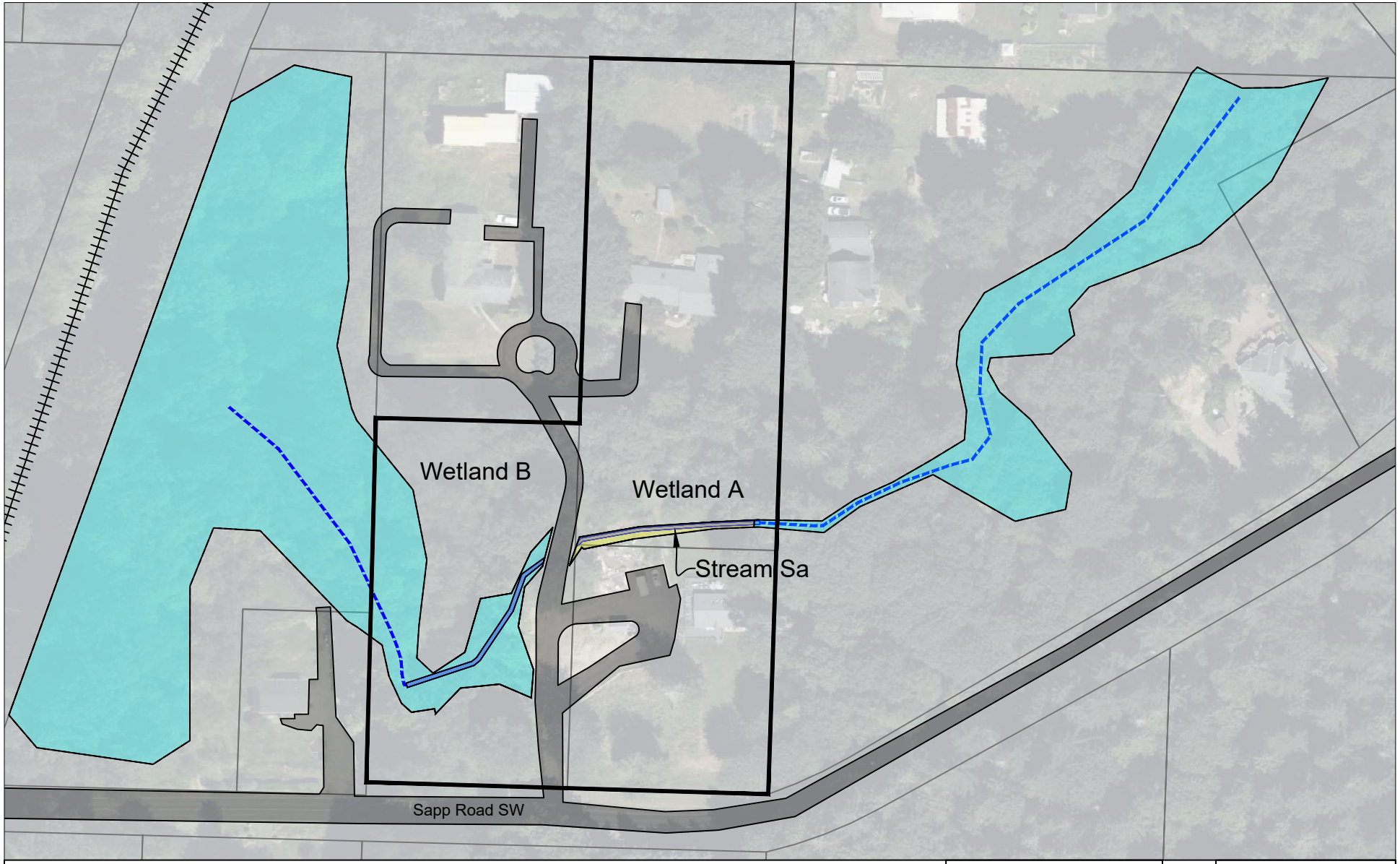
Wetland (Delineated)
Wetland (Not Delineated)
Stream (Delineated)
Stream (Assumed Location)
Culvert (12" CMP)
Roads (Approximate Location)
Wetland Buffer
Stream Buffer
Proposed Sewer Line

Figure 6

Bodenhamer
Proposed Project and Potential Impacts

Scale: 1" = 70'
0 70'

28 July 2023



EnviroVector
OPTIMIZE USABLE LAND
curtis@envirovector.com
www.envirovector.com
360-790-1559

Forested Seasonally-flooded

Scrub Shrub Seasonally-flooded

Figure 7

Bodenhamer Sewer Line

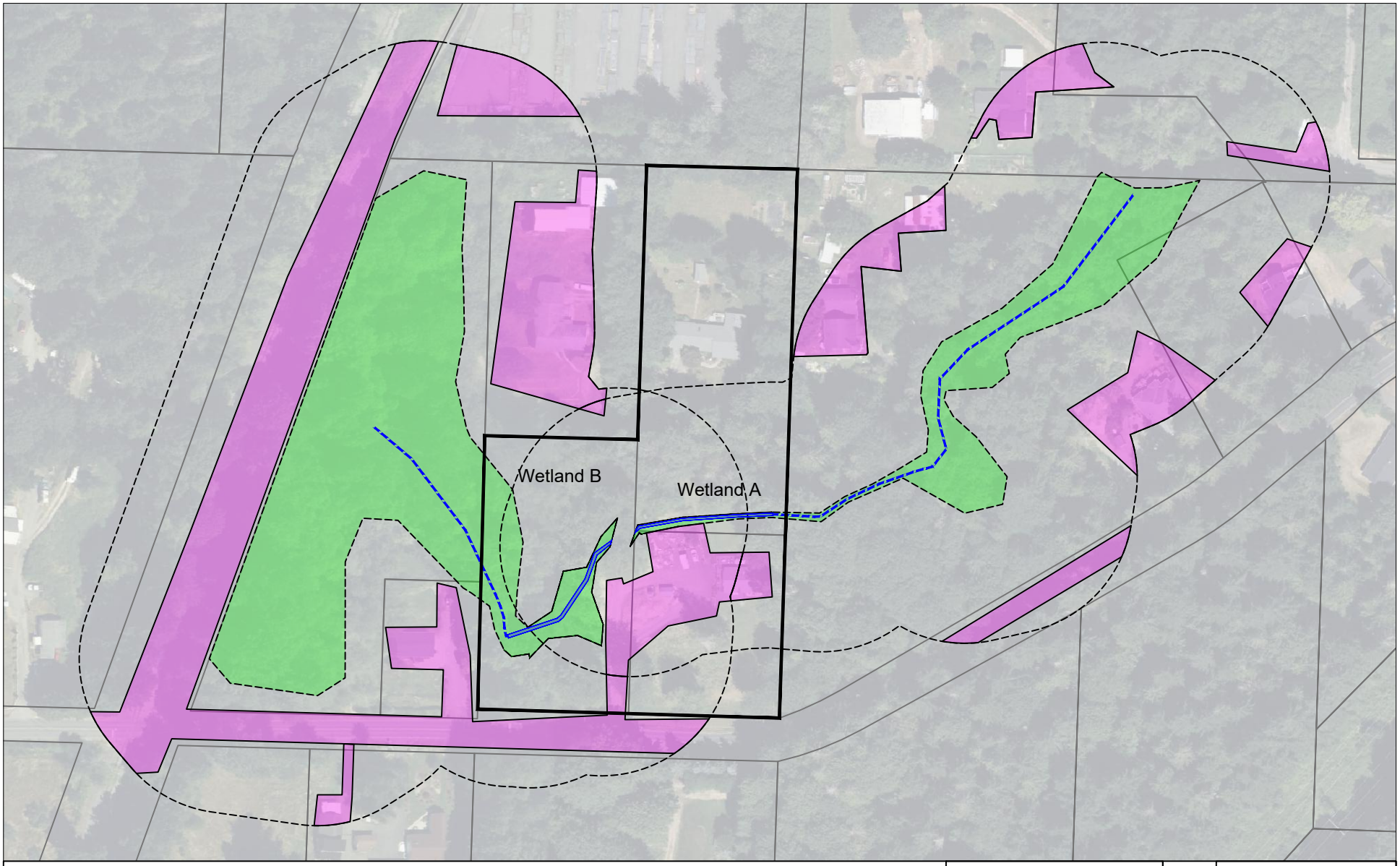
Hydroperiods & Vegetation Classes

N

Scale: 1"= 120'

0 120'

28 July 2023



EnviroVector
OPTIMIZE USABLE LAND
curtis@envirovector.com
www.envirovector.com
360-790-1559

Wetland

Pollutants
Wetland A (16%)
Wetland B (36%)

Figure 8

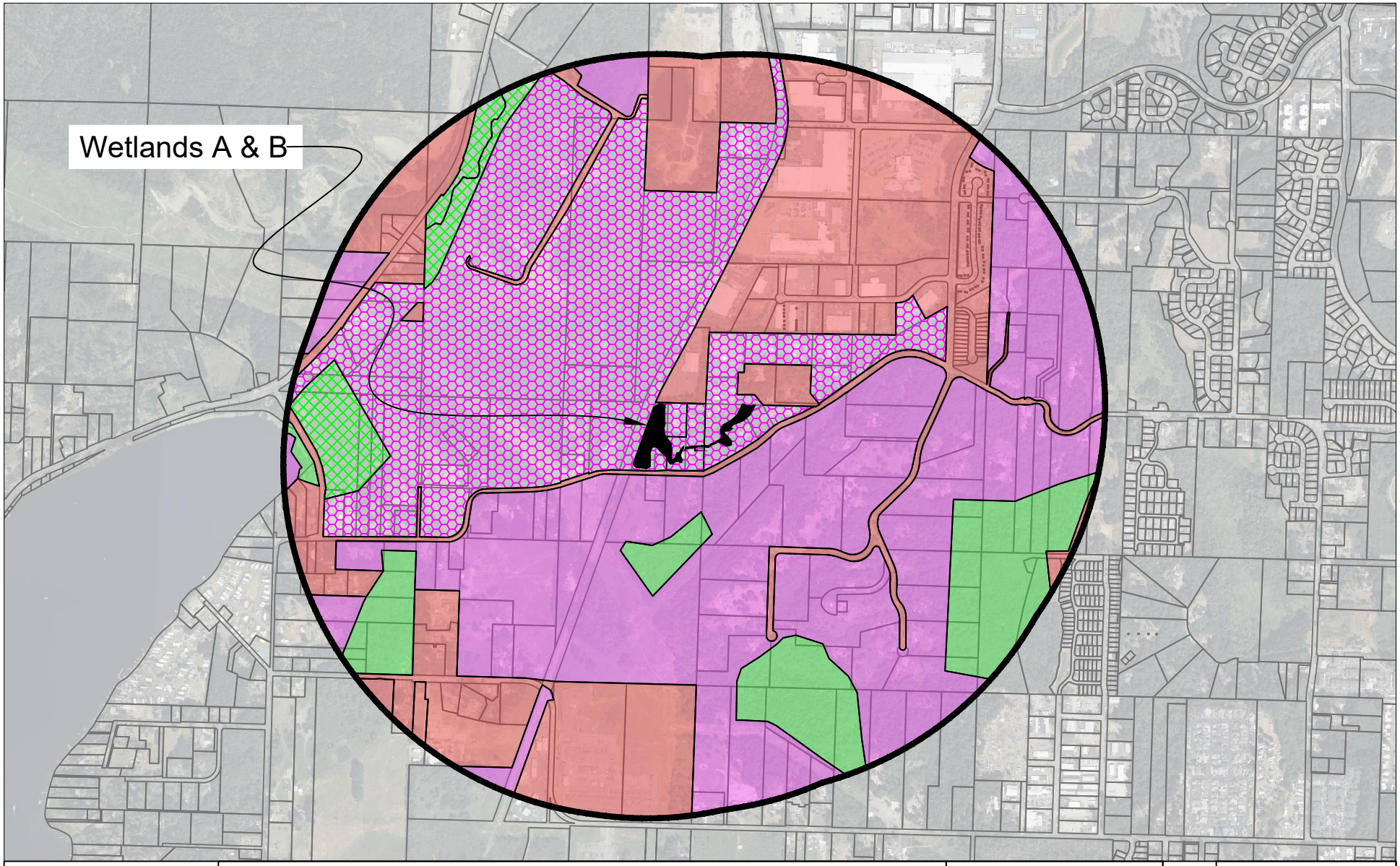
Bodenhamer
Sewer Line

Potential Pollutants

Scale: 1"= 160'

0 160'

28 July 2023



EnviroVector
OPTIMIZE USABLE LAND
curtis@envirovector.com
www.envirovector.com
360-790-1559

Accessible Habitat (1,136,622 sf, 26 acres, 2.6%)

Accessible Moderate to Low Intensity Land Use (11,400,162 sf, 261 acres, 26%)

Relatively Undisturbed Habitat + Accessible Habitat (4,315,409 sf, 90 acres, 9.8%)

Low to Moderate Intensity Land Use + accessible Low to Moderate (26,385,655 sf, 335 acres, 60.2%)

High Intensity Land Use (12,558,127 sf, 288 acres, 28.6%)

1km Polygon (43,839,202 sf, 1,006 acres)

H2.1: 2.6% + 26% /2 = 15.6% (1 point)

H2.2: 9.8% + 60.2%/2 = 39.5% (1 point)

H2.3: High Intensity = 28.6% (0 points)

Figure 9

Bodenhamer Sewer Line

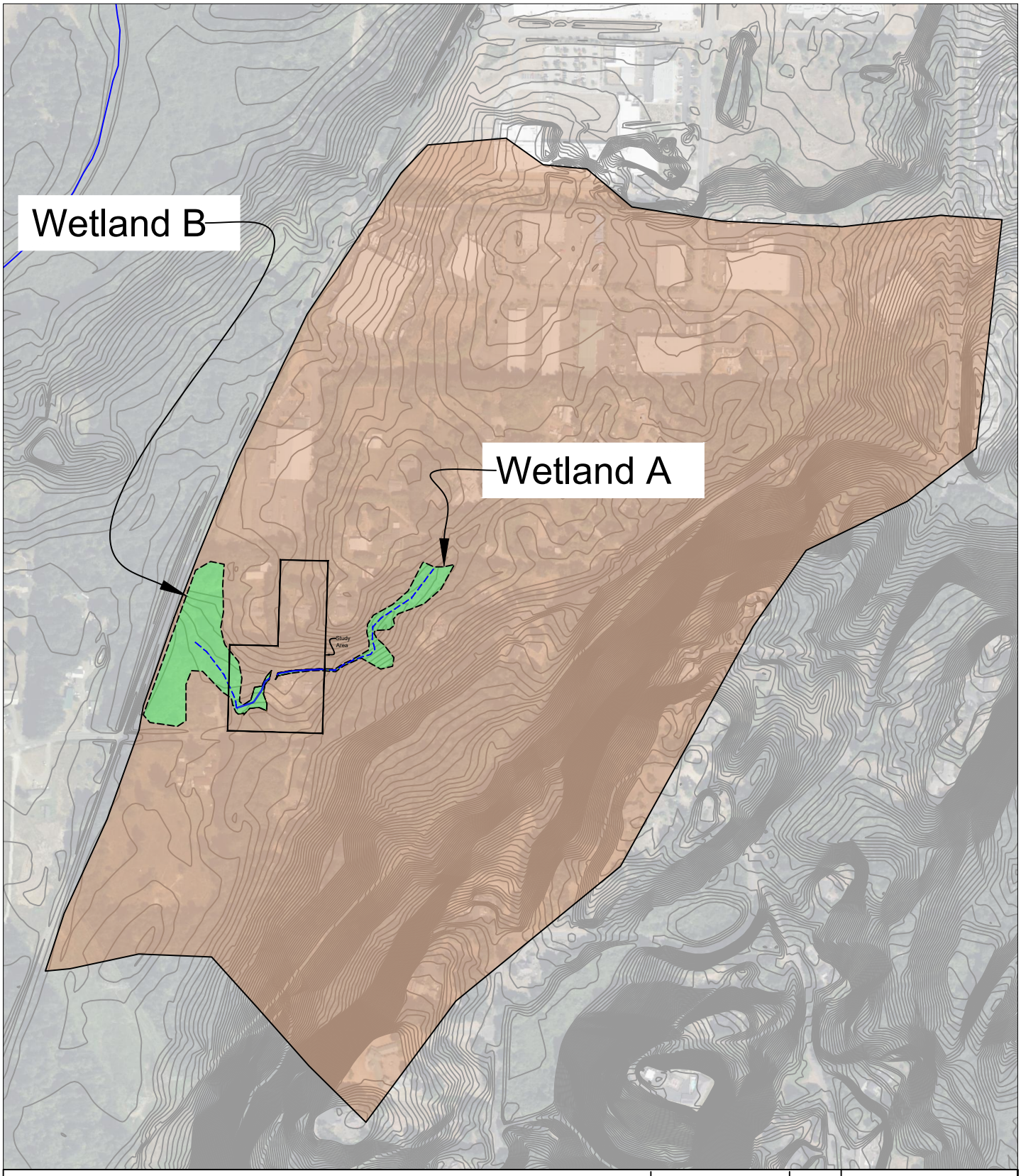
1 KM Polygon Wetland A

N

Scale: 1"= 1300'

0 1300'

28 July 2023



EnviroVector
OPTIMIZE USABLE LAND
curtis@envirovector.com
www.envirovector.com
360-790-1559

Wetland (Delineated)

Wetland (Not Delineated)

Contributing Basin
Wetland A (17x; 10-100x)
Wetland B & C (19.5x; 10-100x)

Figure 10

Bodenhamer

Contributing Basin

Scale: 1" = 500'

0 500'

29 June 2023

APPENDIX A

PHOTOGRAPHS

Study Area

Photo 1. SE Parcel contains single-family residence

Photo 2. Private Road

Photo 3. Wetland Delineation at Private Road

Photo 4. Wetland delineation at private road

Photo 5. Slough sedge in forested wetland

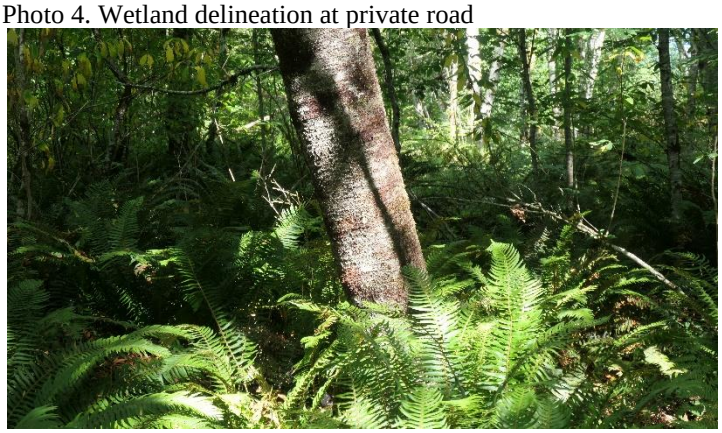


Photo 6. Upland forest of bitter cherry (FACU) in buffer

Photo 7. Private road, location of sewer line

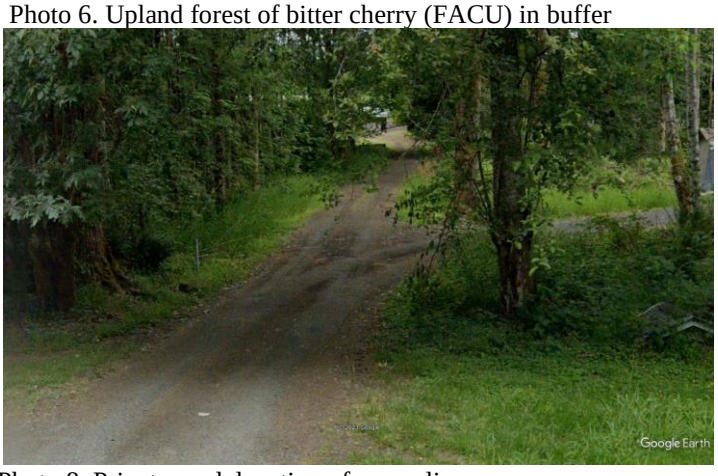


Photo 8. Private road, location of sewer line

Wetland A


Photo 9. Wetland A, Flag A-1, & Stream Flag Sa-1


Photo 10. Wetland A, Flag A-2, & Stream Flag Sa-2


Photo 11. Wetland A, Flag A-3, & Stream Flag Sa-3


Photo 12. Wetland A, Flag A-3, & Stream Flag Sa-3


Photo 13. Wetland A, Flag A-6


Photo 14. Wetland A, Flag A-7 foreground, Flag A-4 background


Photo 15. Wetland A, Flag A-7


Photo 16. Culvert between Wetlands A & B

Photo 17. Wetland A Test Plot TP-A1

Photo 18. Wetland A Test Plot TP-A1

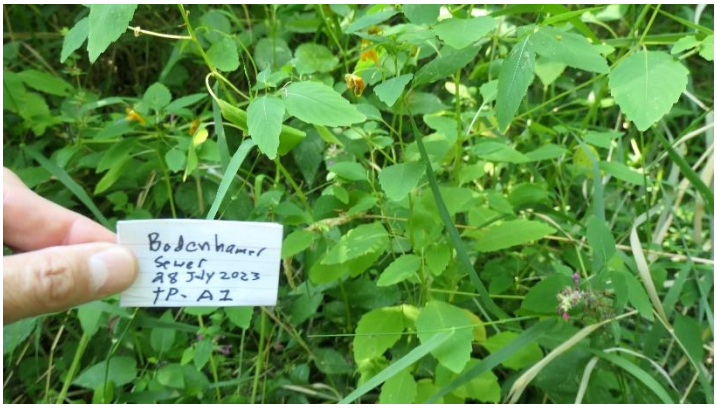


Photo 19. Wetland A Test Plot TP-A1, Jewel Weed (FACW)

Photo 20. Test Plot TP-A1, Reed canarygrass (FACW)

Photo 21. Test Plot TP-A2 Upland

Photo 22. Test Plot TP-A2 Upland

Wetland B

Photo 23. Wetland B, Flag B-3


Photo 24. Wetland B, Flag B-3


Photo 25. Wetland B, Flag B-7


Photo 26. Well-defined wetland boundary


Photo 27. Well-defined wetland boundary

Photo 28. Wetland B, Flag B-10

Photo 29. Wetland B, Flag B-12

Photo 30. Wetland B, Flag B-13, well-defined boundary

Photo 31. Wetland B, Flag B-14, well-defined boundary

Photo 32. Wetland B, Flag B-14, well-defined boundary


Photo 33. Wetland B, Test Plot TP-B1, slough sedge (OBL)


Photo 34. Wetland B, Test Plot TP-B1, slough sedge (OBL)


Photo 35. Oregon Ash (FACW) forest at TP-B1


Photo 36. Upland Test Plot TP-B2


Photo 37. Upland test plot TP-B2


Photo 38. Upland test plot TP-B2

Stream Sa

Photo 39. Stream Sa, dry shallow channel, mud bottom

Photo 40. Stream Flag Sa-1, channel filled with reed canarygrass

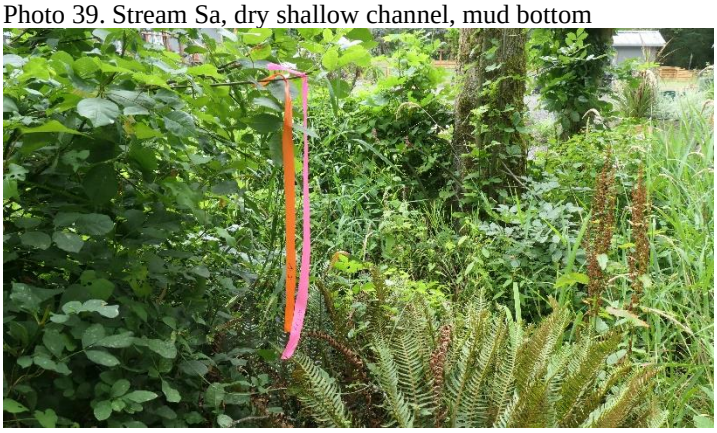


Photo 41. Stream Flag Sa-3

Photo 42. Stream Sa inlet at Flag Sa-5

Photo 43. Stream Sa outlet at Flag Sa-6

Photo 44. Stream Sa outlet at Flag Sa-6

Photo 45. Stream Sa Flag Sa-7

Photo 46. Stream Sa Flag Sa-7

Photo 47. Stream Sa Flag Sa-8, mole mound on stream bed

Photo 48. Stream Sa Flag Sa-8, dry mud bottom

Photo 49. Stream Sa Flag Sa-8

Photo 50. Stream Sa dry mud bottom

Photo 51. Stream Sa Flag Sa-11

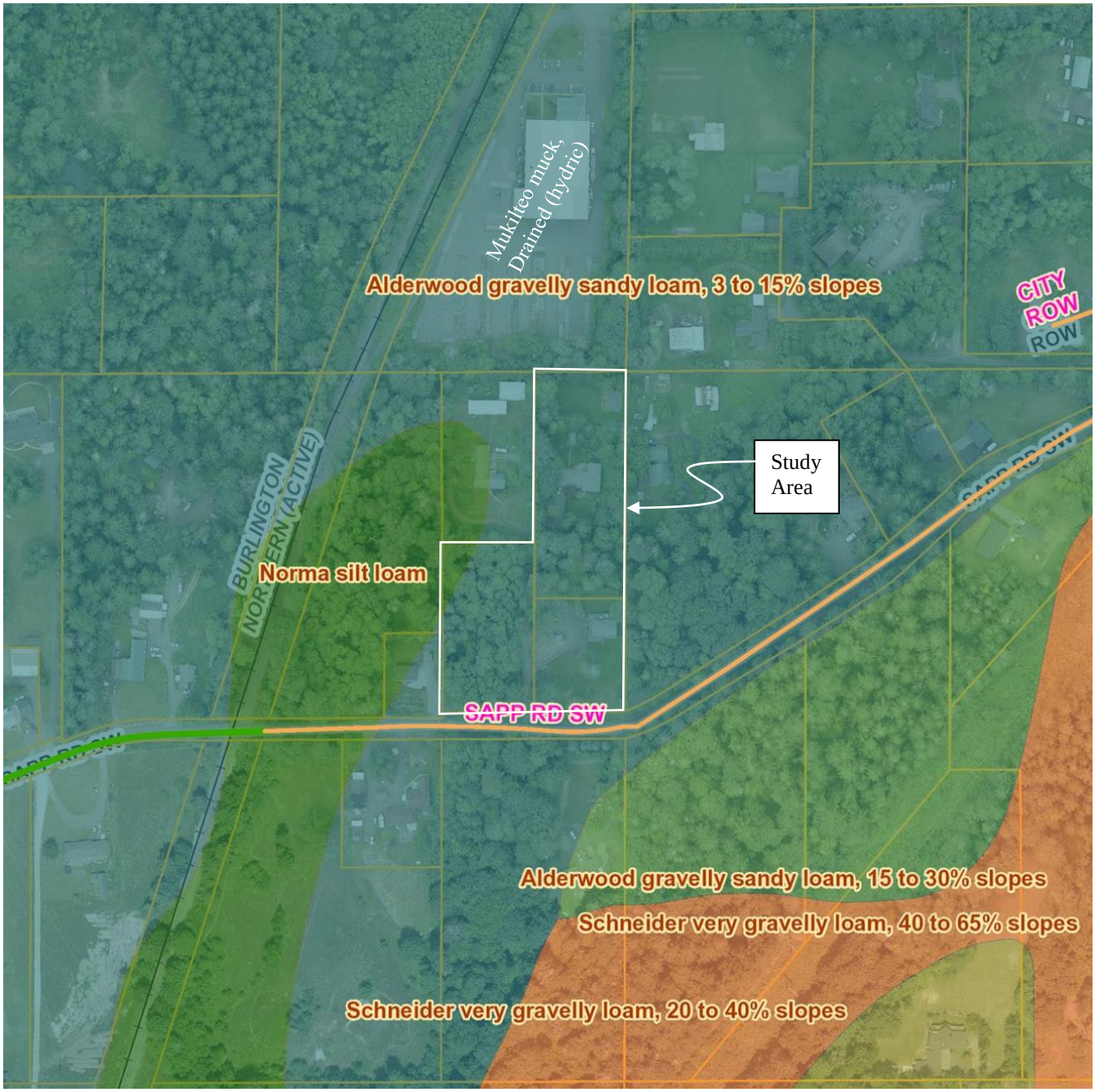
Photo 52. Stream Sa Flag Sa-11

Appendix B

Thurston County

Geodata Center

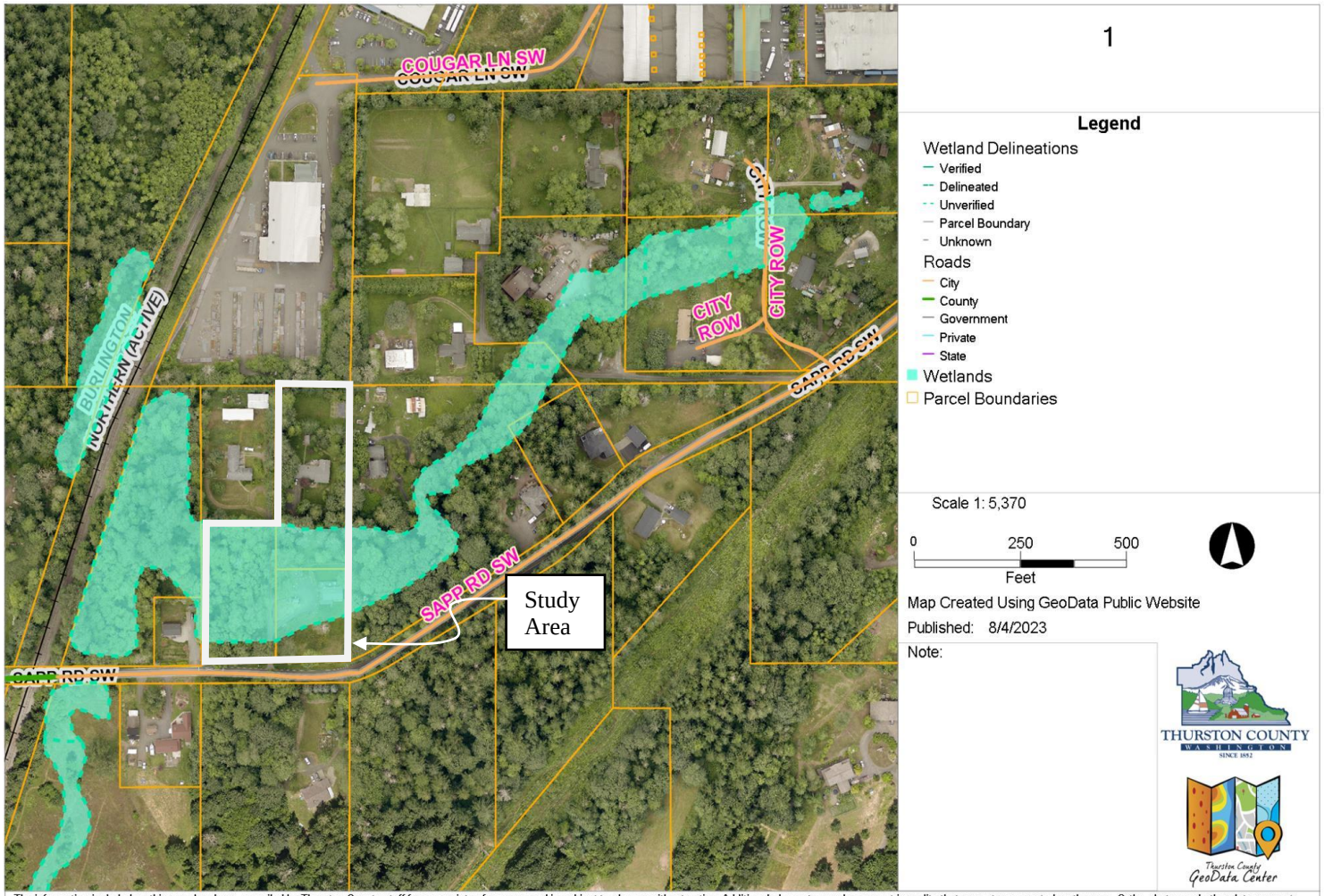
Soils Survey


Mukilteo muck, Drained (hydric)
Alderwood gravelly sandy loam, 3 to 15% slopes
CITY ROW
ROW
Study Area
BURLINGTON NORTHERN (ACTIVE)
Norma silt loam
SAPP RD SW
Alderwood gravelly sandy loam, 15 to 30% slopes
Schneider very gravelly loam, 40 to 65% slopes
Schneider very gravelly loam, 20 to 40% slopes

Appendix C

Thurston County

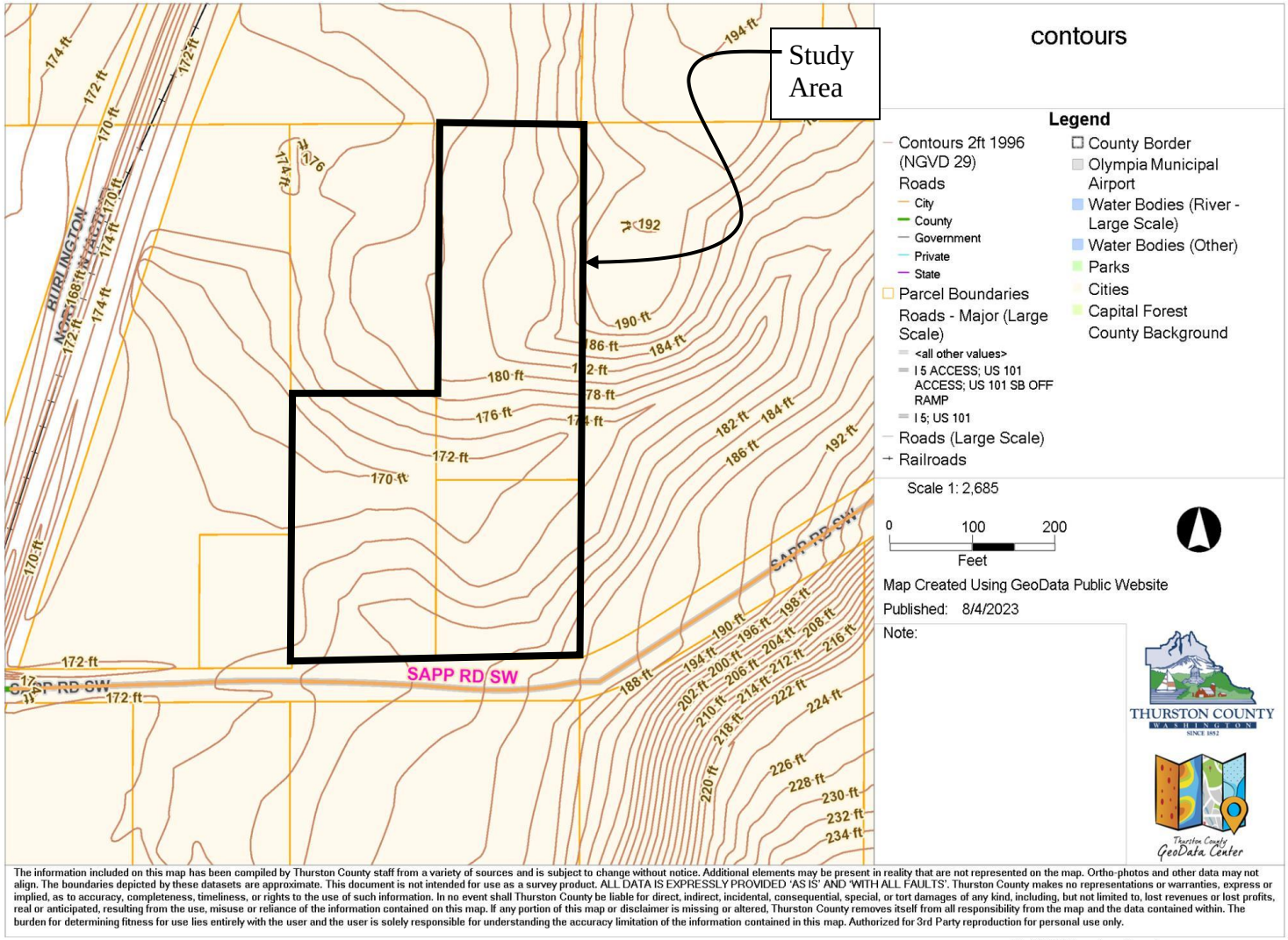
Geodata Center Database


COUGAR LN SW
BURLINGTON NORTHERN (ACTIVE)
CITY ROW
CITY ROW
SAPP RD SW
SAPP RD SW
Study Area
1
Legend
Wetland Delineations
Verified
Delineated
Unverified
Parcel Boundary
Unknown
Roads
City
County
Government
Private
State
Wetlands
Parcel Boundaries
Scale 1: 5,370
0
250
500
Feet
Map Created Using GeoData Public Website
Published: 8/4/2023
Note:
THURSTON COUNTY
WASHINGTON
SINCE 1852
Thurston County GeoData Center
The information included on this map has been compiled by Thurston County staff from a variety of sources and is subject to change without notice. Additional elements may be present in reality that are not represented on the map. Ortho-photos and other data may not align. The boundaries depicted by these datasets are approximate. This document is not intended for use as a survey product. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. Thurston County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. In no event shall Thurston County be liable for direct, indirect, incidental, consequential, special, or tort damages of any kind, including, but not limited to, lost revenues or lost profits, real or anticipated, resulting from the use, misuse or reliance of the information contained on this map. If any portion of this map or disclaimer is missing or altered, Thurston County removes itself from all responsibility from the map and the data contained within. The burden for determining fitness for use lies entirely with the user and the user is solely responsible for understanding the accuracy limitation of the information contained in this map. Authorized for 3rd Party reproduction for personal use only.
© 2023 Thurston County

Appendix D

Thurston County

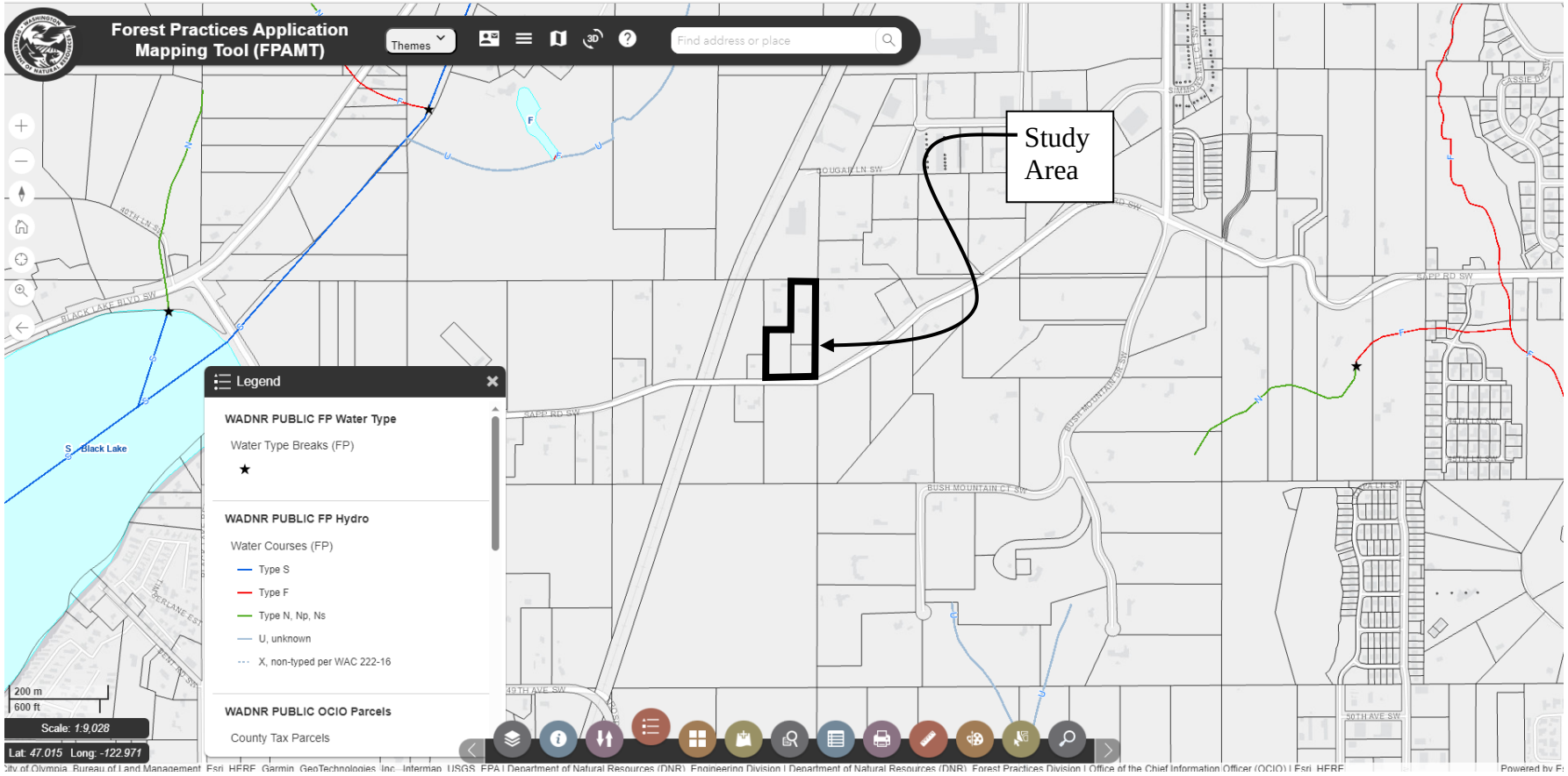
Contours


Study Area
contours
Legend
Contours 2ft 1996 (NGVD 29)
Roads
City
County
Government
Private
State
Parcel Boundaries
Roads - Major (Large Scale)
<all other values>
I 5 ACCESS; US 101 ACCESS; US 101 SB OFF RAMP
I 5; US 101
Roads (Large Scale)
Railroads
County Border
Olympia Municipal Airport
Water Bodies (River - Large Scale)
Water Bodies (Other)
Parks
Cities
Capital Forest
County Background
Scale 1: 2,685
0 100 200
Feet
Map Created Using GeoData Public Website
Published: 8/4/2023
Note:
SAPP RD SW
BURLINGTON NORTHERN SANTA FE
THURSTON COUNTY
WASHINGTON
SINCE 1852
Thurston County GeoData Center
The information included on this map has been compiled by Thurston County staff from a variety of sources and is subject to change without notice. Additional elements may be present in reality that are not represented on the map. Ortho-photos and other data may not align. The boundaries depicted by these datasets are approximate. This document is not intended for use as a survey product. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. Thurston County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. In no event shall Thurston County be liable for direct, indirect, incidental, consequential, special, or tort damages of any kind, including, but not limited to, lost revenues or lost profits, real or anticipated, resulting from the use, misuse or reliance of the information contained on this map. If any portion of this map or disclaimer is missing or altered, Thurston County removes itself from all responsibility from the map and the data contained within. The burden for determining fitness for use lies entirely with the user and the user is solely responsible for understanding the accuracy limitation of the information contained in this map. Authorized for 3rd Party reproduction for personal use only.
© 2023 Thurston County

Appendix E

State Department of Natural Resources (DNR)

Water Typing Database

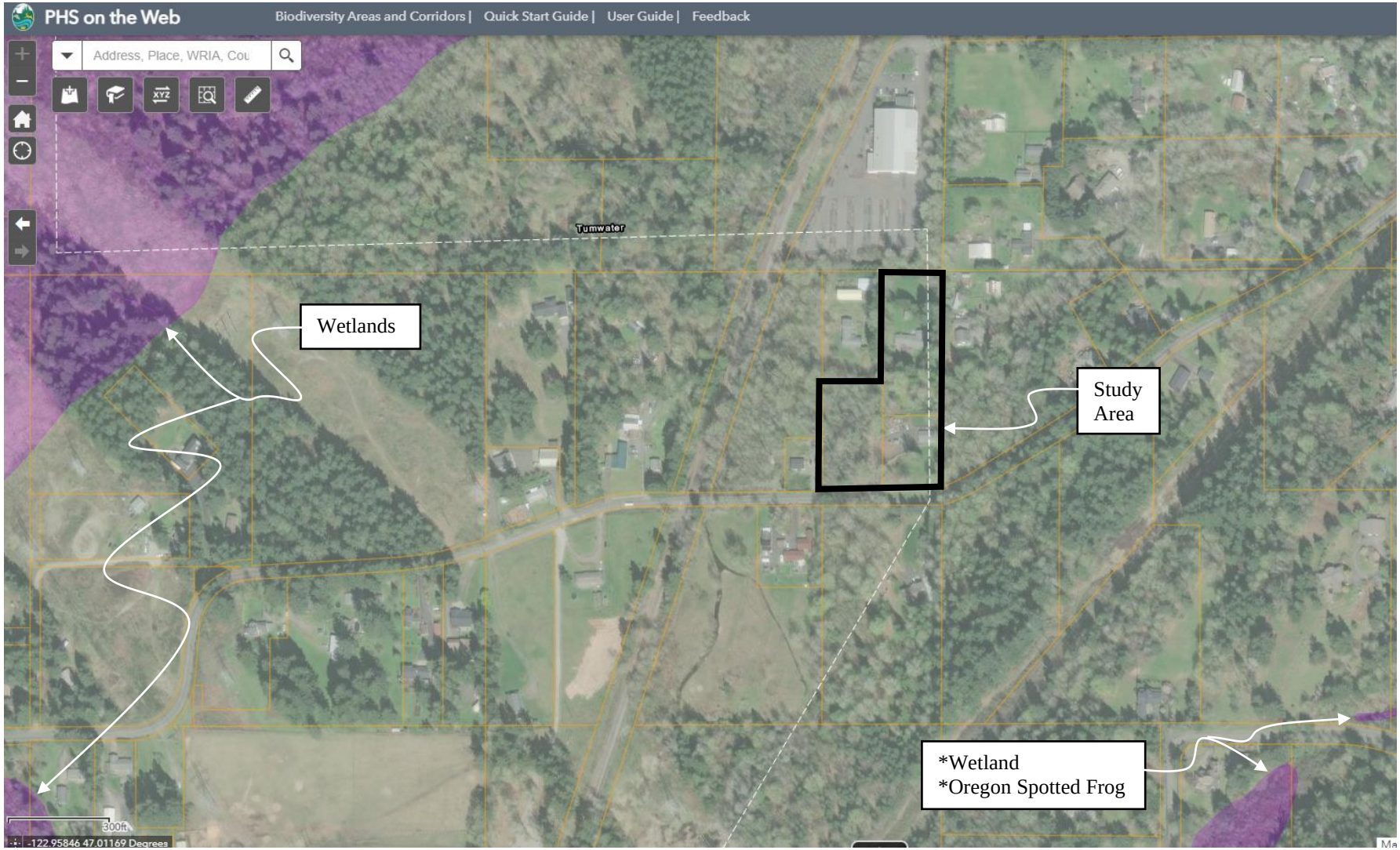

Forest Practices Application Mapping Tool (FPAMT)
Themes
Find address or place
Study Area
Legend
WADNR PUBLIC FP Water Type
Water Type Breaks (FP)
WADNR PUBLIC FP Hydro
Water Courses (FP)
Type S
Type F
Type N, Np, Ns
U, unknown
X, non-typed per WAC 222-16
WADNR PUBLIC OCIO Parcels
County Tax Parcels
Black Lake
BLACK LAKE BLVD SW
SAPP RD SW
BUSH MOUNTAIN CT SW
49TH AVE SW
200 m
600 ft
Scale: 1:9,028
Lat: 47.015 Long: -122.971

Appendix F

Washington Department of Fish and Wildlife (WDFW)

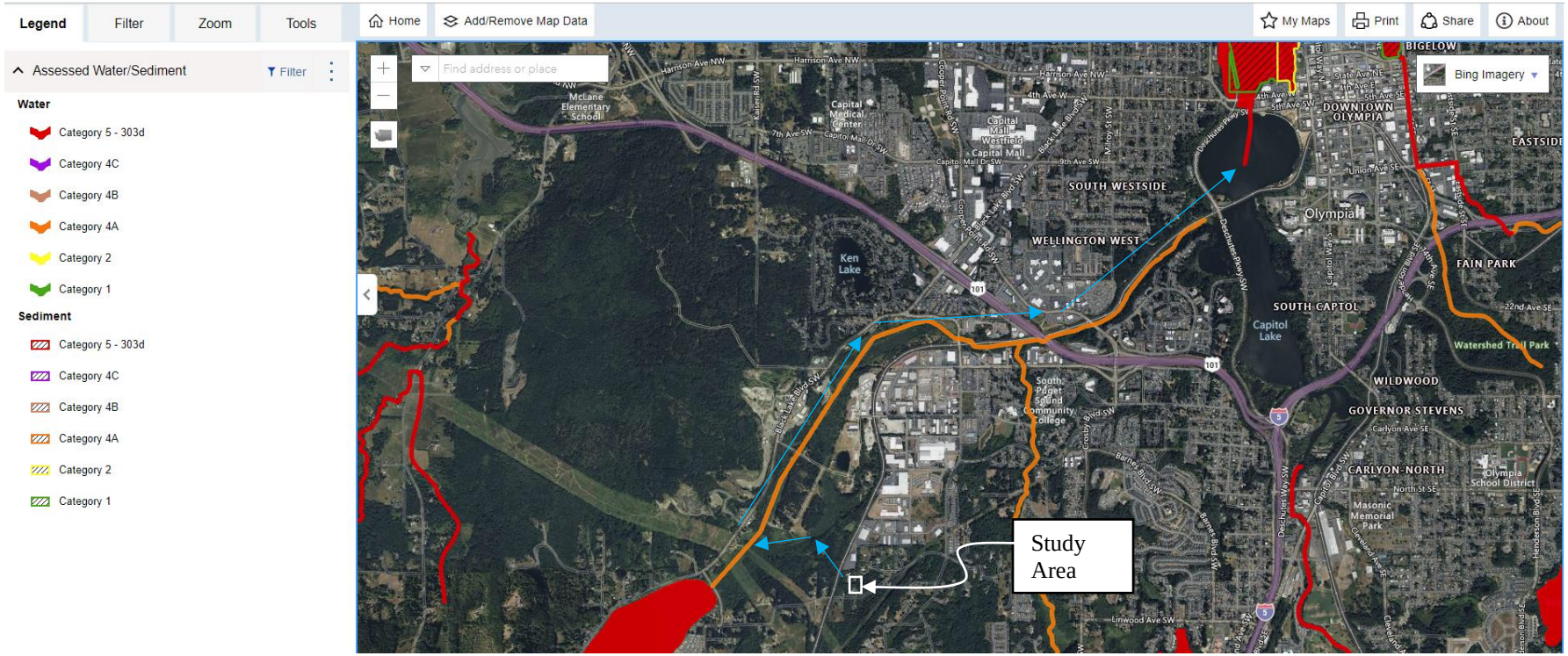
Priority Habitats and Species (PHS)

Database


PHS on the Web
Biodiversity Areas and Corridors | Quick Start Guide | User Guide | Feedback
Address, Place, WRIA, Cou
Tumwater
Wetlands
Study Area
*Wetland
*Oregon Spotted Frog
300ft
-122.95846 47.01169 Degrees

Appendix G

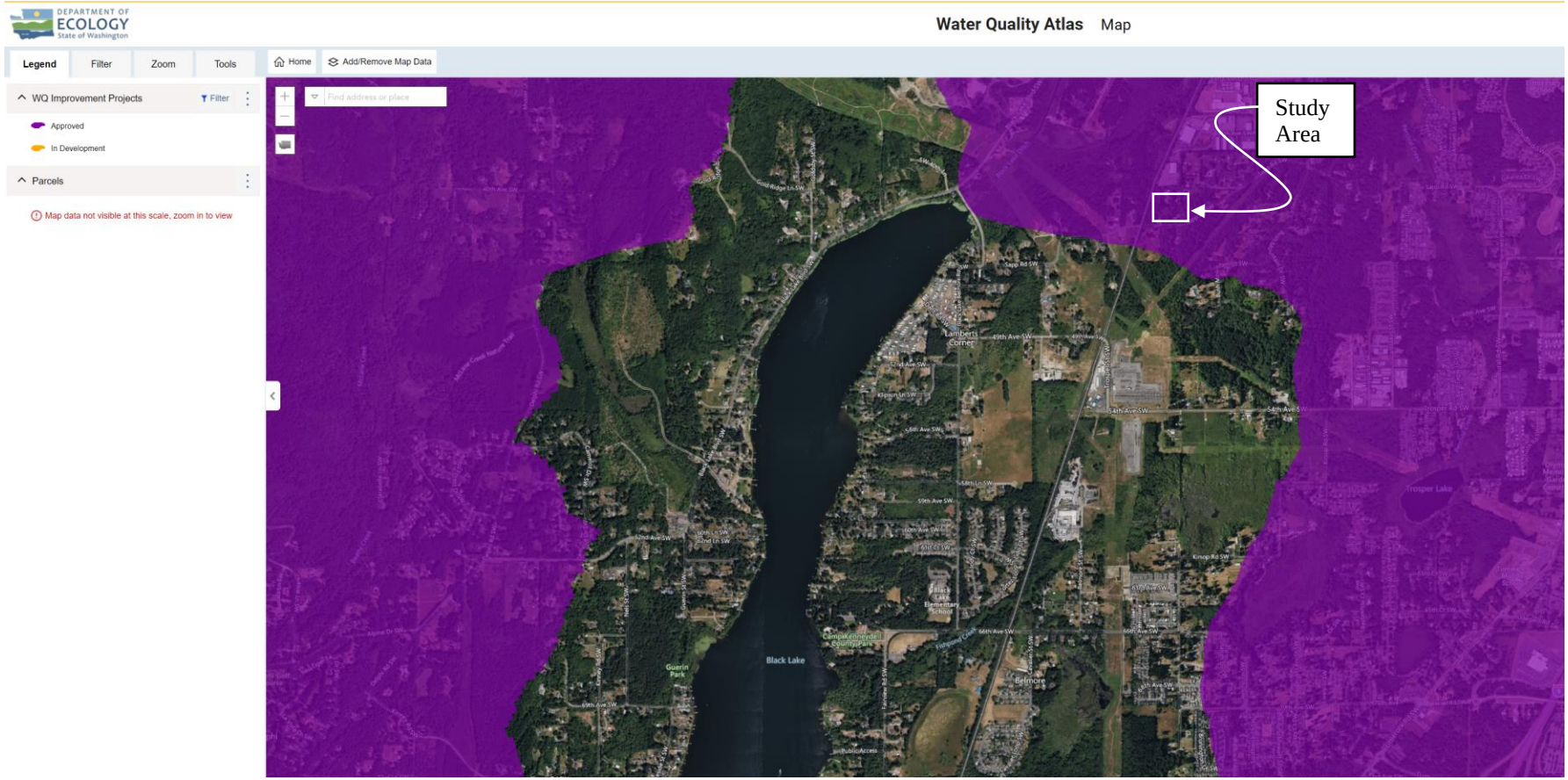
303(d)


Legend
Filter
Zoom
Tools
Home
Add/Remove Map Data
My Maps
Print
Share
About
Assessed Water/Sediment
Filter
Water
Category 5 - 303d
Category 4C
Category 4B
Category 4A
Category 2
Category 1
Sediment
Category 5 - 303d
Category 4C
Category 4B
Category 4A
Category 2
Category 1
Find address or place
Bing Imagery
Study Area
SOUTH WESTSIDE
WELLINGTON WEST
DOWNTOWN OLYMPIA
SOUTH CAPTOL
WILDWOOD
GOVERNOR STEVENS
CARLYON-NORTH
FAIN PARK
BIGELOW
Olympia
Ken Lake
Capitol Lake
Watershed Trail Park

Appendix H

Department of Ecology Water Quality Atlas Database

TMDL


DEPARTMENT OF ECOLOGY State of Washington
Water Quality Atlas Map
Legend
Filter
Zoom
Tools
Home
Add/Remove Map Data
WQ Improvement Projects
Filter
Approved
In Development
Parcels
Map data not visible at this scale, zoom in to view
Find address or place
Study Area
Black Lake
Lamberts Corner
Belmore
Guerin Park
Black Lake Elementary School

Appendix I

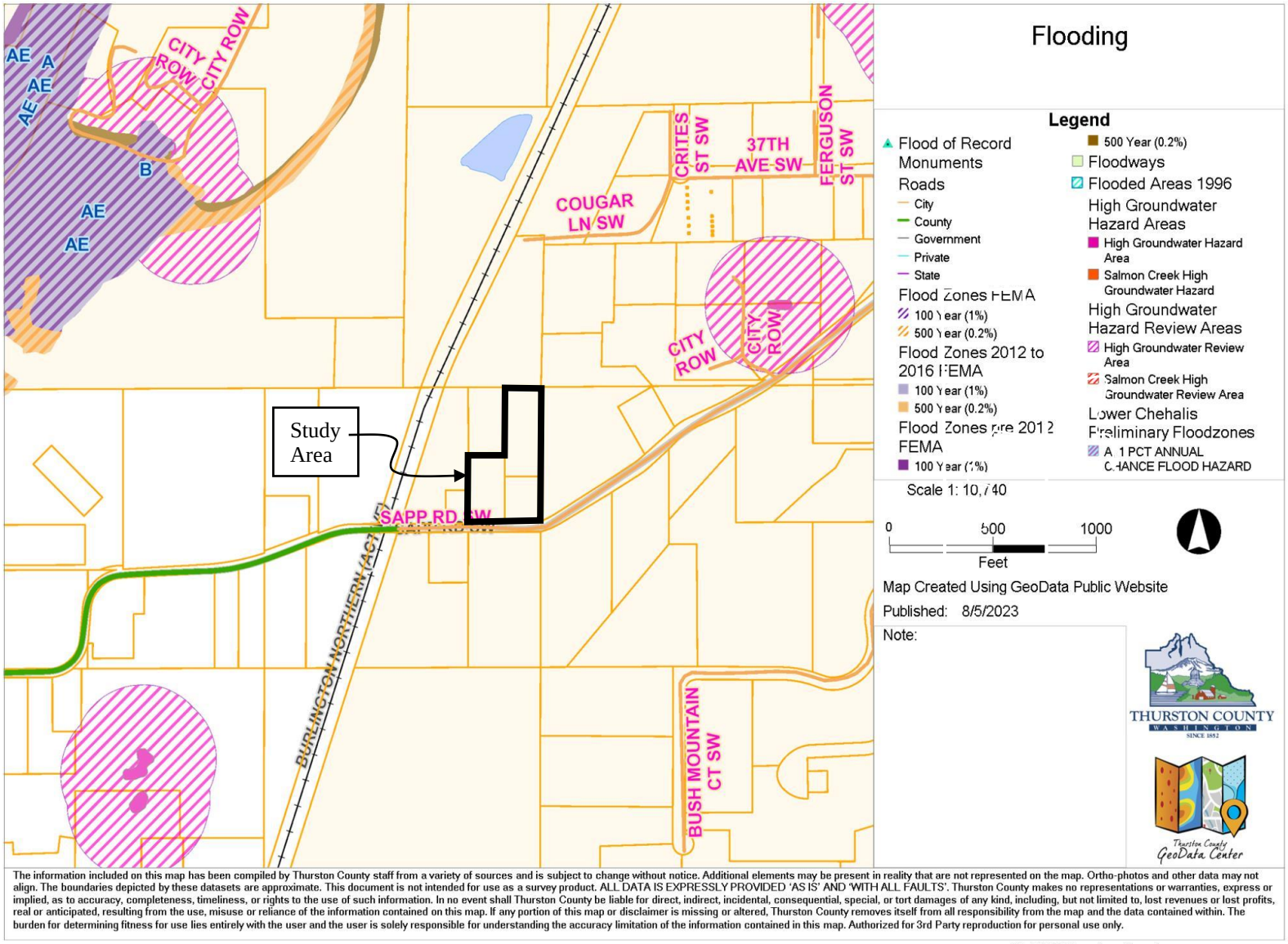
Thurston County

Geodata Center

High Water Hazard Area

&

FEMA Flooding



The information included on this map has been compiled by Thurston County staff from a variety of sources and is subject to change without notice. Additional elements may be present in reality that are not represented on the map. Ortho-photos and other data may not align. The boundaries depicted by these datasets are approximate. This document is not intended for use as a survey product. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. Thurston County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. In no event shall Thurston County be liable for direct, indirect, incidental, consequential, special, or tort damages of any kind, including, but not limited to, lost revenues or lost profits, real or anticipated, resulting from the use, misuse or reliance of the information contained on this map. If any portion of this map or disclaimer is missing or altered, Thurston County removes itself from all responsibility from the map and the data contained within. The burden for determining fitness for use lies entirely with the user and the user is solely responsible for understanding the accuracy limitation of the information contained in this map. Authorized for 3rd Party reproduction for personal use only.

Appendix J

Rating Forms

Wetland name or number Wet A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Bodenhamer Sewer Date of site visit: 28-Jul-23

Rated by Curtis Wambach Trained by Ecology? ☑ Yes ☐ No Date of training Continual

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		List appropriate rating (H, M, L)		
Site Potential	M	M	M	
Landscape Potential	M	L	M	
Value	H	M	H	**Total**
Score Based on Ratings	7	5	7	**19**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Wetland name or number Wet A

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number Wet A

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☑ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		1
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0		5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		2
Total for D 1	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**3**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number Wet A

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	0
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**6**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **3 = H** ☐ **1 or 2 = M** ☑ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		1
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
● Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☑ ● Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2 - 4 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number Wet A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- ☐ Aquatic bed
- ☐ Emergent
- ☑ Scrub-shrub (areas where shrubs have > 30% cover)
- ☑ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
1 structure: points = 0

If the unit has a Forested class, check if:

- ☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- ☐ Permanently flooded or inundated
- ☑ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☐ Saturated only

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☑ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

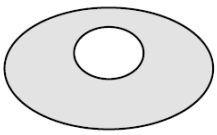
If you counted:
- > 19 species — points = 2
- 5 - 19 species — points = 1
- < 5 species — points = 0

1

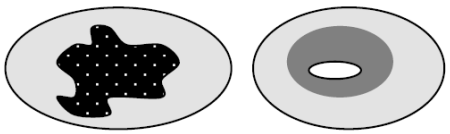
H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points

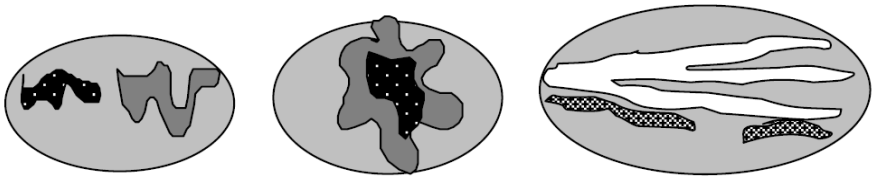


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3 points



1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**9**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 2.6 % undisturbed habitat + (26 % moderate & low intensity land uses / 2) = 15.6% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	1
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 9.5 % undisturbed habitat + (60 % moderate & low intensity land uses / 2) = 39.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☐ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☐ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☐ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☐ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☐ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Wetland name or number Wet A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B Date of site visit: 28-Jul-23

Rated by Curtis Wambach Trained by Ecology? ☑ Yes ☐ No Date of training Continual

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		List appropriate rating (H, M, L)		
Site Potential	M	M	L	
Landscape Potential	M	L	M	
Value	H	M	H	**Total**
Score Based on Ratings	7	5	6	**18**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Wetland name or number Wet A

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number Wet A

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 3 points = 2 points = 1 points = 1	1
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > $^1/_{10}$ of area Wetland has persistent, ungrazed plants < $^1/_{10}$ of area	points = 5 points = 3 points = 1 points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ¼ total area of wetland Area seasonally ponded is < ¼ total area of wetland	points = 4 points = 2 points = 0	2
Total for D 1	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**3**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number Wet A

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	0
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**6**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?

D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	0
Total for D 5	Add the points in the boxes above	**0**

Rating of Landscape Potential If score is: ☐ **3 = H** ☐ **1 or 2 = M** ☑ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		1
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☑ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2 - 4 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number Wet A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

☐ Aquatic bed
☐ Emergent
☐ Scrub-shrub (areas where shrubs have > 30% cover)
☑ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
1 structure: points = 0

If the unit has a Forested class, check if:

☑ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

☐ Permanently flooded or inundated
☑ Seasonally flooded or inundated
☐ Occasionally flooded or inundated
☐ Saturated only

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

☐ Permanently flowing stream or river in, or adjacent to, the wetland
☑ Seasonally flowing stream in, or adjacent to, the wetland
☐ **Lake Fringe wetland** **2 points**
☐ **Freshwater tidal wetland** **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

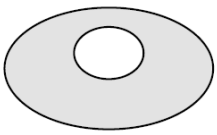
If you counted:
> 19 species points = 2
5 - 19 species points = 1
< 5 species points = 0

1

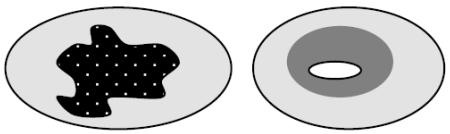
H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points

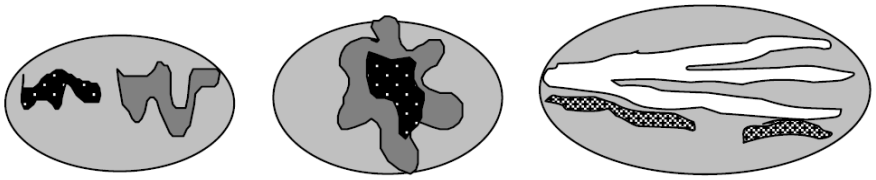


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3 points



0

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☑ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**6**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 2.6 % undisturbed habitat + (26 % moderate & low intensity land uses / 2) = 15.6% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	1
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 9.5 % undisturbed habitat + (60 % moderate & low intensity land uses / 2) = 39.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	0

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☐ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☐ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☐ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☐ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☐ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Appendix K

Datasheets

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bodenhamer Sewer Line City/County: Thurston County Sampling Date: 28 July 2023

Applicant/Owner: Bodenhammer State: WA Sampling Point: TP-A1

Investigator(s): Curtis Wambach Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Oregon ash (Fraxinus latifolia)	30	Y	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 12')			
1. Himalayan blackberry (Rubus armeniacus)	10	Y	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 6')			
1. Reed canarygrass (Phalaris arundinacea)	50	Y	FACW
2. Lady Fern (Athyrium filix-femina)	20	N	FAC
3. Jewel weed (Impatiens capensis)	20	N	FACW
4. Field mint (Mentha arvensis)	15	N	FACW
5. Cattails (Typha latifolia)	10	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☒ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: TP-A1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/1							Sandy Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry stream extending through wetland

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bodenhamer City/County: Thurston County Sampling Date: 28 July 2023

Applicant/Owner: State: WA Sampling Point: TP-A2

Investigator(s): Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Bigleaf maple (Acer macrophyllum)	60	Y	FACU
2. Western red cedar (Thuja plicata)	30	Y	FACU
3.			
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 12')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 6')			
1. Sword fern (Polystichum munitum)	50	Y	FACU
2. Trailing blackberry (Rubus ursinus)	15	N	FACU
3. Hairy Cat's ear (Hypochaeris radicata)	10	N	FACU
4. Red sorrel (Rumex acetosella)	10	N	FACU
5. Creeping buttercup (Ranunculus repens)	5	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species 5	x 3 = 15
FACU species 185	x 4 = 740
UPL species	x 5 =
Column Totals: 190 (A)	755 (B)

Prevalence Index = B/A = 3.97

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SOIL

Sampling Point: TP-A2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR 3/2		none					Sandy Loam
6-20"	10YR 3/3		none					Sandy sily loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): none

Water Table Present? Yes ☐ No ☒ Depth (inches): none

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): none

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bodenhamer sewer line City/County: Thurston County Sampling Date: 28 July 2023

Applicant/Owner: Bodenhamer State: WA Sampling Point: TP-B1

Investigator(s): Curtis Wambach Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Oregon ash (Fraxinus latifolia)	90	Y	FACW
2.			
3.			
4.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 12')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 6')			
1. Slough sedge (Carex obnupta)	80	Y	OBL
2. Jewel weed (Impatiens capensis)	15	N	FAC
3. Trailing blackberry (Rubus ursinus)	5	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☒ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: TP-B1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 4/1		none					Sandy Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): none

Water Table Present? Yes ☐ No ☒ Depth (inches): None

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): None

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Stream extends through wetland & some bare ground

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bodenhamer Sewer Line City/County: Thurston County Sampling Date: 28 July 2023

Applicant/Owner: Bodenhamer State: WA Sampling Point: TP-B2

Investigator(s): Curtis Wambach Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Bitter cherry (Prunus emerginata)	50	Y	FACU
2. Bigleaf maple (Acer macrophyllum)	50	Y	FACU
3. Oregon ash (Fraxinus latafolia)	40	Y	FACW
4.			
	140	= Total Cover	
Sapling/Shrub Stratum (Plot size: 12')			
1. Beaked hazelnut (Corylus cornuta)	60	Y	FACU
2. Osoberry (Oemleria cerasiformis)	30	Y	FACU
3. English holly (Ilex aquifolium)	1	N	FACU
4.			
5.			
	91	= Total Cover	
Herb Stratum (Plot size: 6')			
1. Sword fern (Polystichum munitum)	60	Y	FACU
2. Blue bells (Hyacinthoides non-scripta)	30	Y	NL
3. Trailing blackberry (Rubus ursinus)	15	N	FACU
4. Insideout flower (Vancouveria hexandra)	10	N	NL
5. Slender rush (Juncus tenuis)	5	N	FAC
6. False lilly of the valley (Maianthemum dilatatum)	5	N	FAC
7.			
8.			
9.			
10.			
11.			
	125	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 14% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species 40	x 2 = 80
FAC species 10	x 3 = 30
FACU species 306	x 4 = 1224
UPL species	x 5 =
Column Totals: 356 (A)	1334 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:

SOIL

Sampling Point: TP-B2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/4		none					Sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): none

Water Table Present? Yes ☐ No ☒ Depth (inches): none

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): none

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: