Attachment 10

City of Olympia Kaiser Woods Park

Revised Critical Areas Report & Mitigation Plan

Prepared for

City of Olympia

March 2026

PSOMAS

Project No. 9OLY010102

City of Olympia Kaiser Woods Park

Revised Critical Areas Report & Mitigation Plan

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EXECUTIVE SUMMARY

The City of Olympia (City) Parks and Recreation (Olympia Parks, Arts, and Recreation) is proposing to construct recreation improvements within Kaiser Woods Park, an existing City Park which under existing conditions, is largely undeveloped. This site is slated to be Olympia's first park with dedicated mountain biking trails. The City has begun preliminary plan development to begin the necessary permitting phases, hoping to break ground in late 2026 or early 2027.

The Kaiser Woods Park site consists of 11 parcels that total approximately 71 acres in southwest Olympia and northern Tumwater, Washington (Appendix A, Figure 1). The park property also includes approximately 6.5 acres of unopened future road right-of-way, set aside for a future roadway from Kaiser Road to Black Lake Boulevard. The site contains existing trails used for walking and biking, however, the majority of the property is undeveloped. There are currently two public access locations into the park: one at the end of Park Drive Southwest and one through an existing gravel access lane off Black Lake Boulevard. There are also additional trail connections from adjoining private properties. The park fronts Park Drive to the east and Black Lake Boulevard to the southeast and includes unopened City of Olympia right-of-way to the west and south. An existing gravel access lane runs from Black Lake Boulevard to the southwest border of the park. It is used by Puget Sound Energy employees, those parking to access the Hope Community Church, and for access to the property to the west (owned by Manke Timber Company).

The proposed improvements consist of:

- 1,000-foot long paved access lane off Black Lake Boulevard
- Paved parking lot with 25 spaces
- Stormwater facilities (for treatment and detention) associated with the access lane and parking lot
- Restroom with municipal water connection and storage vault for wastewater
- Frontage improvements on Black Lake Boulevard
- 3.5 miles of new trails for biking, hiking or shared use. New and existing trails will have hard-packed earth or gravel surfacing.
- 1.9 miles of maintenance on existing trails. Inside critical area buffers, only maintenance will occur which is exempt from the critical area requirements, per OMC 18.32.111. Outside critical area buffers, existing trails may by widened.
- 0.4 miles of existing trails, located outside critical area buffers, to be abandoned
- Bicycle pump tracks - one for beginners and one for intermediate to advanced riders
- Bicycle skill station for intermediate to advanced riders
- Bicycle skill station for beginners

Kaiser Woods Park contains three wetlands (Wetland A, a Category III forested wetland; and Wetlands B and C, Category II scrub-shrub/emergent wetlands (Figure 2 *in* SCJ Alliance, 2025). All three wetlands scored 6 points for habitat function and have a 180-foot standard buffer per City code. The existing wetland buffer to the south of Wetland A is disturbed by the existing gravel

roadway and power transmission corridor, but otherwise functional. Buffers to the north and west are representative of high-quality, relatively undisturbed second growth upland forest.

The park also contains three streams, (Streams 1, 2, and 3). All three streams were rated as Type Ns, without high mass wasting and have a 150-foot standard buffer per City code. The nearest stream buffer to the stormwater pond is the southern buffer of Stream 3/western buffer of Stream 1, which are also representative of high-quality, relatively undisturbed second growth upland forest.

There are no permanent impacts to wetlands, streams, or stream buffers resulting from the proposed project work. Construction of the proposed stormwater pond will result in a total of 6,200 square feet of permanent impact to the buffer of Wetland A. Construction activities will be confined to the permanent pond footprint. No additional temporary impacts will occur.

The project proposes to mitigate for buffer impacts through buffer averaging. The project would permanently protect 6,200 square feet (0.14 acres) of high-quality upland forest as buffer to offset the proposed impact.

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A Revised Technical Memorandum (SCJ Alliance 2025)
B Site Photographs
C Buffer Averaging Mitigation Plan

Acronyms and Abbreviations

ADA	Americans with Disabilities Act
Ecology	Washington State Department of Ecology
HGM	Hydrogeomorphic
KCC	King County Code
NOAA Fisheries	National Oceanic Atmospheric Administration Fisheries
NIFC	The Northwest Indian Fisheries Commission
OHWM	ordinary high water mark
OMC	Olympia Municipal Code
PHS	Priority Habitats and Species
USACE	U.S. Army Corps of Engineers
USDA NRCS	U.S. Department of Agriculture National Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
SWIFD	Statewide Washington Integrated Fish Distribution
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resources Inventory Area
WETS	Climate Analysis for Wetlands Tables

1.0 INTRODUCTION

The City of Olympia (City) Parks, Arts and Recreation Department (OPARD) is proposing to develop Kaiser Woods Park. The park is slated to be Olympia's first park with dedicated mountain biking trails, with the addition of 3.5 miles of new mountain bike trails and the retention and maintenance of 1.9 miles of existing mountain bike trails. The current design also includes paving and widening an existing gravel road that provides access from Black Lake Boulevard, a stormwater pond, and 25-stall parking lot and a single restroom. The City is in the permitting phase, hoping to break ground in late 2026 or early 2027.

1.1 LOCATION

Olympia Parks, Arts, and Recreation is developing Kaiser Woods Park on eleven undeveloped parcels (totaling approximately 71 acres) in Southwest Olympia. The property is located at 2549 Black Lake Blvd SW, Tumwater 98512 (Appendix A, Vicinity Map). Although the majority of the property is undeveloped, it does include approximately 6.5 acres of unopened future right-of-way and existing walking and biking trails. The park fronts Park Drive to the east and Black Lake Boulevard to the southeast, and there are two public access locations into the park: one at the end of Park Drive Southwest and one through an existing gravel access lane off Black Lake Boulevard which runs along the southern boundary of the park. This access is also used by the owners of private property to the west, Puget Sound Energy employees, and those parking to access the Hope Community Church. The project falls within the southwest ¼ of Section 20, Township 18 North, Range 2 West (Willamette Meridian), Thurston County, Washington. Nine of the parcels are within the boundaries of the City of Olympia and two are within the City of Tumwater.

1.2 PROJECT DESCRIPTION

The proposed improvements consist of:

- 1,000-foot long paved access lane off Black Lake Boulevard
- Paved parking lot with 25 spaces
- Stormwater facilities (for treatment and detention) associated with the access lane and parking lot
- Restroom with municipal water connection and storage vault for wastewater
- Frontage improvements on Black Lake Boulevard
- 3.5 miles of new trails for biking, hiking or shared use. New and existing trails will have hard-packed earth or gravel surfacing.
- 1.9 miles of maintenance on existing trails. Inside critical area buffers, only maintenance will occur which is exempt from the critical area requirements, per OMC 18.32.111. Outside critical area buffers, existing trails may by widened.
- 0.4 miles of existing trails, located outside critical area buffers, to be abandoned
- Bicycle pump tracks - one for beginners and one for intermediate to advanced riders
- Bicycle skill station for intermediate to advanced riders
- Bicycle skill station for beginners

The proposed site plan for Kaiser Woods Park (see Site Plan, Sheet C1.1 in Figures section) shows the currently proposed facilities. The proposal is to construct a stormwater pond and related facilities in the current wetland buffer. Through buffer averaging, the buffer will maintain its current size and function will not be compromised.

No trail building will occur in critical area buffers. Trails will not be widened or re-surfaced. Trail maintenance will occur.

1.3 PURPOSE AND NEED

Kaiser Woods Park has been in development for several years. Upon completion, it will be Olympia's first park to have dedicated mountain biking trails. The initial park site consisted of a 76-acre forested property purchased in September 2015 with a grant from the Washington State Recreation and Conservation Office. In 2020, the City purchased an additional 2.51 acres off Black Lake Boulevard to serve as the primary entrance to the park.

The park will provide over 5 miles of hiking, biking and share-use trails with skills areas and features for beginners to advanced riders, and will be include a 25-stall parking lot, an ADA compliant restroom, and new access from Black Lake Boulevard. The park development plan is in the permitting phase with the hope of breaking ground in late 2026 or early 2027.

The stormwater detention pond proposed is necessary in order to provide flow control for the proposed paved access lane and parking lot. Other stormwater detention options considered include detention tanks, detention vaults, concentrated flow dispersion, sheet flow dispersion, and full dispersion. Due to the saturated, type D soils, dispersion methods were determined to be insufficient. The topography of the site includes underlying basalt and high groundwater. This makes the construction of large detention tanks and vaults both expensive and disturbing to the site. The proposed stormwater pond location involves minimal site disturbance and provides for an equivalent or improved wetland buffer.

The design team also considered not widening the access lane nor providing a paved parking lot, however this would involve increased risk to the public using the park. Tumwater and Olympia transportation staff agree that providing the paved access lane and parking lot is the safest alternative for park users.

2.0 METHODS

Psomas confirmed the presence of affected critical areas using a two-step process. This process consisted of an in-office review of existing information and a field investigation. A detailed description of the methods for each step is provided below.

2.1 IN-OFFICE REVIEW

The in-office review consisted of an evaluation of existing documents, maps, reports, and websites for information regarding critical areas in the study area. These reports, maps, and digital data served as the basis for the subsequent field investigations, and included:

- Aerial photographs (Google Earth 2025)
- Topographic data (USGS digital maps, Lidar derived contours from the Lidar Consortium)

- Soil data for the project study area (obtained from the U.S. Department of Agriculture National Resources Conservation Service [USDA NRCS] website 2025a)
- Climate Data for Olympia Airport, Thurston County, Washington (USDA NRCS Field Office 2025b)
- Endangered Species information (National Oceanic Atmospheric Administration Fisheries [NOAA Fisheries] and U.S. Fish and Wildlife Service [USFWS] 2025)
- Priority Habitats and Species list (Washington Department of Fish and Wildlife [WDFW] 20245)
- Fish Passage Database (WDFW 2025b)
- Statewide Washington Integrated Fish Distribution (SWIFD) (The Northwest Indian Fisheries Commission [NIFC] 2025)
- The Rare Plant and Ecosystem map (Washington Natural Heritage Program [WNHP] 2025)
- Thurston County Critical Areas (Thurston County Public GIS Mapping 2025)

Additional documents reviewed included:

- City of Olympia designed access road and stormwater plan layouts (Olympia 2025);
- Revised Hydrogeologic and Geotechnical Consultation Proposed Kaiser Woods Park Stormwater Facilities Tumwater, Washington (Geoengineers, Inc. 2024);
- Technical Memorandum. Geologically Hazardous Areas Assessment Kaiser Woods Geotechnical/Stormwater Investigation Olympia, Washington (Sage Geotechnical 2024);
- Kaiser Woods Wetland Reconnaissance Memorandum (including rating forms and maps), (SCJ Alliance 2020, updated 2025 – Appendix A);
- Wetland, Drainage Corridor, and Habitat Evaluation and Delineation Report and Conceptual Compensatory Mitigation and Buffer Establishment Program (Habitat Technologies 2007); and
- Mitigation document for similar City projects (various authors and dates).

2.2 FIELD INVESTIGATIONS

Psomas staff conducted a site visit on February 19, 2025. The purpose of the site visit was to confirm the approximate location of Wetland A and unnamed streams that drain to it and assess existing buffer conditions and potential impacts, and evaluate potential mitigation opportunities in the adjoining wetland and stream buffers.

2.2.1 Wetlands

Previously delineated wetlands (Habitat Technologies 2007, SCJ Alliance 2025) were evaluated by comparing the observed landscape position, geomorphic character, changes in the dominant plant communities, and visual evidence of saturated or inundated soils to previously placed wetland boundary flags. The boundaries were assessed for consistency with the criteria for wetland plant communities and hydrology from the Corps of Engineers Wetland Delineation Manual (USACE 1987) and the guidance in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, ver. 2.0 (USACE 2010). Plant nomenclature and wetland indicator status used was consistent with the National Wetland Plant List, Version 3.6 (USACE 2023). Site photographs were collected to characterize typical conditions as needed (see Appendix B).

The previously completed wetland ratings were evaluated based on the criteria in Washington State Wetland Rating System for Western Washington – 2014 Update (Version 2) (Hruby, T. and Yahnke, A. 2023).

Wetland buffer widths were assessed using the criteria in the Olympia Municipal Code (OMC) 18.32.510, and wetland buffer conditions were assessed based on visual criteria. These included the dominant plant communities, structural diversity, presence of habitat features, apparent level of disturbance, and presence of non-native or invasive plant species.

2.2.2 Streams

The ordinary high water mark (OHWM) of streams and other waters were assessed by comparing prior stream OHWM flags (Habitat Technologies 2007, SCJ Alliance 2025) to the observed field conditions (e.g., defined channel/bed and bank, observations of flowing or standing water, breaks in bank slope, etc.) and the OHWM criteria found in the guidance from USACE (Mersel and Lichvar 2014) and Ecology (Anderson et al. 2016). No formal OHWM redelineation was performed, but current site photographs were collected (see Appendix B). Streams and water body types were not evaluated since they were previously reviewed by City staff and appear consistent with the criteria in the Washington Administrative Code (WAC) 222.16.031 and OMC 18.32.410.

3.0 FINDINGS

The following sections document the findings of the in-office review and field investigations.

3.1 IN-OFFICE REVIEW

3.1.1 Landscape, Topography, and Drainage

The proposed project lies within the Puget Sound Lowlands. The area was extensively glaciated during the Vashon Stade of the Frasier glaciation, which occurred approximately 16,000 to 19,000 years ago. The current landscape includes a variety of post-glacial features, including till plains, terminal and recessional moraines, eskers, and kames, although the local landscape is dominated by post glacial erosional and depositional landforms.

The landscape in the project area is dominated by the Black Hills - a small range of hills in Thurston and Grays Harbor Counties. The Black Hills are considered a subset of the Willapa Hills. The local terrain is relatively inclined from east to west; with elevations ranging from a low of 156’ above sea level (ASL) in the southeast to a high of 383 feet above sea level (ASL) near the northwest corner of the park.

The proposed stormwater facility is located on the north side of the access road the forms the southern boundary of the park. The access slopes up from a low point of 140 feet ASL at Black Lake Boulevard SW to a high of 393 feet ASL near the southwest corner of the park. At the stormwater pond location, elevations range from 156 to 161 feet ASL and is approximately 10 feet below the access road to the south.

The project lies along the western margin of the Deschutes watershed (Water Resources Inventory Area [WRIA] 13). WRIA 13 includes 270 square miles, and is almost entirely within Thurston County. The Deschutes River is the major hydrologic basin in WRIA 13, with a number of smaller independent tributaries that drain into Puget Sound. Principal tributaries include Woodard and

Woodland Creeks. Much of the designated Urban Growth Areas for Olympia, Lacey, Tumwater and Rainier, along with agriculture, rural residential areas and commercial timberlands are within WRIA 13 (Ecology 2024).

Runoff from the park drains to the Black Lake Ditch, a tributary to Percival Creek, which flows into Capitol Lake.

3.1.2 Soils and Precipitation

The Natural Resource Conservation Service maps (USDA NRCS 2025a) identified three soil series present in the project work limits, Alderwood gravelly sandy loam, Kapowsin silt loam, and Schneider very gravelly loam. Summaries of the characteristics of these soils are provided in Table 1.

TABLE 1
SOIL SUMMARY

Map Unit Name	Percent Component	Mapped Landform	Mapped Parent Material	Mapped as Hydric?
Alderwood gravelly sandy loam, 8 to 15% slopes	85	Hills, ridges	Glacial drift and/or glacial outwash over dense glaciomarine deposits	No
Indianola	5	Terraces, kames, eskers		No
Everett	5	Moraines, eskers, kames		No
Shalcar	3	Drainageways, depressions		**Yes**
Norma	2	Drainageways, depressions		**Yes**
Kapowsin silt loam, 0 to 3 slopes	85	Till plains	Compact basal till	No
Bellingham – Undrained	2	Depressions	-	**Yes**
DuPont – Undrained	2	Depressions	-	**Yes**
McKenna	2	Depressions	-	**Yes**
Tisch – Undrained	1	Depressions	-	**Yes**
Skipopa	1	-	-	No
Kapowsin silt loam, 3 to 15% slopes	85	Till plains	(as above)	No
Norma	5	Depressions	-	**Yes**
Skipopa	3	-	-	No
			-	
Kapowsin silt loam, 15 to 30% slopes	90	Till plains	(as above)	No
Hoogdal	5	-	-	No
Indianola	5	-	-	No
Schneider very gravelly loam, 20 to 40% slopes	100	Mountains	-	No

None of the major soil groups are considered hydric (wetland type) soils. However, Alderwood and Kapowsin soils include minor components (McKenna, Shalcar, Norma, and undrained Bellingham, DuPont and Tisch soils) that are considered hydric. These minor components are typically found in drainageways or depressions (Table 1).

A precipitation analysis was conducted for the site using data from the nearest weather station with sufficient continuous data (Olympia Airport, Washington). The Climate Analysis for Wetlands Tables (WETS) analysis evaluated precipitation data from 2000 through 2025. Based on this analysis, precipitation in the three months preceding the field visits fell within the normal range. Approximately 0.96 inches of precipitation fell in the 7 days immediately preceding the February 2025 field investigation (USDA NRCS 2025b).

The growing season for the site was calculated in the WETS analysis based on a 50% probability of a temperature of 28° Fahrenheit (°F) or higher. Based on this analysis, the growing season begins on March 13 and extends to October 21, a total of 201 days (USDA NRCS 2025b). The site visit was conducted before the beginning of the normal growing season, however conditions in the field provided sufficient indicators of wetland hydrology to accurately confirm the presence of wetlands and streams.

3.1.3 Wetlands

Psomas staff reviewed digital wetland maps and data from the US Fish and Wildlife Service (USFWS), Washington Department of Fish and Wildlife (WDFW), and Thurston County, and City of Olympia. The USFWS National Wetland Inventory (NWI) map, WDFW's Priority Habitats and Species (PHS) database, and Thurston County Show Me Everything Online Map do not indicate any wetlands on the Kaiser Woods Park site, nor are mapped wetland soils present. Wetlands are shown to the south of Black Lake Boulevard SW, and to the east and northwest of the park.

Wetland and stream delineations were conducted for Kaiser Woods Park by Habitat Technologies (2007) and supplemental reconnaissance and analysis was conducted by SCJ Alliance in 2020. These studies both identified three wetlands (A, B, and C). A summary of the characteristics of these wetlands is provided in Table 2 , and details (including data forms and wetland rating forms) are provided in the attached reports from Habitat Technologies (2007) and SCJ Alliance (2025). Appendix A, Figure 2 shows the location of the wetlands. We understand that the City of Olympia permitting staff found the delineation acceptable, with minor corrections to the wetland rating forms and overall wetland rating scores. The City-approved wetland data is presented in Table 2.

TABLE 2
WETLAND SUMMARY[1,2]

Wetland	Size in Square Feet[1] (Acres)	HGM Classification[3]	Cowardin Classification[3] (Hydroperiod)[5]	Wetland Rating[5]	Habitat Score[5]	Buffer Width (in feet)[6]
A	29,458 (0.68)	Riverine	Forested (Seasonally/Occasionally Flooded, with Seasonal Stream)	III	6	180
B	2,822 (0.06)	Riverine	Scrub-Shrub/Emergent (Saturated Only with Seasonal Stream)	II	6	180
C	Included in B	Riverine	Scrub-Shrub/Emergent (Saturated Only with Seasonal Stream)	II	6	180

1. Habitat Technologies 2007.
2. SCJ Alliance (2025).
3. Brinson, 1993.
4. Cowardin et al., 1979. All wetlands are Palustrine.
5. Hruby, 2023.
6. City of Olympia Municipal Code (OMC) 18.32.510.

3.1.4 Streams

Maps from USFWS, WDFW, Thurston County, and the City of Olympia do not show any streams or waterbodies on the Kaiser Woods Park site. The nearest mapped water bodies are the Black Lake ditch (a tributary to Percival Creek) to the southeast and Ken Lake to the east.

Maps from Washington Department of Natural Resources, WDFW's Fish Passage database, the Northwest Indian Fisheries Commission Statewide Washington Integrated Fish Distribution database were also reviewed. The nearest fish presence shown is to the east of the site, north of Hope Community Church, where a tributary to the Black Lake ditch crosses Black Lake Boulevard SW.

The wetland and stream delineation conducted by Habitat Technologies (2007) and reconnaissance by SCJ Alliance (2020) identified three unnamed streams on the site. For convenience, we have designated these as Stream 1, Stream 2, and Stream 3. Table 3 provides a summary of the characteristics of these streams, with supplemental location and drainage information provided by Psomas. Details of the stream characteristics and ratings are provided in the attached reports from SCJ Alliance (2025). Figure 2 (in Appendix A) indicates the location of the streams. We understand that the City of Olympia permitting staff found the stream ratings and buffer widths acceptable as presented by SCJ Alliance.

TABLE 3
STREAM SUMMARY

Stream Name[1]	Location[1]	Description[1]	Drains to[1]	Stream Type[2,3,4]	Buffer Width (in Feet)[4]
Stream 1	Southern half of site	Flows from west to southeast	Black Lake ditch (assumed)	Ns, without high mass wasting	150
Stream 2	Central portion of site. Joins Stream 1 between Wetlands B and C, west of Mainline Central Trail	Approximately 120 feet long, flows from north to south	Stream 1		
Stream 3	Southeastern ¼ of site. Joins Stream 1 north of Wetland A	Approximately 500 feet long, flows from west to east	Stream 1		

1. Supplemental information provided by Psomas.
2. Sources: Habitat Technologies (2007), SCJ Alliance (2020, 2025).
3. Washington Administrative Code (WAC) 222.16.031.
4. City of Olympia Municipal Code (OMC) 18.32.410.

3.2 FIELD INVESTIGATION

Patrick Togher (SPWS #1659) of Psomas conducted an initial field investigation visit on February 19, 2025. The field investigation was limited to areas within 100 feet of the proposed stormwater facility, the buffer and southern boundary of Wetland A, and a previously identified mitigation area. This investigation was supplemented by a second site visit on July 11, 2025, to review the current and proposed trail alignments in the Park, and to assess potential impacts to wetlands and streams along the existing and proposed trails. The following sections summarize the existing buffer conditions at the time of the investigation.

3.2.1 Wetland and Wetland Buffer

One wetland (Wetland A) was verified during the field investigation. Previously flagged boundary was consistent with the changes in topography, transition to a wetland plant community, visible surface saturation observed in the field.

The south/southwest buffer of Wetland A has two distinct zones. Areas nearest the gravel access road and under the power line right-of-way are dominated by deciduous forest. Species present include bigleaf maple (*Acer macrophyllum*), black cottonwood (*Populus balsamifera*), with an understory of bracken fern (*Pteridium aquilinum*). Areas of non-native/invasive species (reed canarygrass [*Phalaris arundinacea*], Scot's broom [*Cytissus scoparius*], and Himalayan blackberry [*Rubus armeniacus*/*R. bifrons*]) are present, but the distribution is limited to areas beneath the powerlines (representative photos are provided in Appendix B). Himalayan blackberry provides cover and food for wildlife and deters off-trail use. Since the presence of these herbaceous species is limited to maintained areas (a small portion of the overall buffer), the negative impact on habitat function, and water quality improvement, erosion protection, sediment, nutrient, and toxicant retention and removal, and groundwater support functions in the south/southwest buffer is minimal. As a result, the buffer remains functional.

Immediately north of the power line right-of-way, the buffer vegetation changes to a mixed canopy forest. Douglas fir (*Pseudotsuga menziesii*) and western red cedar (*Thuja plicata*) are dominant, but bigleaf maple is still present in substantial amounts along with sporadic red alder (*Alnus rubra*). The understory is more diverse and is dominated by beaked hazelnut (*Corylus cornuta*), salal (*Gaultheria shallon*), Oregon grape (*Mahonia aquifolium*), western sword fern (*Polystichum munitum*), and salmonberry (*Rubus spectabilis*) (Appendix B). A few, isolated common holly trees (*Ilex aquifolium*) are present, but are not dominant.

An earthen path (minor interior trail) is present along the west side of the Wetland A buffer and the adjoining stream buffer to the north, but the trail is narrow (only a few feet wide) and does not result in substantial alteration of buffer functions.

Overall, the buffer and adjoining uplands to the north and west are representative of high-quality, relatively undisturbed second growth upland forest. The presence of multiple vegetation strata dominated by native species provides high structural diversity, with excellent connectivity to wetlands ,streams, and other upland habitats within the park. The dense vegetation also serves to stabilize steep slopes in the area and prevent erosion, as well as providing water quality improvement, erosion protection, sediment, nutrient, and toxicant retention and removal, and groundwater support functions.

Wetland boundaries and buffers for Wetland B and C were not verified in the field as no new trails or facilities are proposed in proximity to these wetlands.

3.2.2 Stream and Stream Buffer

Psomas observed both Stream 1 and Stream 3 during the site visits. Field observations of the streams and buffers were consistent with the descriptions in the studies by Habitat Technologies (2007) and SCJ Alliance (2025). Photos 12-18 (Appendix B) show typical conditions of the crossings.

4.0 IMPACT ANALYSIS

The following sections describe the impacts to wetlands, streams and their respective buffers resulting from the proposed project actions.

4.1 REGULATORY REVIEW

Staff Conducted a review of both Washington State guidance and local government regulations regarding impacts resulting from mountain biking.

4.1.1 Washington State

Psomas staff reviewed Washington State documents on impacts to wetlands, streams, riparian areas, and buffers. The following is a list of the sources reviewed.

Riparian Systems (WDFW)

- Riparian Ecosystems, Volume 1: Science Synthesis and Management Implications (Quinn et al. 2020).
- Riparian Ecosystems, Volume 2: Management Recommendations (Rentz et al. 2020).

Wetland Buffer information (Ecology)

- Wetlands in Washington State - Volume 1: A Synthesis of the Science. (Sheldon et al. 2005).
- Wetlands in Washington State - Volume 2: Guidance for Protecting and Managing Wetlands (Grainger et al. 2005).
- Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance (Version 1) (Ecology et al. 2006a).
- Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Version 1) (Ecology et al. 2006b).
- Update on Wetland Buffers: The State of the Science, Final Report (Hruby 2013).
- Characterizing Wetland Buffers in Washington State (Hruby et al. 2017).
- Washington State Wetland Rating System for Western Washington: 2014 Update (Version 2) (Hruby and Yahnke 2023).
- Wetland Mitigation in Washington State–Part 1: Agency Policies and Guidance (Version 2). U.S. Environmental Protection Agency Region 10. (2021).
- Wetland Guidance for Critical Areas Ordinance (CAO) Updates Western and Eastern Washington (Ecology 2022).

Washington State regulatory and guidance documents provide detailed information regarding potential impacts to wetlands, streams, and regulatory buffers. However, these documents do not provide substantive information on the differences in potential impacts between mountain biking trails and hiking trails. Most of the information on the impacts appears to assume bicycles trails will be typical paved multi-use sections.

Conversations with Ecology (Pers. Comm. 2025a) indicate that Washington State has not conducted specific analyses on the impacts from mountain biking trail use as distinct from other uses, but other states or countries may have done research on the topic. Potentially relevant studies referred to Psomas by Ecology were evaluated as part of the review of scientific literature.

4.1.2 Local Government Regulations

Psomas reviewed the City of Olympia code as well as critical areas code from other local governments, with particular attention paid to those agencies that are located near Olympia or that have recently approved mountain biking trail facilities. These include the cities of Tumwater, Seattle (Cheasty Park - 2018 - 2023), and Anacortes (Anacortes Forestry Management Plan - 2009 - 2026), and Thurston, King (Green to Cedar Trail Phase 2013), and Snohomish (Darrington Skill Park, Lord Hill Park 2022, Whitehorse Regional Trail Phase 3 Improvements 2025) counties.

Olympia

Olympia Municipal Code (OMC) does not specifically mention mountain biking trails.

The code does provide exemptions for operation, maintenance, or repair of existing trails (OMC 18.32.111.A) and construction and maintenance of new trails in stream or wetland buffers (OMC 18.32.420.C and OMC 18.32.520.C) where they are four (4) feet or less in width, not paved, and involving less than fifty (50) cubic yards of cut or fill.

The City's Parks and Recreation Master plan identifies mountain biking as an activity in their Outdoor Adventure Programs and discussed it and trail running as more active recreational activities. The Kaiser Heights site (now Kaiser Woods Park) was specifically identified for potential purchase as a dedicated location for a mountain biking dedicated park. The City specifically purchased the property for development as a dedicated mountain biking park in 2017.

Tumwater

Tumwater's Municipal Code (TMC) does not specifically mention mountain biking trails. Low intensity uses are defined as "including, but not limited to, passive recreation, open space, or forest management land uses" and paved trails are defined as moderate intensity use (TMC 16.28.110). Trails are allowed in wetland and buffer where not otherwise prohibited (TMC 16.28.110) and in Fish and Wildlife Habitat Protection Areas, with some restrictions (TMC 16.32.70.H).

City of Seattle (Cheasty Park)

The proposed Cheasty Park design included multiple watercourse crossings and impacts to watercourse buffers, steep slope hazard area, and their buffers. The project received an Environmentally Critical Area Exemption, under the Seattle Municipal Code (SMC) 25.09.045.H.3.

This exemption applies to both bicycle and pedestrian trails (SMC 25.09.045.H.3.f.3), and discusses both as passive uses. The specific trail criteria noted in the exemption are:

1. Limited to pervious surface or raised boardwalk, using non-treated wood or other non-toxic material;
2. No more than 5 feet wide;
3. For pedestrian or bicycle use only; and

4. Located to avoid removal of trees.

The City of Seattle Municipal Code does not otherwise segregate mountain biking trails. Existing trails in critical areas are not addressed.

Seattle Parks and Recreation's existing Bicycle Policy precludes bicycles from using soft surface trails in natural areas, but Cheasty Park has been proposed as a pilot project.

City of Anacortes

The City of Anacortes Municipal Code (AMC) 19.46.030 identifies trails as an approved use for areas zoned under Parks, open space, and natural areas. The code divides trail into paved and unpaved, but does not specifically address mountain bike trails. Unpaved trails are noted as a low intensity use. This is similar to the treatment of trails in the current Washington State Wetland Rating System (Ecology 2023). Trails are allowed in critical are buffers with conditions.

Anacortes municipal code's general exemption criteria (AMC 19.70.040(B)) is similar to the City of Olympia's code, and reads as follows:

"To be exempt from this chapter does not give permission to degrade a critical area or buffer or to ignore risk from natural hazards. All exempt activities must use reasonable methods to avoid potential impacts to critical areas and buffers. In every case, disturbance to the critical area must be minimized through best management practices and the use of low-impact equipment."

Anacortes municipal code (AMC 19.70.040) also provides a specific exemption for "Maintenance, operation, repair, modification, or replacement of existing trails, and existing facilities within publicly improved recreation areas …" The code also notes relocation further from critical areas would not be considered a new trail where it is the least impactful method of repair (AMC 19.70.040.d).

The City's website has an EIS/literature review document (Marion and Wimpey, undated in the submittal but likely 2007) that breaks down potential trail impacts according to the type of trail use proposed. More detailed work by the authors (Marion and Whimpey 2017) provides both greater detail on impact categories and descriptions of the effectiveness of various methods of minimizing impacts. The results of this study are not currently reflected in the code, and do not appear in the City's most recent Best Available Science Review (ATSI, 2016). However, the City's 2026 Draft Anacortes Community Forest Lands Plan (dated 2026) does provide trail designations by use type (Hikers and Walkers, Horses, Mountain Bikes, and Motorcycles).

Thurston County

There are currently two-hundred and thirty-one mountain bike trails in Thurston County. No current projects noted.

Thurston County Code (TCC) Title 24 (Critical Areas) does not specifically address mountain biking trails as distinct from other trails. The code includes bicycling within the category of Recreation activities - Passive and low impact described in "Allowable Uses in Wetlands and Buffers and Related Restrictions" (TMC 24.30.085, Table 24.30-4).

King County

King County has numerous existing and recently permitted mountain biking trail projects. These include Duthie Hill Mountain Bike Park, Big Finn Hill Park, Cedar to Green Phase Trail, and Olallie Mountain Bike Trail.

King County's critical areas code (KCC 21A.24) provides specific regulations for trail corridors and Rural equestrian community trails (private trails intended to preserve equestrian communities). Trails are permitted in buffers with conditions, and crossings of streams and Category II, III, and IV wetlands are permitted with conditions.

Title 7 (Parks and Recreation) of the King County code further segregates trails into three types: backcountry trails, regional trails, and trails (King County Code [KCC] Title 7). All three terms assume multiple non-motorized uses.

"Backcountry trail" means any natural surface trail intended exclusively for passive recreation such as hiking, horseback riding, mountain biking, running, and nature observation.

"Regional trail" means a regionally-significant, shared-use path for bicycling, walking, jogging, skating, horseback riding, or other nonmotor use that provides recreational opportunities and enhances regional mobility.

"Trail" means any path, track, or right of way designed for use by pedestrians, bicycles, equestrians, or other nonmotorized modes of transportation, including, but not limited to, a backcountry trail and a regional trail.

Snohomish County

Multiple mountain biking projects have been recently approved or are currently in development.

Snohomish County Code (SCC) does not specifically address mountain biking trails (SCC 30.62A, Pers. Comm. 2025b). Construction of pedestrian walkways or trails in buffers is allowed when constructed with natural permeable materials and does not exceed six feet in width (SCC 30.62A.320(2)d). The code also includes an exception for normal maintenance and repair that does not expand the footprint of the existing trail (SCC 30.62A.510(3).a.iii).

Conclusions

Conversations with agency staff at Ecology, Snohomish County (Pers. Comm. 2025b) and Washington State Parks and Recreation Commission (Pers. Comm. 2025c) are consistent with our observations that critical areas codes in the Puget Sound counties do not address impacts of mountain biking trails differently from impacts resulting from soft surfaced hiking trails.

Agencies that manage these public facilities may have specific site management policies that govern trail use for different activities, but these are not tied to critical areas code requirements.

4.2 REVIEW OF SCIENTIFIC LITERATURE

The following sections summarize our review of literature on impacts resulting from mountain bike recreation trail use. Our review included journals articles, academic theses, and documents and reports prepared for public agencies. Note that there are numerous documents prepared by or

for mountain biking advocates regarding trail impacts, minimization, and suitable trail design. These documents present relevant information and are often well cited and professionally prepared. As a result, they may be an important resource for by planners and regulators assessing trail impacts and best professional standards for design. However, this review focused on peer reviewed scientific papers and agency documents in the interest of providing a science-based analysis.

4.2.1 Vegetation

The nature of impacts to vegetation and soils are discussed in many journal articles and academic papers. The mechanisms of impact include construction activities (vegetation clearing and ground disturbance) and impacts resulting from the ongoing use of the trails (trail tread expansion, spread of non-native species, soil compaction, and erosion).

Effects to vegetation from ongoing trail use include direct mortality and injury from trampling and the potential for trail use as a vector for invasive species. Mountain biking was identified as having increased potential for widening when compared to hiking, but this was limited to wet areas and turns with sharp corners. Hennings (2017) identified the intensity of use and trail directionality (one-way vs two way) are important factors in trail widening for all types of trail uses. Turbé (2017) noted that loss of vegetation tended to be high initially, and tapered off later, regardless of trail use type.

Invasive species dispersal appears to be a common effect of all types of trail use. Turbé (2017) notes that "reviews of over 45 research papers on the role of vehicles, horses and hikers show that they can be a major vector for non-native seeds dispersal (Pickering & Mount 2010; Ansong & Pickering 2014)." Hennings (2017) notes that horses are a significant vector for the spread of invasive plants, but other users also act as a vector for spread of invasive seeds, and "dog-walkers and their dogs may be particularly effective at spreading invasive weed seeds". Hennings (2017) also notes that pedestrians and equestrians have a longer history of trail use, and not as many studies address mountain biking specifically.

4.2.2 Soils

In their literature review on the effects of mountain biking, Turbé (2017) summarized past studies on soil erosion effects of mountain biking trails. Turbé (2017) noted that Wilson & Seney (1994) found that horseback and foot traffic had greater effects on trail erosion than bicycle traffic, and that frequency of use is a significant factor for erosion on all types of recreational trails. Studies by Thurston (1998), and Thurston & Reader (2001) support the use-impact relationship described by Wilson and Seney.

In their literature review, Quinn and Chernoff (2010) noted that slope, shade, moisture, soil composition, and seasonal precipitation have significant relationships to the extent of impacts (Bjorkman 1998, Cessford 1995, Goeft & Alder 2001, Marion & Olive 2006, Morlock et al. 2006, White et al. 2006). Quinn and Chernoff (2010) also noted that the type of trail use (e.g. technical trail riding vs casual use), cycling techniques, and rider skill level had been identified by researchers as additional factors relevant to soil erosion.

Evju et al. (2021) noted the effects of trail use but may be concentrated, stating "on-trail use by hikers and mountain bikers have relatively limited overall effects in terms of trail widening and deepening, but that effects depend highly on environmental conditions; enhanced use of trails in

wet areas is likely to result in greater trail degradation, and more so if a large proportion of the users are mountain biker".

Fang and Ng (2024) found that hiking caused more severe trail degradation than mountain biking, even after controlling for topography. However, their finding addressed only topography and substrate conditions.

4.2.3 Wildlife and Habitat

Many of the studies identified differences between hiking and mountain biking impacts to wildlife (Hennings 2017). Snetsinger and White (2009) found that the wildlife responses to mountain bikers vs hikers (including distance to produce a wildlife response) varied by wildlife species. Hennings (2017) noted that greater speed and directness of approach generally elicit stronger anti-predator responses. Hennings also notes that studies suggest that mountain bikers and joggers/trail runners tend to be more alarming to wildlife than hikers because they move faster and wildlife encounters can be sudden and unpredictable.

Hennings (2017) notes that while trails can cause habitat loss and are associated with invasive species, trail disturbance is typically limited to a fairly narrow corridor, and trails do not usually create new barriers within a habitat patch that would physically prevent most wildlife movement. However, Hennings does note that trails do alter habitat and create edge effects such as changes in vegetation structure, composition, and increased non-native species presence.

4.2.4 Informal Trails

Ballantyne and Pickering (2015) found that informal trails were poorly designed and located and had poorer surface conditions than formal trails. While formal and informal trails were found to result in similar loss of forest habitat, informal trails were found to have greater impact than formal trails since there were more of them. Other sources noted that informal trails increased edge effect (fragmentation), are common among all user groups, but may be more common in hiking trails as hiking is the most common recreational use and hikers can more readily move off formal trails.

4.2.5 Summary

The studies reviewed span a period in excess of thirty years. Some common themes were observed across the sources reviewed:

- Mountain biking is an increasingly popular recreational use (Hennings 2017).
- Mountain bike trail use results in potential direct and indirect impacts to natural vegetation, soils, water, and wildlife.
- Impacts from mountain bike use of unpaved recreational trails result in impacts that are similar to those resulting from hiking.
- The extent and intensity of impacts are more closely tied to the number of trail users, site conditions (e.g. slope, soil type, precipitation regimes, presence of wet areas), and trail design than the type of trail use (i.e., hiking, biking, horseback riding).
- Informal trail networks may result in greater impacts as a result of their greater density and lack of appropriate design.

4.3 WETLAND IMPACTS

The proposed trails and stormwater pond would not result in either permanent or temporary impacts to wetlands.

4.4 WETLAND BUFFER IMPACTS

The construction of the proposed trails will not result in permanent or temporary impacts to wetland buffers.

Continued operation of the existing trails has the potential to result in widening or deepening of the existing trail tread. Two existing trails cross wetland buffers –the Central Mainline Trail and the Powerline trail on the west boundary of the park. Major increases in use of the trails would have the potential to mobilize greater amounts of sediment which could result in downstream increases in turbidity. Since the Central Mainline trail crossing of the Wetland B buffer at Stream 1 (see Figures, C1.1) is currently gravel paved with a 20-inch concrete culvert under the trail, the potential for increased sediment in the buffer is negligible. The potential for wetland buffer impacts is limited to the Powerline Trail segment west of Wetland C, and Stream 1, which is part of an active utility corridor maintenance road.

Since these are potential future impacts, the area and extent of impact cannot be accurately calculated. In order to identify any future impacts, the existing trail segments within buffers would be monitored to assess changes to tread width and depth and potential erosion and sediment mobilization. Mitigation measures (such as best management practices and trail access and design alterations) would be proposed to address the specific impacts identified. The proposed monitoring frequency and methods will be described in the mitigation section.

Construction of the proposed stormwater pond will result in a total of 6,200 square feet of permanent impact to the buffer of Wetland A. The impact area is located entirely in the outer 25% of the buffer alongside the access road prism, 135 feet from Wetland A. Approximately 1,800 square feet of the buffer impact is within the managed deciduous forest buffer beneath the existing power transmission right-of-way. The remaining 4,400 square feet of buffer impact is in a portion of the buffer dominated by mixed canopy upland forest. All impacts are downslope of Wetland A, and the affected areas do not support the hydrologic functions of Wetland A.

Construction activities will be confined to the permanent pond footprint. No additional temporary impacts will occur.

Affected buffer functions are related to habitat area and to a lesser extent visual screening. These lost buffer functions are partially offset by the potential for ponded water, which would benefit many species of wildlife. Connectivity to wetlands, streams, and other upland habitats within the park is not substantially affected by the work. Slope stability and erosion prevention are also not affected. Water quality improvement, erosion protection, sediment, nutrient, and toxicant retention and removal, and groundwater support functions maybe improved versus the baseline.

Construction and maintenance will result in an increase in disturbance to wildlife using the affected buffer, however the construction impacts are temporary and short-term, and ongoing use of the pond and the park facilities would be focused on the access road and the trails and take place largely during daylight hours. As a result, the work is not expected to substantially alter the wildlife movement in the affected area.

4.5 STREAMS AND STREAM BUFFER IMPACTS

The construction of the proposed trails will not result in new permanent or temporary impacts to streams or stream buffers.

Continued operation of the existing trails has the potential to result in widening or deepening of the existing trail tread, and major increases in use of the Central Mainline Trail would have the potential to mobilize greater amounts of sediment which could result in downstream increases in turbidity. The potential buffer impacts to Stream 1 are discussed under Wetland B and Wetland C buffer impacts. As a result, the discussion of stream buffer impacts is limited to the existing Central Mainline Trail alignment near Stream 3 (Figures, C1.1).

The exiting trail segments within buffers would be monitored to assess changes to tread width and depth and potential erosion and sediment mobilization, and mitigation measures (such as best management practices and trail access and design alterations) would be proposed to address any specific impacts identified. The proposed monitoring frequency and methods will be described in the mitigation section.

The proposed stormwater pond would not result in either permanent or temporary impacts to streams or stream buffers.

5.0 MITIGATION PLAN

The following section describes the proposed mitigation for impacts to wetland and stream buffers affected by the project. It outlines impact avoidance and minimization (including BMPs), and describes the mitigation goals, objectives, and performance standards as well as proposed monitoring and maintenance efforts.

5.1 MITIGATION SEQUENCE

Federal, Washington State, and City of Olympia (OMC 18.32.135) regulations require that mitigation efforts follow this prescribed sequence:

1. Avoiding the impact altogether by not taking a certain action or parts of an action;

2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;

3. Rectifying the impact by repairing, rehabilitating or restoring the affected environment;

4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;

5. Compensating for the impact by replacing, enhancing or providing substitute resources or environments;

6. Monitoring the impact and taking appropriate corrective measures.

The proposed mitigation will satisfy these requirements by:

1. Avoiding all direct impacts to wetlands and streams within the project area through project re-design;
2. Minimizing the impacts by limiting the area of work to the minimum required to construct the project as shown below.
    a. Using existing paved surfaces where already present.
    b. Minimizing the area of disturbance to the amount necessary for construction of the project.
    c. Stabilizing exposed soils with a vegetative cover or other erosion control treatment immediately following construction.
    d. Using standard Best Management Practices (BMPs) for sedimentation and erosion control.
    e. Developing a spill prevention control countermeasures plan (SPCC) to manage toxic materials associated with construction activities (equipment leaks, disposal of oily wastes, cleanup of any spills, storing petroleum products/chemicals in contained areas away from wetlands).

3. Rectifying impacts by restoring any temporarily disturbed areas, rehabilitating associated areas, and restoring buffers where functional improvement can be achieved.
4. Reducing impacts over time by preserving and maintaining both the project infrastructure and the proposed mitigation.
5. Compensating for permanent and temporary impacts by replacing resources, and
6. Monitoring the impacts and mitigation over time to address performance issues and implementing corrective measures when needed.

5.2 AVOIDANCE AND MINIMIZATION – EVALUATION OF ALTERNATIVES

The following narrative discusses the evaluation of alternatives to avoid and minimize impacts to critical areas.

Could the impacts be avoided altogether?

Stormwater detention is required by the City's regulations, and the pond had to be located on the proposed project site and not alter natural drainage patterns. The proposed pond location is at a natural low point of the site where the natural flows enter a culvert beneath the access road.

Placement of the pond at this location allows the required detention to be provided onsite and without altering the natural drainage pattern. The relatively flat terrain at this location requires less excavation to provide the required detention volume and has a more compact footprint, resulting in a reduced area of impact and efficient use of public funds.

Could the pond be moved?

The pond needs to be located near the roadway to effectively detain the runoff from the new paved road and parking area, and to avoid alterations to the natural drainage patterns. The land elevation increases as you move west of the proposed pond location and slopes become steeper. A pond located further west would require more excavation, have a larger footprint, and result in greater vegetation impacts as compared to the proposed design. Since a pond in this location would require a larger and deeper excavation, additional excavation into the basalt bedrock would be required, which increases the project difficulty and expense, as well as resulting in more disturbance to wildlife during construction. Bedrock deposits at the proposed pond location are less extensive.

Are there practicable and/or reasonable alternatives?

The City evaluated four additional alternatives to determine if there are reasonable/practicable ways to achieve the required stormwater detention volume while avoiding buffer impacts. These four alternatives evaluated are: full dispersion of stormwater; the use of underground storage vaults; relocation of the proposed pond outside the buffer; and the use of large pipes as storage vaults. These alternatives are discussed in detail below.

1. Full dispersion (BMP T5.30)

Full Dispersion is being used for most of the proposed and existing biking trails. However, there is not sufficient area to fully disperse the runoff from the proposed parking lot and access lane, given the soil type and depth to groundwater. As a result, this alternative is not practicable.

2. Underground storage vaults (BMP D.3)

Due to the proximity of underlying basalt to the surface (GeoResources 2006, AESI 2007, and Krazan 2023), it would be difficult and expensive to build underground storage vaults. Deeper excavation into bedrock may be required, and if the rock is not fractured, larger/heavier equipment and possibly blasting would be required. As a result, this alternative is likely to result in greater noise and dust impacts on nearby residents and wildlife. Construction would be likely to take longer and would have correspondingly greater cost.

3. Similar detention pond in another location, further west (not in the existing critical area buffer).

The pond needs to be located near the roadway to effectively detain the runoff from the new paved road and parking area, and to avoid alterations to the natural drainage patterns. The only potential alternative on the site would also be located on the north side of the access road, to the west. West of the wetland buffer, the elevation alongside the access road increases and slopes become steeper.

The area required for the stormwater pond must provide both the volume required for detention and the 3:1 side slope required for the embankments (except where the geotechnical report indicates existing 2:1 side slopes can be incorporated). While a narrow, deeper pond can achieve volume equal to a shallow wider pond, the embankments become taller. Embankments over 6-feet high present a greater safety risk and require a dam safety design and review by Ecology.

The presence of bedrock nearer the surface (GeoResources 2006, AESI 2007, and Krazan 2023) would increase construction noise, dust generation, project complexity, and cost (See alternative 2). The fractured nature of the bedrock at this location (GeoResources 2006, AESI 2007) also increases the risk of subsurface water movement (i.e. pond leakage downslope). A pond located in the alternate would require more excavation, have a larger footprint, and result in greater vegetation impacts as compared to the proposed design. This alternative was determined not to be practicable for these reasons.

4. Large pipes as storage vaults

To achieve the same storage volume as the pond, there would need to be multiple pipes. This approach has similar impacts to the underground vaults, although maintenance may be more difficult. If exposed at the surface, the pipes would also be a target for vandalism.

How has the pond location been chosen to minimize impacts?

The proposed stormwater facility location was selected to meet the City of Olympia regulatory requirements and the physical constraints of the park property. Regulatory and engineering constraints include: the stormwater detention requirement for the paved areas under City of Olympia Code (OMC 5.020), consistency with the goals and objectives in the City's Storm and Surface Water Plan, engineering requirements for stormwater systems (which are gravity based) as defined in the City's Drainage Design and Erosion Control Manual (DDECM) (Olympia 2022), the limits of City-owned property and right-of-way, the topography of the site, slopes required to provide positive drainage, and the underlying geology, soils, and groundwater conditions. In addition, the principle of good stewardship of public funds compels public agencies to make efficient use of public funds while complying with all applicable regulations.

The proposed pond would be located at the topographic low point in the drainage basin. This location allows all of the affected impervious surface runoff to be detained at a single facility, within property and unopened ROW owned by the City. Locating the facility at the topographic low point also reduces the area of grading necessary to create a facility with the required volume and allows the pond to discharge at the existing culverts beneath the access road. This reduces the costs for both engineering and construction while maintaining the natural drainage patterns.

The majority of Kaiser Woods Park falls within Threshold Discharge Area (TDA 2). Flow from TDA 2 drains to the south and east, and all of the drainages converge near Black Lake Ditch. This convergence is within ¼ mile of the park and is the single point of compliance for the stormwater discharge. The southernmost portion of Kaiser Woods Park is within subbasin C of TDA 2. Subbasin C includes the access road, parking lot, and stormwater pond, and currently discharges thru existing culverts that convey water beneath the access road to the Puget Sound Energy property. The pond was sized to reduce flows for the entire TDA 2 drainage at the point of compliance, Core Requirement #7: Flow Control of DDECM, Volume I.

In addition, flows from trails within the site will be dispersed into the surrounding landscape. This is a Low Impact Development method, which is the preferred approach for limiting impacts to waters from stormwater runoff. Shoulders of new trails will be constructed to spread water out to mimic natural drainage patterns. These measures reflect the best available science for protection of critical areas.

The preferred location for the stormwater pond was selected to meet the requirements of the stormwater code and other regulatory guidance. These design requirements minimize stormwater impacts of the project on waters by: not altering natural drainage patterns and reducing flow volumes at the point of compliance.

In addition, the proposed stormwater site results in a more compact site and consolidates the temporary and permanent impacts. The project would have no impact to the hydrology of Wetland A, since the wetland is upslope of the proposed pond. Hydrologic functions of the buffer (i.e., flow velocity reduction and dissipation/infiltration, sediment retention, nutrient and pollutant reduction, and groundwater support) would with be unaffected or improved by the presence of a stormwater pond detaining stormwater runoff treated by a Filterra device.

The impacted wetland buffer in this area adjoins the access road is subject to vehicular noise and dust, is currently maintained as a utility easement, and has an increased presence of non-native/invasive species. These disturbances reduce the habitat function provided by this portion of the wetland buffer. Since a higher functioning wetland buffer is present north of the pond and to the west of Wetland A, the permanent/long-term impacts of the project on Wetland A's buffer can be addressed through buffer averaging.

Discuss how mountain biking will or will not negatively impact wetland and stream buffer functions.

Potential impacts of mountain biking trails are described in detail in the regulatory and scientific literature review sections.

There are no proposed mountain biking trails within the existing wetland or stream buffer or the proposed buffer averaging area. The nearest trail is 240 feet to the west and would not affect Wetland A or its buffer.

Existing trails in wetland and stream buffers are not expected to result in additional impacts, however the City proposed to monitor these areas, and implement adaptive management measures to address any new impacts.

Stream Crossing Alternatives

The following section evaluates how the proposed project would comply with the requirements General Provisions – Public Agency and Utility Exception OMC 18.32.112(D)(1-5).

D. The criteria for review and approval of public agency and utility exceptions follow:

1. There is no other practical alternative to the proposed development with less impact on the critical areas;

The project includes two stream crossings (Stream 1 and Stream 3, see Figures, C1.1). The northernmost stream crossing (Stream 1) is an existing gravel paved access road, and the stream is conveyed beneath the access in an existing 20-inch concrete culvert. The access road is currently used by pedestrians and bicyclists. The proposed trail would be in the same location (within the existing developed access road footprint), would not require a new stream crossing, and would be used in the same fashion as the present. As a result, retaining the existing trail in this location is not expected to affect the stream crossing/culvert, or result in additional impact to Stream 1 or its buffer, and would not require an exemption.

The southern trail crossing is a seasonal stream (Stream 3). An existing unpaved trail crosses the flow path at this location. This trail is used by both pedestrians and bicyclists, and the crossing has no existing culvert. The City evaluated three alternatives for the southern stream crossing. These included: 1) retaining the existing trail crossing in place; 2) abandoning the existing trail and constructs a new trail parallel to the stream but in the buffer, and 3) a longer alternative that abandons a section of the current trail and constructs a new longer trail to the east. The existing trail alignment and Alternatives 2 and 3 are shown in Figures, Stream Crossing Alternatives.

Retaining the existing trail causes minimal additional impacts. The trail would be monitored to determine whether the tread width increases and whether sediment is being mobilized and if it is affecting downstream water quality. Increases in trail width (i.e., the loss of buffer vegetation and corresponding functional impact) or sediment mobilization would be addressed through trail use management, installation of best management practices, or trail network design revisions.

Alternative 2 - Trail Realignment (short)

The Stream Crossing Alternatives (Figures) shows the areas where the existing trail would be abandoned and decommissioned and a new unpaved trail would be constructed. This trail concept is intended to avoid direct impacts to Stream 3, while maintaining similar grades to the existing trail, and minimizing new trail construction area and cost.

This proposed alignment avoids crossing the channel of Stream 3 and instead runs parallel to the channel to the north and south. The new trail would be unpaved, 4-feet in width (narrower than the existing 5-foot trail) and 338 feet in length, and located "adjacent" to the south bank of the stream (consistent with OMC 18.32.425(K)). In addition to the trail itself, the City of Olympia requires a 2-foot wide gravel area for drainage (per the City of Olympia Drainage Design and Erosion Control Manual 2022). This gravel strip would be located between the trail and the stream.

The City's drainage manual also required an additional 10-foot wide sheet flow dispersion area beyond the gravel. No vegetation would be removed in this area, which would comprise a portion of the 25-foot offset from the top of bank of Stream 3.

Table 4 summarizes the impacts of Alternative 2. Overall construction of the new trail results in an increase of 111 lineal feet of trail. The existing trail (including approximately 10 square feet at the Stream 3 crossing) would be abandoned, and the affected buffer area (1,125 square feet) would be replanted with native vegetation. Post construction, approximately 130 feet of the new trail would be parallel to Stream 3 and located within 25 feet of the channel, an increase of approximately 80 lineal feet of trail at this distance from Stream 3.

TABLE 4
ALTERNATIVE 2 IMPACT SUMMARY[1]

Location	Trail length (Lineal Feet)	Trail area (Square Feet)	Stream Crossing Impact (Square Feet)	Buffer Impact (Square Feet)
Existing Trail Segment to be Abandoned				
Trail	227	1135	10	1125
Drainage	-	-	-	-
Total	*227*	*1135*	*10*	*1125*
Alternative 2 Alignment				
Trail	338	1552	0	1552
Gravel drainage	-	776	0	776
Total	*338*	*2328*	*0*	*2328*
Difference	**111**	**1193**	**-10**	**1203**

1. Based on calculations provided by the City of Olympia (OPARD), 2026.

Overall, Alternative 2 results in a decrease of approximately 10 square feet of direct impact to Stream 3, and an increase of 1,193 square feet of stream buffer impact. In addition, there would be an increase of 80 lineal feet of trail within 25' of Stream 3. While fine-tuning the alternative could result in a decrease in Steep Slope impact, this would be offset by decreasing the distance between Stream 3 and the trail and increasing potential indirect effects.

Alternative 3 - Trail Realignment (long)

The Stream Crossing Alternatives (Figures) shows the areas where the existing trail would be abandoned and decommissioned and a new unpaved trail would be constructed. This trail concept is similar to Alternative 2 but is 1,127 feet long and 4-feeet wide. Alternative 3 completely avoids impacts to Stream 3 and its buffer. It does not maintain similar grades to the existing trail, allow access by off-road style wheelchairs, or minimize new trail construction area or cost.

Table 5 summarizes the impacts Alternative 3. Overall, construction of the new trail results in an increase of 587 lineal feet of trail. The existing trail (including approximately 10 square feet at the Stream 3 crossing) would be abandoned, and the 2,170 square feet of affected buffer replanted with native vegetation. While the areas of the Stream 3 buffer currently affected by the trail are restored, approximately 7,032 square feet of previously undisturbed upland habitat outside of the

existing footprint of disturbance would be affected by construction, a net loss of 4,582 square feet of native vegetation resulting from Alternative 3.

TABLE 5
ALTERNATIVE 3 IMPACT SUMMARY[1]

Location	Trail length (Lineal Feet)	Trail area (Square Feet)	Stream Crossing Impact (Square Feet)	Non-Buffer Upland Habitat Impact (Square Feet)
Existing Trail Segment to be Abandoned				
Trail	540	2180	10	2170
Drainage	0	0	0	0
Total	*540*	*2180*	*10*	*2170*
Alternative 3 Alignment				
Trail	1127	4508	0	4508
Gravel drainage		2524	0	2524
Total	*1127*	*7032*	*0*	*7032*
Difference	**587**	**4852**	**-10**	**4862**

1. Based on Calculations provided by the City of Olympia (OPARD), 2026.

Restoration of the Existing Trail

Alternatives 2 and 3 both propose to abandon a portion of the existing trail network to avoid the crossing at Stream 3. Our past experience has shown us that effectively abandoning an existing trail segment in a public open space may present substantial difficulties. Users will often continue to use the old trail segment, and will create new informal trails to detour around trail blockages. In some cases plantings have been vandalized.

Some potential methods to deter trail users from accessing out of bounds areas include: education signage describing the purpose of trail relocation and ecological benefits; incorporating dense plantings of thorny native species at the entry points to abandoned trail segments to deter casual intrusion; and installation of large woody to deter more determined entry. Woody debris structures need to be of sufficient size to deter bicyclists and pedestrians, and the individual pieces of wood need to be sufficiently large that they cannot be easily removed.

2. The application of this Chapter would unreasonably restrict the ability to provide utility services to the public;

Application of this chapter of the code would result in an overall increase in impact to either stream buffers or steep slope critical areas and an overall increase in impact to wildlife habitat when compared to retaining the existing trail and crossing. The alternatives would also result in increased cost for the taxpayers of the City of Olympia to achieve the same overall level of services.

3. The proposal does not pose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site;

Retaining the existing trail crossing at Stream 3 does not pose an unreasonable threat to the public health, safety, or welfare on or off the Kaiser Woods Park site.

4. The proposal attempts to protect and mitigate impacts to the critical area functions and values consistent with the best available science; and

The proposed project protects and mitigates impacts to the critical area functions and values consistent with the best available science and federal, state, and City of Olympia regulatory requirements.

5. The proposal is consistent with other applicable regulations and standards.

All other aspects of the project are fully consistent with other applicable regulations and standards.

5.3 MITIGATION REQUIREMENTS

The proposed stormwater pond would result in 6,200 square feet of permanent impact to the buffer of Wetland A. Construction activities will be confined to the permanent pond footprint. No additional temporary impacts will occur. All impacts will be located downslope on Wetland A and away from any streams and do not affect wetland or stream hydrology.

Regulatory and permit requirements are shown below.

- Federal – The proposed project will not result in impacts to federally regulated waters, such as streams or wetlands. No federal lands are affected, and no federal funds would be used for project design or construction. As a result, no federal permits are required for the project.

- Washington State: The project will not take place in, over, or beneath the bed or bank of waters of the state, so no HPA from WDFW is required. No isolated wetlands are affected, so no wetland permitting with Ecology is required.

- The project would result in impacts to wetland buffers regulated by the City of Olympia. The proposed stormwater pond is not considered exempt under OMC 18.32.111 since it encroaches further into the critical area (wetland) buffer.

- No new trails are proposed or would be constructed in critical areas or buffers as part of the project.

- The stormwater pond is an update to the stormwater conveyance system for the existing gravel access road. This conveyance includes paired corrugated metal pipe culverts beneath the existing roadway prism that convey stormwater from the Park to the south. The culverts do not convey a stream. The proposed stormwater pond would provide detention for existing and proposed impervious surface. This improvement falls within the Administratively Authorized Uses and Activities described under OMC 18.35.525(J) for stormwater retrofit.

- The City of Olympia may allow modification of wetland buffer width by allowing averaging of buffer widths under specific conditions outlined OMC 18.32.535(F).

5.4 COMPENSATORY MITIGATION (BUFFER AVERAGING)

The proposed mitigation will be on-site, in-kind, permittee-responsible mitigation in the form of buffer averaging consistent with OMC 18.32.535(F).

(1) The buffer averaging area was selected due to its location and functional quality. The proposed buffer averaging is located on the west side of the wetland. The buffer to the south (where the impact will be located) is already truncated by the existing gravel paved roadway and the portions within the power transmission right-of-way are managed. The presence of the road and managed utility corridor result in significant differences in characteristics that affect its habitat functions in Wetland A such as noise and habitat structure, which can be considered existing indirect impacts to the wetland. We believe this is consistent with the requirements in OMC 18.32.535(F)(1).

(2) Providing increased buffer width to the west would add additional high quality buffer that protects Wetland A from noise and disturbance, expands and protects the connection to the southern riparian buffer of Stream 1. This is consistent with the requirements of OMC 18.32.535(F)(2) which require that the buffer is increased adjacent to the higher-functioning area of habitat or more sensitive portion of the wetland and decreased adjacent to the lower functioning or less sensitive portion.

(3) The proposed area of buffer averaging is 6,200 square feet (see Appendix C), resulting in a buffer that exceeds the existing standard buffer and so satisfies the criteria in OMC 18.32.535(F)(3).

(4) The proposed buffer at its narrowest point would be 135 feet, which preserves 75% of the standard 180-foot buffer as required by OMC 18.32.535(F)(3).

5.5 MONITORING EXISTING TRAILS

Existing trails within critical areas and buffers will be monitored bi-annually, over a period of three years.

The monitoring will be conducted twice each year, once in the spring and once in the fall. A monitoring visit form will be prepared for each visit.

The site visit form will include:

- A summary of current site conditions (weather conditions at the time of the monitoring visit, rainfall within the past two weeks);
- A table showing measured tread width and depth for each sample location;
- Description of visible erosion/waterborne sediment deposits;
- Turbidity measurements upstream and downstream of stream crossings; and
- Site photographs with locations and direction of photograph (attached).

For each monitored site, the following methods will be used:

- Five sets of measurements will be collected at the existing Stream 3 crossing, twice per year (late spring and early fall). One visit will be conducted prior to construction of the project to establish a baseline.

- Data collected will include the following:
    - 1 at the Stream 3 crossing.
    - 4 additional sets – two (2) sets on each side of the crossing at approximately 25-foot intervals.
    - Permanent measurement locations will be established during the first monitoring visit. will be marked with wood or metal stakes located outside the trail footprint or paint markings on trees, and located with a handheld GPS unit.
- At each measurement location a horizontal reference will be established perpendicular to the trail. This may be done with any straight-edge that will not sag, such as a 6-foot I-beam level or levelling rod.
- The width of the unvegetated tread will be measured in feet and tenths (or feet and inches and converted).
- The depth of the tread will be measured at the deepest point in feet and tenths (or feet and inches and converted).
- Observations of erosion or waterborne sediment deposition will be recorded.
- Site photographs will be collected. The first survey will determine photo points, which will be mapped and used as a reference for all subsequent photos collected.
- If flowing or standing water is observed at a stream crossing, turbidity samples will be collected at locations 25-feet up- and down-stream of the crossing. Measurements may be taken with either a Secchi disk or properly calibrated handheld turbidimeter. The results will be recorded and reported in Nephelometric Turbidity Units (NTUs).

Results of the monitoring will be documents in a brief monitoring memorandum, with field forms and photographs to be provided as attachments.

5.6 ADAPTIVE MANAGEMENT

If the monitoring results show significant increases in unvegetated tread width (tread width > 4-feet) or tread depth (increase > 2") or ongoing sediment issues that are affecting downstream water quality, the City will implement appropriate trail design improvements based on best professional design principles as documented in the USFS Trail guidelines, IMBA trail design standards, or similar sources.

These may include:

- Signage
- Seeding or installing woody plants
- Changes in trail direction
- Gravel in portions of trail in buffer with high wear
- Additional site drainage (outside wetlands and streams)
- Trail relocation
- Seasonal use restrictions
- Limits to number of trail user
- Raised trail sections (e.g. boardwalks)
-

5.7 CONCLUSION

We believe that the proposed combination of ongoing monitoring of existing trails and buffer averaging for the pond impacts satisfies the requirements of the City of Olympia Code and provides appropriate compensation for the proposed impacts to the critical area buffers at the Kaiser Wood Park site.

6.0 AUTHOR QUALIFICATIONS

Patrick J. Togher is a wetland scientist and Managing Biologist in Psomas' Tacoma office. Pat has a Master of Arts degree in Environmental Studies, a Certificate in Wetland Science and Management, and 25 years of professional experience in wetland science, including decades of experience preparing wetland and stream reports and mitigation plans for local and state agencies throughout western Washington. He is certified as a Senior Professional Wetland Scientist (SPWS #1659) by the Society of Wetland Scientists Professional Certification Program. Pat's education and experience satisfy the City of Olympia criteria for qualified professional defined in OMC 18.02.

Pete Lawson is a Senior Fisheries Biologist and Environmental Manager at Psomas. Pete has a Master of Science in Environmental Science and Bachelor of Science degree in Biology. He has over 25 years of experience on a wide variety of projects in the disciplines of fisheries biology and environmental science and has managed numerous multi-disciplinary projects focused on ecological restoration and infrastructure development. Pete is a Washington Department of Transportation Biological Assessment Qualified Senior Author. His education and experience satisfy the City of Olympia criteria for qualified professional defined in OMC 18.02.

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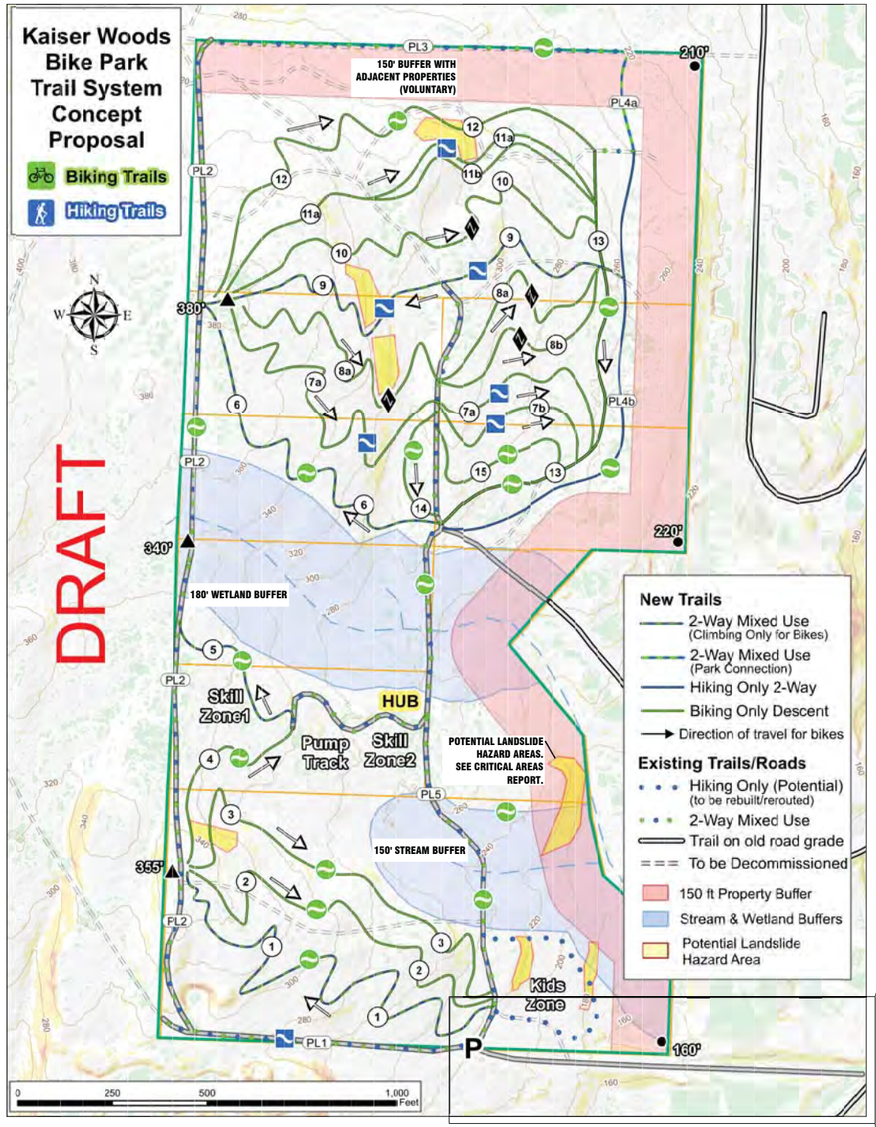
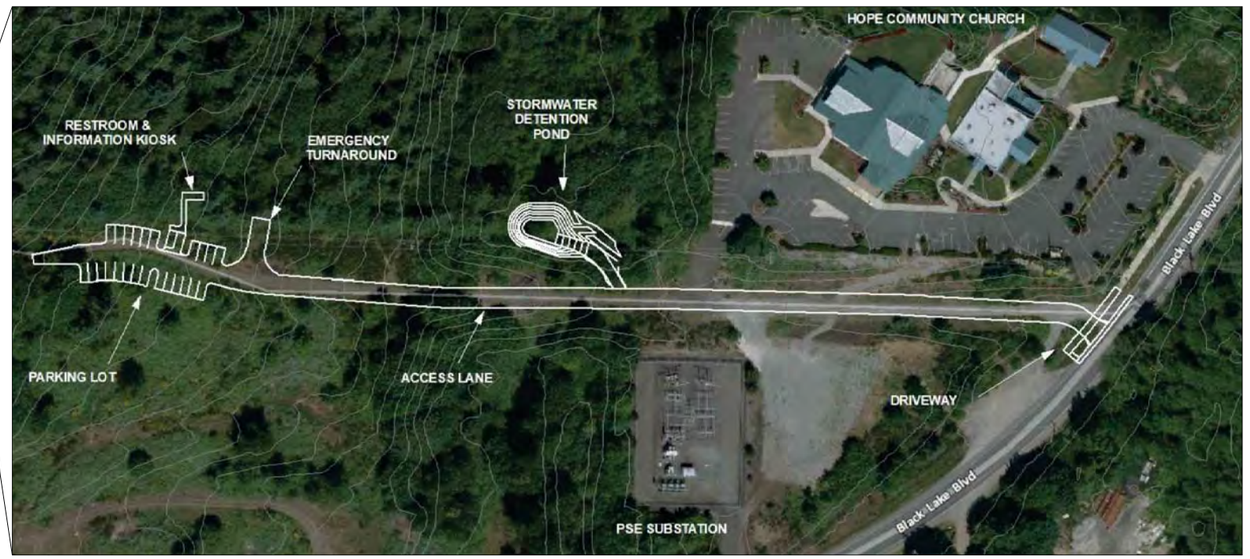
FIGURES

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION



SEE INSET THIS SHEET AND PLAN SHEETS C2.1 & C2.2

TRAIL CONCEPT PROPOSALS WERE DEVELOPED BY A CITY-HIRED CONSULTANT. TRAIL LOCATIONS ARE PRELIMINARY.



811 Know what's below. Call before you dig.

Olympia
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KAISER WOODS PARK
2549 BLACK LAKE BLVD SW

KAISER WOODS PARK DEVELOPMENT

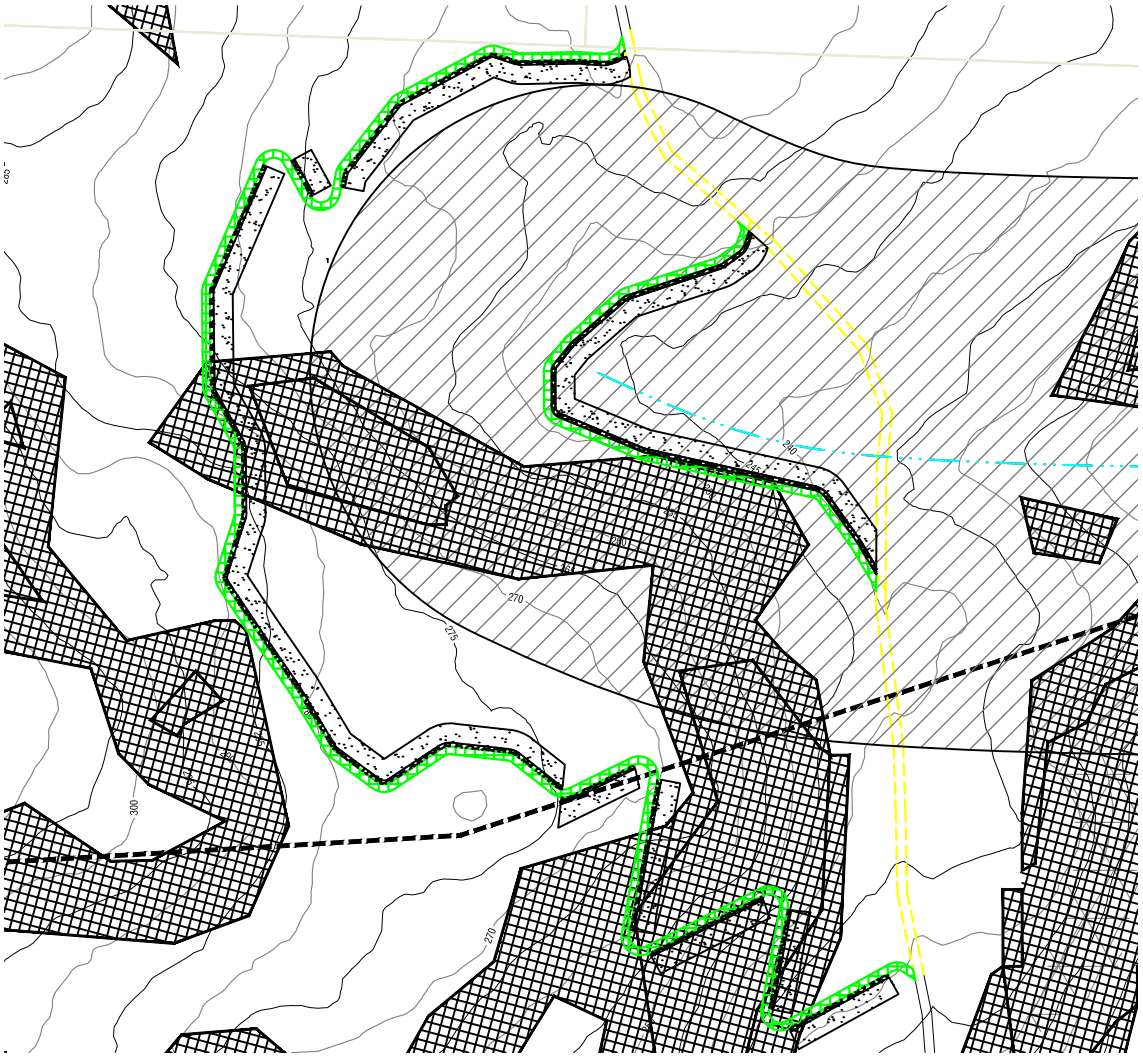
DIANE MONTECUCCO OLIVER
STATE OF WASHINGTON
48976
REGISTERED PROFESSIONAL ENGINEER

OVERALL SITE PLAN

NO.	DATE	REVISION
1	11/26/2024	REVISED PER CP&D SUBSTANTIVE REVIEW COMMENTS
2	3/24/2025	REVISED PER CP&D SUBSTANTIVE REVIEW COMMENTS

DATE: 6/6/2023
SCALE: NOT TO SCALE
DESIGNED: DU
DRAWN: DU
CHECKED:
PROJECT #: 1857H

C1.1
SHEET **2** OF **7**



LEGEND

- STEEP SLOPES (OVER 20% (OUTER) AND OVER 25% (INNER)
- CRITICAL AREA BUFFER
- SEASONAL STREAM
- PARCEL BOUNDARY
- POTENTIAL ALTERNATIVE TRAIL, 4' WIDE
- EXISTING 5' WIDE TRAIL, TO BE MAINTAINED OR ABANDONED
- 10' WIDE SHEET FLOW DISPERSION AREA
- 2' WIDE GRAVEL AREA

0 50 100

N

SHORTER ALTERNATIVE:
227 LF OF 5' TRAIL TO BE ABANDONED (1,135 SF)

388 LF OF 4' TRAIL TO BE BUILT (1,552 SF)

2' WIDE GRAVEL AREA FOR SHEET FLOW DISPERSION (776 SF)

LONGER ALTERNATIVE:
540 LF OF 5' TRAIL TO BE ABANDONED (2,180 SF)

1,127 LF OF 4' TRAIL TO BE BUILT (4,508 SF)

2' WIDE GRAVEL AREA FOR SHEET FLOW DISPERSION (2,254 SF)

STREAM CROSSING ALTERNATIVES

APPENDIX A

REVISED TECHNICAL MEMORANDUM

Attachment 10

SCJ revised the Rating Summary due to an error. All changes are minor and approved by Whitney Holm PE with her initials. 2-7-2025

TECHNICAL MEMORANDUM

TO: Sarah Giannobile, Associate Parks Planner

FROM: Lisa Palazzi, CPSS, PWS, SCJ Alliance

DATE: October 8, 2020

PROJECT #: 630.06

SUBJECT: Kaiser Woods Wetland Reconnaissance

1.0 PROJECT DESCRIPTION

The City of Olympia requested that SCJ Alliance carry out an onsite wetland and stream reconnaissance at the Kaiser Woods Park site. The original field reconnaissance work was carried out on July 2, 2019 for the ~75-acre site -- 9 parcels and a perimeter ROW on two sides (TPNs 12820420000, 12820420100, 12820420200, 12820420300, 12820420400, 12820420500, 12820430100, 12820430200, 12820430000 - Figure 1). The purpose of this work was to assess whether a previous wetland delineation from 2007 still applies, and to determine if other Critical Areas or related features onsite might affect site development and/or design for a Multi-Use Walking and Mountain Biking Park (Figure 2). A final site visit was carried out in late February 2020 to document current hydrology conditions during the wettest time of year, to provide a final assessment of potential regulated wetlands or streams on the site.

Figure 1. Approximate Project Area boundary marked in yellow.

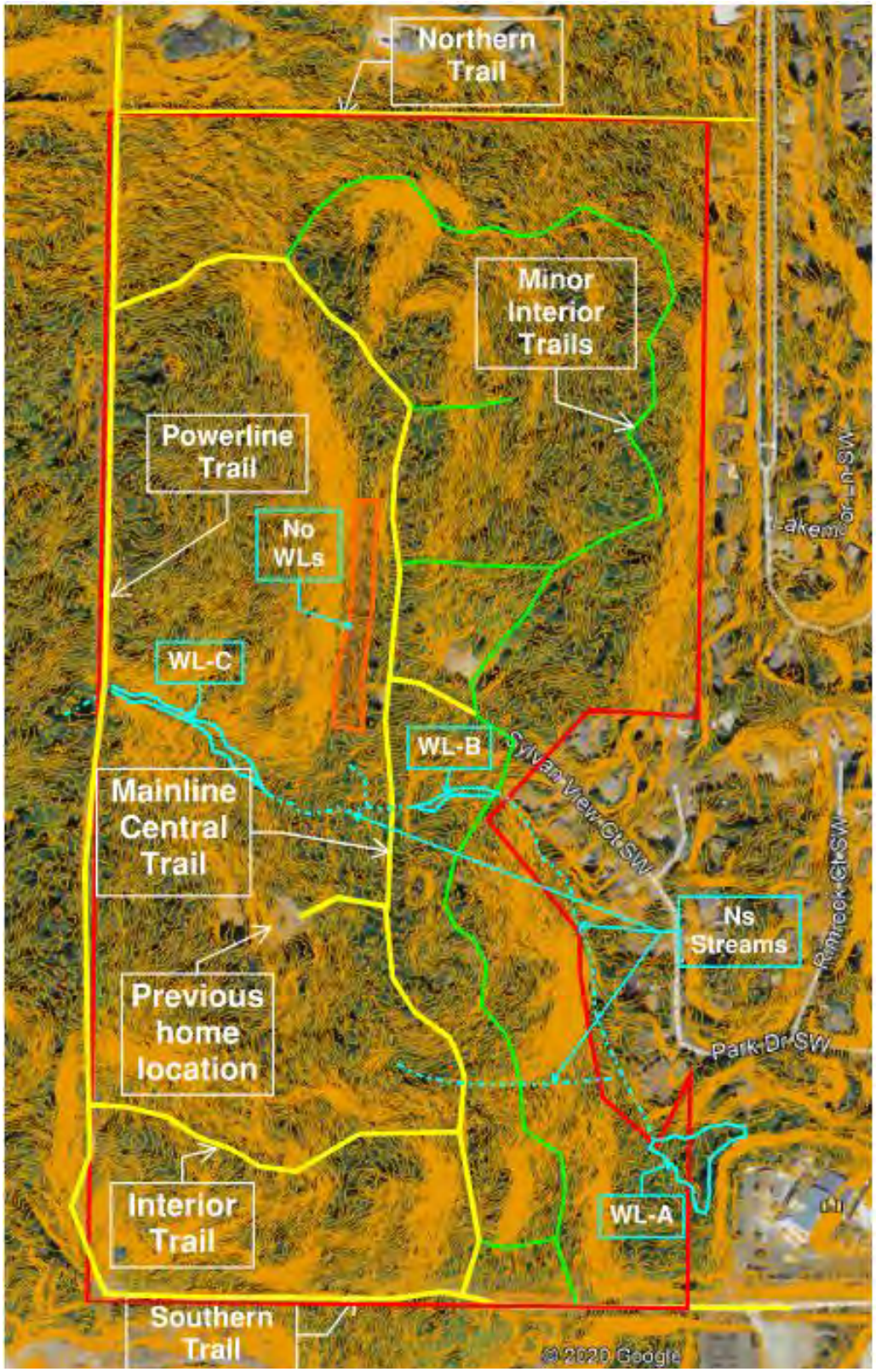


Figure 2. Map of Kaiser Woods Project Site.

2.0 WETLAND ASSESSMENT

2.1 Review of 2007 Wetland Report

Wetlands onsite were delineated in 2007 by Habitat Technologies (HT) for an earlier site development proposal. The HT report documented a central stream/wetland complex (Wetlands B and C) which flowed downslope to connect to a mostly offsite wetland to the southeast (Wetland A).

SCJ Alliance assessed the HT delineated wetland system during three site visits, which were carried out between late summer 2019 through early spring 2020. Results indicated that current wetland conditions are substantially the same as what was delineated in 2007.

Offsite hydrology feeding to the midsite wetland/stream system (Wetland C/B) enters the Project Site from about midway along the western boundary. The flow crosses a powerline easement maintenance road at the western boundary, which also serves as a trail. Water volumes at the road crossing are minor (Figure 3), and appear to flow only during winter or early spring storms. No flow across the road would be expected by late spring in most years. Farther downstream to the east, precipitation-driven groundwater hydrology from within the Project Site boundary collects seasonally and feeds into the system farther downslope to the east, causing increased flow volumes downslope in late winter and early spring.

Figure 3. Central stream flow across the western trail in late Feb. 2020

The mainline trail running north to south through the central site is part of an old driveway access road that previously served an onsite home that was located in the southwest quadrant of the Project Site. The house was demolished and removed from the site a few years ago, but the old access drive still serves as a walking trail, and other trail systems onsite feed from this central trail.

Water flowing through the Wetland C system ponds water on the west side of the central trail in a broad flat swale laying west (upslope) of the trail (Figures 4 and 5). That water leaves Wetland C through a culvert crossing below the trail, and continues downslope to the east in the Wetland B stream complex. There is a second culvert crossing below the trail, about 30 ft south of the primary culvert; but the second culvert is capped. It was not investigated further other than noting there was no apparent flow through the capped culvert. The downslope end of the primary culvert has a plunge pool at the outlet east of the trail (Figure 6). The ponding upslope of the culvert may have been intentional, possibly a designed stormwater control system from when the previous house was permitted, intended to control water quality and downstream flow rates, and to decrease potential for erosion.

Figure 4. Upslope side of culvert crossing at central trail.

Figure 5. Ponded area on upslope side of culvert crossing.

Figure 6. Downstream of central culvert with plunge pool.

About 230 feet downstream from the culvert crossing, the stream channel turns southeast to flow for about 850 feet across the back edge of several residential parcels, eventually draining into Wetland A near the southeast corner of the Project Site.

No other wetland or stream areas were delineated or described in the 2007 HT report.

2.2 Other 2020 Reconnaissance Results

During the initial reconnaissance site visit in autumn 2019, some areas along the toeslope of the north to south-trending midsite ridge showed evidence of water collecting. However, hydrology and soil indicators suggested that the water did not persist long enough to meet duration requirements for jurisdictional wetlands (i.e., 2-3 weeks during the growing season in most years). In addition, these areas were isolated and did not appear to connect to each other via surface flow.

These toe slope areas were not delineated or discussed in the 2007 HT report. This may indicate that HT evaluated them and determined that these areas were not jurisdictional wetland, but that decision was not clear in the report. For that reason, the toeslope areas were revisited and assessed during February 2020 field wetland verification work.

In late February 2020 (the early growing season), hydrology was not present within 12 inches of the soil surface in most of these toeslope areas. Soil characteristics did not match any of the Hydric Soil Indicators (no depleted matrix; no chromas less than 2); and vegetation was mostly Facultative (FAC) with some Facultative upland (FACU) species – similar to vegetation across much of the surrounding uplands. Dominant species were salmonberry (FAC), red alder (FAC), sword fern (FACU), Indian plum (FACU) and bigleaf maple (FACU).

There was minor evidence of periodic, discontinuous surface flow in two areas, but neither of these channels flowed on the surface for more than 10-20 feet before disappearing into the ground. The largest wet area measured about 15 feet long and about 8 feet wide, and appeared to be a depression from an

old tree throw. It did not connect to other downslope systems via surface flow pathways.

Therefore, it was concluded that the 2007 HT report was correct in not delineating wetlands in the toeslope areas. The only jurisdictional wetlands on the site are associated with the midsite stream crossing (HT Wetlands B and C, and the western part of Wetland A). The toeslope areas are not wet for long enough during the growing season to be regulated as wetlands (Figure 7).

However, there is a Type Ns stream crossing on the central trail in the southern portion of the project site that was not noted in the HT report (more on this below). This seasonal stream is relatively small -- only about 1 ft wide and less than 4 inches deep at the trail crossing with the flow pathway becoming more defined and incised downslope of the midsite main trail, forming a small tributary to the stream that connects Wetlands C/B to Wetland A. There is no current culvert at the stream crossing, and seasonal flow crosses the trail surface in a shallow swale.

Figure 7. Standing in the base of one of the toe slope depressions, dominated by Facultative Upland vegetation.

2.3 Updated Wetland Rating and Buffers

The 2004 WWWRS Wetland Rating Forms from the 2007 HT report were reviewed and adapted to the 2014 WWWRS Rating System, as required by City of Olympia regulations. The HT report rated both Wetlands B and C as Riverine wetlands, and on the same form. Merging these two wetlands on one form is appropriate as the two systems are close together along the same stream system and have very similar functions and values. They are treated as individual rating units due to being separated by the culvert crossing at the central trail, which affects hydrologic function, with Wetland C being upslope of the culvert crossing, and Wetland B downslope.

For Wetlands B and C, the 2004 WWWRS Rating system was based on a potential maximum score of 70-100 after summing individual scores for Water Quality; Water Quantity; and Habitat functions and values. The updated 2014 WWWRS system is based on a potential maximum score of 27, after summing individual scores for Water Quality (3-9 possible points); Water Quantity (3-9 possible points); and Habitat (3-9 possible points) functions and values.

The 2007 HT rating result (2004 WWWRS) for Wetlands B/C using a Riverine Rating Form indicated Category III wetlands (total score of 33 points), with a relatively low Habitat score of 11 points. This result assigned a standard buffer of 80 ft, per City of Olympia code in force at that time.

The updated 2014 SCJ rating result indicated that Riverine Wetlands B/C were still Category III wetlands (total score of 19 points), but with a moderate Habitat score of 6 points. OCC CAO Table 32-1 (provided below in Table 1) in the updated Critical Areas Ordinance indicates a standard buffer of 180 feet for a wetland with a habitat score of 6 points.

Wetland A was rated as a Depressional wetland system with Riverine components. The 2007 HT rating result for Wetland A indicated a Category II wetlands (total score of 58 points), with a relatively low Habitat score of 18 points. This result assigned a standard buffer of 100 ft, per City of Olympia code in force at that time.

The updated 2014 SCJ rating result indicated that Wetland A is a Category III wetland (total score of 18 points), and with a moderate Habitat score of 6 points – the same as for Wetland B/C, and therefore, the same standard buffer of 180 feet.

Table 1. A copy of Table 32-1 from the CAO defining standard wetland buffer widths.

Table 32-1: Wetland Buffer Widths

Wetland Characteristics	Wetland Buffer Width
Natural Heritage Wetlands	Not less than 250 feet
Bogs	Not less than 250 feet
Estuarine - Category I	250 feet
Estuarine - Category II	150 feet
Habitat score: 3 pts	100 feet
Habitat score: 4 pts	100 feet
Habitat score: 5 pts	140 feet
Habitat score: 6 pts	180 feet
Habitat score: 7 pts	220 feet
Habitat score: 8 pts	260 feet
Habitat score: 9 pts	300 feet
Water Quality Improvement Score: 8 - 9 pts, and Habitat score: 4 pts or less	100 feet
Category I or II Wetland - Not meeting any of the above criteria	100 feet
Category III Wetland - Not meeting any of the above criteria	80 feet
Category IV Wetland - Score for all three wetland functions is less than 16 pts	50 feet

3.0 STREAM ASSESSMENT

Table 1 is copied from the City of Olympia Critical Areas Ordinance and defines standard stream buffers. Stream buffers for Ns Streams when the 2007 report was prepared were 150 feet. Under current City of Olympia regulations, a Type Ns stream buffer for an Ns stream without high mass wasting potential is also 150 ft. Therefore, the current Ns stream buffer is the same as in 2007.

As a rule, the widest buffer controls at a Critical Area when there is more than one buffer standard. Therefore, in 2007, the 150 ft Ns stream buffer was the controlling buffer along the B/C wetland corridor, as the stream buffer was wider than the wetland buffer in most areas. However, under current regulations, the 180 ft wetland buffer will control. A 150 ft buffer applies along the stream that connects Wetlands C/B to Wetland A, and at the newly mapped Ns stream described previously. These buffers are overlaid in Figure 8.

Table 2. Current standard stream buffers from City of Olympia CAO

Stream Type and Description	Buffer
Type S – Shorelines of the State	250 feet
Type F streams greater than 5 feet wide (bankfull width) that provide habitat for fish	250 feet
Type F streams less than 5 feet wide (bankfull width) that provide habitat for fish	200 feet
Type Np and Ns streams (no fish habitat) with high mass wasting potential	225 feet
Type Np and Ns streams (no fish habitat) without high mass wasting potential	150 feet

4.0 MAPPING UPDATES AND SUMMARY

Results of the onsite reconnaissance in 2019 and 2020 were used to create an overlay of wetlands, streams, and existing trails on a LiDAR topography image tied to a recent Google Earth photo (see Figure 2). A similar map is provided in the Appendices showing the approximate wetland and stream buffer overlays (Figure 8).

LiDAR topography was not readily available when the 2007 HT report was written. Using a LiDAR basemap in concert with handheld GPS waypoints and path data allows one to fine-tune approximate locations of previous trail mapping and drainage features.

Trails that were walked during the onsite reconnaissance work in 2020 were recorded in a handheld GPS, and key hydrologic features were marked using GPS Waypoints, which were then overlaid on the Google Earth LiDAR image. The handheld GPS Waypoints and trail markings can have significant error under a tree canopy, but still provide relatively high quality baseline information about existing conditions that can be later verified as needed.

As described above, there are no jurisdictional wetlands or streams in the mid-site toeslope area north of the delineated wetland system, but water does collect for short periods of time in the winter and early spring in a few small depressions.

APPENDIX A
Site LiDAR map with Trails

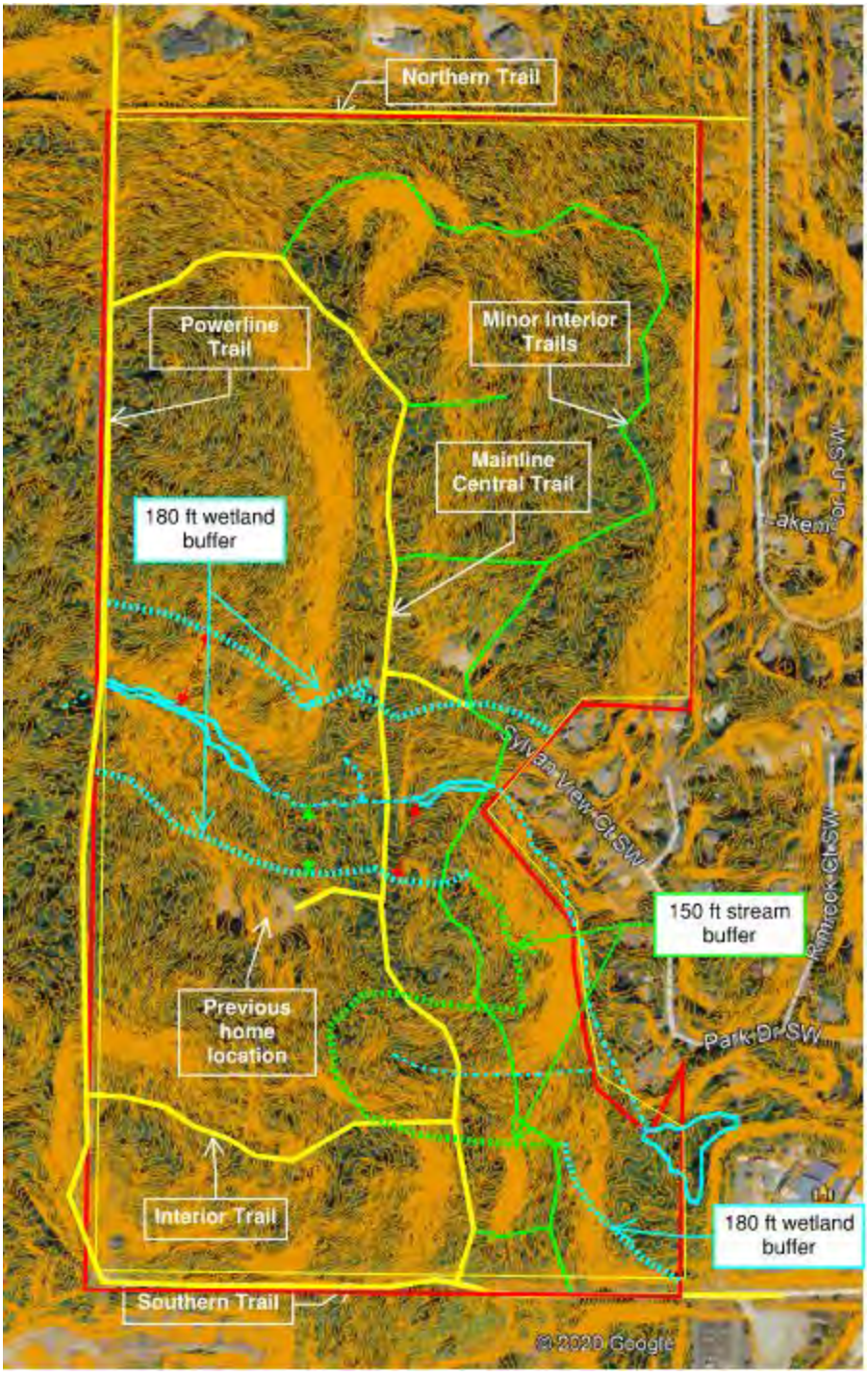


Figure 8. Showing approx. buffer impacts at Project Site

Wetland name or number Kaiser Park Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Kaiser Park Wetland A Date of site visit: Feb. 27, 2020

Rated by Lisa Palazzi Trained by Ecology? ☑ Yes ☐ No Date of training 2004-2014

HGM Class used for rating Depressional Wetland has multiple HGM classes? ☑ Y ☐ N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map GoogleEarth and Thurston County Geodata

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
- xx **Category III** – Total score = 16 - 19
- ☐ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H☐ M☑ L☐	H☐ M☐ L☑	H☐ M☑ L☐	
Landscape Potential	H☐ M☑ L☐	H☐ M☑ L☐	H☐ M☐ L☑	
Value	H☑ M☐ L☐	H☐ M☑ L☐	H☑ M☐ L☐	**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	**I** **II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I** **II**
Interdunal	**I** **II** **III** **IV**
None of the above	xx

Wetland name or number Kaiser Park Wetland 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	A-6
Hydroperiods	D 1.4, H 1.2	A-7
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	A-7
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	A-8
Map of the contributing basin	D 4.3, D 5.3	A-9, A-10
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	A-11
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	A-12
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	A-12

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 figure above)*	S 4.1	
Boundary of 150 ft buffer (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	

Wetland name or number Kaiser Park Wetland A

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the 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.

Wetland name or number Kaiser Park Wetland A

☑ 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.*

Wetland name or number Kaiser Park Wetland 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	2
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	4
Total for D 1 Add the points in the boxes above	11

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 ☐	1
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 ☑	0
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 ☐	1
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 ☐	1
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 Kaiser Park Wetland 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	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	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.*

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	3
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.*

The area of the basin is less than 10 times the area of the unit	points = 5	0
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	5

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 functions of the site?

D 5.1. Does the wetland receive stormwater discharges?	☑ Yes = 1 ☐ No = 0	1
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	1
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	2

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.*

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 ☐	1
• 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 Kaiser Park Wetland 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	4 structures or more: points = 4
☐	Emergent	3 structures: points = 2
☐	Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
☑	Forested (areas where trees have > 30% cover)	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	4 or more types present: points = 3
☑	Seasonally flooded or inundated	3 types present: points = 2
☑	Occasionally flooded or inundated	2 types present: points = 1
☐	Saturated only	1 type 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.

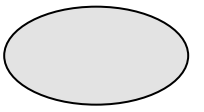
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

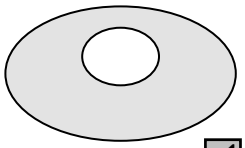
2

H 1.4. Interspersion of habitats

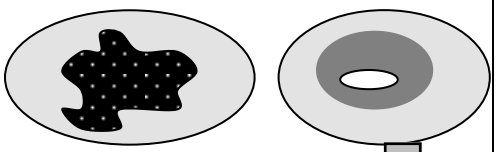
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points ☐

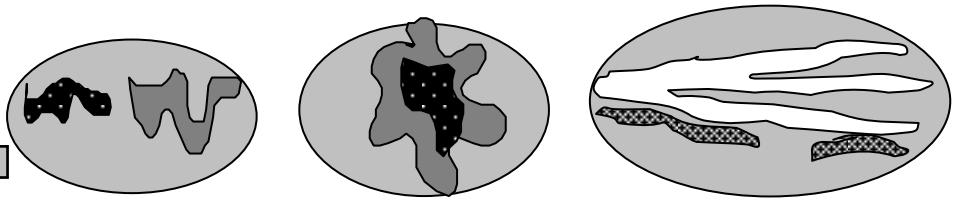


Low = 1 point ☑



Moderate = 2 points ☐

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



1

Wetland name or number Kaiser Park Wetland A

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 functions of the site?

H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 8.4 [(% moderate and low intensity land uses)/2] 0 8.4 % 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	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 30.7 [(% moderate and low intensity land uses)/2] 9.7 40.4 % 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	2
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 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	0

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) within 100 m 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*

Wetland name or number Kaiser Park Wetland A

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.

Wetland name or number Kaiser Park Wetland A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle 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**	NA
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**	**Cat. I** ☐
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**	**Cat. I** ☐ **Cat. 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 a 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 go to SC 2.4** ☑ No = **Not a 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 a WHCV**	**Cat. I**
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**	**Cat. I** ☐

Wetland name or number Kaiser Park Wetland A

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** — ☐ **Cat. I**

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)* — ☐ **Cat. I**

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). — ☐ **Cat. II**

☐ 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 — ☐ **Cat I**

☐ 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)? — ☐ **Cat. II**

☐ 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? — ☐ **Cat. III**

☐ 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** — ☐ **Cat. 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 Kaiser Park Wetland A

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SCJ revised the Rating Summary due to an error. All changes are minor and approved by Whitney Holm PE with her initials. 2-7-2025

Wetland name or number Kaiser Park Wetland B/C

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Kaiser Park Wetland B/C Date of site visit: February 27, 2020

Rated by Lisa Palazzi Trained by Ecology? ☑ Yes ☐ No Date of training 2004-2014

HGM Class used for rating Riverine Wetland has multiple HGM classes? ☐ Y ☑ N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map GoogleEarth and Thurston County Geodata

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

1. Category of wetland based on FUNCTIONS

- ☐ **Category I** – Total score = 23 - 27
- WH ☒ **Category II** – Total score = 20 - 22
- ☒ **Category III** – Total score = 16 - 19
- ☐ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential WH	H ☐ M ☑ L ☐	H ☐ M ☑ L ☐	H ☐ M ☐ L ☑	
Landscape Potential	H ☑ M ☒ L ☐	H ☐ M ☑ L ☐	H ☐ M ☑ L ☐	
Value	H ☑ M ☐ L ☐	H ☐ M ☑ L ☐	H ☑ M ☐ L ☐	TOTAL
Score Based on Ratings	~~7~~ 8	6	6	~~19~~ 20

WH WH

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	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	xx

Wetland name or number Kaiser Park Wetland B/C

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	A-6
Hydroperiods	D 1.4, H 1.2	A-7
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	A-7
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	A-8
Map of the contributing basin	D 4.3, D 5.3	A-9
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	A-10
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	A-11
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	A-12

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 figure above)*	S 4.1	
Boundary of 150 ft buffer (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	

Wetland name or number Kaiser Park Wetland B/C

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the 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.

Wetland name or number Kaiser Park Wetland B/C

☐ 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.*

Wetland name or number Kaiser Park Wetland B/C

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

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

R 1.0. Does the site have the potential to improve water quality?

R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		
Depressions cover > 3/4 area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	0
Depressions present but cover < ½ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		
Trees or shrubs > 2/3 area of the wetland	points = 8	
Trees or shrubs > 1/3 area of the wetland	points = 6	6
Herbaceous plants (> 6 in high) > 2/3 area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > 1/3 area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous < 1/3 area of the wetland	points = 0	
Total for R 1 — 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*

R 2.0. Does the landscape have the potential to support the water quality function of the site?

R 2.1. Is the wetland within an incorporated city or within its UGA?	☑ Yes = 2 No = 0 ☐	2 WH
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	☑ Yes = 1 No = 0 ☐	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	☐ Yes = 1 No = 0 ☑	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	☐ Yes = 1 No = 0 ☑	0
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____	☐ Yes = 1 No = 0 ☑	0
Total for R 2 — Add the points in the boxes above		3 WH

Rating of Landscape Potential If score is: ☑ **3-6 = H** ☑ **1 or 2 = M** ☐ **0 = L** WH *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?

R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	☑ Yes = 1 No = 0 ☐	1
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	☐ Yes = 1 No = 0 ☑	0
R 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 drainage in which the unit is found*)	☑ Yes = 2 No = 0 ☑	2 WH
Total for R 3 — Add the points in the boxes above		3 WH

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

Wetland name or number Kaiser Park Wetland B/C

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

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

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		
Depressions cover > 3/4 area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	0
Depressions present but cover < ½ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		
Trees or shrubs > 2/3 area of the wetland	points = 8	
Trees or shrubs > 1/3 area of the wetland	points = 6	6
Herbaceous plants (> 6 in high) > 2/3 area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > 1/3 area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous < 1/3 area of the wetland	points = 0	
Total for R 1	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*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	☑ Yes = 2 No = 0 ☐	1
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	☑ Yes = 1 No = 0 ☐	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	☐ Yes = 1 No = 0 ☑	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	☐ Yes = 1 No = 0 ☑	0
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____	☐ Yes = 1 No = 0 ☑	0
Total for R 2	Add the points in the boxes above	2

Rating of Landscape Potential If score is: ☐ **3-6 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	☑ Yes = 1 No = 0 ☐	1
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	☐ Yes = 1 No = 0 ☑	0
R 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 drainage in which the unit is found*)	☐ Yes = 2 No = 0 ☑	0
Total for R 3	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 Kaiser Park Wetland B/C

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

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

R 4.0. Does the site have the potential to reduce flooding and erosion?		
R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20 points = 9 If the ratio is 10-20 points = 6 If the ratio is 5-<10 points = 4 If the ratio is 1-<5 points = 2 If the ratio is < 1 points = 1		2
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > 1/3 area OR emergent plants > 2/3 area points = 7 Forest or shrub for > 1/10 area OR emergent plants > 1/3 area points = 4 Plants do not meet above criteria points = 0		7
Total for R 4	Add the points in the boxes above	9

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

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut?	☐ Yes = 0 No = 1 ☑	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	☐ Yes = 1 No = 0 ☑	0
R 5.3. Is the up-gradient stream or river controlled by dams?	☐ Yes = 0 No = 1 ☑	1
Total for R 5	Add the points in the boxes above	2

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

R 6.0. Are the hydrologic functions provided by the site valuable to society?		
R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site*. The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0		1
R 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 R 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 Kaiser Park Wetland B/C

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
- ☐ 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**

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

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

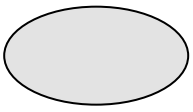
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

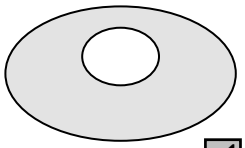
1

H 1.4. Interspersion of habitats

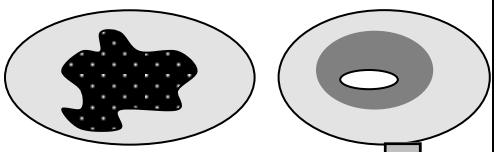
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



None = 0 points ☐

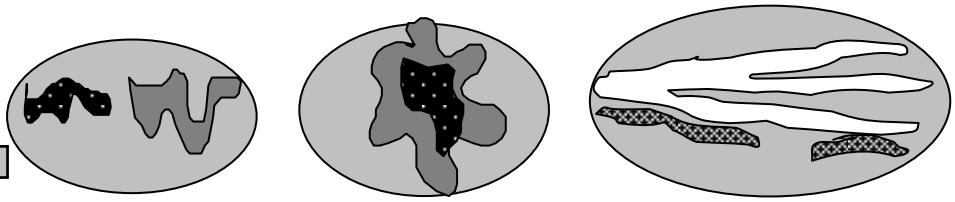


Low = 1 point ☑



Moderate = 2 points ☐

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



1

Wetland name or number Kaiser Park Wetland B/C

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*)	1
Total for H 1 Add the points in the boxes above	5

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 functions of the site?

H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 7.8 + [(% moderate and low intensity land uses)/2] 0 = 7.8 % 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	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 39 + [(% moderate and low intensity land uses)/2] 7.8 = 46.8 % 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 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	1

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) within 100 m 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*

Wetland name or number Kaiser Park Wetland B/C

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.

Wetland name or number Kaiser Park Wetland B/C

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle 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**	NA
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**	**Cat. I** ☐
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**	**Cat. I** ☐ **Cat. 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 a 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 go to SC 2.4** ☑ No = **Not a 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 a WHCV**	**Cat. I**
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**	**Cat. I** ☐

Wetland name or number Kaiser Park Wetland B/C

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** — ☐ **Cat. I**

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)* — ☐ **Cat. I**

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). — ☐ **Cat. II**

☐ 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 — ☐ **Cat I**

☐ 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)? — ☐ **Cat. II**

☐ 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? — ☐ **Cat. III**

☐ 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** — ☐ **Cat. 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 Kaiser Park Wetland B/C

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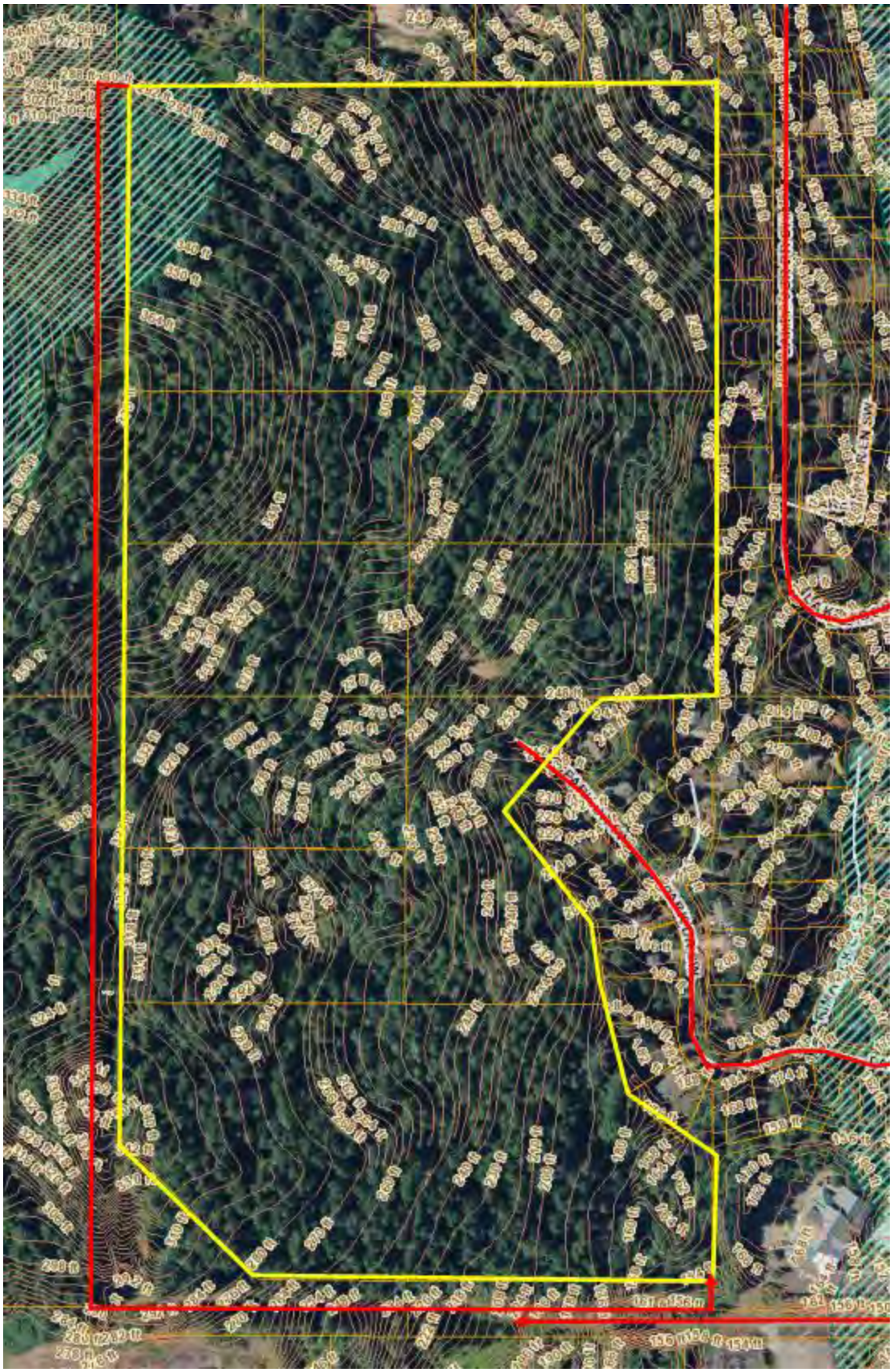
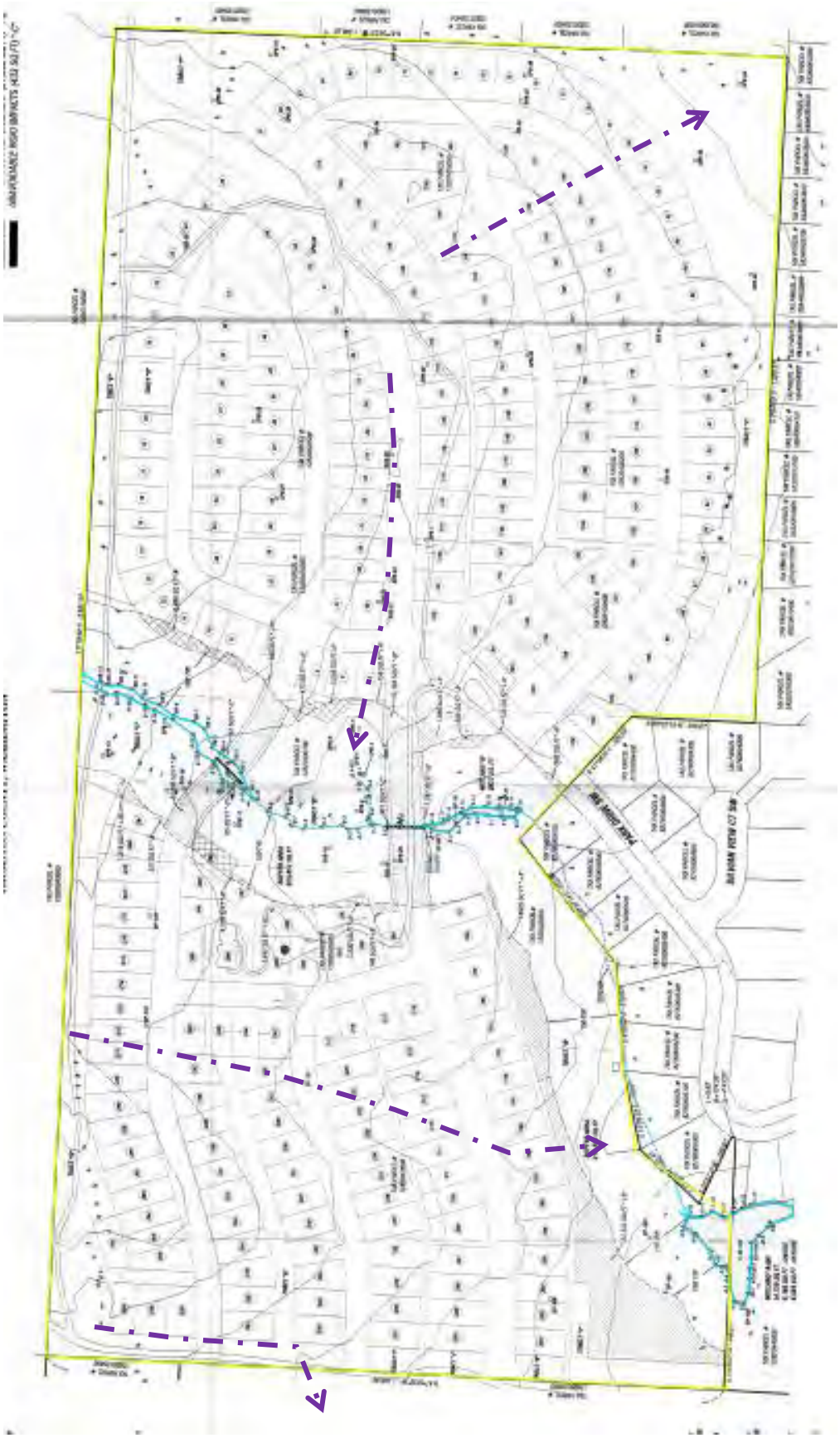
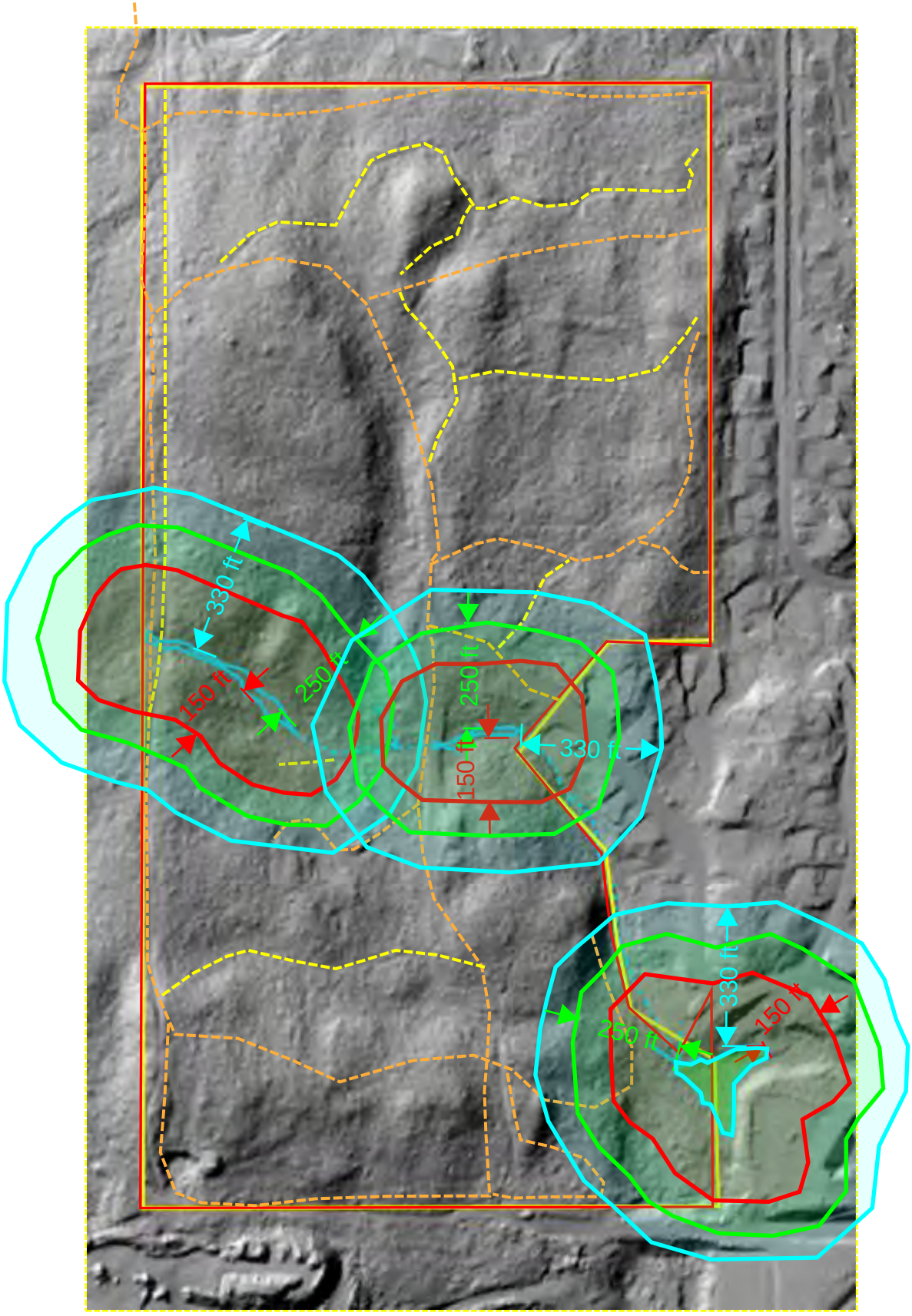
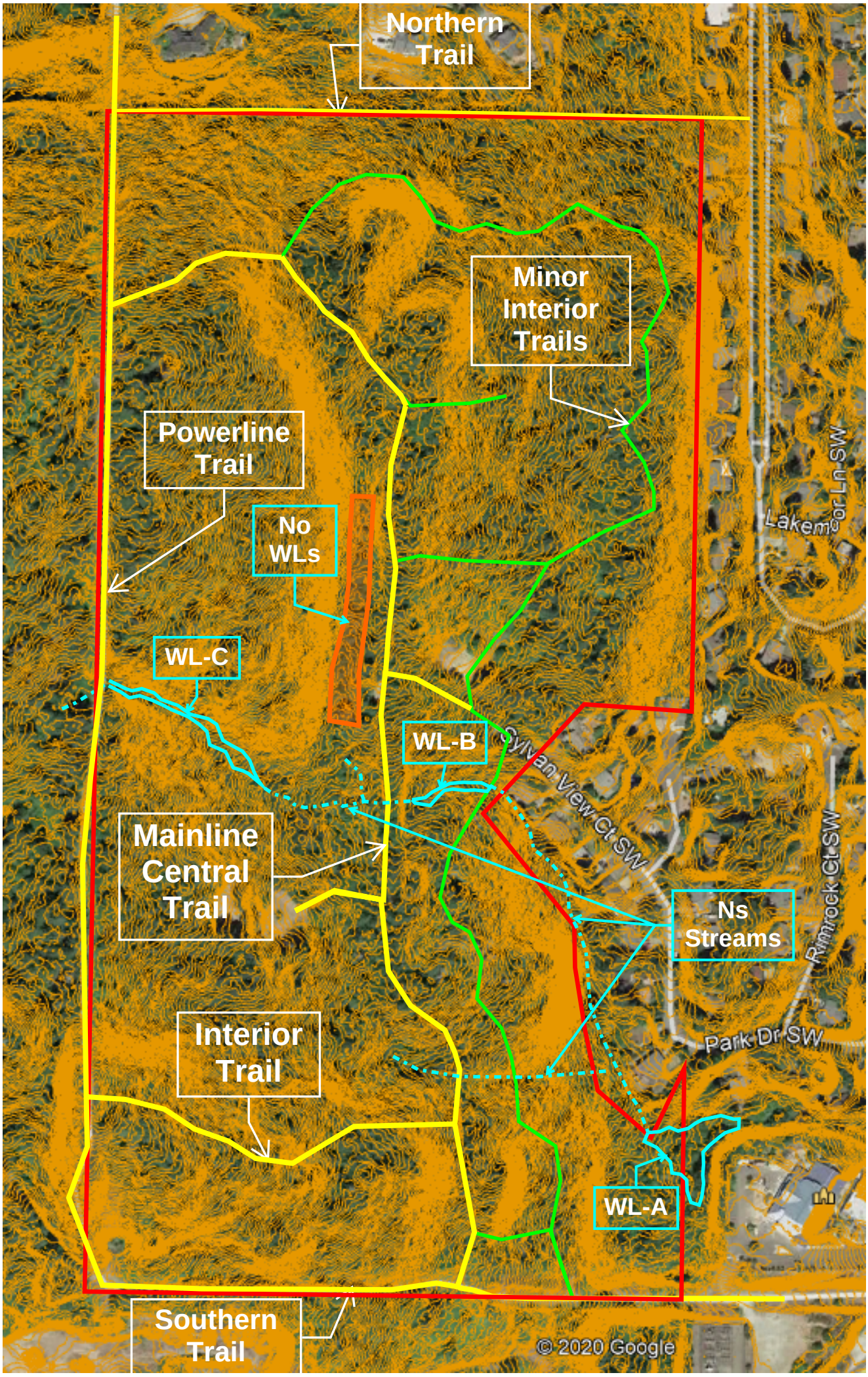
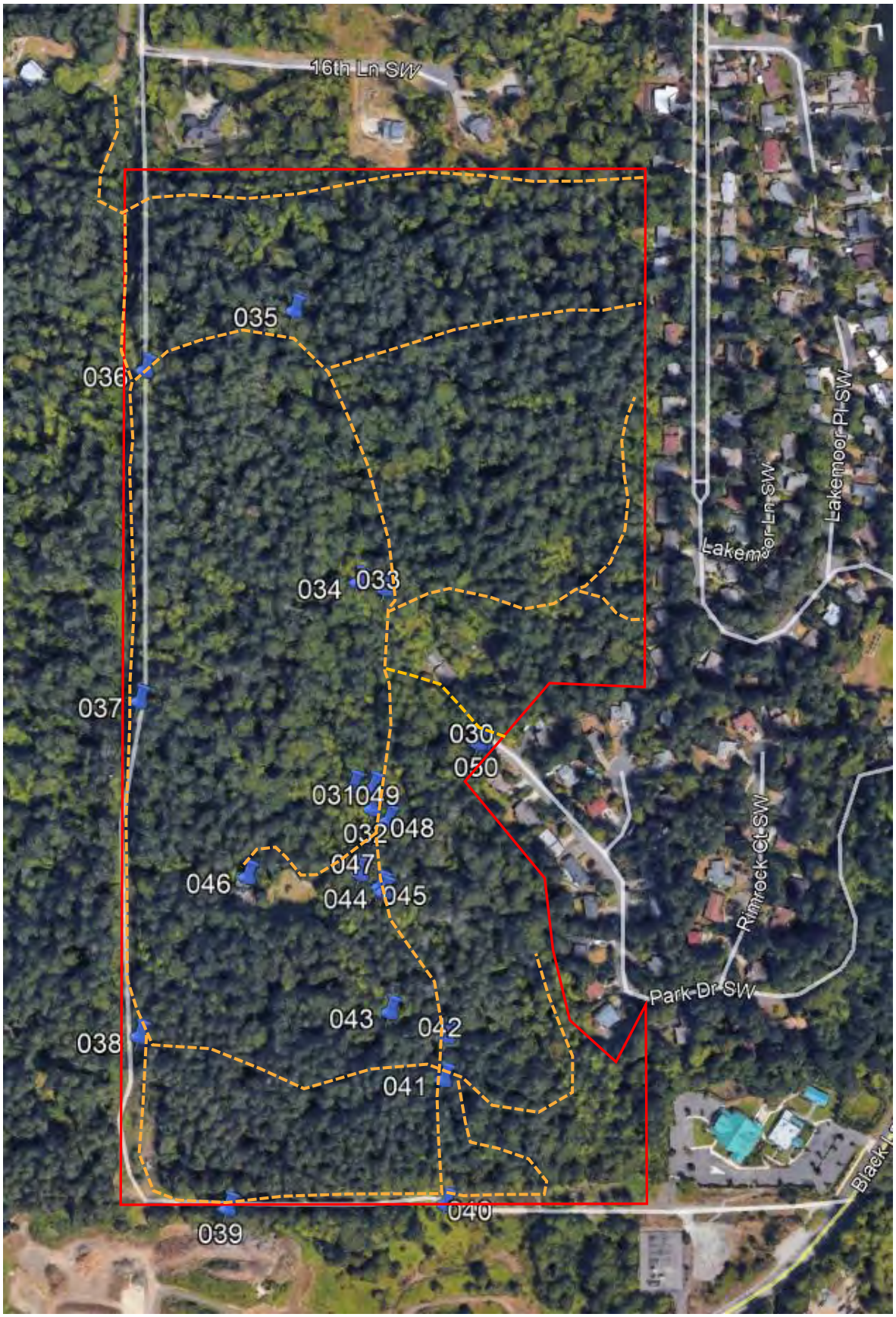




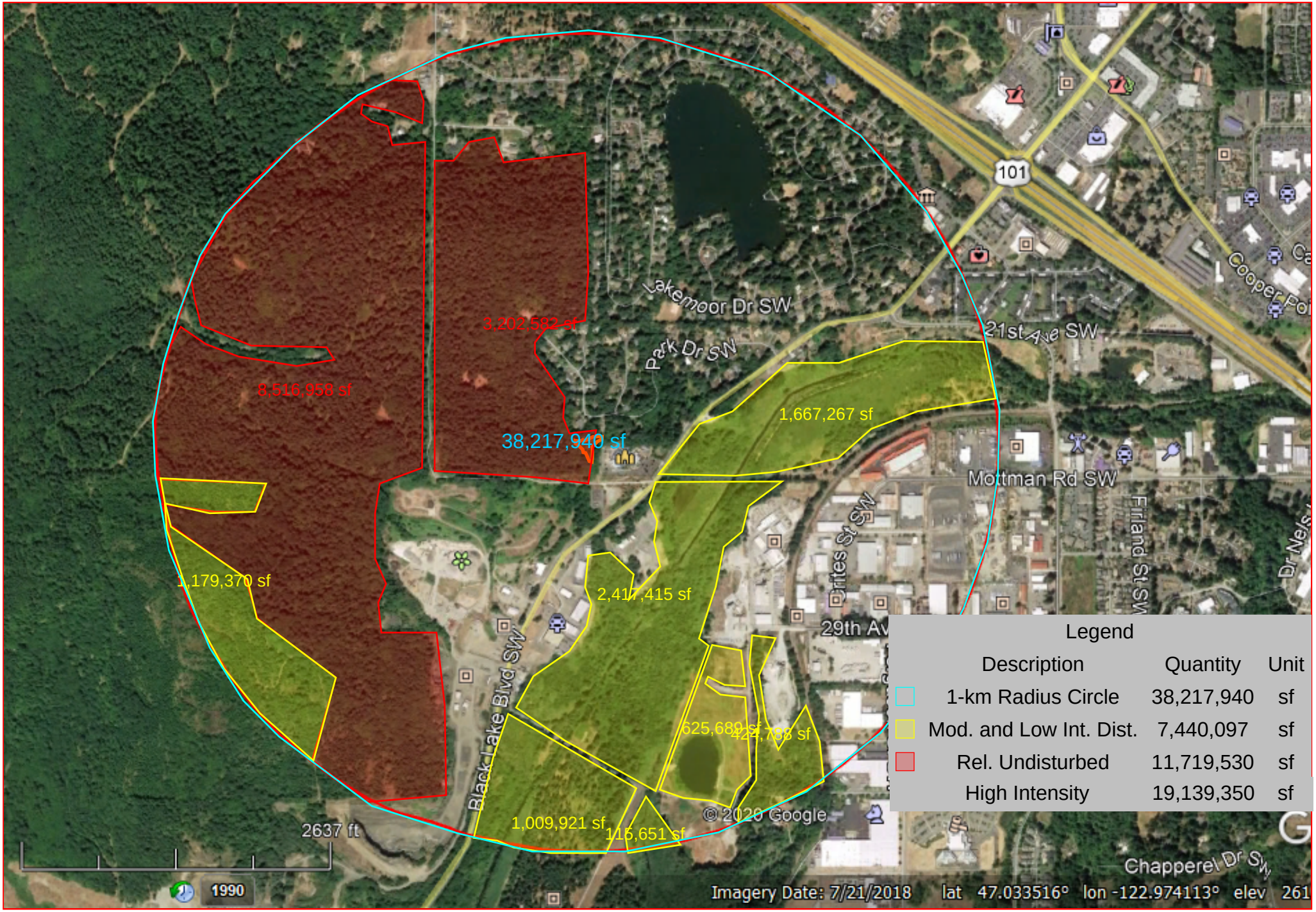

To Kaiser Rd SW
Pedestrian/Bike Access Only
Timberland
Property
Park
Maintenance
Building
Potential
Parking
Area
Park
Entrance
Silvan View CT SW
Rimrock CT SW
Lakemoor PL SW
Lakemoor DR SW
Park DR SW
Park DR SW
Park Boundary
Existing Trail Network
Contour Lines (5')
Transportation ROW
Wetlands/Streams


330 ft
150 ft
250 ft
250 ft
150 ft
330 ft
330 ft
250 ft
150 ft


Northern Trail
Minor Interior Trails
Powerline Trail
No WLs
WL-C
WL-B
Mainline Central Trail
Ns Streams
Interior Trail
WL-A
Southern Trail
Sylvan View Ct SW
Park Dr SW
Rimrock Ct SW
Lakemoor Ln SW
© 2020 Google


16th Ln SW
035
036
034
033
037
030
050
031
049
032
048
047
046
044
045
043
042
038
041
040
039
Lakemoor Ln SW
Lakemoor Pl SW
Rimrock Ct SW
Park Dr SW

Attachment 10



APPENDIX B

SITE PHOTOGRAPHS

Photo 1: Potentially impacted buffer of Wetland A, looking northeast, February 2025.

Photo 2: Potentially impacted buffer of Wetland A looking west-southwest, February 2025.

Photo 3: Potentially impacted buffer of Wetland A looking west-southwest, February 2025.

Photo 4: Access road to Kaiser Woods Park, looking east. Note utility easement immediately to north (image left), February 2025.

Photo 5: North end of existing culvert under access road, February 2025.

Photo 6: Existing Wetland A buffer north of impact area, February 2025.

Photo 7: Stream 1 just upstream of Wetland A buffer north of impact area, February 2025.

Photo 8: Existing buffer, west of Wetland A/Stream 1 looking northeast, February 2025.

Photo 9: Potential buffer averaging area looking north, February 2025.

Photo 10: Potential buffer averaging area looking south, February 2025.

Photo 11: Potential buffer averaging area looking south, February 2025.

Photo 12: Stream 1 crossing, Central Mainline Trail, July 2025.

Photo 13: Seasonal Stream 1 culvert #1, Central Mainline Trail, October 2025.

Photo 14: Seasonal Stream 1 culvert #2 (capped), Central Mainline Trail, July 2025.

Photo 15: Seasonal Stream 3 crossing Central Mainline Trail, February 2025.

Photo 16: Seasonal Stream 3 crossing (Stream 3) Central Mainline Trail, July 2025.

Photo 17: Powerline Trail crossing near Wetland C and Stream 1, July 2025.

Photo 18: Powerline Trail crossing near Wetland C and Stream 1, July 2025.

APPENDIX C

BUFFER AVERAGING MITIGATION PLAN

City of Olympia

Parks, Arts & Recreation Department

Kaiser Woods Park

Wetland Buffer Exhibit	
Project:	Kaiser Woods CUP
Date:	3 /28 /2025
Designed:	Diane Utter, P.E.
Drawing:	1 of 1