
**CRITICAL AREAS STUDY AND CONCEPTUAL MITIGATION
PLAN**

GARIBALDI PRD

MONROE, WASHINGTON

Prepared For:
Garibaldi Lake, LLC
Kirkland, Washington

Prepared By:
TALASAEA CONSULTANTS, INC.
Woodinville, Washington

4 December 2018

Critical Areas Study and Conceptual Mitigation Plan

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Monroe, Washington

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EXECUTIVE SUMMARY

PROJECT NAME: Garibaldi PRD

CLIENT: Melanie Davies, Garibaldi Lake, LLC

SITE LOCATION: The Garibaldi PRD site is an 13.82-acre assemblage of three parcels located in the City of Monroe. It is bounded to the north and south by single family residences, to the west by a new single-family development, and to the east by Chain Lake Road. The Snohomish County Tax Parcel numbers for the site are 28073100200800 (Parcel A), 28073100201600 (Parcel B), and 28073100203900 (Parcel C). The Public Land Survey System location for this assemblage is the NW ¼ of Section 31, Township 28 North, Range 7 East, WM.

PROJECT STAFF: Ann Olsen, RLA, Senior Project Manager; Jennifer Marriott, PWS, Senior Ecologist/Project Manager; and David Teesdale, PWS, Senior Wetland Ecologist.

FIELD SURVEY: The Site was evaluated by Talasaea Consultants on 12 and 16 October 2018.

DETERMINATION: The site contains one wetland (Wetland A) and one Type 5 stream (Stream 1) on-site. Another Type 5 stream (Stream 2) occurs more than 100-feet off-site to the north, and additional wetlands occur on the opposite side of Chain Lake Road. Wetland A rated as a City of Monroe Category III wetland per Monroe Municipal Code (MMC) §20.05.030 that requires a standard buffer of 165 feet with the use of the standard mitigation measures. Stream 1 is typed as a Type 5 water reflecting its narrow channel width and lack of fish, including salmonids. MMC §20.05.090.D.6 requires a 50-foot standard buffer for Type 5 streams, measured from the ordinary high water mark.

HYDROLOGY, SOILS, and VEGETATION: Hydrology for Wetland A and Stream 1 is provided by surface runoff from the adjacent uphill areas, as well as through the movement of shallow groundwater. Stream 1 is a seasonal stream that seeps from the slope located within the central portion of Wetland A. The NRCS maps two soil types on the Site, including Tokul gravelly medial loam, 8 to 15 percent slopes, over the northern half of the Site and Tokul gravelly medial loam, 0 to 8 percent slopes, over the southern half of the Site. The existing vegetation on the southern two parcels consists primarily of second to third growth mixed conifer/deciduous forest. The northern, larger parcel is currently a functioning equestrian facility with a barn, riding areas, and pastures that lack native species and any native communities.

CRITICAL SPECIES: The Washington Department of Fish & Wildlife (WDFW) Priority Habitat and Species (PHS) database indicates nothing for the critical areas on or adjacent to the Site. The nearest salmonid-bearing stream is more than ½ mile to the southeast.

PROPOSED PROJECT: Garibaldi Lake, LLC plans to develop the Garibaldi PRD site with 61 single-family lots with interior circulation routes, open/recreation areas, and supporting utilities and stormwater facilities. Constraints to development included the presence of a vacant powerline easement across the center of Parcel A; sight-line issues in association with the access road to Chain Lake Road; anticipation of a future road expansion of Chain Lake Road; and the presence of Wetland A within the parcels that have the only viable access to Chain Lake Road.

ASSESSMENT OF DEVELOPMENT IMPACTS: No impacts to the wetland or stream are proposed with this Project. However, the project is proposing buffer modifications in order to construct a viable access to the development that meets all the requirements of the MMC and the proposed future road expansion of Chain Lake Road, as well as to accommodate four residential lots and some necessary utilities.

PROPOSED MITIGATION: Buffers are proposed to be averaged to accommodate the four residential lots to the greatest extent practicable onsite, but due to several site constraints, buffer impacts resulting from the access road, as well as any unmitigated buffer loss from the lots, will be mitigated for through the purchase of buffer credits from the Skykomish Habitat Bank. The post-development buffer that is not currently vegetated (i.e. the areas that are currently horse pastures and the existing access drive), or where invasive species are present, will be reestablished or enhanced with native trees and shrubs. The proposed mitigation will result in no net loss of critical area functions and values compared to existing conditions. Long-term performance monitoring and maintenance will commence following mitigation construction completion.

TABLE OF CONTENTS

| | |
|---|----|
| Executive Summary | i |
| Table of Contents | ii |
| Lists of Figures, Tables, and Appendices..... | iv |
| | |
| Chapter 1. Introduction | 1 |
| 1.1 Purpose of Report | 1 |
| 1.2 Statement of Accuracy | 1 |
| 1.3 Qualifications | 1 |
| Chapter 2. General Property Description and Land Use | 2 |
| 2.1 Project Location..... | 2 |
| 2.2 General Property Description | 2 |
| 2.3 Land Use and Zoning | 2 |
| Chapter 3. Methodology | 2 |
| 3.1 Background Data Reviewed | 3 |
| 3.2 Field Investigation..... | 3 |
| Chapter 4. Results..... | 4 |
| 4.1 Analysis of Existing Information..... | 4 |
| 4.1.1 USFWS Wetlands Online Mapper (National Wetlands Inventory) | 4 |
| 4.1.2 Natural Resources Conservation Service Soil Survey..... | 4 |
| 4.1.1 City of Monroe Critical Areas Maps | 5 |
| 4.1.2 Snohomish County GIS Database..... | 5 |
| 4.1.3 StreamNet and SalmonScape Databases | 5 |
| 4.1.4 WDFW Priority Habitats and Species and WDNR Natural Heritage Databases | 5 |
| 4.2 Analysis of Existing Field Conditions | 5 |
| 4.2.1 Wetland A..... | 5 |
| 4.2.2 Stream 1 | 6 |
| 4.2.3 Off-site Critical Areas..... | 6 |
| 4.3 Wildlife Habitat | 7 |
| 4.3.1 Critical Species Presence..... | 7 |
| Chapter 5. Regulatory Review..... | 8 |
| 5.1 State and Federal Regulations | 8 |
| 5.2 City of Monroe Regulations | 8 |
| Chapter 6. Proposed Development and Critical Areas Impacts..... | 8 |
| 6.1 Project Description | 8 |
| 6.2 Stormwater | 9 |
| 6.3 Assessment of Development Impacts | 9 |
| 6.4 Standard Mitigation Measures | 11 |
| Chapter 7. Proposed Mitigation | 12 |
| 7.1 Agency Policies and Guidance | 12 |

| | | |
|-------------|--|----|
| 7.2 | Mitigation Sequencing | 12 |
| 7.3 | Proposed Mitigation | 12 |
| 7.3.1 | Skykomish Habitat Bank..... | 13 |
| 7.3.2 | Buffer Re-establishment and Restoration | 13 |
| 7.3.3 | Buffer Enhancement..... | 13 |
| 7.3.4 | Permanent Fencing and Signage | 14 |
| 7.4 | Mitigation Design Elements | 14 |
| 7.4.1 | Hydrologic Support..... | 14 |
| 7.4.2 | Decompaction and Topsoil | 14 |
| 7.4.3 | Habitat Features..... | 14 |
| 7.4.4 | Planting Plan | 14 |
| 7.4.5 | Temporary Irrigation System | 14 |
| 7.5 | Mitigation Goals, Objectives and Performance Standards | 15 |
| Chapter 8. | Construction Management..... | 16 |
| 8.1 | Mitigation Construction Sequencing | 16 |
| 8.2 | Post-Construction Approval..... | 16 |
| 8.3 | Post-Construction Assessment | 16 |
| Chapter 9. | Monitoring Plan..... | 16 |
| 9.1 | Monitoring Schedule..... | 16 |
| 9.2 | Reports..... | 17 |
| 9.2.1 | Methods for Monitoring Vegetation Establishment | 17 |
| 9.3 | Photo Documentation | 18 |
| 9.4 | Wildlife..... | 18 |
| 9.5 | Water Quality..... | 18 |
| 9.6 | Site Stability..... | 18 |
| Chapter 10. | Maintenance and Contingency | 18 |
| Chapter 11. | Performance Security | 19 |
| Chapter 12. | Summary | 19 |

LIST OF FIGURES

Figure 1. Vicinity Map & Driving Directions

Figure 2. Site Overview and Parcel Map

Figure 3. NRCS Soils Map

Note: All figures are located at the end of the report before the appendices.

LIST OF TABLES

| | |
|---|----|
| Table 1. Summary of Critical Areas | 8 |
| Table 2. Summary of Buffer Impacts..... | 10 |
| Table 3. Summary of Standard Mitigation Measures Proposed..... | 11 |
| Table 4. Summary of Mitigation | 13 |
| Table 5. Projected Schedule for Performance Monitoring..... | 17 |

LIST OF APPENDICES

Appendix A: Wetland Delineation Data Sheets, Talasaea Consultants, 2018.

Appendix B: Wetland Rating Form, *Washington State Department of Ecology Wetland Rating System for Western Washington* (2014)

Appendix C: Critical Areas Mitigation Plans (full-size 22"x34" drawings)

Sheet W1.0: Existing Conditions Plan

Sheet W1.1: Proposed Site Plan, Impacts & Mitigation Overview Plan

CHAPTER 1. INTRODUCTION

1.1 Purpose of Report

This report is the result of a critical areas study for the Garibaldi PRD property (referred to hereinafter as the Project Site or Site) located in the city of Monroe, Washington (**Figure 1**). The Project Site is the location of a proposed single-family development. The purpose of this report is to 1) identify and describe critical areas (wetlands, streams, fish and wildlife habitat areas, etc.) and critical species on or adjacent to the Project Site, 2) describe potential impacts to critical areas resulting from the proposed development, and 3) describe proposed mitigation for impacts to critical areas. The report has been prepared to comply with the requirements of the Monroe Municipal Code (MMC) Chapter 20.05.060 – Critical Areas Studies.

This report will provide and describe the following information:

- General Property Description;
- Methodology for Critical Areas Investigation;
- Results of Critical Areas Background Review and Field Investigation;
- Regulatory Review;
- Description of the Proposed Project;
- Assessment of Project Impacts to Critical Areas;
- Mitigation Sequencing;
- Proposed Mitigation;
- Site Specific Goals, Objectives, and Performance Standards;
- Construction Management;
- Monitoring, Maintenance, and Contingency Plans; and
- Performance Security.

1.2 Statement of Accuracy

Stream, wetland, and habitat characterizations and ratings were conducted by trained professionals at Talasaea Consultants, Inc., and adhered to the protocols, guidelines, and generally accepted industry standards available at the time the work was performed. The conclusions in this report are based on the results of analyses performed by Talasaea Consultants and represent our best professional judgment. To that extent and within the limitation of project scope and budget, we believe the information provided herein is accurate and true to the best of our knowledge. Talasaea Consultants does not warrant any assumptions or conclusions not expressly made in this report, or based on information or analyses other than what is included herein.

1.3 Qualifications

Field investigations and evaluations were conducted by Talasaea staff including: Jennifer Marriott, PWS, Senior Ecologist, David R. Teesdale, PWS, Senior Wetland Ecologist, and Richard Tveten, Senior Ecologist. Jennifer Marriott has a Bachelor's Degree and a Master's Degree in Biology from University of Central Florida, and a second Master's Degree in Soil and Environmental Science from the University of Florida. She has over 15 years of experience in wetland delineations and environmental permitting. David Teesdale has a Bachelor's Degree in Biology from Grinnell College, Iowa, and a Master's Degree in Ecology from Illinois State University.

He has 20 years of experience in wetland delineations and biological evaluations. The mitigation design was prepared by Ann Olsen, RLA. Ann has over 25 years of experience in site planning and designing critical area mitigation plans.

CHAPTER 2. GENERAL PROPERTY DESCRIPTION AND LAND USE

2.1 Project Location

The Garibaldi PRD site is an approximately 13.82-acre assemblage of three parcels located in the City of Monroe (**Figure 1**). It is bounded to the north and south by single family residences, to the west by a new single-family development, and to the east by Chain Lake Road. The Snohomish County Tax Parcel numbers for the site are 28073100200800 (Parcel A), 28073100201600 (Parcel B), and 28073100203900 (Parcel C) (**Figure 2**). The Public Land Survey System location for this assemblage is the NW $\frac{1}{4}$ of Section 31, Township 28 North, Range 7 East, Willamette Meridian (W.M.).

2.2 General Property Description

The Site contains three single-family residences with associated driveways, outbuildings, and parking areas. Two single family residences exist on Parcel A with an associated equestrian facility comprised of a barn and indoor arena. Fenced, heavily grazed pastures occupy the majority of the remainder of Parcel A. Parcels B and C contain one residence with a garage and large shed, overlapping these parcels, with undeveloped, forested areas comprising the remainder of these parcels.

Site topography is generally sloping down to the southeast towards a depressional wetland (Wetland A, described later) in the southeast corner of the Site.

2.3 Land Use and Zoning

The Site is currently zoned residential with four (4) dwellings allowed per acre (R4). A platted, but yet unused, powerline easement occurs across Parcel A in an east-west orientation near the center of the Site.

CHAPTER 3. METHODOLOGY

The critical areas analysis of the Site involved a two-part effort. The first part consisted of a preliminary assessment of the Site and the immediate surrounding area using published environmental information. This information includes:

- 1) Wetland and soils information from resource agencies;
- 2) Critical Areas information from the City of Monroe and Snohomish County;
- 3) Anadromous fish presence information from:
 - a. StreamNet database,
 - b. SalmonScape database;
- 4) Orthophotography and LIDAR imagery; and,
- 5) Relevant studies completed or ongoing in the vicinity of the Site.

The second part consisted of site investigations where direct observations and measurements of existing environmental conditions were made. Observations included plant communities, soils, hydrology, and stream conditions. This information was used to help characterize the site and define the limits of critical areas onsite and offsite for regulatory purposes (see **Section 3.2 – Field Investigation** below).

3.1 Background Data Reviewed

Background information from the following sources was reviewed prior to field investigations:

- US Fish and Wildlife Service (USFWS), Wetlands Online Mapper (National Wetlands Inventory, NWI) (USFWS 2018) (www.wetlandsfws.er.usgs.gov/wtlnds/launch.html);
- Natural Resources Conservation Service (NRCS), Web Soil Survey (NRCS 2018) (www.websoilsurvey.nrcs.usda.gov/app/);
- NRCS, National Hydric Soils List by State (NRCS 2018) (www.soils.usda.gov/use/hydric/lists/state.html);
- City of Monroe GIS Database (Monroe 2018)
- Snohomish County GIS Database (Snohomish County 2018);
- StreamNet database, 2018 (www.streamnet.org);
- SalmonScape database, 2018 (www.wdfw.wa.gov/mapping/salmonscape/databases);
- NOAA's National Marine Fisheries Service (NMFS), current pacific coast salmon species listed as protected under the Federal Endangered Species Act (http://www.nwr.noaa.gov/protected_species/salmon_steelhead/salmon_and_steelhead_listings/salmon_and_steelhead_listings.html);
- USFWS Washington Office, Federally-Listed and Proposed Endangered and Threatened species and critical habitat; Candidate Species; and Species Of Concern in Snohomish County (2018) (<http://www.fws.gov/wafwo/speciesmap/SnohomishCounty0312.pdf>);
- Washington State Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) Database on the Web (WDFW 2018) (<http://wdfw.wa.gov/mapping/phs/>);
- Washington Department of Natural Resources (WDNR) Natural Heritage Database; and
- Orthophotography from USDA's National Agricultural Imagery Program (NAIP 2017) and Google Earth.

3.2 Field Investigation

The Site was evaluated by Talasaea Consultants on 12 and 16 October 2018.

The wetland delineation utilized the routine approach described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountain, Valleys, and Coast Regions* (U.S. Army Corps of Engineers 2010). The ordinary high-water mark (OWHM) for streams was determined and delineated using the methodology described by Washington State Department of Ecology's "*Determining the Ordinary High Water Mark on Streams in Washington State*" (Olson and Stockdale 2016). Wetlands and streams were classified according to the Monroe Municipal Code (MMC) §20.05.080.D and §20.05.030, respectively.

Plant species were identified according to the taxonomy of Hitchcock and Cronquist (Hitchcock, et al. 1969). Taxonomic names were updated and plant wetland status was assigned according to *North American Digital Flora: National Wetland Plant List, Version 2.4.0* (Lichvar, et al. 2012). Wetland classes were determined with the U.S. Fish and Wildlife Service's system of wetland classification (Cowardin, et al. 1979).

Vegetation was considered hydrophytic if greater than 50% of the dominant plant species had a wetland indicator status of facultative or wetter (i.e., facultative, facultative wetland, or obligate wetland).

Wetland hydrology was determined based on the presence of hydrologic indicators listed in the Corps regional supplement. These indicators are separated into Primary Indicators and Secondary Indicators. To confirm the presence of wetland hydrology, one Primary Indicator or two Secondary Indicators must be demonstrated. Indicators of wetland hydrology may include, but are not necessarily limited to: drainage patterns, drift lines, sediment deposition, watermarks, stream gauge data and flood predictions, historic records, visual observation of saturated soils, and visual observation of inundation.

Soils on the site were considered hydric if one or more of the hydric soil indicators listed in the Corps Regional Supplement are present. Indicators include presence of organic soils, reduced, depleted, or gleyed soils, or redoximorphic features in association with reduced soils.

An evaluation of patterns of vegetation, soil, and hydrology was made along the interface of wetland and upland. Wetland boundary points were then determined from this information and marked with wire flags or surveyors tape. **Appendix A** contains data forms prepared by Talasaea for representative locations in both upland and wetland locations within the Site. These data forms document the vegetation, soils, and hydrology information that aided in the wetland boundary determination.

CHAPTER 4. RESULTS

This section describes the results of our in-house research and field investigations. For the purpose of this report, the term “vicinity” describes an area approximately 100 feet around the Project Site.

4.1 Analysis of Existing Information

The following sources provided information on site conditions based on data compiled from resource agencies and local government:

4.1.1 USFWS Wetlands Online Mapper (National Wetlands Inventory)

The National Wetlands Inventory does not map any wetlands on-site or in the vicinity of the Site.

4.1.2 Natural Resources Conservation Service Soil Survey

The NRCS maps two soil types on the Site (**Figure 3**). Most of the Northern half of the Site is mapped as Tokul gravelly medial loam, 8 to 15 percent slopes. Tokul gravelly medial loam, 0 to 8 percent slopes is mapped in the southern and westernmost areas of the Site. Neither are identified as hydric soils themselves, though both are identified as having a small amount of hydric inclusions within this map unit.

The Tokul series is made up of moderately well drained soils formed in glacial till plains and hillslopes. These soils are gravelly medial loam soils that are moderately acid. The gravel component ranges from 15% in the upper horizon to 25% in lower horizons. A-horizon soil colors are typically dark brown, while B-horizon is typically brown, grayish-brown, and dark yellowish brown medial to sandy loam. The C-horizon is dark grayish brown to dark yellowish-brown glacial till.

4.1.1 City of Monroe Critical Areas Maps

City of Monroe critical areas maps indicate one feature, labeled as Wetland Inventory #23, occurring on the eastern half of the Site. Only a small portion of the southern portion of this mapped feature exists, and was identified as Wetland A (see Section 4.2). The remainder of this mapped feature did not meet the wetland criteria.



Photo 1. Snip from City of Monroe Wetland Inventory Map, showing Wetland #23

4.1.2 Snohomish County GIS Database

Snohomish County GIS database does not map any features on or within the vicinity of the Site.

4.1.3 StreamNet and SalmonScape Databases

The StreamNet and Salmonscape databases show no stream or fish activity within the project boundaries or vicinity.

4.1.4 WDFW Priority Habitats and Species and WDNR Natural Heritage Databases

The WDFW PHS Database (web-based map format) was reviewed for the presence or absence of priority species, rare plants, and high quality native ecosystems on or in the vicinity of the Project Site. No features were mapped within the Site or its vicinity.

4.2 Analysis of Existing Field Conditions

One stream and one wetland were identified on the Project Site. The stream was classified in accordance with the water typing rules contained in Washington Administrative Code (WAC) 222-16-030. Wetlands were classified according to the rating system and criteria contained in the *Washington State Wetland Rating System for Western Washington* (Hruby 2014). Wetland rating forms are included in **Appendix B**. The on-site features are described in the following sections.

4.2.1 Wetland A

Wetland A is a slope wetland associated with Stream 1 and totals 9,442 sf (0.22 acres) on the Project Site (**Appendix C, Sheet W1.0**). This wetland extends off-site to the east towards Chain Lake Road. Wetland A is primarily forested with red alder (*Alnus rubra*) dominating the canopy and sub-canopy. Salmonberry (*Rubus spectabilis*) dominates the understory within this slope wetland. This wetland clearly receives regular overbank flooding from Stream 1, especially closer to the road where a culvert is located. Other species that occur within the wetland to a lesser extent include skunk cabbage (*Lysichiton americanus*), reed canarygrass (*Phalaris arundinacea*), and giant

horsetail (*Equisetum telmateia*). The immediately adjacent uplands are dominated by native vegetation including big leaf maple (*Acer macrophyllum*), Indian plum (*Oemleria cerasiformis*), beaked hazelnut (*Coryllus cornuta*), and Himalayan blackberry (*Rubus armeniacus*). Large areas of yellow archangel (*Lamiastrum galeobdolon*) are present within the Wetland A buffer. The buffer farther to the north is used as horse pasture and contain creeping buttercup (*Ranunculus repens*) and field grasses that are heavily grazed.

Soils in this wetland are generally a black loamy mineral soil. The soil color is consistently dark, with a test pit reflecting a black (10YR 2/1) matrix color with no redoximorphic features present. Hydric soils were assumed based on the low chroma, dark soils, and presence of wetland hydrology and vegetation. Hydrology for Wetland A is provided by multiple sources, including precipitation and groundwater seepage from the adjacent hill as well as overland flow. A hillside seep located within the wetland drives Stream 1.

Wetland A scored 6 points for Water Quality Functions, 4 points for Hydrologic Functions, and 6 points for Habitat Functions. The Total Score for Functions was 16. This satisfies the criteria for classification of Wetland A as a City of Monroe Category III wetland per MMC §20.05.030. Category III wetlands with a Habitat Function score between 6-7 require a standard buffer of 165 feet. The buffer increases without the use of Mitigation Measures 1 or 2 to 220 feet per MMC Table 20.05.080.3.

4.2.2 Stream 1

Stream 1 begins within the Project Site at a seasonal seep in Wetland A and flows east through Wetland A (described below) toward Chain Lake Road. The stream then flows south along Chain Lake Road before crossing the road through a 12" culvert. Stream 1 then continues in a generally southeast direction towards 205th Avenue SE before continuing south and then west to enter Woods Creek more than a mile south of the Site. No floodplain is mapped around this stream.

The stream channel is generally well-defined with a barely perceptible trickle of water during the 12 October 2018 Site evaluation. No salmonids are mapped as occurring within this stream, nor were any salmonids or other species of fish observed during field assessments. Salmonids and other fish populations do not have the potential of occurring within this stream as the channel width is less than 2-feet wide in all areas with only seasonal stream flow. Additionally, the nearest salmonid-bearing water is more than ½ mile southeast of the Site, south of Woods Creek Road. This stream system flows through a ravine north of Woods Creek Road that creates a natural barrier to salmonids migrating upstream.

Accordingly, Stream 1 is typed as a Type 5 water reflecting its narrow channel width and lack of fish, including salmonids. MMC §20.05.090.D.6 requires a 50-foot standard buffer for Type 5 streams, measured from the OHWM. The buffer for this stream is wholly contained within Wetland A and its associated wetland buffer.

4.2.3 Off-site Critical Areas

Another stream, Stream 2, occurs off-site between the Site and Chain Lake Road on private property north of Wetland A and Stream 1. This seasonal stream originates on the adjacent property and flows east under Chain Lake Road. The start of this stream

was measured at over 100 feet from the property boundary but was not formally surveyed. No other critical areas were observed adjacent to the Site on the west side of Chain Lake Road.

Additional streams and likely an associated wetland occur on the east side of Chain Lake Road, opposite the Site. A delineation of these features was not possible as site access was not provided. The wetland would line up with the approximate boundaries of Wetland #6A of the Monroe Wetland Inventory. However, neither the NWI nor Snohomish County PDS Viewer identified wetlands consistent with Wetland #6A of the Monroe Wetland Inventory. Snohomish County PDS did identify a wetland polygon that partially overlaps the southeastern portion of Wetland #6A, noted as being based on remote sensing-based wetland model, that seems more likely given the topography in this area. The upper reaches of the parcel on the east side of Chain Lake Road indicates roughly 15% slopes with likely streams located within ravines until the topography flattens out farther south and east. The nearest point of the approximate Snohomish County-mapped wetland is approximately 200 feet from the eastern edge of the Site. That said, Chain Lake Road separates any wetlands on the east side of the road from the onsite wetland (Wetland A).

4.3 Wildlife Habitat

The site offers few habitats that can be utilized by different species of birds, small mammals, amphibians, and reptiles. Habitats can be grouped into three categories based on land use and plant association. These habitats include maintained upland pasture areas, mixed deciduous-coniferous upland forest, and wetland habitat.

The existing upland vegetation within the maintained upland pasture areas is characterized by a lack of trees and shrubs. This habitat is dominated by creeping buttercup and grass species and is heavily impacted by the very active horse grazing and poor land management. The mixed deciduous-coniferous forested upland vegetation community is dominated by red alder and salmonberry and generally surrounds onsite wetland habitat. The native forested community is located on Parcels B and C.

The wetland habitat is a mix of forested and emergent species with reed canarygrass dominating the wetland nearer to the road where the canopy is lacking. Habitat features within the wetland areas onsite include large, downed woody debris. Priority snags occur within the parcel offsite to the northeast within 100 meters of the wetland. Habitat diversity is also complimented by the instream and riparian habitat areas associated with Stream 1.

Direct wildlife observations included a variety of resident and migratory songbird species. No other direct or indirect wildlife observations were made.

4.3.1 Critical Species Presence

No listed species were identified as occurring within or adjacent to the Site, nor were any mapped by the WDFW Priority Habitats and Species database. No listed species are expected to occur within the Site.

CHAPTER 5. REGULATORY REVIEW

5.1 State and Federal Regulations

Any direct impacts to wetlands or streams would be subject to applicable State and Federal regulations. Wetland impacts are regulated on the Federal level by Sections 404 and 401 of the Clean Water Act. The US Army Corps of Engineers (Corps) is responsible for administering compliance with Section 404 via the issuance of Nationwide or Individual Permits for any fill or dredging activities within wetlands. Any project that is subject to Section 404 permitting is also subject to requirements of Section 401 of the Clean Water Act (CWA), administered by the Department of Ecology (DOE). This project is not proposing any direct impacts (dredging or filling) of wetlands or streams, thus no permits from State or Federal agencies is required.

5.2 City of Monroe Regulations

A summary of critical areas on and within 100 feet of the project site is provided in **Table 1** below. The ratings for critical areas potentially affecting the Site were determined using guidance from MMC Table 20.05.030. Required buffers were determined according to MMC Table 20.05.080.1 (Table 1) and 20.05.080.3 (Table 3). MMC 20.05.080.1 Tables 1 and 3 provide multiple buffer widths for wetlands based on habitat score and the use of required measures to minimize impacts to wetlands. The Project is proposing to use the standard mitigation measures within the table referenced in MMC 20.05.080.2, thus the buffers contained in Table 1 (MMC) will be used as a baseline for the proposed project. A summary of those buffers is outlined below in (our) **Table 1**.

Table 1. Summary of Critical Areas

| Critical Area | Wetland Category (Habitat Score) | Stream Type | Standard Wetland Buffer (feet)* | Standard Stream Buffer (feet) | Area of Critical Area (on-site) |
|---------------------|----------------------------------|-------------|---------------------------------|-----------------------------------|---------------------------------|
| Wetland A | III (6) | N/A | 165 | N/A | 9,442 sf |
| Stream 1 | N/A | 5 (Ns) | N/A | 50 | 111 linear feet |
| Stream 2 (off-site) | N/A | 5 (Ns) | N/A | 50 (does not extend onto Site) | N/A |

*Assumes use of standard mitigation measures to use narrower standard wetland buffers.

Chapter 20.05.080.F of the MMC outlines the required parameters for buffer averaging for projects that deviate from the standard buffer widths mentioned above.

CHAPTER 6. PROPOSED DEVELOPMENT AND CRITICAL AREAS IMPACTS

6.1 Project Description

Garibaldi Lake, LLC plans to develop the Garibaldi PRD site with 61 single-family Planned Residential Development (PRD) with associated infrastructure, internal roads, and open space areas (**Sheet W1.1 in Appendix C**). A minimum of 54,900 square feet of park and recreation space is required, as part of the PRD, which is separate from the on-site critical areas.

Access to the development will be through the southern frontage along Chain Lake Road as sight line distances from the northern frontage do not meet City regulations

given the sharp bend in Chain Lake Road north of the Site. This sight line issue necessitates buffer impacts to Wetland A as a result of this access road into the development. In addition to a bend in Chain Lake Road affecting access from the northern frontage, another, shallower bend in Chain Lake Road south of the Site has also affected how far south the access road can be pushed. A balance was important to pull the access road as far away from Wetland A as possible given the restrictions on sight line issues to the south.

6.2 Stormwater

Stormwater runoff from the improved Garibaldi PRD project site will be collected and conveyed primarily by means of a series of catch basin inlets connected by below-grade pipes. These systems flow south to a single on-site detention vault facility located at the southeast boundary of the site. Flows from this detention facility will be released at a controlled rate by means of a standard riser assembly in a below-grade catch basin structure. This structure will also split the controlled flow into two separate releases to maintain hydrology within the two onsite basins. Discharge from all onsite storm water systems will outfall to either reinforced rock pads or gravel dispersion trenches. Several gravel dispersion trenches are proposed within the outer portions of the onsite wetland buffer to take advantage of the natural topography and vegetation for flow attenuation. All storm water runoff collection, conveyance, treatment, and flow control facilities are proposed in general accordance with the applicable provisions of the City of Monroe 2014 Stormwater Manual as described in municipal code section 15.01.025.

6.3 Assessment of Development Impacts

The proposed site development will avoid all direct wetland or stream impacts. However, some buffer modification will be unavoidable in order to construct a viable project. Numerous site plan iterations were evaluated to determine the best development layout that addressed the protection of on-site critical areas with the open space/recreation requirements of the PRD while allowing a functioning development that meets the requirements for the City of Monroe. The location of the approximately 100-foot wide powerline easement across the Site has resulted in the loss of buildable area that is not constrained by critical areas. Buffer will be reduced for the required access road, which is based on a proposed expansion of Chain Lake Road, and to accommodate four lots and some internal utility infrastructure. Buffer impacts are summarized in **Table 2** below.

Portions of the existing buffer for Wetland A are already disturbed by pre-existing, non-conforming features (horse pastures and a gravel access road). Additionally, invasive species are pervasive throughout the entire Site, including within Wetland A and its buffer, to varying degrees. Where pre-existing, non-conforming features or invasive plant species occur within the post-development buffer, vegetative reestablishment/enhancement is proposed to restore these areas.

Minor buffer intrusions totaling 170 square feet of permanent buffer impact are anticipated as part of the necessary utility infrastructure for a stormwater pipe, dispersion trenches and a bubble-up structure that will be located within the buffer. These utilities were placed as far to the outside of the buffer as feasible, but elevations of the stormwater infrastructure dictated the outfall elevations of the dispersion trenches and bubble-up structure. The physical structures are considered permanent impacts,

while the corridors around them will be restored with the other impacted buffer areas. A 5-foot offset will be established off these pipes within which only woody shrubs will be planted. Tree plantings will remain outside of this minor setback as a precaution for the buried utilities.

Table 2. Summary of Buffer Impacts

| | Permanent Buffer Reduction (sf) | Temporary Buffer Reduction (sf) |
|---|--|--|
| Buffer Reduction for Required Access Road and Frontage Improvements | 18,680 | |
| Dispersion Trench & Bubble-Up Structure | 170 | |
| Severed Buffer | 11,595 | |
| Buffer Reduced for Lots | 6,636 | |
| Grading Impacts – Frontage Improvements | | 6,851 |
| Totals | 37,081 | 6,851 |
| Total Standard Buffer (pre-impacts, for Wetland A) | 110,751 | |
| Remaining Buffer | 73,670 ¹ | |

¹This value does not account for temporary buffer impacts, as these areas will be restored post-development. This is the total buffer minus the permanent buffer reductions proposed.

Approximately 18,680 square feet of wetland buffer will be lost due to the required access road, which will generally parallel Wetland A, as allowed pursuant to MMC 20.05.070.H.3. A portion of the 18,680 square feet of road-related buffer impacts is for City-required Chain Lake Road frontage improvements. Regrading of this area is required for the frontage improvements to Chain Lake Road, which has also dictated the need for a rock wall to match existing site grades while allowing for an access road that meets City standards. Temporary buffer impacts for regrading associated with the new access road total 6,851 square feet, which will be restored post-development. The access road will also sever a small portion (11,595 square feet) of remaining wetland buffer that would have been located on the south side of the new access road. Total buffer reduction (loss) due to the new access road alignment and Chain Lake Road frontage improvements is 30,308 square feet. A minimum of 50.6 feet of native, forested buffer will remain between Wetland A and the new access road. A minimum of 39.2 feet of vegetated buffer will remain between Stream 1 and the proposed buffer impacts.

An additional 6,636 square feet of wetland buffer will be lost due to the grading necessary for four (4) of the proposed residential lots. Due to the encumbrances of the PRD (power line easement, required open space) approximately 3,288 square feet of buffer will replace the area lost to the four lots. This represents 0.56:1 mitigation-to-impact ratio. The areas where buffer is being replaced lack native vegetation in the existing condition and will require enhancement plantings to bring these areas up to the

Monroe requirement for a buffer that is “vegetated with a native plant community appropriate for the ecoregion (MMC 20.05.080.D.4).”

6.4 Standard Mitigation Measures

As identified above in Section 5.2, the standard mitigation measures outlined within MMC Table 20.05.080.2 will be followed. A summary of how the Site will meet each requirement is outlined below in **Table 3**.

Table 3. Summary of Standard Mitigation Measures Proposed

| Disturbance | Required Measures to Minimize Impacts | Project Actions to Address Each Measure |
|------------------------|---|--|
| Lights | <ul style="list-style-type: none"> • Direct lights away from wetland | Lighting, such as stream lamps, will be directed away from critical areas. |
| Noise | <ul style="list-style-type: none"> • Locate activity that generates noise away from wetland • If warranted, enhance existing buffer with native vegetation plantings adjacent to noise source • For activities that generate relatively continuous, potentially disruptive noise, such as certain heavy industry or mining, establish an additional 10-ft. heavily vegetated buffer strip immediately adjacent to the outer wetland buffer | <p>Dense plantings will be added along the perimeter of the critical areas to reduce noise impacts to Wetland A.</p> <p>Further separation will be provided where possible by action recreation areas.</p> |
| Toxic Runoff | <ul style="list-style-type: none"> • Route all new, untreated runoff away from wetland while ensuring wetland is not dewatered • Establish covenants limiting use of pesticides within 150 ft. of wetland • Apply integrated pest management | All runoff will be routed through the stormwater facility. |
| Storm Water Runoff | <ul style="list-style-type: none"> • Retrofit storm water detention and treatment for roads and existing adjacent development • Prevent channelized flow from lawns that directly enters the buffer • Use low impact development techniques (for more information refer to Chapter 15.01 MMC) | All runoff will be routed through the stormwater facility. |
| Change in Water Regime | <ul style="list-style-type: none"> • Infiltrate or treat, detain, and disperse into buffer new runoff from impervious surfaces and new lawns | All runoff will be routed through the stormwater facility. |

| | | |
|-------------------------------------|---|---|
| <p>Pets & Human Disturbance</p> | <ul style="list-style-type: none"> • Use privacy fencing OR plant dense vegetation to delineate buffer edge and to discourage disturbance using vegetation appropriate for the ecoregion • Place wetland and its buffer in a separate tract or protect with a conservation easement | <p>Dense plantings will be added along the perimeter of the critical areas to reduce potential impacts to Wetland A. Wetland A and its buffers will be placed into a separate Critical Areas Tract.</p> |
| <p>Dust</p> | <ul style="list-style-type: none"> • Use best management practices to control dust | <p>Appropriate BMPs will be used during construction to manage for dust.</p> |

CHAPTER 7. PROPOSED MITIGATION

7.1 Agency Policies and Guidance

The mitigation proposed for critical areas impacts is in accordance with the following:

- Monroe Municipal Code, Chapters 20.05, titled *Critical Areas*.
- The Washington State Department of Ecology (DOE) Publication #06-06-011a, *Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance* (Version 1, March 2006).

7.2 Mitigation Sequencing

The design of the proposed project employs mitigation sequencing as required by MCC §20.05.080.B, which requires the use of best available science (BAS). Mitigation sequencing is outlined by DOE, and is supported by the Corps, and outlines a preferred order of operations: avoidance, minimization, then compensation for unavoidable impacts.

Avoiding Impacts: The proposed project has been designed to avoid impacts to on-site critical areas to the maximum extent practicable, while still allowing for an economically viable development that meets all code requirements. The project will avoid all direct wetland and stream impacts with only buffer modifications necessary.

Minimizing Impacts: The proposed project has been re-designed to minimize impacts to on-site buffers. Buffer reduction is required for the road access into the Site off Chain Lake Road. Sight-line issues due to the existing Chain Lake Road alignment required the southern access to the Site near Wetland A. The buffer will be reduced by 30,308 square feet for the access road and frontage improvements with an additional 11,595 square feet for four of the residential lots to assist in grading of level lots and 170 square feet for permanent buffer impacts resulting from utility and stormwater infrastructure. Mitigation for these buffer impacts is described below.

7.3 Proposed Mitigation

The project proposes a combination of several different mitigation measures intended to compensate for buffer functions and values lost through reduced buffer widths as well as addressing pre-existing non-conforming buffer impacts (**Sheet W1.1 in Appendix C**). The majority of lost buffer will be compensated for through the purchase of credits at the Skykomish Habitat Bank. The remainder of the on-site buffer will be reestablished or enhanced. A total of 3,288 square feet of reduced wetland buffer will be replaced on-site. The proposed mitigation is described below in **Table 4**.

Table 4. Summary of Mitigation

| | Permanent Buffer Impacts (sf) | Temporary Buffer Impacts (sf) | Added Buffer (sf) | Enhanced/Restored Buffer (sf) |
|--|--------------------------------------|--------------------------------------|---------------------------|--------------------------------------|
| Buffer Impacts | 37,081 | 6,851 | | |
| Buffer Creation | | | 3,288 | |
| Buffer Reestablishment (Existing Buffer) – Horse Pasture | | | | 30,998 |
| Buffer Reestablishment (Existing Buffer) – Grading for Frontage Improvements | | | | 6,851 |
| Buffer Enhancement (Existing Buffer) | | | | 38,036 |
| Totals | -37,801¹ | 6,851² | +3,288³ | 75,885⁴ |

¹Total buffer lost through reduction, excluding the temporary buffer impacts. These values were taken from the standard 165-foot buffer.

²Temporary buffer impacts were considered temporary as these areas will be restored after grading is complete.

³Buffer added beyond the standard buffer where feasible to offset the buffer reduced for lots.

⁴Total area of buffer enhanced or restored in some fashion post-development. This number also represents the total post-development buffer area.

7.3.1 Skykomish Habitat Bank

Credits to be purchased through the Skykomish Habitat Bank (Bank) is being proposed to offset the permanently impacted buffer on the Site. A total of 30,308 square feet for the access road and 3,348 square feet for the remaining area of the residential lots will be purchased at the Bank (total 33,656 square feet). This Site is located within WRIA 7, consistent with the mapped service area of the Bank.

7.3.2 Buffer Re-establishment and Restoration

The Project will remove the old gravel access road and non-native/invasive vegetation from within the buffer, as well as convert heavily used horse pastures back to functioning, native buffer. These areas will be restored through decompaction of existing soils, where necessary, and the importation of high-quality topsoil and/or the addition of soil amendments. Habitat features, such as down logs, root wads, and stumps will be installed where they can be placed without further intrusion into the buffer by heavy equipment. Finally, the re-established and restored buffer areas will be enhanced through plantings of native trees and shrubs (**Sheets W1.1 in Appendix C**).

7.3.3 Buffer Enhancement

The Project will enhance all of the remaining wetland buffer areas on the Site through the removal of invasive species, where present, and varying densities of supplemental plantings of native trees and shrubs. Invasive species removal will be done by hand or by machinery within the buffer, whichever is determined to be most appropriate. Enhancement measures will include:

- Removal of all non-native/invasive species;
- Amending soils with compost and fertilizer, as needed; and
- Planting a wide selection of native evergreen and deciduous tree and shrub species.

7.3.4 Permanent Fencing and Signage

Permanent fencing and critical areas signs shall be installed at the buffer boundary consistent with the requirements of MCC 20.05.070.D.2.

7.4 Mitigation Design Elements

7.4.1 Hydrologic Support

Hydrologic support for Wetland A and Stream 1 will be provided by controlled infiltration of collected and treated site runoff through dispersion trenches located around the outer limits of the wetland buffer.

7.4.2 Decompaction and Topsoil

All areas of buffer reestablishment/restoration with existing structures, impervious surface areas, and non-native vegetation will be removed. These areas will be restored through decompaction of existing soils and the importation of high-quality topsoil and/or the addition of soil amendments. High quality topsoil will be placed a minimum of 9-inches deep across the buffer areas.

7.4.3 Habitat Features

Down logs, rootwads, and stumps will be incorporated into the mitigation areas to provide ecologically important habitat features for wildlife. All down woody material shall be coniferous species (western red cedar, Douglas fir, western hemlock, or Sitka spruce) obtained from the project site.

Down logs and stumps provide the slow release of nutrients as the wood decays, and also provide cover for amphibians, small mammals, and other wildlife. Boulders recovered from site excavation (if available) will be placed in small piles throughout the mitigation area. These piles can provide habitat for reptiles and small mammals.

7.4.4 Planting Plan

A Candidate Plant List that outlines a variety of evergreen and deciduous native trees and shrubs species that may be used to plant the mitigation areas is provided on **Sheet W1.1 in Appendix C**). Plant materials will generally consist of a combination of balled-and-burlapped, bare-root, and container stock. Plant species were chosen for a variety of qualities, including: adaptation to specific water regimes, value to wildlife, value as a physical or visual barrier, pattern of growth (structural diversity), and aesthetic values. Native tree and shrub species were chosen to increase both the structural and species diversity of the mitigation areas, thereby increasing the value of the mitigation areas to wildlife for food and cover. Planting will be planned to occur during the dormant season (late fall, winter, or early spring) to maximize the chance for successful plant establishment and survival.

7.4.5 Temporary Irrigation System

An above ground temporary irrigation system capable of full head to head coverage of all planted areas will be provided for the buffer re-establishment and creation areas. The temporary irrigation system shall either utilize controller and point of connection

(POC) from the site irrigation system or shall include a separate POC and controller with a backflow prevention device per water jurisdiction inspection and approval. The system shall be zoned to provide optimal pressure and uniformity of coverage, as well as separation for areas of full sun or shade and slopes in excess of 5%.

The system shall be operational by June 15 (or at time of planting) and winterized by October 15. Irrigation shall be provided for the first 2 years of the monitoring period. The irrigation system shall be programmed to provide 1/2" of water two times per week (one cycle with two start times per week or every three days). A chart describing the location of all installed or open zones and corresponding controller numbers shall be placed inside the controller and given to the owner's representative. In addition to the temporary irrigation system, a soil moisture retention agent will be incorporated into the backfill of planting pits to minimize the potential for plant desiccation in the mitigation areas.

7.5 Mitigation Goals, Objectives and Performance Standards

The primary goal of the proposed mitigation is to replace the functions and values lost through buffer reductions by re-establishing pre-existing non-conforming buffer impacts and heavily disturbed buffer areas with invasive species to functioning buffer. The secondary goal is to enhance the remaining buffer areas. To accomplish this, the proposed project will provide a total of 79,173 square feet of mitigation:

| | |
|--|------------------|
| • Buffer reestablishment/restoration | 37,849 sf |
| • Buffer restoration (in buffer replacement areas) | 3,288 sf |
| • Buffer Enhancement | 38,036 sf |
| TOTAL BUFFER MITIGATION | 79,173 sf |

Mitigation actions will be evaluated through the following objectives and performance standards. See **Chapter 9** for a full description of the monitoring methods that will be used to evaluate the approved performance standards. Mitigation monitoring will be performed by a qualified biologist.

Objective A: Create structural and plant species diversity in the designated mitigation areas.

Performance Standard A1: At least 15 species of desirable native plants will be present during the monitoring period. Species may be comprised of both installed plants and naturally colonized vegetation.

Performance Standard A2: Percent survival of planted woody species must be at least 100% at the end of Year 1 (per contractor warranty), and at least 80% for each subsequent year of the monitoring period.

Performance Standard A3: In buffer areas that will be completely cleared and soil decompacted, total percent aerial woody plant coverage must be at least 35% by Year 4 and 50% by Year 5. Woody coverage may be comprised of both planted and recolonized native species; however, to maintain species diversity, at no time shall a recolonized species (i.e., red alder) comprise more than 35% of the total woody coverage. There must be at least three native species providing at least 20% each, or four native species providing at least 15% each, or five native species providing at least 10% of the total aerial woody plant coverage.

Objective B: Limit the amount of invasive and exotic species within these mitigation areas.

Performance Standard B: *After construction and following every monitoring event for a period of five years, exotic and invasive plant species will be maintained at levels below 15% total cover in these mitigation areas. These species include Scot's broom, Himalayan and evergreen blackberry, reed canarygrass, purple loosestrife, hedge bindweed, knotweed sp., and creeping nightshade.*

CHAPTER 8. CONSTRUCTION MANAGEMENT

8.1 Mitigation Construction Sequencing

The following provides the general sequence of activities anticipated to be necessary to complete this mitigation project. Some of these activities may be conducted concurrently as the project progresses.

1. Conduct a site meeting between the Contractor, Talasaea Consultants, and the Owner's Representative to review the project plans, staging/stockpile areas, and material disposal areas.
2. Survey clearing limits and install silt fence and any other erosion and sedimentation control BMPs per the civil plans.
3. Follow demolition plan prepared by Engineer for removal of all structures.
4. Clear and grub non-native/invasive vegetation from remaining forested and non-forested buffer areas.
5. Decompact soils in cleared buffer areas.
6. Amend soils as needed to provide 9" of planting medium.
7. Place habitat features, including down logs and stumps.
8. Install plant material as indicated on the planting plan.
9. Add 3" bark mulch to all buffer areas.
10. Install temporary irrigation.
11. Install rail fence and Critical Area signs.

8.2 Post-Construction Approval

Talasaea Consultants shall notify the City in writing when the mitigation planting is completed for a final site inspection and subsequent final approval. Once final approval is obtained in writing from the City, the monitoring period will begin.

8.3 Post-Construction Assessment

Once construction is approved, a qualified wetland ecologist from Talasaea Consultants shall conduct a post-construction assessment. The purpose of this assessment will be to establish baseline conditions at Year 0 of the required monitoring period. A Baseline Assessment report including "as-built" drawings will be submitted to the City. The as-built plan set will identify and describe any changes in grading, planting, or other constructed features in relation to the original approved plan.

CHAPTER 9. MONITORING PLAN

9.1 Monitoring Schedule

Performance monitoring of the mitigation areas will be conducted for a period of five years pursuant to MMC 20.05.070.E. Monitoring will be conducted according to the

schedule presented in **Table 5** below. Monitoring will be performed by a qualified biologist or ecologist.

Table 5. Projected Schedule for Performance Monitoring

| Year | Date | Maintenance Review | Performance Monitoring | Report Due to Agencies |
|-----------------|---------------|--------------------|------------------------|------------------------|
| BA ¹ | Winter/Spring | X | X | X |
| 1 | Spring | X | X | |
| | Fall | X | X | X |
| 2 | Spring | X | X | |
| | Fall | X | X | X |
| 3 | Spring | X | | |
| | Fall | X | X | X |
| 4 | Spring | X | | |
| | Fall | X | X | X |
| 5 | Spring | X | | |
| | Fall | X | X | X ² |

¹ BA = Baseline Assessment following construction completion.

² Obtain final approval from the City of Monroe (presumes performance criteria are met).

9.2 Reports

Monitoring reports shall follow the general guidelines for mitigation monitoring as described in MMC 20.05.070. The reports will include: 1) Project Overview, 2) Requirements, 3) Summary Data, 4) Maps and Plans, and 5) Conclusions. If the performance criteria are met, monitoring for the City will cease at the end of year five, unless objectives are met at an earlier date and the City accepts the mitigation project as successfully completed.

9.2.1 Methods for Monitoring Vegetation Establishment

Vegetation monitoring methods may include counts; photo-points; random sampling; sampling plots, quadrats, or transects; stem density; visual inspection; and/or other methods deemed appropriate by the permitting agencies (City of Monroe). Vegetation monitoring components shall include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, and invasive weed cover.

Permanent vegetation sampling plots, quadrats, and/or transects will be established at selected locations to adequately sample and represent all of the plant communities within the mitigation project areas. The number, exact size, and location of transects, sampling plots, and quadrats will be determined at the time of the baseline assessment.

Percent areal cover of woody vegetation (forested and/or scrub-shrub plant communities) will be evaluated through the use of point-intercept sampling methodology. Using this methodology, a tape will be extended between two permanent markers at each end of an established transect. Trees and shrubs intercepted by the tape will be identified, and the intercept distance recorded. Percent cover by species will then be calculated by adding the intercept distances and expressing them as a total proportion of the tape length.

The established vegetation sampling locations will be monitored and compared to the baseline data during each performance monitoring event to aid in determining the success of plant establishment. Percent survival of shrubs and trees will be evaluated in a 10-foot-wide strip along each established transect. The species and location of all

shrubs and trees within this area will be recorded at the time of the baseline assessment and will be evaluated during each monitoring event to determine percent survival.

9.3 Photo Documentation

Locations will be established within the mitigation area from which panoramic photographs will be taken throughout the monitoring period. These photographs will document general appearance and relative changes within the plant community. Review of the photos over time will provide a semi-quantitative representation of success of the planting plan. Vegetation sampling transect/plot/quadrat and photo-point locations will be shown on a map and submitted with the baseline assessment report and yearly performance monitoring reports.

9.4 Wildlife

Birds, mammals, reptiles, amphibians, and invertebrates observed in the wetland and buffer areas (either by direct or indirect means) will be identified and recorded during scheduled monitoring events, and at any other times observations are made. Direct observations include actual sightings, while indirect observations include tracks, scat, nests, song, or other indicative signs. The kinds and locations of the habitat with greatest use by each species will be noted, as will any breeding or nesting activities.

9.5 Water Quality

Water quality will be assessed qualitatively; unless it is evident there is a serious problem. In such an event, water quality samples will be taken and analyzed in a laboratory for suspected parameters. Qualitative assessments of water quality include:

- Oil sheen or other surface films,
- Abnormal color or odor of water,
- Stressed or dead vegetation or aquatic fauna,
- Turbidity, and
- Absence of aquatic fauna.

9.6 Site Stability

Observations will be made of the general stability of slopes and soils in the mitigation areas during each monitoring event. Any erosion of soils or slumping of slopes will be recorded and corrective measures will be taken.

CHAPTER 10. MAINTENANCE AND CONTINGENCY

Maintenance reviews will be performed according to the schedule presented in **Table 5** to address any conditions that could jeopardize the success of the mitigation area. Established performance standards for the project will be compared to the monitoring results to judge the success of the mitigation project. If there is a significant problem with achieving the performance standards, the Bond-holder shall work with the City of Monroe to develop a Contingency Plan. Contingency plans can include, but are not limited to: additional plant installation; erosion control; and plant substitutions of type, size, quantity, and location. Such Contingency Plan shall be submitted to the City of Monroe by December 31 of any year when deficiencies are discovered. Contingency will include many of the items listed below and would be implemented if the performance standards are not met. Maintenance and remedial action on the site will

be implemented immediately upon completion of the monitoring event, unless otherwise specifically indicated below.

M = Regular maintenance item; C = Contingency item

- During year one, replace all dead plant material. (M)
- Replace dead plants with the same species or a substitute species that meets the objectives of the mitigation plan, subject to the approval of the wetland biologist. (M)
- Re-plant area after reason for failure has been identified (e.g., moisture regime, poor plant stock, disease, poor soil, shade/sun conditions, wildlife damage, etc.). (C)
- Amend soil with topsoil or compost. (C)
- Remove/control weedy or exotic invasive plants (e.g., Scot's broom, reed canarygrass, Himalayan blackberry, purple loosestrife, Japanese knotweed, etc.) by manual or chemical means approved by the City. Use of herbicides or pesticides within the mitigation area would only be implemented if other measures failed or were considered unlikely to be successful and would require prior agency approval. All non-native vegetation must be removed and dumped off site (M & C).
- Weed trees and shrubs to the dripline and maintain a 3' dia. mulch ring around trees and a 2' dia. ring around shrubs at a depth of three inches (M).
- Remove trash and other debris from the mitigation areas twice a year (M).
- Repair or replace damaged structures including: fence or signs (M).

CHAPTER 11. PERFORMANCE SECURITY

Pursuant to MMC 20.05.130, a performance security device may be required by the City, the details of which shall be determined by the City.

CHAPTER 12. SUMMARY

The Garibaldi PRD Site is an approximately 13.82-acre assemblage of three parcels located in the City of Monroe. The Site contains one wetland (Wetland A) and one Type 5 stream (Stream 1). Other critical areas occur off-site that do not affect this Site. Wetland A rated as a City of Monroe Category III wetland requiring a standard buffer of 165 feet with the use of the standard mitigation measures. Stream 1 is a Type 5 stream requiring a 50-foot standard buffer.

Garibaldi Lake, LLC plans to develop the Garibaldi PRD site with 61 single-family lots with interior circulation routes, open/recreation areas, and supporting utilities and stormwater facilities. Constraints to development included the presence of a vacant powerline easement across the center of Parcel A; sight-line issues in association with the access road to Chain Lake Road; anticipation of a future road expansion of Chain Lake Road; and the presence of Wetland A within the parcels that have the only viable access to Chain Lake Road.

No impacts to the wetland or stream are proposed with this Project. However, the project is proposing buffer modifications in order to construct a viable access to the development that meets all the requirements of the MMC and the proposed future road

expansion of Chain Lake Road, as well as to accommodate four residential lots and some necessary utilities.

Approximately 18,680 square feet of wetland buffer will be lost due to the required access road, a portion of which is for City-required Chain Lake Road frontage improvements and the associated regrading and rock wall. Temporary buffer impacts for regrading associated with the new access road total 6,851 square feet, which will be restored post-development. The access road will also sever a small portion (11,595 square feet) of remaining wetland buffer that would have been located on the south side of the new access road. Total buffer reduction (loss) due to the new access road alignment and Chain Lake Road frontage improvements is 30,308 square feet. A minimum of 50.6 feet of native, forested buffer will remain between Wetland A and the new access road. A minimum of 39.2 feet of vegetated buffer will remain between Stream 1 and the proposed buffer impacts.

An additional 6,636 square feet of wetland buffer will be lost due to the grading necessary for four (4) of the proposed residential lots. Due to the encumbrances of the PRD (power line easement, required open space) approximately 3,288 square feet of buffer will replace the area lost to the four lots.

Minor buffer intrusions totaling 170 square feet of permanent buffer impact are anticipated as part of the necessary utility infrastructure for a stormwater pipe, dispersion trenches and a bubble-up structure that will be located within the buffer. The physical structures are considered permanent impacts, while the corridors around them will be restored with the other restored buffer areas.

The project proposes a combination of several different mitigation measures intended to compensate for buffer functions and values lost through reduced buffer widths as well as addressing pre-existing non-conforming buffer impacts. A total of 3,288 square feet of reduced wetland buffer will be replaced on-site. The majority of lost buffer will be compensated for through the purchase of credits at the Skykomish Habitat Bank. The remainder of the on-site buffer will be reestablished or enhanced.

Credits to be purchased through the Skykomish Habitat Bank (Bank) is being proposed to offset the permanently impacted buffer on the Site. A total of 30,308 square feet for the access road and 3,348 square feet for the remaining area of the residential lots will be purchased at the Bank (total 33,656 square feet). This Site is located within WRIA 7, consistent with the mapped service area of the Bank.

The proposed mitigation will result in no net loss of critical area functions and values compared to existing conditions. Long-term performance monitoring and maintenance will commence following mitigation construction completion.

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- Washington State Department of Fish and Wildlife. "Priority Habitats and Species Database." 2017. www.wdfw.wa.gov/mapping/phs. Accessed [September 21, 2018].

FIGURES

- Figure 1:** Vicinity Map & Driving Directions
- Figure 2:** Site Overview and Parcel Map
- Figure 3:** NRCS Soils Map

NW 1/4 SECTION 31, TOWNSHIP 28N, RANGE 7E. W.M.

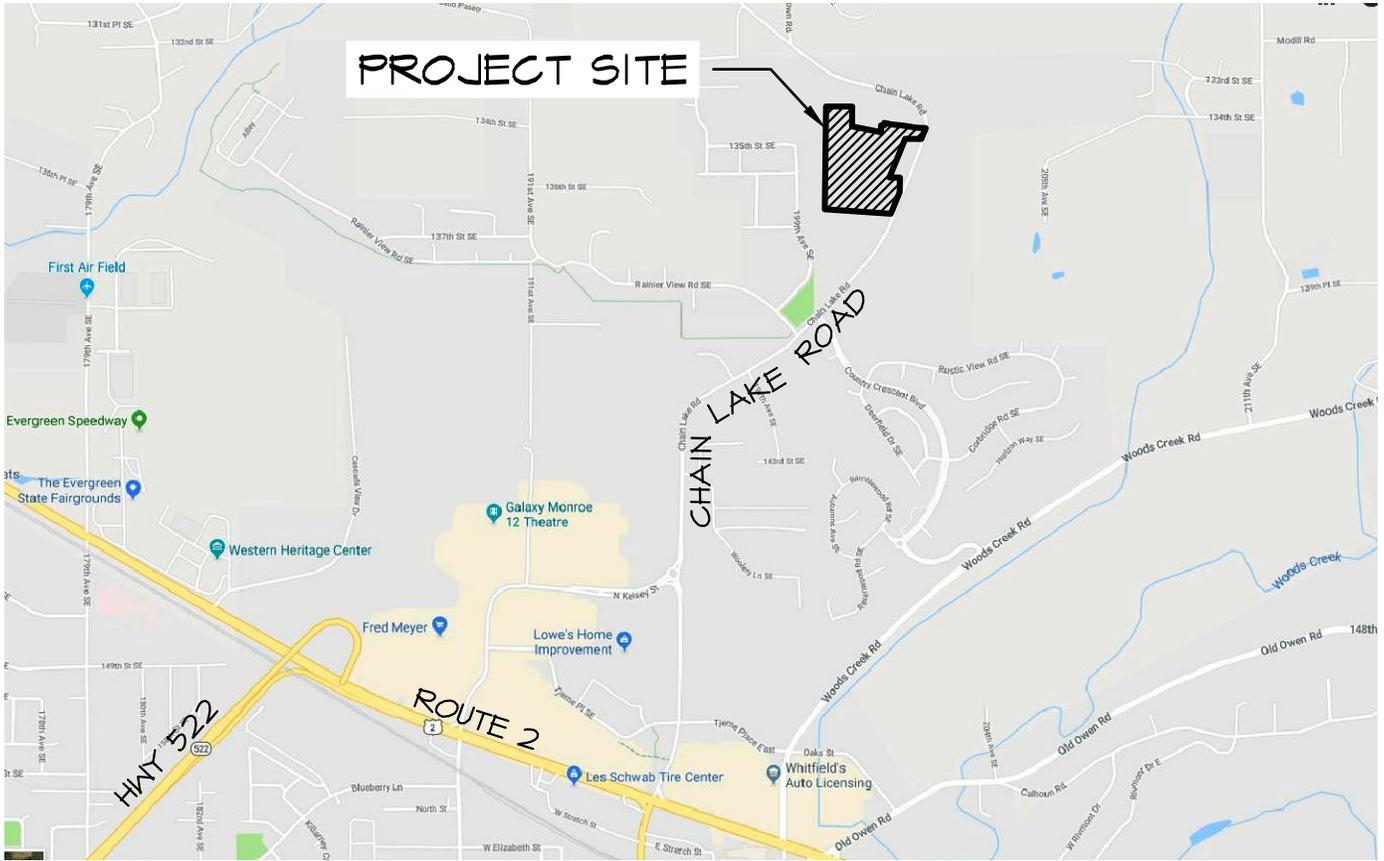


IMAGE SOURCE: GOOGLE MAPS, WWW.MAPS.GOOGLE.COM (ACCESSED 16 NOVEMBER 2018)

DRIVING DIRECTIONS:

1. FROM MONROE PLANNING AND DEVELOPMENT, HEAD NORTHEAST ON WEST MAIN STREET TOWARD VILLAGE WAY. CONTINUE FOR 0.6 MILES.
2. TURN LEFT ONTO S LEWIS STREET. CONTINUE FOR 0.2 MILES.
3. CONTINUE STRAIGHT ONTO 195TH AVENUE SE/CHAIN LAKE ROAD. CONTINUE FOR 2.0 MILES.
4. ARRIVE AT DESTINATION:

13424 CHAIN LAKE ROAD
MONROE, WASHINGTON 98212



TALASAEA
CONSULTANTS, INC.

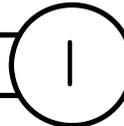
Resource & Environmental Planning

15020 Bear Creek Road Northeast
Woodinville, Washington 98077
Bus (425)861-7550 - Fax (425)861-7549

FIGURE #1

VICINITY MAP & DRIVING DIRECTIONS
GARIBALDI PRD
MONROE, WASHINGTON

| | | |
|------------|-------|---------|
| DESIGN | DRAWN | PROJECT |
| | KM | 1684 |
| SCALE | | |
| NTS | | |
| DATE | | |
| 11-28-2018 | | |
| REVISED | | |



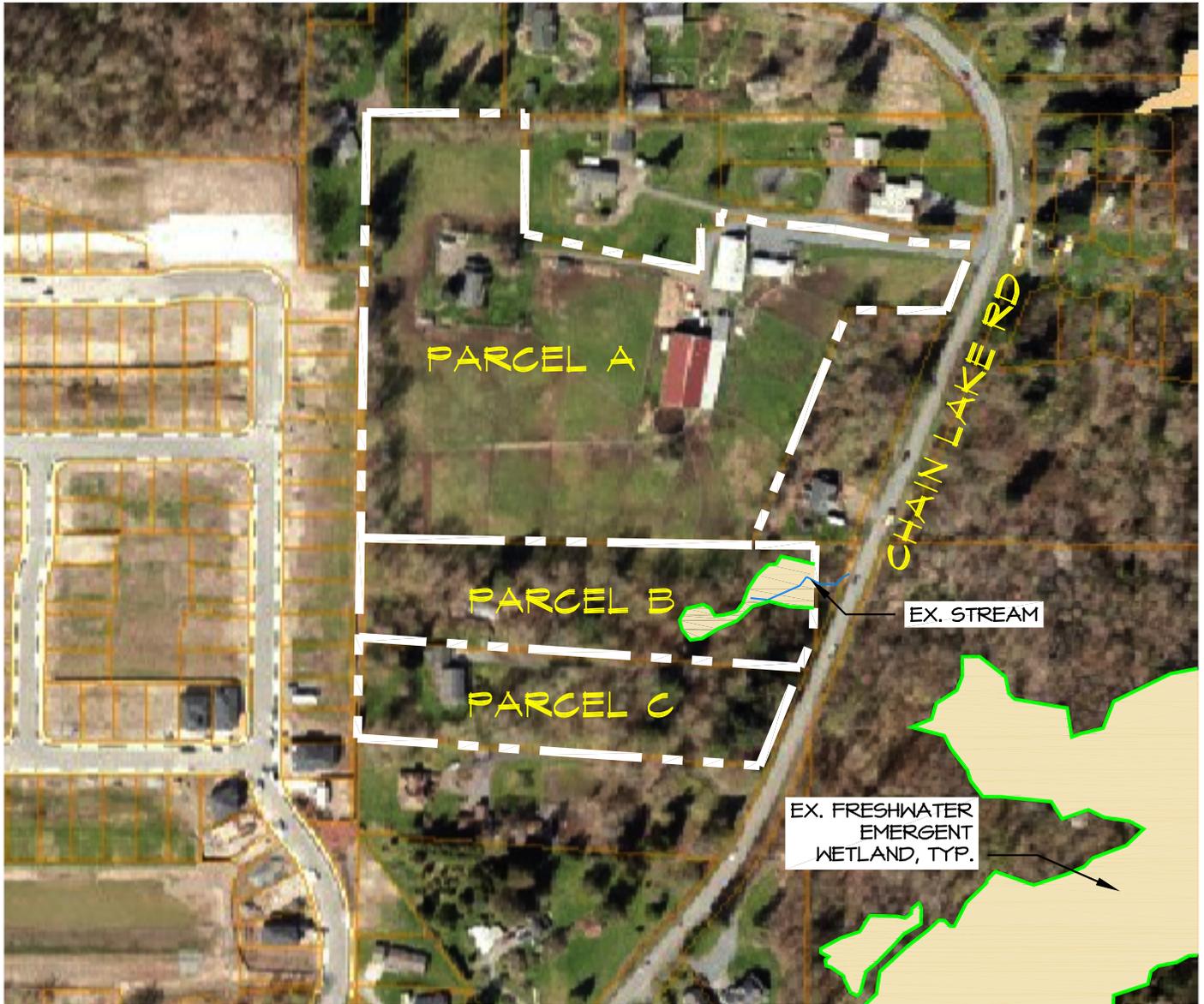


IMAGE SOURCE: SNOHOMISH COUNTY PDS; <HTTP://WWW5.KINGCOUNTY.GOV/IMAP/VIEWER.HTM?MAPSET=KC PROPERTY> (ACCESSED 3 FEB 2015)

PARCEL LEGEND

| KEY | PARCEL NUMBER |
|-----|----------------|
| A | 28073100200800 |
| B | 28073100201600 |
| C | 28073100203900 |



TALASAEA
CONSULTANTS, INC.

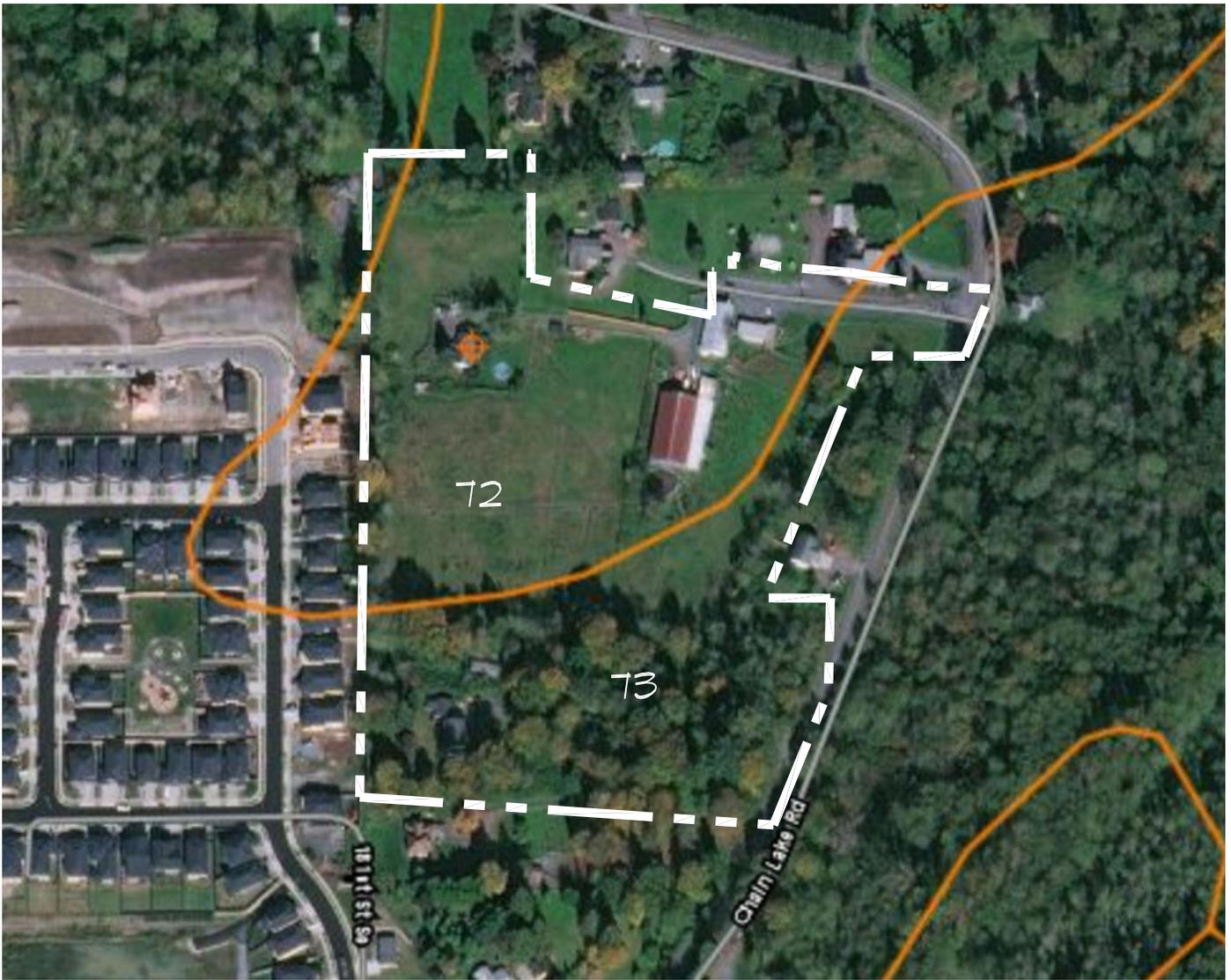
Resource & Environmental Planning
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Woodinville, Washington 98077
Bus (425)861-7550 - Fax (425)861-7549

FIGURE #2

SITE OVERVIEW AND PARCEL MAP
GARIBALDI PRD
MONROE, WASHINGTON

| | | |
|------------|-------|---------|
| DESIGN | DRAWN | PROJECT |
| | KM | 1684 |
| SCALE | | |
| NTS | | |
| DATE | | |
| 11-28-2018 | | |
| REVISED | | |





LEGEND

| TYPE | DESCRIPTION, SLOPES |
|------|--|
| 72 | TOKUL MEDIAL LOAM, 8 TO 15 PERCENT SLOPES. |
| 73 | TOKUL MEDIAL LOAM, 0 TO 8 PERCENT SLOPES. |

SOURCE: SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE, WEB SOIL SURVEY. AVAILABLE ONLINE AT <http://websoilsurvey.nrcs.usda.gov/>. ACCESSED (16 NOVEMBER 2018).



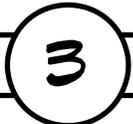
TALASAEA
CONSULTANTS, INC.

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15020 Bear Creek Road Northeast
Woodinville, Washington 98077
Bus (425)861-7550 - Fax (425)861-7549

FIGURE #SOILS MAP

NRCS
GARIBALDI PRD
MONROE, WASHINGTON

| DESIGN | DRAWN | PROJECT |
|------------|-------|---------|
| | KM | 1684 |
| SCALE | | |
| NTS | | |
| DATE | | |
| 11-28-2018 | | |
| REVISED | | |



APPENDIX A

Wetland Delineation Data Sheets, Talasaea Consultants, 2018

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

Project/Site: TAL-1684 City/County: Monroe Sampling Date: 10-12-2018
 Applicant/Owner: Melanie Davies State: WA Sampling Point: TP-1
 Investigator(s): RT Section, Township, Range: NW 1/4 S31, T28N, R7E.
 Landform (hillslope, terrace, etc.): drainage swale Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): A Lat: 47.8735 Long: -121.9626 Datum: NAD 83
 Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Remarks: Wetland point associated with Wetland A. Located 4 feet southeast of flag A-8. Within small swale within the wetland. | |

VEGETATION – Use scientific names of plants.

| Stratum | Absolute % Cover | Dominant Species? | Indicator Status | Notes |
|---|------------------|----------------------------------|------------------|-------|
| Tree Stratum (Plot size: 5m) | | | | |
| 1. <i>None</i> | | | | |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| | 0 | = Total Cover | | |
| Sapling/Shrub Stratum (Plot size: 3m) | | | | |
| 1. <i>Rubus spectabilis</i> | 20 | Yes | FAC | |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| | 20 | = Total Cover | | |
| Herb Stratum (Plot size: 1m) | | | | |
| 1. <i>Lysichiton americanus</i> | 5 | Yes | OBL | |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| | 5 | = Total Cover | | |
| Woody Vine Stratum (Plot size: 3m) | | | | |
| 1. <i>None</i> | | | | |
| 2. _____ | | | | |
| | 0 | = Total Cover | | |
| % Bare Ground in Herb Stratum <u>95</u> | | % Cover of Biotic Crust <u>0</u> | | |
| Remarks: Hydrophytic Vegetation criteria met. | | | | |

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

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

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: TP-1

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

| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|---|-------------------|------------------|---------|---------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-20 | 10YR 2/1 | 100 | - | - | - | - | loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

| | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | Indicators for Problematic Hydric Soils³: |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1 (except MLRA 1)) | |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) | |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |

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

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Hydric soil criteria met. No redox, but black mineral soils without a break to 20" so assumed hydric given the other 2 parameters. These dark soils can also be typical of some forest settings where leaf accumulation is high.

HYDROLOGY

Wetland Hydrology Indicators:

| | |
|--|--|
| Primary Indicators (minimum of one required; check all that apply) | Secondary Indicators (2 or more required) |
| <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)(LRR A) <input type="checkbox"/> Other (Explain in Remarks) |
| | <input type="checkbox"/> Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)(LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7) |

Field Observations:

| | |
|---|---|
| Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 1 | Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 0 | |
| Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 0 (includes capillary fringe) | |

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

Remarks: Wetland Hydrology criteria met.

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

Project/Site: TAL-1684 City/County: Monroe Sampling Date: 10-12-2018
 Applicant/Owner: Melanie Davies State: WA Sampling Point: TP-2
 Investigator(s): RT Section, Township, Range: NW 1/4 S31, T28N, R7E.
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 8
 Subregion (LRR): A Lat: 47.8735 Long: -121.9623 Datum: NAD 83
 Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | |
|---|--|
| Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
|---|--|

Remarks: Upland point associated with Wetland A. Located 4 feet northeast of flag A-8.

VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status | |
|--|------------------|----------------------------------|------------------|--|
| Tree Stratum (Plot size: <u>5m</u>) | | | | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B) |
| 1. <u>Alnus rubra</u> | <u>70</u> | <u>Yes</u> | <u>FAC</u> | |
| 2. <u>Acer macrophyllum</u> | <u>30</u> | <u>Yes</u> | <u>FACU</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| <u>100</u> = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: <u>3m</u>) | | | | |
| 1. <u>Rubus spectabilis</u> | <u>80</u> | <u>Yes</u> | <u>FAC</u> | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>80</u> = Total Cover | | | | |
| Herb Stratum (Plot size: <u>1m</u>) | | | | |
| 1. <u>Polystichum munitum</u> | <u>10</u> | <u>Yes</u> | <u>FACU</u> | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| <u>10</u> = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>3m</u>) | | | | |
| 1. <u>None</u> | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| <u>0</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>90</u> | | % Cover of Biotic Crust <u>0</u> | | |
| Remarks: Hydrophytic vegetation criteria not met. | | | | |

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

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0¹

Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

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

Project/Site: TAL-1684 City/County: Monroe Sampling Date: 10-12-2018
 Applicant/Owner: Melanie Davies State: WA Sampling Point: TP-3
 Investigator(s): RT Section, Township, Range: NW 1/4 S31, T28N, R7E.
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): None Slope (%): 2
 Subregion (LRR): A Lat: 47.8747 Long: -121.9638 Datum: NAD 83
 Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | |
|---|---|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Remarks: Upland point located in pasture southwest of the barn. | |

VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status | |
|--|------------------|----------------------------------|------------------|--|
| Tree Stratum (Plot size: <u>5m</u>) | | | | |
| 1. <u>Alnus rubra</u> | <u>20</u> | Yes | FAC | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| | <u>20</u> | = Total Cover | | |
| Sapling/Shrub Stratum (Plot size: <u>3m</u>) | | | | |
| 1. <u>None</u> | _____ | _____ | _____ | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| | <u>0</u> | = Total Cover | | |
| Herb Stratum (Plot size: <u>1m</u>) | | | | |
| 1. <u>Juncus effusus</u> | <u>40</u> | Yes | FACW | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. <u>Agrostis capillaris</u> | <u>50</u> | Yes | FAC | |
| 3. <u>Lotus corniculatus</u> | <u>10</u> | No | FAC | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| | <u>100</u> | = Total Cover | | |
| Woody Vine Stratum (Plot size: <u>3m</u>) | | | | |
| 1. <u>None</u> | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 2. _____ | _____ | _____ | _____ | |
| | <u>0</u> | = Total Cover | | |
| % Bare Ground in Herb Stratum <u>0</u> | | % Cover of Biotic Crust <u>0</u> | | |
| Remarks: Hydrophytic vegetation criteria met. | | | | |

SOIL

Sampling Point: TP-3

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

| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|----------------|---------------|-----|----------------|---|-------------------|------------------|-----------|---------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 1-13 | 10YR 3/3 | 100 | - | - | - | - | loam | |
| 13-20 | 10YR 4/3 | 100 | - | - | - | - | silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

| | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | Indicators for Problematic Hydric Soils³: |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1 (except MLRA 1)) | |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Hydric soil criteria not met.

HYDROLOGY

Wetland Hydrology Indicators:

| | |
|---|--|
| Primary Indicators (minimum of one required; check all that apply) | Secondary Indicators (2 or more required) |
| <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1)(LRR A) <input type="checkbox"/> Other (Explain in Remarks) |
| | <input type="checkbox"/> Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)(LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7) |

Field Observations:

| | | |
|---|-----------------------|---|
| Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Depth (inches): _____ | Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Depth (inches): _____ | |
| Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Depth (inches): _____ | |

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

Remarks: Wetland hydrology criteria not met.

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

Project/Site: TAL-1684 City/County: Monroe Sampling Date: 10-12-2018
 Applicant/Owner: Melanie Davies State: WA Sampling Point: TP-4
 Investigator(s): RT Section, Township, Range: NW 1/4 S31, T28N, R7E.
 Landform (hillslope, terrace, etc.): Glacial till plain Local relief (concave, convex, none): none Slope (%): 1
 Subregion (LRR): A Lat: 47.8749 Long: -121.9615 Datum: NAD 83
 Soil Map Unit Name: Tokul gravelly medial loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | |
|---|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
| Remarks: Upland point located east of barn in horse paddock near eastern fenceline at edge of woods. | |

VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status | |
|---|------------------|----------------------------------|------------------|--|
| Tree Stratum (Plot size: <u>5m</u>) | | | | |
| 1. <u>None</u> | _____ | _____ | _____ | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| | <u>0</u> | = Total Cover | | |
| Sapling/Shrub Stratum (Plot size: <u>3m</u>) | | | | |
| 1. <u>None</u> | _____ | _____ | _____ | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| | <u>0</u> | = Total Cover | | |
| Herb Stratum (Plot size: <u>1m</u>) | | | | |
| 1. <u>Ranunculus repens</u> | <u>90</u> | <u>Yes</u> | <u>FAC</u> | Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. <u>Phalaris arundinacea</u> | <u>10</u> | <u>No</u> | <u>FACW</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| | <u>100</u> | = Total Cover | | |
| Woody Vine Stratum (Plot size: <u>3m</u>) | | | | |
| 1. <u>None</u> | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 2. _____ | _____ | _____ | _____ | |
| | <u>0</u> | = Total Cover | | |
| % Bare Ground in Herb Stratum <u>0</u> | | % Cover of Biotic Crust <u>0</u> | | |
| Remarks: Hydrophytic vegetation criteria met. Selective grazing by horses and hoof pan compaction may be favoring hydrophytic species (non-native weedy species). | | | | |

SOIL

Sampling Point: TP-4

| Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | | |
|--|---------------|-----|----------------|---|-------------------|------------------|-----------|---------|--|
| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks | |
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | | |
| 0-9 | 10YR 3/2 | 100 | - | - | - | - | loam | | |
| 10-20 | 10YR 3/3 | 100 | - | - | - | - | silt loam | | |
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APPENDIX B

Wetland Rating Forms Washington State Department of Ecology Wetland Rating System for Western Washington (2014)

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 10-12-2018
 Rated by Jennifer Marriott Trained by Ecology? Yes No Date of training _____
 HGM Class used for rating Slope 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 _____

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
- Category III – Total score = 16 - 19
- _____ Category IV – Total score = 9 - 15

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

| FUNCTION | Improving Water Quality | | | Hydrologic | | | Habitat | | | |
|---------------------------------------|-------------------------|----------|----------|------------|----------|----------|----------|----------|----------|--------------|
| <i>Circle the appropriate ratings</i> | | | | | | | | | | |
| 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 | 6 | | | 4 | | | 6 | | | 16 |

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 | <input checked="" type="checkbox"/> |

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 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 A

SLOPE WETLANDS

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

| | | | |
|--|------------|-----------------------------------|---|
| S 1.0. Does the site have the potential to improve water quality? | | | |
| S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i> | | | |
| Slope is 1% or less | points = 3 | | 1 |
| Slope is > 1%-2% | points = 2 | | |
| Slope is > 2%-5% | points = 1 | | |
| Slope is greater than 5% | points = 0 | | |
| S 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic <i>(use NRCS definitions)</i> : Yes = 3 No = 0 | | | 0 |
| S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> | | | |
| Dense, uncut, herbaceous plants > 90% of the wetland area | points = 6 | | 3 |
| Dense, uncut, herbaceous plants > ½ of area | points = 3 | | |
| Dense, woody, plants > ½ of area | points = 2 | | |
| Dense, uncut, herbaceous plants > ¼ of area | points = 1 | | |
| Does not meet any of the criteria above for plants | points = 0 | | |
| Total for S 1 | | Add the points in the boxes above | 4 |

Rating of Site Potential If score is: 12 = H 6-11 = M X 0-5 = L

Record the rating on the first page

| | | | |
|--|--|-----------------------------------|---|
| S 2.0. Does the landscape have the potential to support the water quality function of the site? | | | |
| S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? | | | |
| | | Yes = 1 No = 0 | 1 |
| S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ | | | |
| | | Yes = 1 No = 0 | 0 |
| Total for S 2 | | Add the points in the boxes above | 1 |

Rating of Landscape Potential If score is: X 1-2 = M 0 = L

Record the rating on the first page

| | | | |
|---|--|-----------------------------------|---|
| S 3.0. Is the water quality improvement provided by the site valuable to society? | | | |
| S 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 |
| S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i> | | | |
| | | Yes = 1 No = 0 | 1 |
| S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? <i>Answer YES if there is a TMDL for the basin in which unit is found.</i> | | | |
| | | Yes = 2 No = 0 | 2 |
| Total for S 3 | | Add the points in the boxes above | 4 |

Rating of Value If score is: X 2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number A

SLOPE WETLANDS

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

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

| | |
|---|------------|
| S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.</i> | |
| Dense, uncut, rigid plants cover > 90% of the area of the wetland | points = 1 |
| All other conditions | points = 0 |
| | 0 |

Rating of Site Potential If score is: 1 = M ~~0 = L~~

Record the rating on the first page

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

| | | |
|---|----------------|---|
| S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? | Yes = 1 No = 0 | 0 |
|---|----------------|---|

Rating of Landscape Potential If score is: 1 = M ~~0 = L~~

Record the rating on the first page

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

| | | |
|--|-----------------------------------|---|
| S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) | points = 2 | 1 |
| Surface flooding problems are in a sub-basin farther down-gradient | points = 1 | |
| No flooding problems anywhere downstream | points = 0 | |
| S 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 S 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

NOTES and FIELD OBSERVATIONS:

Wetland name or number 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.*

- | | | |
|--|----------------------------------|---|
| <input type="checkbox"/> Aquatic bed | 4 structures or more: points = 4 | 2 |
| <input checked="" type="checkbox"/> Emergent | 3 structures: points = 2 | |
| <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures: points = 1 | |
| <input checked="" type="checkbox"/> Forested (areas where trees have > 30% cover) | 1 structure: points = 0 | |
| <i>If the unit has a Forested class, check if:</i> | | |
| <input checked="" type="checkbox"/> 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 | | |

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*).

- | | | |
|---|-------------------------------------|---|
| <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present: points = 3 | 1 |
| <input type="checkbox"/> Seasonally flooded or inundated | 3 types present: points = 2 | |
| <input type="checkbox"/> Occasionally flooded or inundated | 2 types present: points = 1 | |
| <input checked="" type="checkbox"/> Saturated only | 1 type present: points = 0 | |
| <input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Lake Fringe wetland | 2 points | |
| <input type="checkbox"/> Freshwater tidal wetland | 2 points | |

H 1.3. Richness of plant species

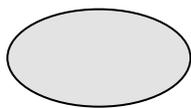
Count the number of plant species in the wetland that cover at least 10 ft².

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

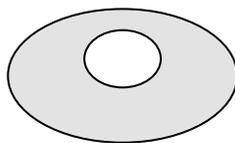
- | | | |
|------------------------------|------------|---|
| If you counted: > 19 species | points = 2 | 1 |
| 5 - 19 species | points = 1 | |
| < 5 species | points = 0 | |

H 1.4. Interspersion of habitats

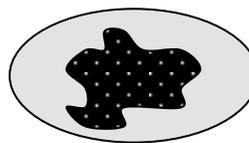
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



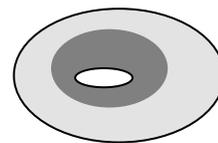
None = 0 points



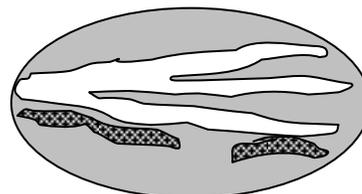
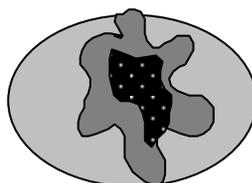
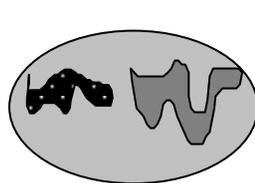
Low = 1 point



Moderate = 2 points



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



2

Wetland name or number A

| | | |
|--|-----------------------------------|---|
| <p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> 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)</p> <p><input type="checkbox"/> 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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p> | | 2 |
| Total for H 1 | Add the points in the boxes above | 8 |

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? | | |
| <p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u>%</p> <p>If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p> | | 0 |
| <p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u>%</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p> | | 1 |
| <p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p> | | -2 |
| 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? | | |
| <p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: points = 2</p> <p><input checked="" type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page)</p> <p><input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p><input type="checkbox"/> It is mapped as a location for an individual WDFW priority species</p> <p><input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p><input type="checkbox"/> 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</p> <p>Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1</p> <p>Site does not meet any of the criteria above points = 0</p> | | 2 |

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

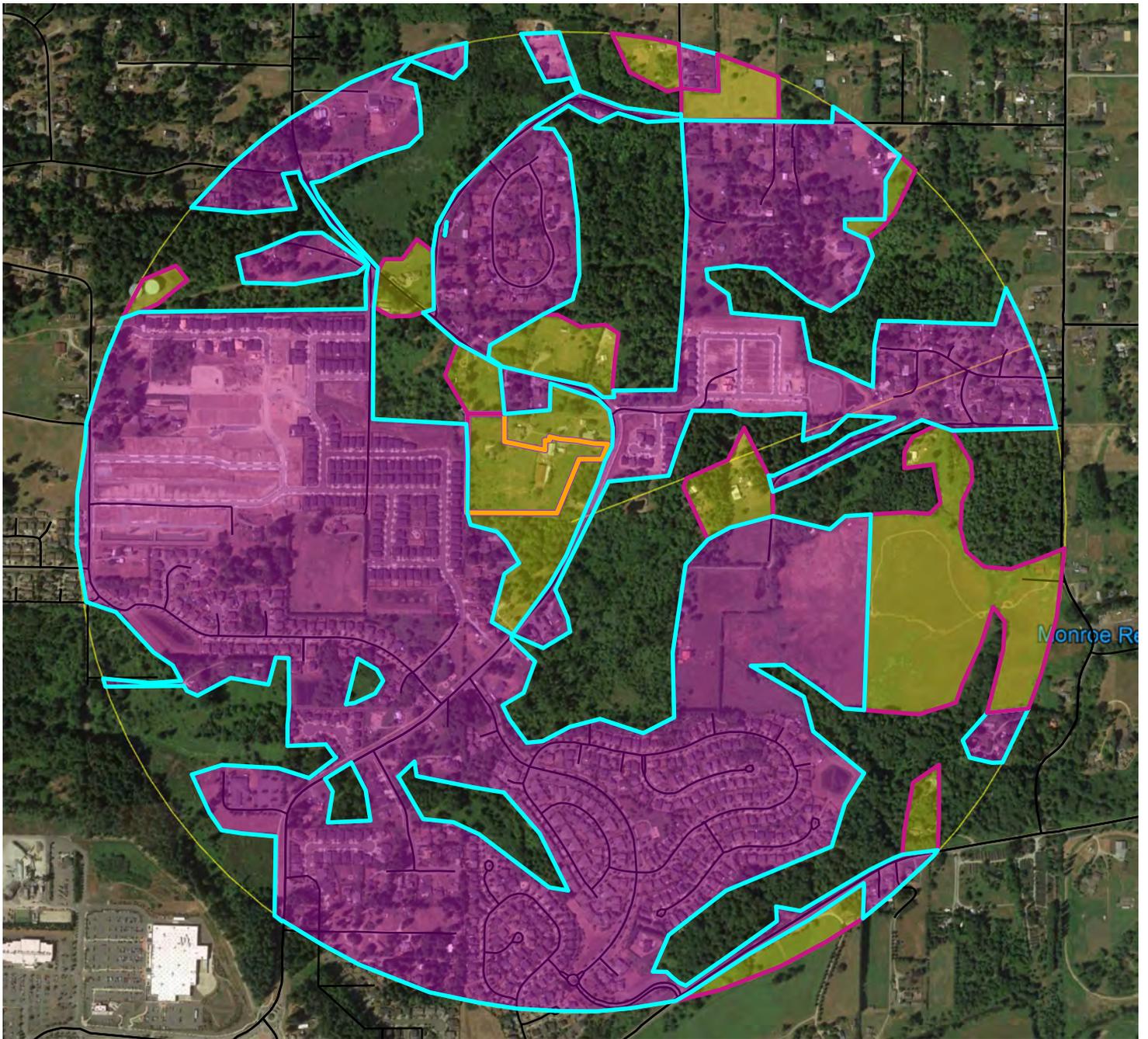
WDFW Priority Habitats

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

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

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

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



LEGEND

-  1KM ASSESSMENT AREA
-  HIGH INTENSITY LAND USE (~ 58%)
-  MODERATE TO LOW INTENSITY LAND USE (~ 12%)

REFERENCE: GIS ROAD AND STREAM DATA 2011 FROM SNOHOMISH COUNTY. AERIAL IMAGE 2018 FROM GOOGLE EARTH PRO.



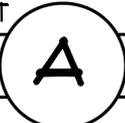
TALASAEA
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Resource & Environmental Planning
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Woodinville, Washington 98077
Bus (425)861-7550 - Fax (425)861-7549

FIGURE A

LAND USE INTENSITY ESTIMATE
CHAIN LAKE ROAD PROPERTY
MONROE, WASHINGTON

| | | |
|-------------------------|--------------|-----------------|
| DESIGN | DRAWN DRT | PROJECT 1684 |
| SCALE 1 IN : 1000 FT | | |
| DATE 19 NOV 2018 | | |
| REVISED | | |



APPENDIX C

Critical Areas Mitigation Plans

Sheet W1.0: Existing Conditions Plan

Sheet W1.1: Proposed Site Plan, Impacts & Mitigation Overview Plan

