

CRITICAL AREAS REPORT

TROMBLEY HILL
TRANSMISSION MAIN REPLACEMENT PROJECT
MONROE, WASHINGTON

Prepared for

AKS Engineering and Forestry, LLC

Prepared by



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Report Summary

Client:	AKS Engineering and Forestry, LLC 11321- B NE 120th Street Kirkland, WA 98034
Project site:	Installing 1,600 linear feet of waterline for the City of Monroe, located through private and public parcels and within a right-of-way from northwest of 179 th Ave SE and east of 191 st Ave SE in Monroe, Washington.
Critical Area Assessed:	Drainage 1 – Type F Stream
Regulatory Guidance:	MMC 22.80.100 establishes the following stream types (based on WAC 222-16-030 water types) and standards buffer widths: Type S – As SMP requires Type F – 200 feet Type Np (within one-quarter mile of a stream with salmonids) – 150 feet Type Np (beyond one-quarter mile of a stream with salmonids) – 75 feet Type Ns – 50 feet

Introduction

This Critical Area Report was prepared for AKS Engineering and Forestry, LLC (AKS), by Green Earth Operations, Inc. (GEO). GEO conducted site investigations to document the occurrence of regulated wetlands and streams within and adjacent to the project corridor. This report is consistent with the requirements of Monroe Critical Areas Development Standards (Monroe Municipal Code [MMC] 22.80). The report includes characterization of existing site conditions, review of existing information sources, and drainage survey. The intent of this report is to get confirmation from the City of Monroe on the presence of critical areas documented in this report.

This Trombley Critical Areas Report Revision 1 has been prepared in response to comments provided by the City of Monroe in January 2026. Revisions include additional sources and conclusions drawn from a follow-up site visit made on February 5, 2026, as well as mitigation measures for temporary impacts.

Field work and report preparation was led by Mark Merkelbach, GEO principal and professional wetland scientist (PWS - #001837).

Project Location

The project site (the “Site”) is in Monroe, Washington, and consists of a 1,600 linear feet water main, located through private and public parcels and within right-of-way from northwest of 179th Ave SE and east of 191st Ave SE in Section 25 and Section 36 of Township 28N and Range 6E W.M. (**Appendix A/Figure 1**). This area is in Water Resource Inventory Area (WRIA) 7 (Snohomish), in the French Creek watershed (**Appendix A/Figure 3**).

Project Purpose and Description

The City of Monroe’s Trombley Hill AC Water Main Replacement project proposes to replace an approximately 6,100 linear feet portion of the existing 16-inch Asbestos Cement (AC) water transmission main from the Trombley Hill reservoir to the 179th Avenue/Airport PRV station. This capital improvement project—CIP W-D-03—was identified as a high priority in its 2024-2044 Comprehensive Plan. The Trombley Hill transmission main corridor traverses both public and private properties in existing utility easements or rights-of-way areas comprised of a variety of land uses, vegetative cover, and topography.

Study Area

The study area for this investigation is limited to the Site (**Appendix A/Figure 1**). The on-site investigation was performed strictly within the site property boundaries; however, this study includes wetlands and stream inventories within a 300-foot radius of the project site, background research on pre-existing critical areas studies, as well as observations of conditions on adjacent properties made from within the project site. Within the Site, the streamline was flagged by the guidance required by federal, state, and local agencies. See the Methods section below for further details.

Methods

Wetland Delineation, Identification, and Classification

Waters of the United States (U.S.), including wetlands, were delineated within the project site boundaries consistent with the technical approaches outlined in the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Washington State Wetland Identification and Delineation Manual* (Ecology 1997), and the *Regional Supplement to USACE Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (Environmental Laboratory 2010). The wetland definition provided in Ordinance No. 0XX/2017, amending MMC 22.80, was applied throughout the study.

In general, wetland delineation consisted of three main tasks: (1) assessing vegetation, soil, and hydrologic characteristics to identify areas meeting the wetland identification criteria, (2) evaluating constructed drainage features to determine if they would be regulated as wetlands, and (3) marking wetland boundaries.

Sampling locations were selected at sites representative of the area. Dominant plant species in each of the three strata (tree, sapling/shrub, and herb) were identified using northwest flora field guides (Cook 1997 and Pojar 1994). Unless otherwise noted in field data sheets due to local conditions, trees were identified within a 30-foot radius of an established data plot, scrub/shrub vegetation was identified within a 5-foot radius, and herbaceous vegetation was identified within a 5-foot radius. A determination of the presence of hydrophytic vegetation was made at each observation point in accordance with the USACE guidelines (Environmental Laboratory 2010).

The determination of the presence of hydric soils was consistent with the USACE Regional Supplement (Environmental Laboratory 2010). The Soil Survey of Snohomish County area (NRCS 2025) provided information regarding the general characterization of the soils in the area, the parent material, as well as series, taxonomy and subgroup information. Soils were examined to a depth of approximately 20 inches, or the depth at which it could be confirmed that positive indicators were either present or absent. Soil colors were described in data forms using the Munsell soil color charts' numbering system (Munsell Color 2000). This numeric color classification system is used by the USACE Regional Supplement in determining if hydric soil indicators are present in a sample.

Hydrological data was collected from field observations and reference documents. Annual climate records and monthly precipitation during site visits were obtained from weather station located weather station Monroe, WA (NOAA 2025). Upon site inspection, the presence of direct and indirect hydrologic indicators was used to infer wetland hydrology. Field indicators of wetland hydrology were determined in accordance with the USACE guidelines (Environmental Laboratory 2010).

Wetlands observed on the subject property were classified according to the USFWS classification system (Cowardin et al. 1979). This system is based on an evaluation of attributes such as vegetation class, hydrologic regime, salinity, and substrate. Wetland were also classified according to the hydrogeomorphic (HGM) wetland classification system, which is based on an evaluation of attributes such as the position of

the wetland within the surrounding landscape, the source and location of water just before it enters the wetland, and the pattern of water movement in the wetland (Brinson 1993).

Wetland Rating

Ordinance No. OXX/2017, amending MMC 22.80, requires the classification of wetlands using the Washington State Wetland Rating System: 2014 Update Version 2.0 (Hruby 2023). The rating system assesses a wetland's potential to provide water quality, hydrologic, and habitat functions at a site-specific level as well as in relation to existing land use in the surrounding landscape. It also incorporates consideration of the wetland's hydrologic and geomorphic conditions into the system by assigning the wetland an hydrogeomorphic (HGM) classification. This allows for a more accurate rating of how well the wetland functions based on its position in the landscape, water source, and the flow and fluctuation of the water once in the wetland. The 2014 Rating System divides wetlands into four hierarchical categories based on specific attributes such as rarity, sensitivity to disturbance and our ability to replace them. The classification hierarchy ranges from Category I wetlands, which exhibit outstanding features (rare wetland type, relatively undisturbed or a high sensitivity to disturbance, high level of functions) to Category IV wetlands, which have the lowest levels of function and are often heavily disturbed. The rating categories are used to identify permitted uses in the wetland and its buffer, to determine the width of buffers needed to protect the wetland from adjacent development, and to identify the mitigation ratios required to compensate for potential impacts on wetlands. The rating system recognizes mosaic wetlands as a unique wetland system that cannot be adequately characterized using the standard questions on the rating form. These wetlands, as encountered, are rather characterized based on special characteristics.

Ratings forms were completed with information gathered in the field and through online research. Following determination of the wetland rating, the wetland buffer width was determined according to that rating, per MMC 22.80.090(D).

Ordinary High-Water Mark

The Ordinary High-Water Mark (OHWM) in western Washington is determined through a combination of desktop analysis and field investigation in accordance with WAC 173-22-030, U.S. Army Corps of Engineers guidance (ERDC/EL TR-08-13), and local critical area regulations. Prior to fieldwork, GEO will review aerial imagery, LIDAR, FEMA flood maps, and topographic data to assess site conditions and historical hydrology. In the field, OHWM indicators are identified based on physical and biological evidence, including a clear break in slope, change in vegetation from aquatic to upland species, presence of water staining, exposed roots or undercut banks, sediment deposition, and wrack lines. Supporting features such as gage data, lichen or moss lines, and soil characteristics help corroborate the primary indicators. Sites are assessed systematically along the feature's length, with OHWM elevations flagged, GPS-located or surveyed, and photo-documented.

Stream Classification

Washington State defines a watercourse, river, or stream as "any portion of a channel, bed, bank, or bottom waterward of the ordinary high-water line of waters of the state, including areas in which fish may spawn, reside, or pass, and tributary waters with defined bed or banks, which influence the quality of fish habitat downstream. This includes watercourses which flow on an intermittent basis or which fluctuate

in level during the year and applies to the entire bed of such watercourse whether or not the water is at peak level. This definition does not include irrigation ditches, canals, storm water run-off devices, or other entirely artificial watercourses, except where they exist in a natural watercourse that has been altered by humans” (WAC 2020; 220-660-030 [153]).

Streams are classified using the stream typing system in MMC 22.80.100. For the purposes of this report, “Stream” means water contained within a channel, either perennial or intermittent, and classified according to WAC 222-16-030 or 222-16-031. Stream types are described generally below:

- Type S waters are all waters inventoried as “shorelines of the state” under Chapter 90.58 RCW.
- Type F waters are segments of natural waters, other than Type S waters, which contain fish habitat.
- Type Np waters include those which are perennial during a year of normal rainfall and do not have the potential to be used by fish and are typically formed by geomorphic process.
- Type Ns waters include those which are seasonal or ephemeral during a year of normal rainfall and do not have the potential to be used by fish and were generally formed by a geomorphic process.

Determination of Fish and Wildlife Habitat Conservation Areas

The presence of fish and wildlife habitats of importance on the site were determined based on the following criteria listed in Ordinance No. OXX/2017, amending MMC 22.80 (City of Monroe 2017):

1. Areas with which state or federally designated endangered, threatened, and sensitive species have a primary association;
2. Habitats of local importance, including, but not limited to, areas designated as priority habitat by the Department of Fish and Wildlife;
3. Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish and wildlife habitat;
4. Waters of the state, including lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface water and watercourses within the jurisdiction of the state of Washington;
5. Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity;
6. State natural area preserves and natural resources conservation areas; and
7. Land essential for preserving connections between habitat blocks and open spaces.

Existing Information Review

Aerial photographs and project maps of the area were reviewed. Existing information concerning the project area was reviewed prior to fieldwork to identify vegetation patterns, topography, soils, streams, and other natural resources potentially located within the project boundaries.

Landscape Setting

The Site is located within the City of Monroe in Snohomish County, Washington, and encompasses a utility corridor of approximately 1,600 linear feet along an existing water main alignment. The replacement route extends through a mix of private and public parcels, and the existing right-of-way. The Site and surrounding area consist of a mix of residential, commercial, and utility-related land uses, along with undisturbed and previously disturbed open space (**Photo 1**). The alignment traverses generally level to steeply sloped terrain. The southern portion of the corridor passes through an area currently used as overflow parking for the Evergreen Equestrian Park fairgrounds (**Photo 2**).



Photo 1. Northernmost portion of the corridor looking southwest. Photo taken on 06/10/2025.



Photo 2. Southern portion used as fairgrounds overflow parking. Looking south along 179th Ave SE. Photo taken on 06/18/2025.

Land Use Changes

Historical aerial imagery indicates that prior to 1990, the Site was developed at the southern end, with rural homes and farmland in much of the northern segment. The middle of the site has largely remained forested. Between 1990 and 2002, a development was built north of the alignment center. From 2002 to present, aerials depict large scale residential development adjacent to the center and the northern portion of the alignment (**Appendix A/Figure 2**).

Watershed Description

The Site lies in the French Creek watershed (HUC 171100110201) and within the Water Resource Inventory Area (WRIA) 7 Snohomish (Ecology 2025) (**Appendix A/Figure 3**). A tributary of French Creek is

shown within close proximity to the corridor along its southern extent. A water vector map was created using GIS and LIDAR data to produce a slope map that illustrates computed surface flow pathways (**Appendix A/Figure 4a, b, c**). The drainage lines depicted in blue do not represent actual streams; rather, they indicate the general flow of surface water based on the topography. This figure demonstrates that water generally flows northeast to southwest. The tributary to French Creek is depicted along the north side of the corridor through a drainage draw (**Appendix A/Figure 4a**).

Climate, Precipitation, and Growing Season

The Puget Sound plateaus and lowlands of Snohomish County experience a mild to moderate temperate climate with average annual rainfall that can vary widely with elevation, latitude, and proximity to the Puget Sound shoreline. The local growing season in the Puget Sound Basin (Monroe, WA) is approximately 243 days in length using the 5 years in 10 criteria and 28° C. The nearest weather station Monroe, WA recorded 0.52 inches of precipitation in the 14 days preceding the initial site visit on June 10, 2025, 0.02 inches of precipitation in the 14 days prior to the site visit on June 18, 2025, and 2.08 inches preceding the February 5, 2026 site visit (NOAA 2025). Using the Antecedent Precipitation Tool, field work occurred during the wet season, and site conditions were normal during all site visits (Gutenson and Deters 2025).

Critical Areas Overview

Wetland Inventory

The National Wetland Inventory (NWI) is compiled by the U.S. Department of Interior Fish and Wildlife Service (USFWS 2025). NWI relies upon visual aerial photo interpretation of wetland indicators including hydrologic, vegetation and topographic signatures. Wetland areas identified under NWI are also classified in accordance with the Cowardin classification system (Cowardin et al. 1979). NWI identifies a stream entering the Site from the north, continuing for approximately 98 feet before turning west, as well as two wetlands (PABHx and PSS1C) located northeast of the northernmost point of the corridor. The Washington Department of Natural Resources Hydrology Dataset identifies a Type F stream traversing an identical path (**Appendix A/Figure 5a**) (WDNR 2025).

Two City-prepared critical area mapping resources were reviewed for the proposed project area. These maps were developed to assist property owners, project proponents, and resource professionals in identifying potential critical areas within City limits and to inform mitigation planning.

Appendix A/Figure 5b shows the project area overlain on the City's 2016 Wetland and Stream Inventory Map (City of Monroe 2016). This mapping identifies two wetlands within the southern portion of the corridor, labeled Inventory Numbers 14 (Category IV) and 28 (Category III), as well as an additional unnamed Category III wetland located south of the corridor and outside the project area. Two streams are mapped in the vicinity: a Type 3 stream located north of the alignment associated with a tributary to French Creek, and an unmapped or unclassified stream that crosses the corridor and flows south to join the tributary.

The City prepared an additional Wetland and Floodplains map as part of its 2024 Comprehensive Plan Update (City of Monroe 2024), shown in **Appendix A/Figure 5c**. Wetland features depicted on the 2024 mapping are consistent with those shown on the 2016 inventory. Although stream features appear to be similarly represented, stream symbology is not included in the map legend; therefore, stream identification on this figure is inferred based on visual comparison with the earlier inventory.

The Snohomish County Planning and Development Services (PDS) online mapping portal was also reviewed to assess mapped critical areas in the vicinity of the proposed project corridor (Snohomish County 2024). As shown on **Appendix A/Figure 5d**, a single linear wetland feature is mapped crossing the corridor just south of Rainier View Road SE. This feature is located in a similar position to Wetland No. 28 and the adjacent unnamed Category III wetland identified by the City of Monroe. Two additional wetlands, attributed to NWI, are mapped northeast of the northernmost extent of the corridor. The PDS mapping also shows an NWI-mapped fish-bearing stream briefly crossing the southern portion of the project boundary.

Soil Survey of Snohomish County

According to the Natural Resources Conservation Service (NRCS) Soil Survey (2011), a majority of the site is mapped as Tokul with Everett series soil along the south quarter (**Appendix A/Figure 6**). These soil series formed in glacial outwash and glacial till, respectively.

Tokul soils typically feature a surface mantle of gravelly loam over dense glacial till and are moderately well-drained, with moderate to slow permeability due to the underlying compact till. Both soil types are classified as non-hydric; however, Tokul soils may exhibit hydric characteristics in localized depressions or seasonally saturated areas where water accumulates above restrictive layers. Perched or migrating subsurface water may be present in low-lying portions of the site, particularly where compact till or buried restrictive horizons impede drainage. Everett soils are characterized by gravelly sandy loam surface horizons underlain by stratified sandy and gravelly outwash and are somewhat excessively drained with rapid permeability.

According to the United States Department of Agriculture (USDA 2009), Tokul soil is categorized as Group D, where water transmission through soil is somewhat restricted. Everett soil is classified as Hydrologic Soil Group B, where water transmission through the soil is unimpeded.

Sensitive Plants, Fish, Wildlife, and Habitats

According to the Washington State Department of Natural Resources (WDNR) Washington Natural Heritage Program (WNHP) and Wetlands of High Conservation Value database, a narrow NWI Level 1 EIA: Freshwater Forested/Shrub Wetland crosses through the southern portion of the corridor and connects offsite wetlands to the west and southeast of the Site (**Appendix A/Figure 5e**) (WDNR 2025). The Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database indicated that the stream extending onsite in the southern portion of the alignment as supporting Coho (*Oncorhynchus kisutch*) and Bull Trout (*Salvelinus malma/S. confluentus*) in occurrence and migration (WDFW 2025).

Results

Overview of Site Conditions

As discussed above, the Site includes a mix of residential, commercial, and utility-related land uses, along with undisturbed and previously disturbed open space. An initial reconnaissance-level site visit was conducted on June 10, 2025, followed by a formal stream delineation survey on June 18, 2024. Follow-up site visits occurred on July 14, 2025, and February 5, 2026. Site access was obtained from 179th Ave SE.

Site Topography and Hydrology

Topography within the Site ranges from generally flat to steeply sloped. Elevations throughout the site range from approximately 48 to 426 feet, with a general sloping northeast to southwest (**Appendix A/Figure 4a, b, c**). Site hydrology is primarily influenced by direct precipitation, with no evidence of natural springs or seeps. A drainage feature (tributary of French Creek) briefly crosses the Site from the north before exiting west via a culvert beneath 179th Ave SE.

Vegetation Community

The streambank is dominated by Himalayan blackberry (*Rubus armeniacus*), with Orchard grass (*Dactylis glomerata*), velvet grass (*Holcus lanatus*), meadow fescue (*Festuca arundinacea*), reed canary grass (*Phalaris arundinacea*), and broad-leaved dock (*Rumex obtusifolius*). Tree cover along the streambank consists of common hazel (*Corylus avellana*), Douglas fir (*Pseudotsuga menziesii*), and big leaf maple (*Acer macrophyllum*) (**Photo 3**). Within the stream, the channel is largely confined with Himalayan blackberry and reed canary grass (**Photo 4**).



Photo 3. Vegetation along streambank looking north. Photo taken on 06/18/2025.



Photo 4. Within stream channel looking west. Photo taken on 06/18/2025.

Critical Area Summary

GEO identified Drainage 1, a Type F stream which is consistent with the NWI, WDNR, City of Monroe, and Snohomish County datasets. GEO also confirmed that previously mapped wetland and stream polygons from City, County, and WDNR datasets are not within the vicinity of this utility corridor. Normal circumstances were present during the field delineation (USFWS and NRCS 2011). Refer to **Appendix A/Figure 7** for observation point (OBS-X) and soil pit (SP-X) locations, and **Appendix A/Figure 8** for stream critical area mapping. The OHWM was identified and flagged by GEO and surveyed by AKS Engineering & Forestry. Refer to **Appendix B** for soil pit data sheets.

Below is a summary of the drainage feature identified within the project site (**Table 1**).

Table 1. Critical Areas Summary Table

Critical Area	Area (SF)	Area (AC)	Habitat Score	Stream Category ¹	Standard Buffers ²
Drainage 1	--	--	--	Type F	200

¹Stream Classification (MMC 22.80.100)

²Stream Buffer based on MMC standard buffers

Non-Wetland Confirmation of Mapped Features

The PABHx wetland polygon mapped by NWI, also depicted on the City of Monroe’s 2024 Wetlands and Floodplains map and the Snohomish County PDS Map Portal (**Appendix A/Figure 5a, c, d**), was determined through aerial review and site reconnaissance to correspond to a constructed stormwater management feature associated with the adjacent City of Monroe water utility site. As such, it is a non-jurisdictional feature. The PSS1C NWI-mapped wetland polygon, also attributed to NWI on the Snohomish County PDS Map Portal, was determined to be beyond 300 feet from the north end of the proposed alignment.

On February 5, 2026, the Site was re-assessed in areas where three wetlands were mapped across the City of Monroe’s 2016 Wetland and Stream Inventory and 2024 Wetland and Floodplains map (Wetland Inventory No 14 and 28, and unnamed wetland feature), as well as the singular wetland in a corresponding area by the Snohomish County PDS Map Portal (**Appendix A/Figures 5b, 5c, and 5d**). Four observation points were established, and one soil pit was excavated as part of the follow-up Site reconnaissance, as summarized in **Table 2** below.

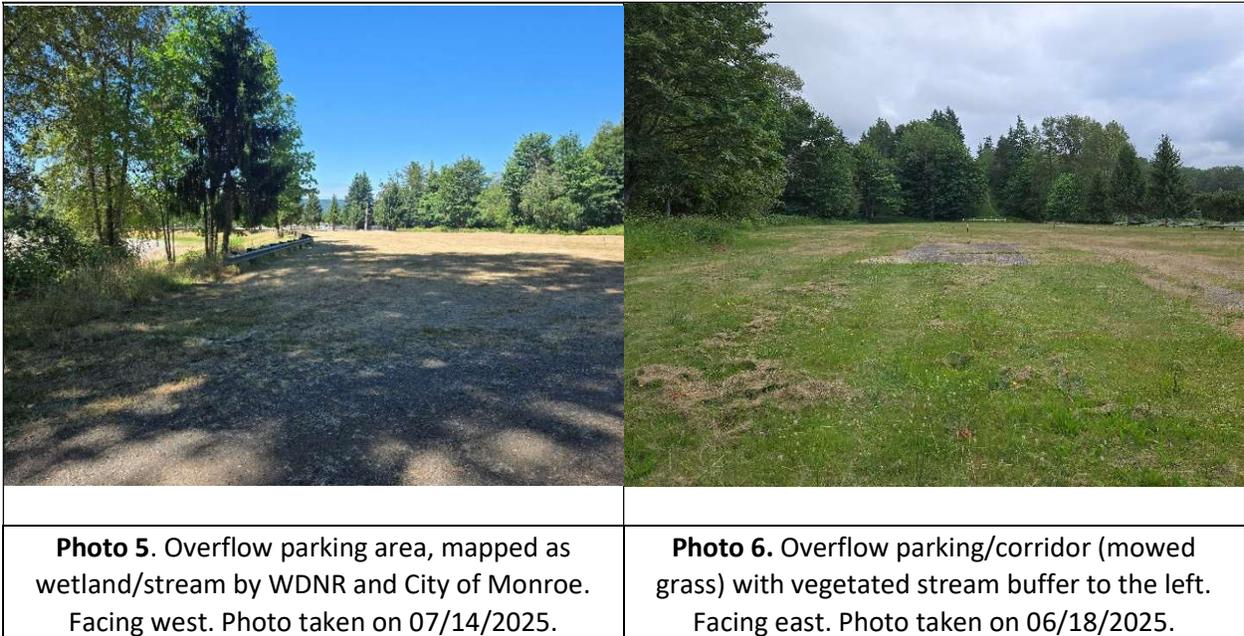
Table 2: Summary of Observation Points and Soil Pit

Observation Point (OB-X)	Summary	Photo
<p>OBS-1 (Upland)</p>	<p>Within wetland area mapped by the Snohomish County PDS Map Portal, consists of an asphalt pedestrian walking path. The paved path is flanked by a stormwater swale to the northeast and red alder (<i>Alnus rubra</i>), Himalayan blackberry (<i>Rubus armeniacus</i>), and sword fern (<i>Polystichum munitum</i>) to the west. (Photo facing west)</p>	
<p>OBS-2 (Upland)</p>	<p>Located at the junction of the mapped wetland polygons, at the center of a mowed and maintained utility corridor. The area is sloped on either side and vegetated with red alder, big leaf maple (<i>Acer macrophyllum</i>), Western red cedar (<i>Thuja plicata</i>), Douglas fir (<i>Pseudotsuga menziesii</i>), Himalayan blackberry, and sword fern. (Photo facing south)</p>	
<p>OBS-3 (Upland)</p>	<p>Located at the northern corridor boundary, in the westernmost finger of the City of Monroe’s mapped wetland polygon. Lying on a slope, this area is vegetated by red alder, big leaf maple, Western red cedar, Douglas fir, Himalayan blackberry, and swordfern. (Photo facing east)</p>	

<p>OBS-4 (Upland)</p>	<p>Lying on a steep slope, this area is located within the northernmost finger of the City of Monroe’s mapped wetland polygon. Vegetation consists of red alder, big leaf maple, Western red cedar, Douglas fir, swordfern, and a dense understory of Himalayan blackberry. (Photo facing south)</p>	
Soil Pit (SP-X)	Summary	Photo
<p>SP-1 (Upland)</p>	<p>Located south of the proposed project corridor within the long, linear wetland polygon mapped by both the City of Monroe and the Snohomish County PDS. With an approximate 20% slope, vegetation consists of big leaf maple, black cottonwood (<i>Populus balsamifera</i>), Indian plum (<i>Oemleria cerasiformis</i>), red huckleberry (<i>Vaccinium parvifolium</i>), swordfern, and trailing blackberry (<i>Rubus ursinus</i>). Soils did not exhibit any hydric soil indicators, and no wetland hydrology indicators were observed. See Appendix B for the full data sheet.</p>	

All available evidence indicates that City of Monroe Inventory Wetlands No. 14 and No. 28, along with the unclassified wetland feature identified by the City and the unclassified wetland depicted in the Snohomish County PDS Map Portal, are no longer present or have been incorrectly mapped. Current site conditions reflect upland characteristics throughout these mapped areas.

The linear wetland feature mapped by the WDNR (**Appendix A/Figure 5e**), which aligns with an unclassified stream shown on City of Monroe mapping, was also not identified during site visits. There are no culverts, nor any critical area features. This area currently functions as overflow parking for the Evergreen Equestrian Park and is characterized by gravel fill, concrete patches, metal posts, and vegetation typical of disturbed conditions (**Photos 5 and 6**).



Drainage 1

Drainage 1 is a fish-bearing stream that enters the southern portion of the corridor and flows through the Site for approximately 100 feet before exiting and continues west (**Appendix A, Figure 8**). The stream is part of an extensive hydrologic network that extends both upstream and downstream from the point of entry. North of the project site, the stream diverges into northern and eastern branches. After traversing through the corridor, Drainage 1 travels southwest under 179th Ave SE via a culvert and appears to connect to a sizeable offsite freshwater emergent/forested wetland system west of the site, where it branches and continues north.

During field visits in June 2025, surface flow approximately three inches deep was observed moving southwest. The stream channel has a defined bed and bank, with visible signs of bedload transport consisting of small gravel to large cobble. The bed is approximately eight feet wide, and the south bank is about four feet deep. The ordinary high-water mark (OHWM) was flagged within the channel approximately nine inches above the streambed (**Photo 7**).

The WDNR classifies this stream as Type F (WDNR 2025). According to MMC 22.80.100, a 200-foot standard buffer is required for Type F streams. Field investigations confirmed minor deviations in the mapped and LiDAR-defined channel alignment north of its entry into the project area, after which the channel generally follows the mapped and LiDAR-indicated course.



Photo 7. Drainage 1 OHWM. Photo taken on 06/18/2025.

Buffer Conditions

The onsite stream buffer (**Appendix A/Figure 8**) is largely used as overflow parking for the Evergreen Equestrian Park (**Photo 6**). The open area consists of gravel fill and mowed grass species adapted to disturbed environments such as white clover (*Trifolium repens*), common dandelion (*Taraxacum officinale*), lesser trefoil (*Trifolium dubium*), and ribwort plantain (*Plantago lanceolata*). Landscaped Norway spruce (*Picea abies*) is planted along the perimeter of the lot. This area serves as a physical buffer in terms of proximity, but it lacks ecological functions typically associated with effective stream buffers. Vegetation and soil disturbance from anthropogenic activities prevent the establishment of native vegetation, resulting in limited plant diversity and structural complexity. This simplified vegetative cover offers minimal habitat for wildlife. Additionally, shallow root systems and compacted soils reduce infiltration and fail to protect the stream from pollutants, erosion, or hydrologic fluctuations. As such, this type of buffer contributes little to the protection or enhancement of stream functions.

The buffer also partially encompasses a forested area that borders a steep utility slope. This forested buffer plays a key role in water quality protection by filtering sediment, nutrients, and pollutants from upland runoff before it enters the stream system. The dense vegetation promotes infiltration, reducing surface runoff and peak flows during storm events. Additionally, the forest provides high-quality wildlife habitat and movement corridors, supporting species that rely on both upland and aquatic environments. Litterfall and large woody debris from stream buffers contribute organic material and structural complexity to the stream system, enhancing habitat downstream and maintaining ecological connectivity to Puget Sound. This forested area will not be impacted as all work is proposed within the previously cleared utility right-of-way.

Conclusions of Investigation

Drainage 1 is classified as a Type F stream, which requires a standard 200-foot buffer per MMC 22.80.100.

Stream Buffer Impacts and Mitigation

Proposed Action

The Trombley Hill Water Transmission Main project proposes to remove and replace an aging 16-inch diameter water main with a new 24-inch HDPE pipeline. The new pipeline will be installed using open trench excavation and backfill techniques within the same existing easement area as the current municipal potable water pipeline. Trench excavation depths are anticipated to be between 7 and 8 feet from existing ground surface. The width of the trench is expected to typically be on the order of 4 feet. No work will occur outside of the existing utility easement, and all disturbed areas will be restored in-kind and seeded with native grass mix.

Temporary Stream Buffer Impacts

The proposed action is confined entirely to the existing, actively maintained utility corridor that traverses a portion of the stream buffer. Temporary construction activity will occur along approximately 986 linear feet of the stream buffer or 3,944 square feet within the existing corridor. The corridor is maintained in a regularly mowed, herbaceous condition to allow utility access and is also used for overflow parking associated with the Evergreen Equestrian Park (**Photos 5 and 6**). As such, the corridor provides limited riparian buffer functions relative to the adjacent contiguous forested buffer. Post-construction conditions will match preconstruction conditions, and the corridor will remain in its maintained herbaceous state consistent with ongoing utility and operational use.

All work will be completed in accordance with MMC 22.80.100.A.6, which states that “*the criteria for alignment, construction, and maintenance within the wetland buffers shall apply to utility corridors within stream buffers,*” and will adhere to the criteria required by MMC 22.80.090.A.7:

a. Corridor alignment shall follow a path beyond a distance from the wetland edge equal to seventy-five percent of the buffer width, except when crossing a Category IV wetland and its buffer;

Response: The utility corridor is pre-existing and is aligned approximately 100 feet from the OHWM edge at the nearest point. The alignment was previously established and remains outside the contiguous riparian area immediately adjacent to the stream. No realignment or expansion of the corridor is proposed as part of this project.

b. Corridor construction and maintenance shall maintain and protect the hydrologic and hydraulic functions of the wetland and the buffer;

Response: All proposed maintenance work will occur within the existing, actively maintained utility corridor and will not alter surface water flow, groundwater conditions, or the stream

channel. No grading, filling, or drainage modifications are proposed. Therefore, the hydrologic and hydraulic functions of the wetland and associated buffer will be maintained.

c. Corridors shall be fully revegetated with appropriate native vegetation upon completion of construction; and

Response: Upon completion of construction, all temporarily disturbed areas within the utility corridor will be stabilized and reseeded with an appropriate native seed mix to reestablish vegetative ground cover. The corridor will be restored to its preconstruction maintained herbaceous condition, consistent with ongoing utility access.

d. Utilities requiring maintenance roads shall be prohibited in wetland buffers unless the following criteria are met:

- i. There are no lesser impacting alternatives;*
- ii. Any required maintenance roads shall be no greater than fifteen feet wide. Roads shall closely approximate the location of the utility to minimize disturbances; and*
- iii. The maintenance road shall be constructed of pervious materials and designed to maintain and protect the hydrologic functions of the wetland and its buffer.*

Response: Not applicable: No new maintenance roads are proposed as part of this project. The work will occur within the existing utility corridor, and no widening, new road construction, or surfacing is required.

Construction-related impacts are anticipated to be temporary and limited in scope. The project will not result in wetland fill, will not involve work within the stream channel, and will avoid disturbance to the contiguous forested riparian buffer adjacent to the stream. Approximately 6 trees are proposed for removal within the stream buffer; however, these trees are located on the opposite side of the established utility corridor and are not part of the intact forested buffer that provides primary riparian functions (**Appendix A/Figure 9**). As a result, their removal will not affect stream shading, large woody debris recruitment potential, bank stability, or other core riparian habitat functions. Because no disturbance is proposed within the intact forested buffer along the stream edge, overall stream buffer functions and values will be maintained.

Mitigation

Construction within the existing City of Monroe waterline utility corridor will temporarily disturb soils within the stream buffer; however, no permanent clearing beyond the existing corridor is proposed. Consistent with City of Monroe Ordinance No. 020/2025 (City of Monroe 2025) and MMC 22.80.090.A.7.c, utility easements are reserved for construction and maintenance access and must be restored following disturbance. After construction, disturbed portions of the corridor within the buffer will be stabilized via native grass seeding to provide erosion control and stable ground cover while maintaining required access for ongoing utility maintenance. Trees and shrubs are not proposed within the utility corridor to avoid conflicts with future maintenance activities.

Final stabilization will be completed in accordance with the City of Monroe Public Works Design, Construction and Operations Standards (City of Monroe 2023) and the 2024 Stormwater Management Manual for Western Washington (SWMMWW) (WDOE 2024), which require exposed soils to be stabilized through approved BMPs such as permanent seeding.

Impacts will be temporary, and overall buffer functions and values will be maintained and consistent with pre-construction conditions. Upon completion of construction, the contractor will submit an As-built to the City documenting that disturbed areas have been reseeded and soils stabilized in accordance with approved plans.

Disclaimer

Green Earth Operations, Inc. (GEO) has prepared this Critical Areas Report Revision 1 at the request of AKS Engineering and Forestry, LLC. The information contained herein is, to the best of our knowledge, accurate and reliable. It is important to recognize that establishing wetland boundaries is an imprecise science. Wetlands are, by definition, transition areas, and their boundaries can change over time. The presence of wetland indicators may also vary depending on the season. Furthermore, individual professionals may have differing opinions on the exact location of wetland boundaries and/or the functions and values of a wetland. All stream and wetland boundaries, classifications, and buffer widths should be considered subject to change until reviewed and approved by the appropriate regulatory agencies with jurisdiction. GEO recommends obtaining jurisdictional approval before finalizing site plans and/or commencing construction activities. The final determination of U.S. federal jurisdiction rests with the U.S. Army Corps of Engineers (Corps), Seattle District. Wetlands classified as “Waters of the State” are regulated by Washington State, with jurisdiction determined by the Washington State Department of Ecology (WDOE). Based on the final determinations of the Corps and WDOE, wetland buffer and mitigation requirements must adhere to Monroe Municipal Code (MMC) regulations. This report can be used in applying for state and/or federal permits. GEO is not liable for the accuracy of information provided by third parties.

Within the constraints of schedule, budget, and scope of work, GEO assures that this study was conducted in accordance with generally accepted environmental science practices, including the technical guidelines and criteria in effect at the time of this study. The results and conclusions of this report reflect the author’s best professional judgment based on information provided by the project proponent and data collected during this study. No other warranty, expressed or implied, is provided.

Should there be any changes in the nature, design, or location of the project site features, the conclusions and recommendations in this report will not remain valid unless the changes are reviewed and the conclusions of this report are verified in writing by GEO. GEO is not responsible for any claims, damages, or liabilities arising from the interpretation of these findings or the reuse of the analysis without GEO's express written authorization.

GEO and project staff are not attorneys, and this report should not be interpreted as a legal representation or interpretation of environmental laws, rules, or regulations.

References

- Brinson, M. M. 1993. A Hydrogeomorphic Classification for Wetlands. Technical Report WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A270 053.
- City of Monroe. 2016. Streams and Wetlands Map (11x17). Accessed July 2025.
<https://www.monroewa.gov/DocumentCenter/View/3696/Streams-and-wetlands-11x17-2016?bidId=>.
- City of Monroe. 2017. *City of Monroe Ordinance NO. 0XX/2017*. Accessed July 2025.
<https://www.monroewa.gov/AgendaCenter/ViewFile/Item/5439?fileID=5789>.
- City of Monroe. 2023. *Public works design, construction and operations standards: Section 4 – Storm and surface water (Section 4.1.4 Storm drainage design)*.
- City of Monroe. 2024. Figure 10.3: Wetland and Floodplains. *2024 Comprehensive Plan Update*.
- City of Monroe. 2025. *Ordinance No. 020/2025: Section 4 – Easements*.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRue (*Cowardin et. al.*). 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service Publication FWS/OBS-79/31.
- Ecology. 1997. Washington State Department of Ecology. Washington State Wetland Identification and Delineation Manual. Publication No. 96-94., Olympia, WA.
- Ecology. 2025. Washington State Department of Ecology, Water Quality Atlas. Accessed at: <https://apps.ecology.wa.gov/waterqualityatlas>. Accessed on June 24, 2025.
- Environmental Laboratory. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). Environmental Laboratory, U.S. Army Corps of Engineers Research and Development Center, Vicksburg, MI.
- Google. 2025. Google Earth Aerial Image. Assessed on June 24, 2025.
- Gutenson, J. L., and J. C. Deters. 2025. Antecedent Precipitation Tool (APT) Version 1.0: Technical and User Guide. ERDC/TN WRAP-22-1. Vicksburg, MS: US Army Engineer Research and Development Center. <http://dx.doi.org/10.21079/11681/43160>. Accessed on: June 26, 2025.
- Hruby, T. 2023. Washington State Wetland Rating System for Western Washington: 2014 Update (Version 2). (Publication #23-06-009). Olympia, WA: Washington Department of Ecology.
- MMC. 2025. Monroe Municipal Code § 22.80: Critical Areas. City of Monroe. Assessed July 2025.
<https://monroe.municipal.codes/MMC/22.80>.
- Munsell Color. 2000. Munsell® Soil Color Charts. Year 2000 revised washable edition.
Munsell® Color. Gretag/Macbeth Publishing. 617 Little Britain Road, New Windsor, NY 12553.

NOAA. 2025. AgACIS for Snohomish County Interactive WETS Climate Station Mapping and Database. Everett, WA Station Data. Accessed at: <https://agacis.rcc-acis.org/>. Accessed on: July 2, 2025.

NRCS. 2011. U.S. Department of Agriculture, Natural Resource Conservation Service. Web Soil Survey. Accessed on July 1, 2025. Accessed at: <https://websoilsurvey.nrcs.usda.gov/app/>

Pojar J. and A. MacKinnon. 1994. Plants of the Pacific Northwest Coast Washington, Oregon, British Columbia and Alaska. Lone Publishing, Vancouver, B.C.

Snohomish County. 2024. Snohomish County Planning and Development Services (PDS) Map Portal. Assessed at: <https://gisapp.snoco.org/web/?app=4c43fa46d1be44d48f0a9516c6c6cfc6>

USDA. 2009. United States Department of Agriculture, Natural Resource Conservation Service. Hydrologic Soil Groups. Part 630 Hydrology National Engineering Handbook, Chapter 7.

USFWS. 2025. U. S. Department of Interior. U.S. Fish and Wildlife Service. National Wetlands Inventory. Accessed at: <http://www.fws.gov/wetlands/data/Mapper.html>. Accessed on June 24, 2025

WAC. 2020. Washington Administrative Code. Access Washington. WAC 222-16-030. Water Typing System. Accessed July 1, 2025, at: <http://apps.leg.wa.gov/WAC/default.aspx?cite=222-16-030>

WDNR. 2025. Washington State Department of Natural Resources. Washington Natural Heritage Program. Data Explorer online Geographic Information System (GIS) application. Accessed online database on June 26, 2025. Accessed at: <https://experience.arcgis.com/experience/174566100f2a47bebe56db3f0f78b5d9/>

WDOE. 2024. Washington State Department of Ecology. *Stormwater management manual for western Washington (SWMMWW), Volume II – Construction stormwater pollution prevention, Section II-2.5: Element 5 – Stabilize soils.*

WDFW. 2025. Washington Department of Fish and Wildlife. Priority Habitats on the Web. Accessed online database on July 2, 2025. Accessed at: <http://apps.wdfw.wa.gov/phsontheweb/>.

APPENDIX A: FIGURES

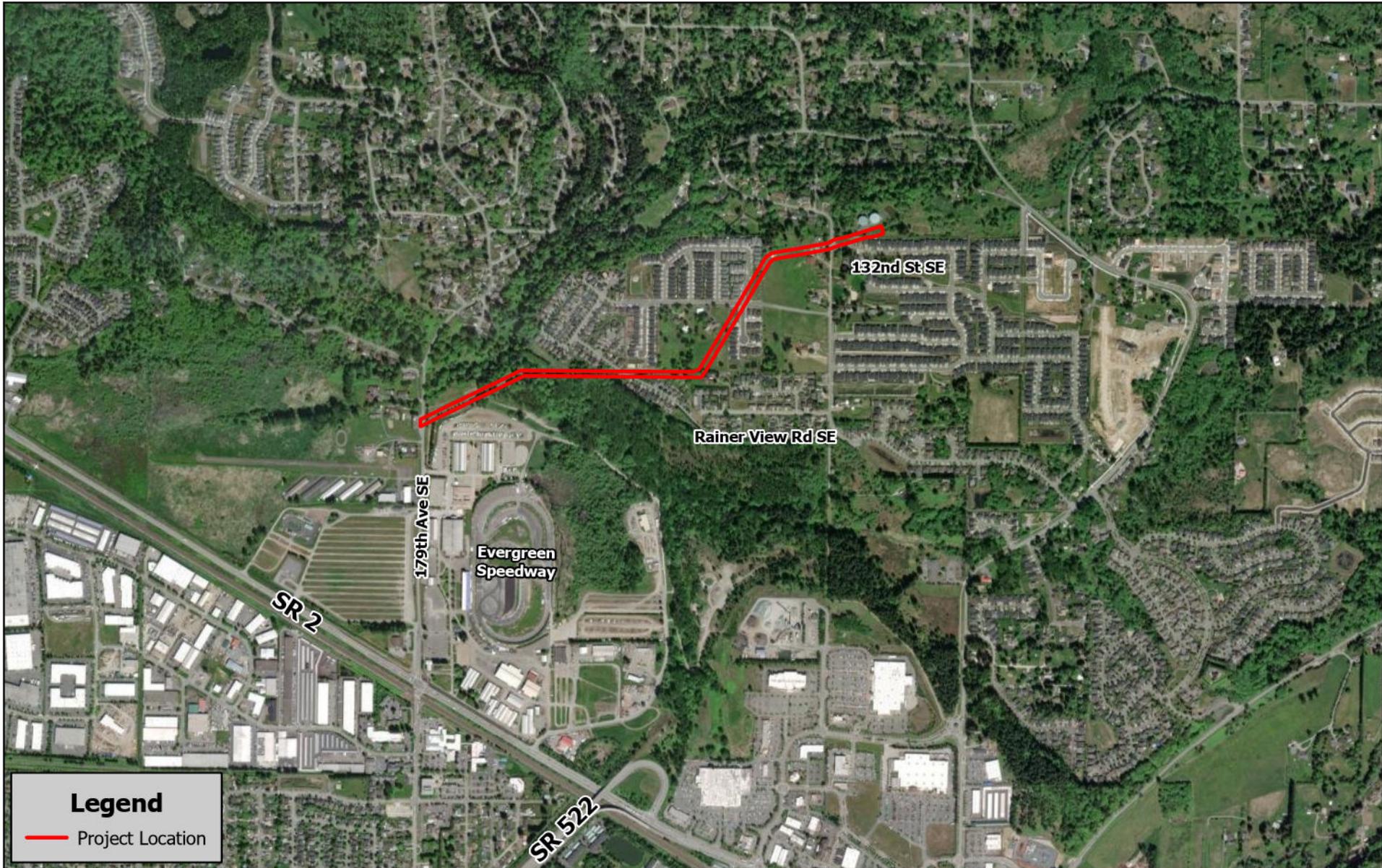
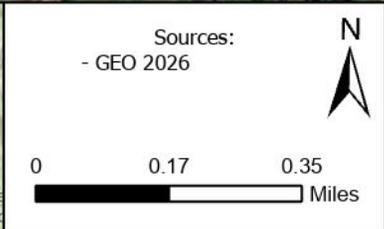


Figure 1 - Vicinity Map
 Trombley Hill AC Water Main Replacement
 Snohomish County, WA

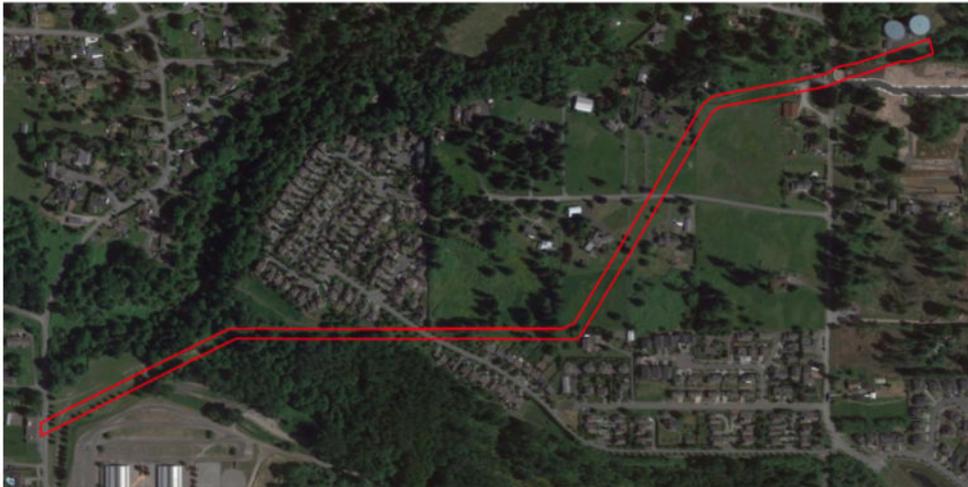




August 4, 1990



April 4, 2002



May 30, 2017



April 30, 2025

	<p>Figure 2 - Historical Aerial Photos Trombley Hill AC Water Main Replacement Snohomish County, WA</p>		<p>Sources: - GEO 2026 - Google Earth 1990, 2002, 2017, 2025</p> 
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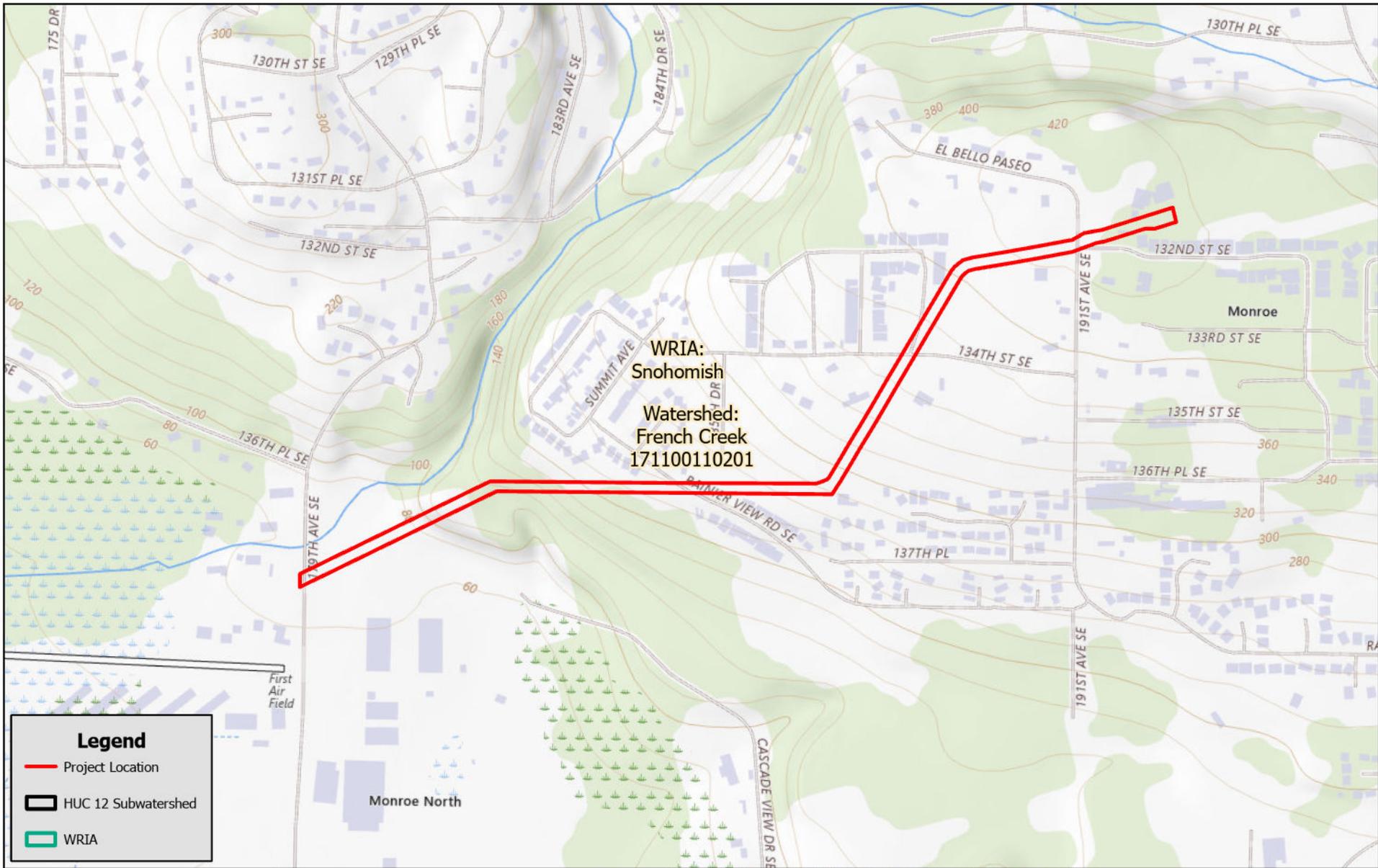
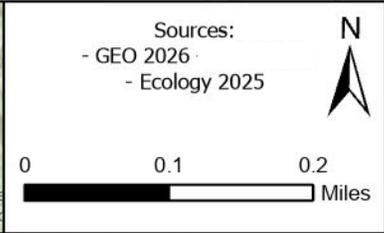


Figure 3 - Watershed Map
 Trombley Hill AC Water Main Replacement
 Snohomish County, WA



Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

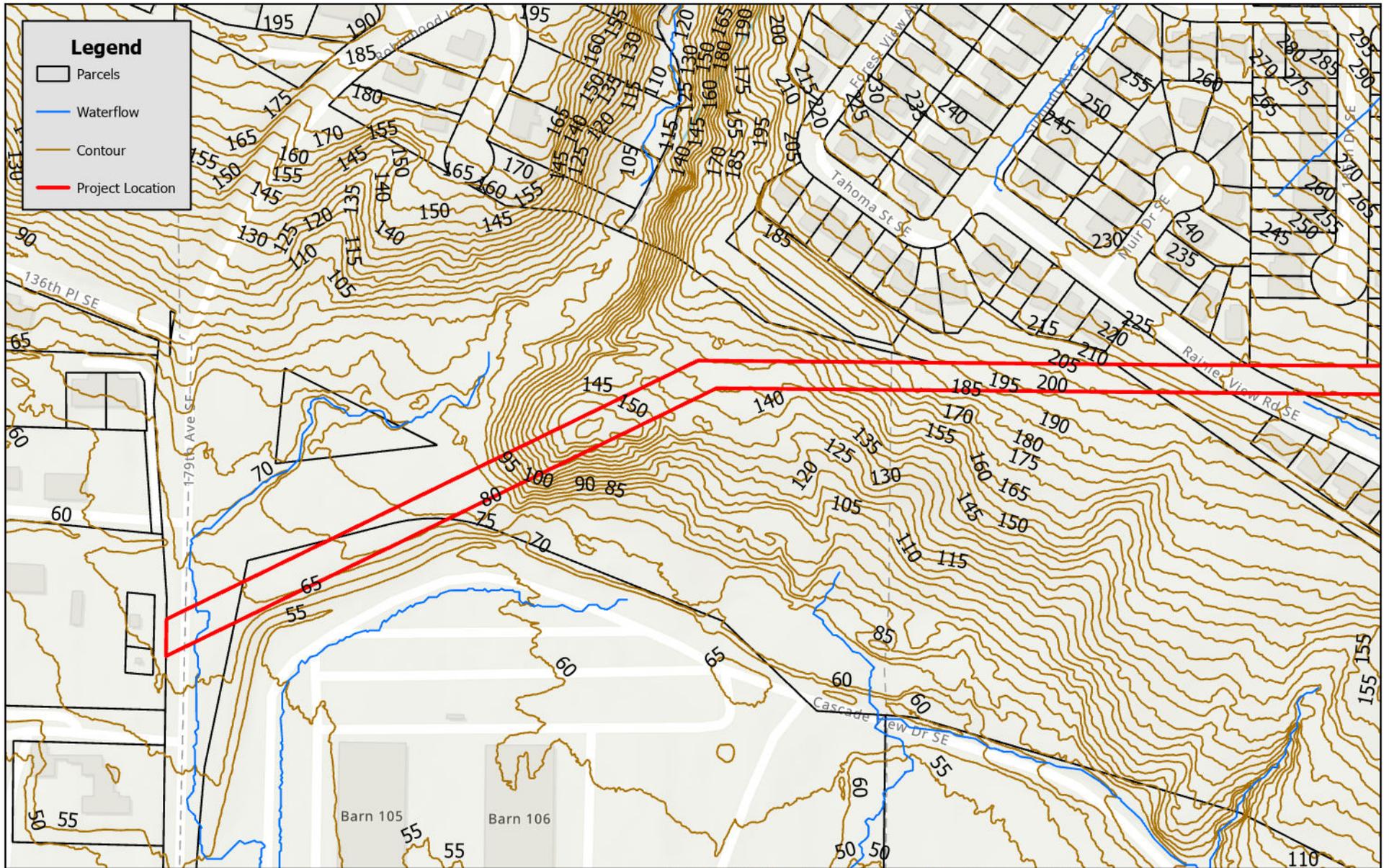


Figure 4a - Water Vector Map
 Trombley Hill AC Water Main Replacement
 Snohomish County, WA



Sources:
 - GEO 2026
 - WDNR 2025

0 0.04 0.07
 Miles

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

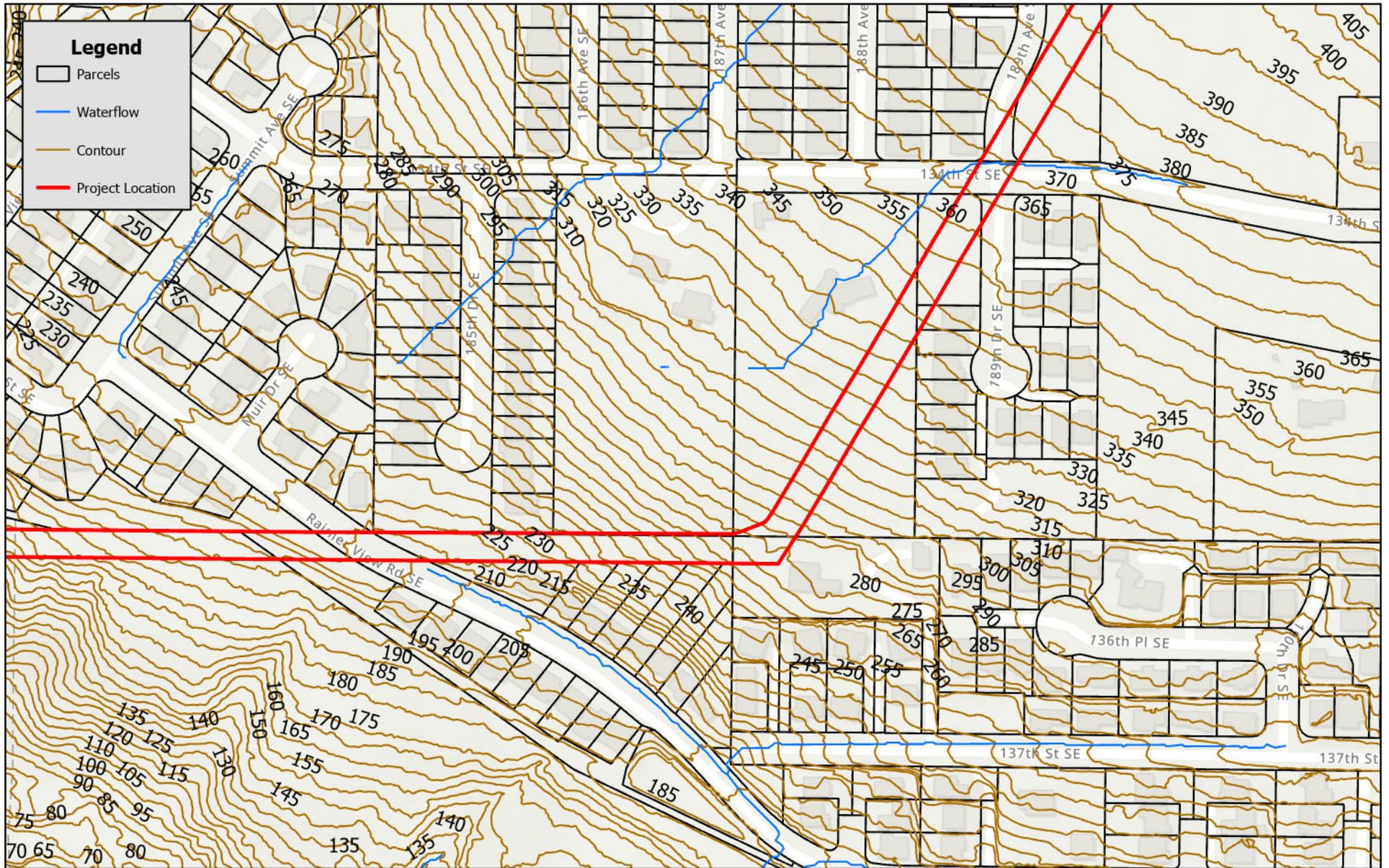


Figure 4b - Water Vector Map
 Trombley Hill AC Water Main Replacement
 Snohomish County, WA



Sources:
 - GEO 2026
 - WDNR 2025

0 0.04 0.07
 Miles

N

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

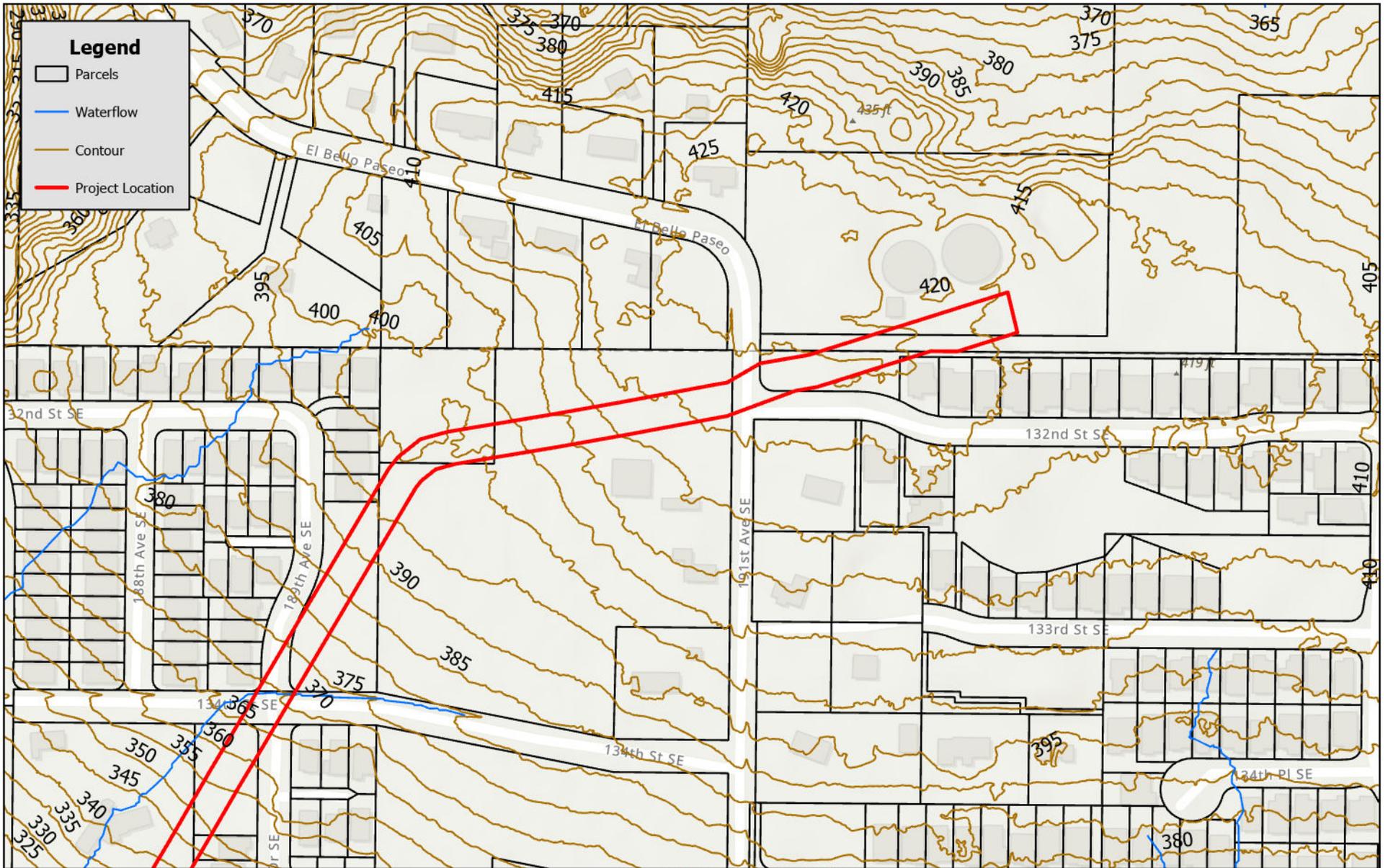


Figure 4c - Water Vector Map
 Trombley Hill AC Water Main Replacement
 Snohomish County, WA



Sources:
 - GEO 2026
 - WDNR 2025

0 0.04 0.07 Miles

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

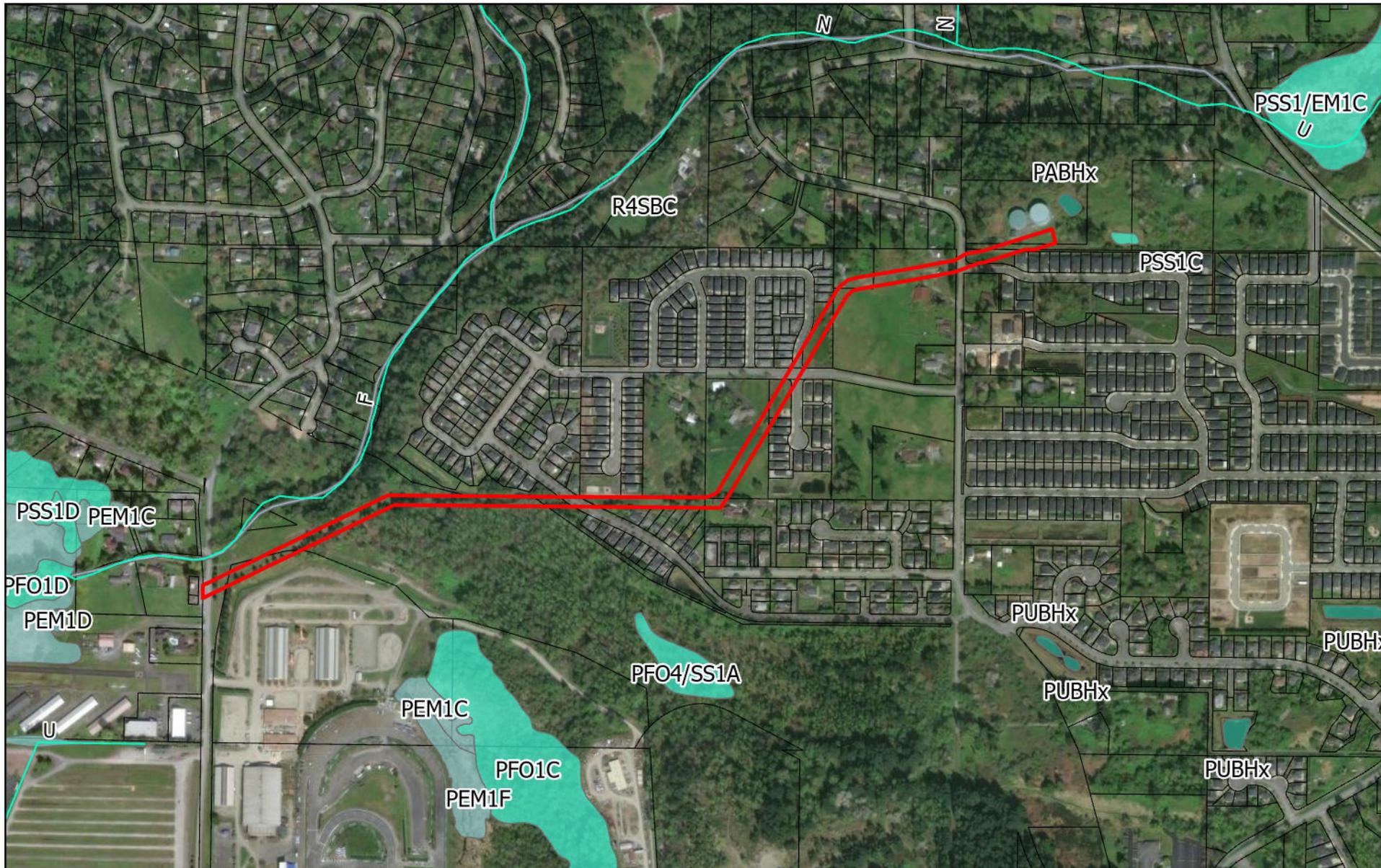
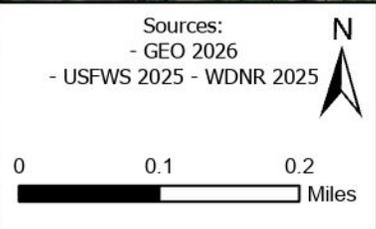


Figure 5a - Mapped NWI Wetlands and WDNR Streams
 Trombley Hill AC Water Main Replacement
 Snohomish County, WA



Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

City of Monroe



Stream & Wetlands

STREAMS

- Type 1
- Type 3
- Type 3u*
- Type 4
- Type 5
- Unclassified Stream
- Stream Inventory No.

WETLANDS

- Cat I
- Cat II
- Cat III
- Cat IV
- Unclassified Wetlands
- Wetland Inventory No.

BOUNDARIES

- Urban Growth Area
- Monroe City Limits
- Shoreline Boundary

BUFFERS*

- Combined Critical Areas Buffers

* Type 4 stream buffer shown as 150 ft on each side of the channel. Type 4 streams, beyond a quarter mile of a stream with salmonids, have a buffer of 75 ft on each side of the channel. See MMC 20.05 for specific buffers.

- Notes:
- The locations depicted are approximate boundaries for critical areas within the city limits. This map provides only approximate boundaries of known features and is not a substitute for more detailed maps and/or studies to identify the exact locations of known features or additional critical area features not illustrated on the map.
 - The points where streams change classification are approximate and subject to confirmation and refinement.
 - Classifications are subject to refinement based upon additional or updated fish use and seasonality of water flow information.



Map data shown is the property of the sources listed below. Inaccuracies may exist, and the City of Monroe implies no warranties or guarantees regarding any aspect of data depiction. This map is not an actual survey of individually noted critical areas. Streams have been categorized using the water typing system defined in Monroe Municipal Code Chapter 20.05 (equivalent to WAC 222-16-031). Wetlands were classified using the Washington Department of Ecology's Washington State Wetland Rating system for Western Washington. Wetland size, shape and location are approximate based on a reconnaissance level evaluation. The City of Monroe and the Urban Growth Area may contain additional critical areas not identified on this map. Therefore this map is to be used for reference purposes only.

Source: City of Monroe GIS, 2008;
The Watershed Company;
Snohomish County GIS, 2007

Project: Streams & Wetlands 11x17
Location: Y:\GIS\Departments\CD\Comprehensive Plan\Comp Plan 2013\FOR_Commerce
Revised: 10-08-13
Author: M. Sartorius

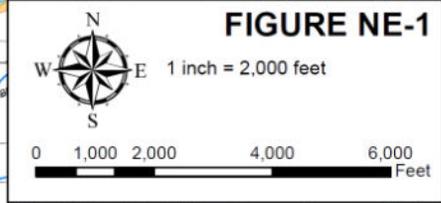
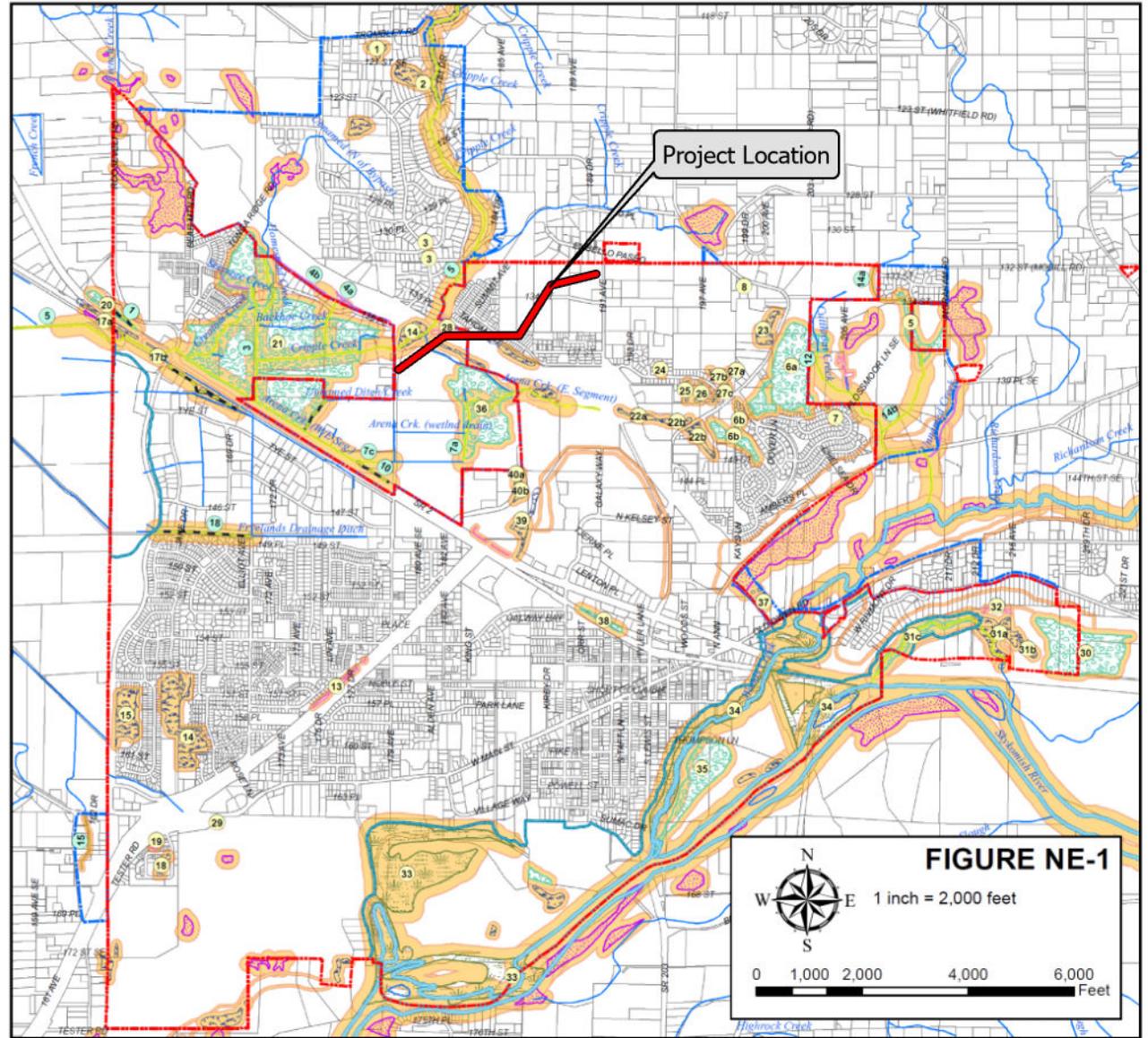
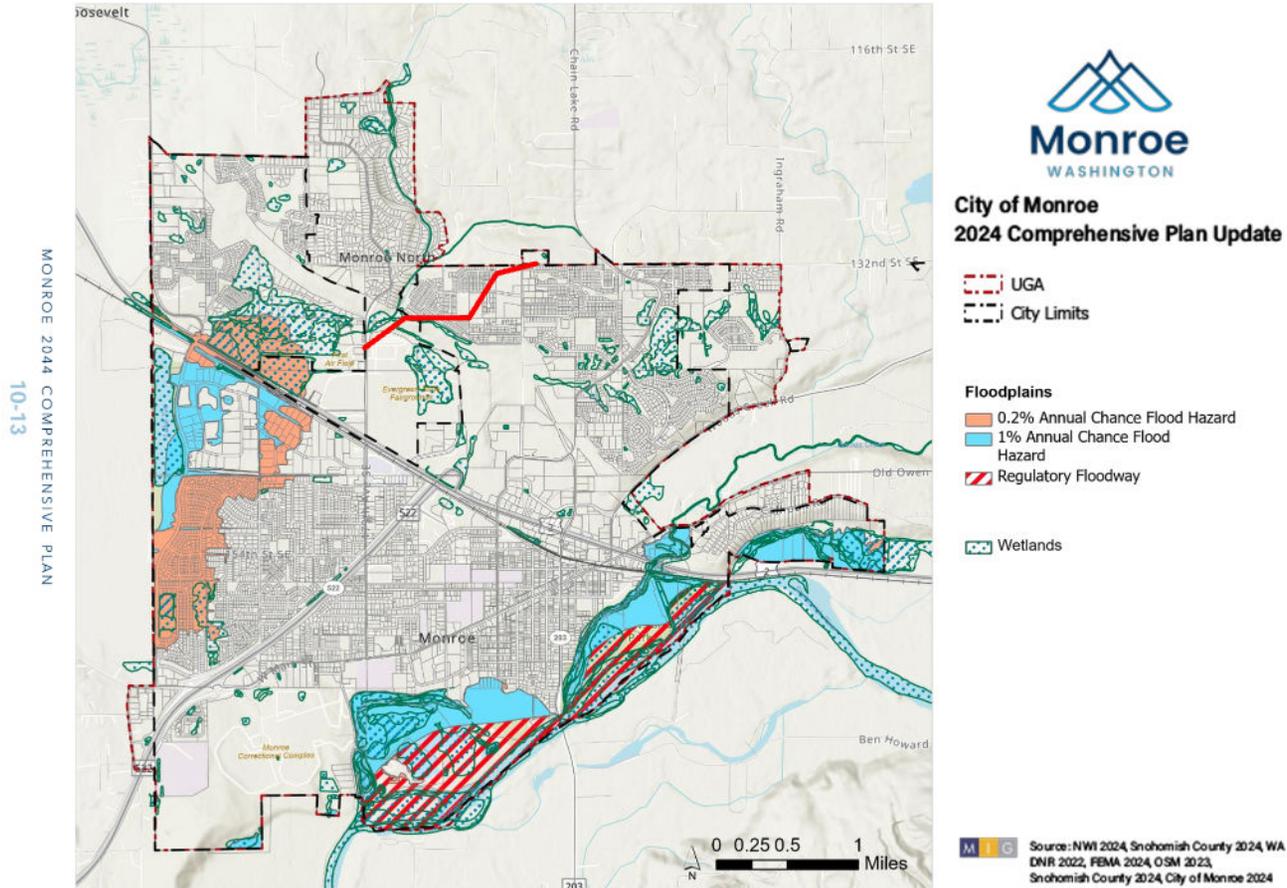


Figure 5b - City of Monroe Wetland Inventory Map
Trombley Hill AC Water Main Replacement
Snohomish County, WA

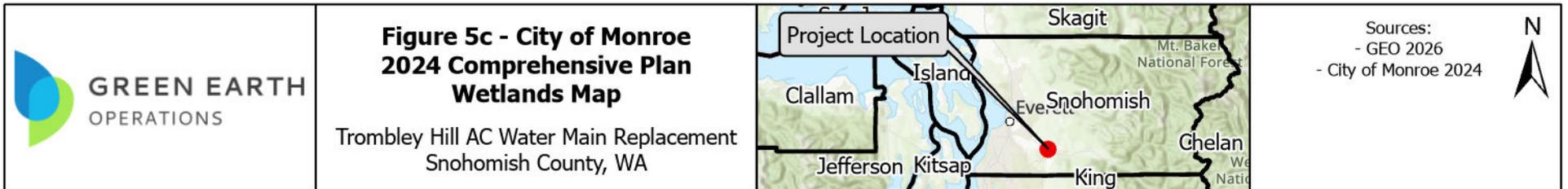


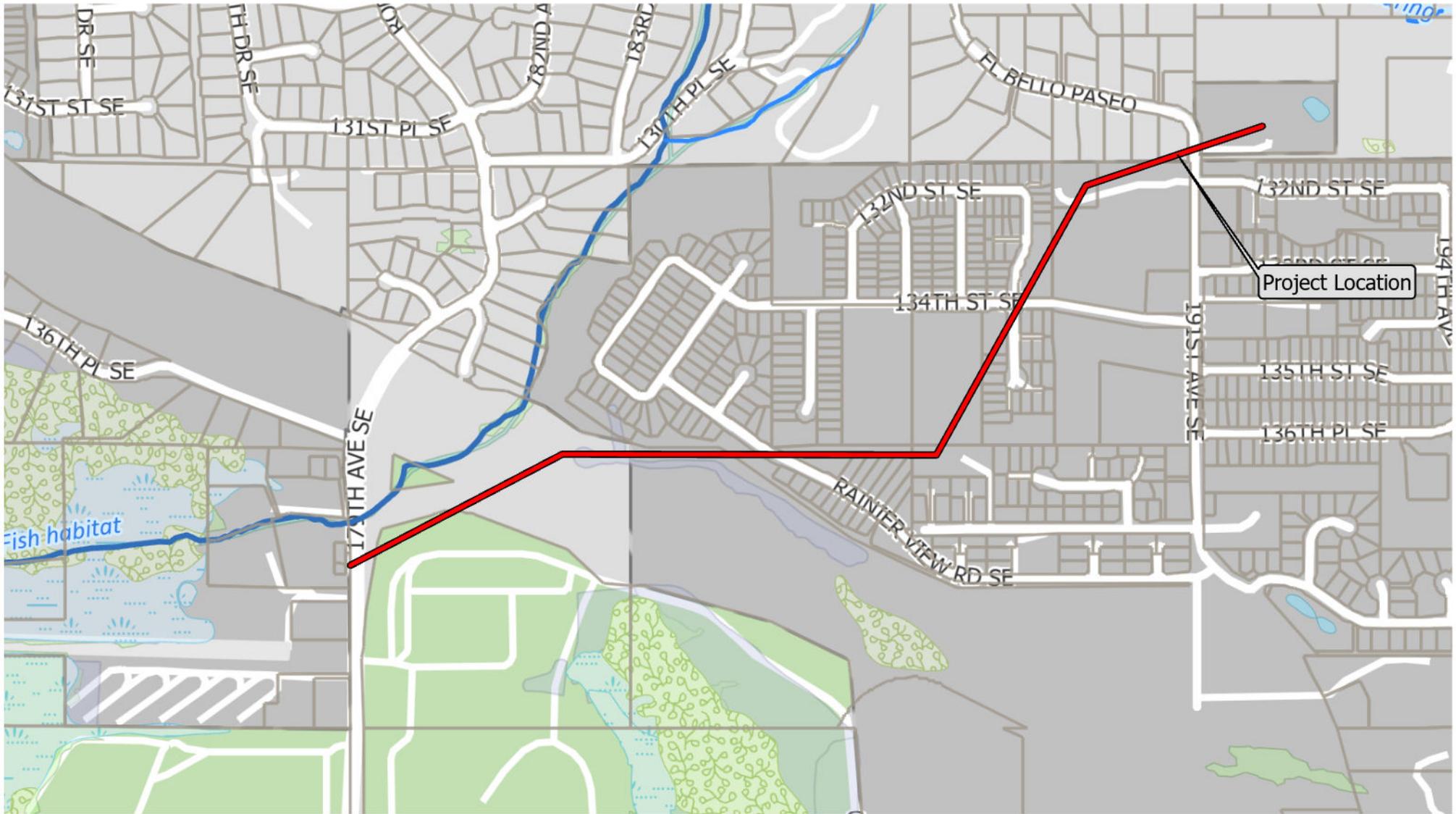
Sources:
- GEO 2025
- City of Monroe 2016

Figure 10.3 - WETLANDS & FLOODPLAINS

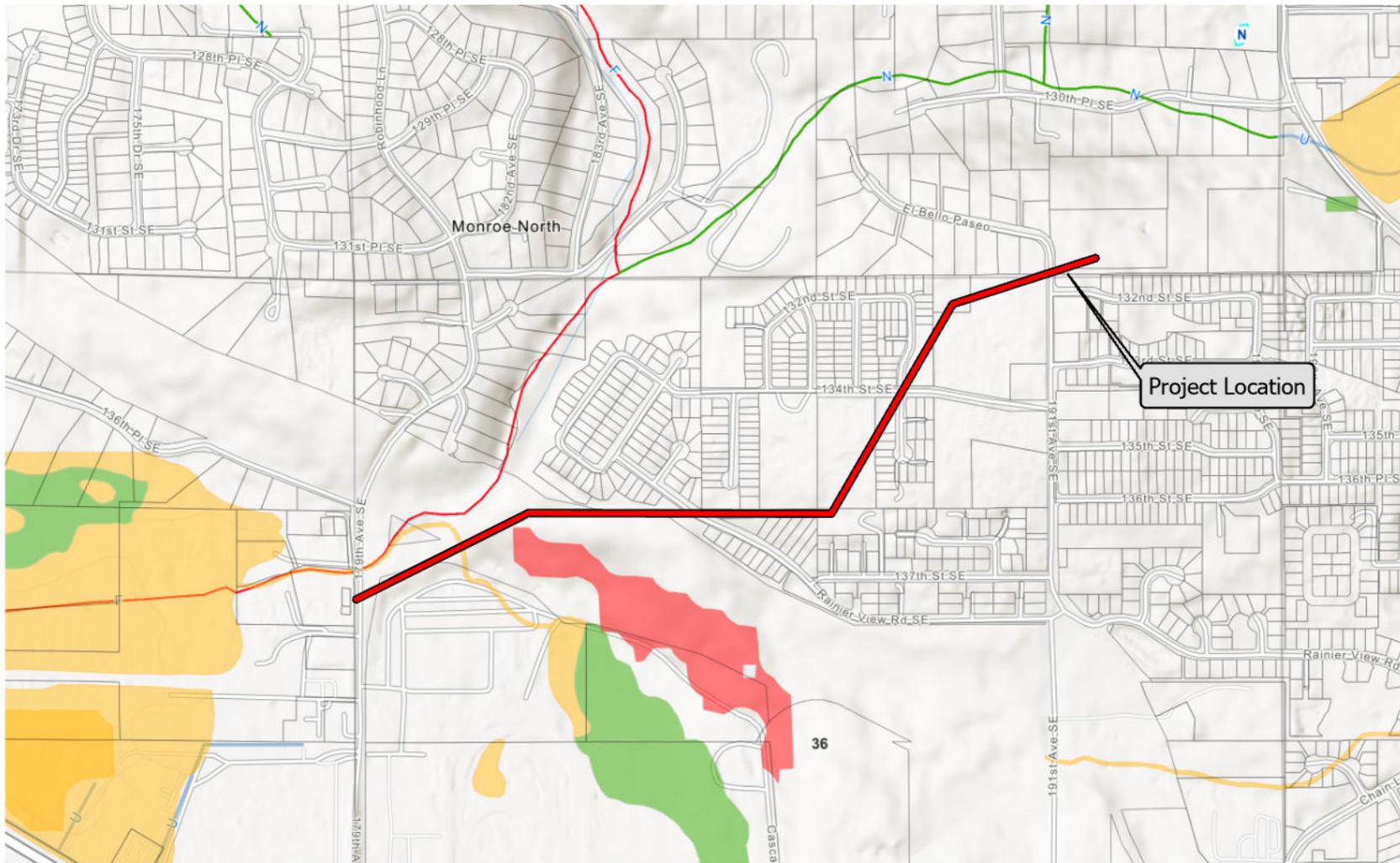


 Project Location



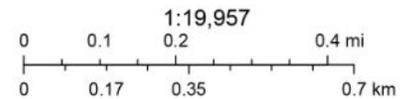


 <p>GREEN EARTH OPERATIONS</p>	<p>Figure 5d - Snohomish County PDS Map Portal</p> <p>Trombley Hill AC Water Main Replacement Snohomish County, WA</p>		<p>Sources: - GEO 2026 - Snohomish County 2026</p> 
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7/7/2025, 4:03:22 PM

- | | | | |
|--|--|---|---|
| Wetland Level 1 EIAs | Upland Level 1 EIAs | Water Courses (FP) | Water Bodies (FP) |
| ■ B (Good) | ■ C (Fair) | — Type F | ■ Open Freshwater |
| ■ C (Fair) | ■ D (Poor) | — Type N, Np, Ns | ■ Wet Area |
| ■ D (Poor) | | — U, unknown | ■ World_Hillshade |



Esri, NASA, NGA, USGS, FEMA, Department of Natural Resources (DNR), Forest Practices Division, Sources: Esri, TomTom, Garmin, FAO, NOAA,

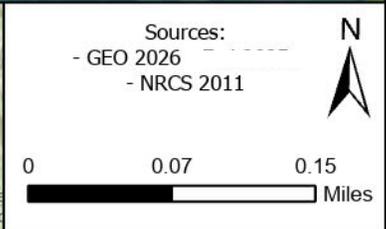
WNHP Plant & Ecosystem Map Viewer

KNOWN PLANT AND ECOSYSTEM LOCATIONS REFLECT KNOWN OCCURRENCE LOCATIONS BUT MAY NOT REFLECT ALL OCCURRENCES OF RARE PLANTS OR ECOSYSTEMS.

	<p>Figure 5e - WNHP Ecological Integrity Assessment Data</p> <p>Trombley Hill AC Water Main Replacement Snohomish County, WA</p>		<p>Sources: - GEO 2026 - WDNR 2025</p> 
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Figure 6 - Soil Survey Map
 Trombley Hill AC Water Main Replacement
 Snohomish County, WA



Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

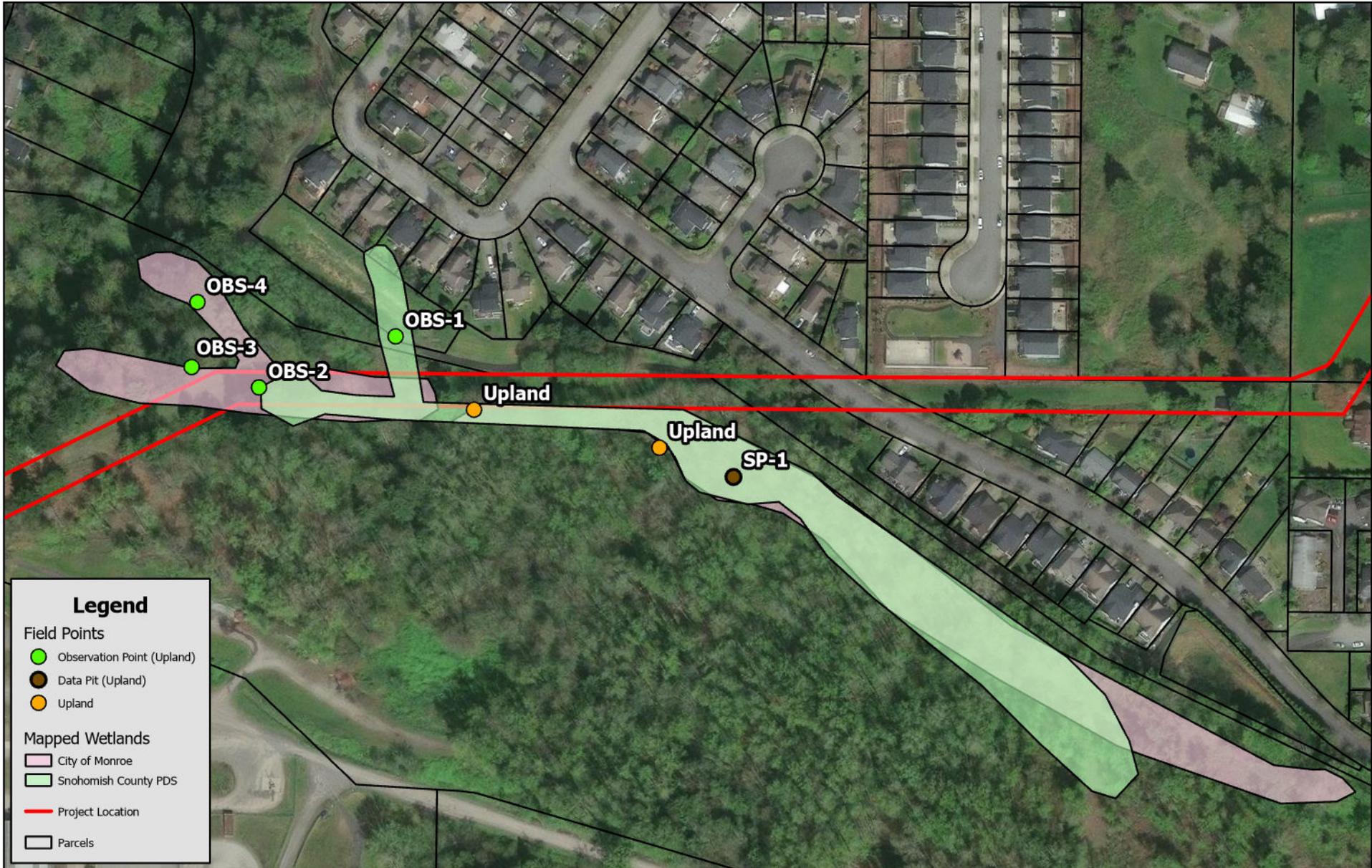
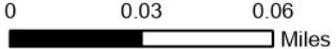


Figure 7 - Mapped Wetlands Assessment

Trombley Hill AC Water Main Replacement
Snohomish County, WA



Sources:
- GEO 2026
- City of Monroe 2016
- Snohomish County 2026



Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

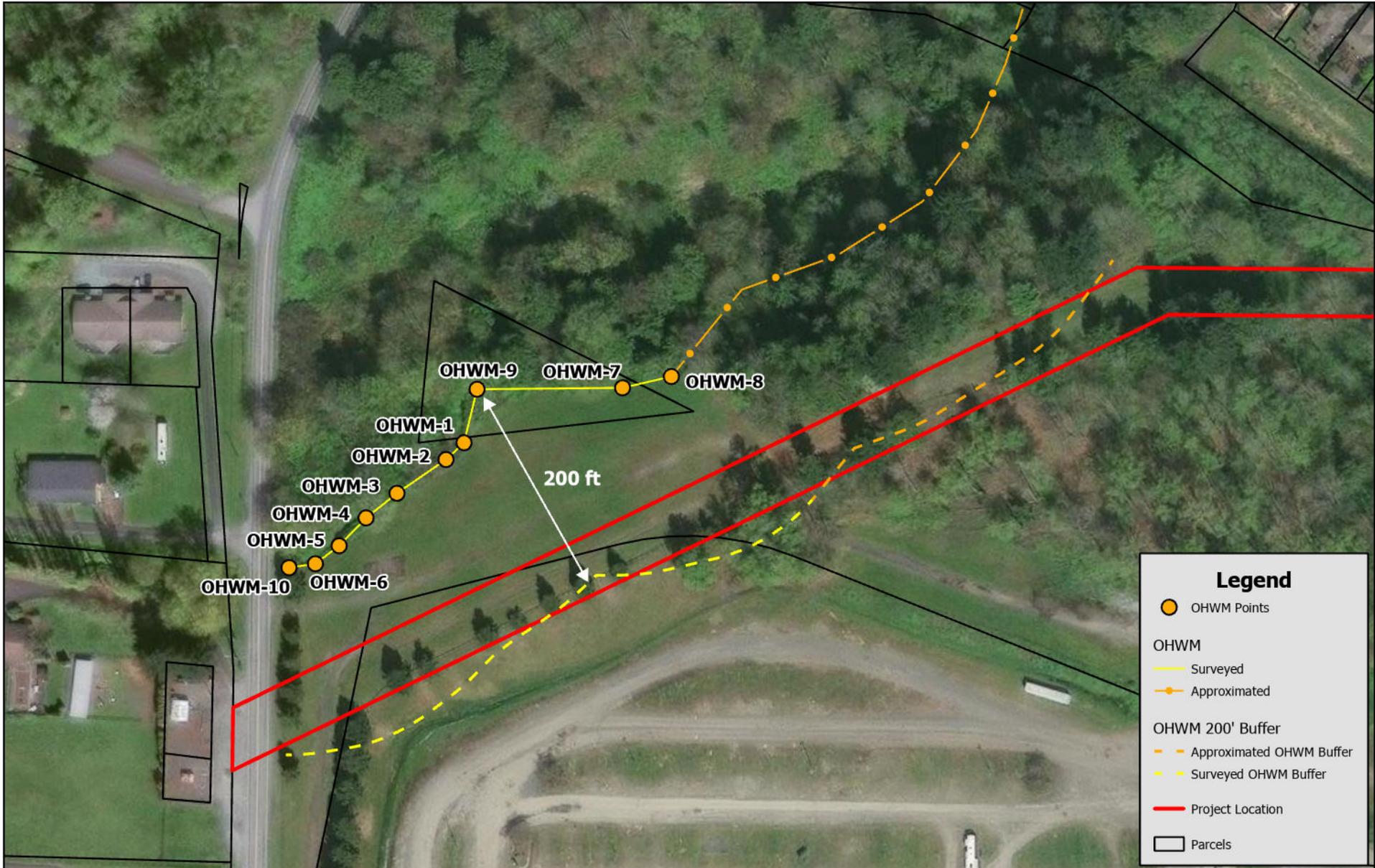
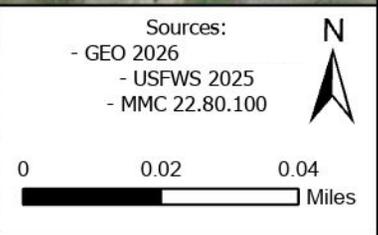


Figure 8 - Critical Areas Map
 Trombley Hill AC Water Main Replacement
 Snohomish County, WA



Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

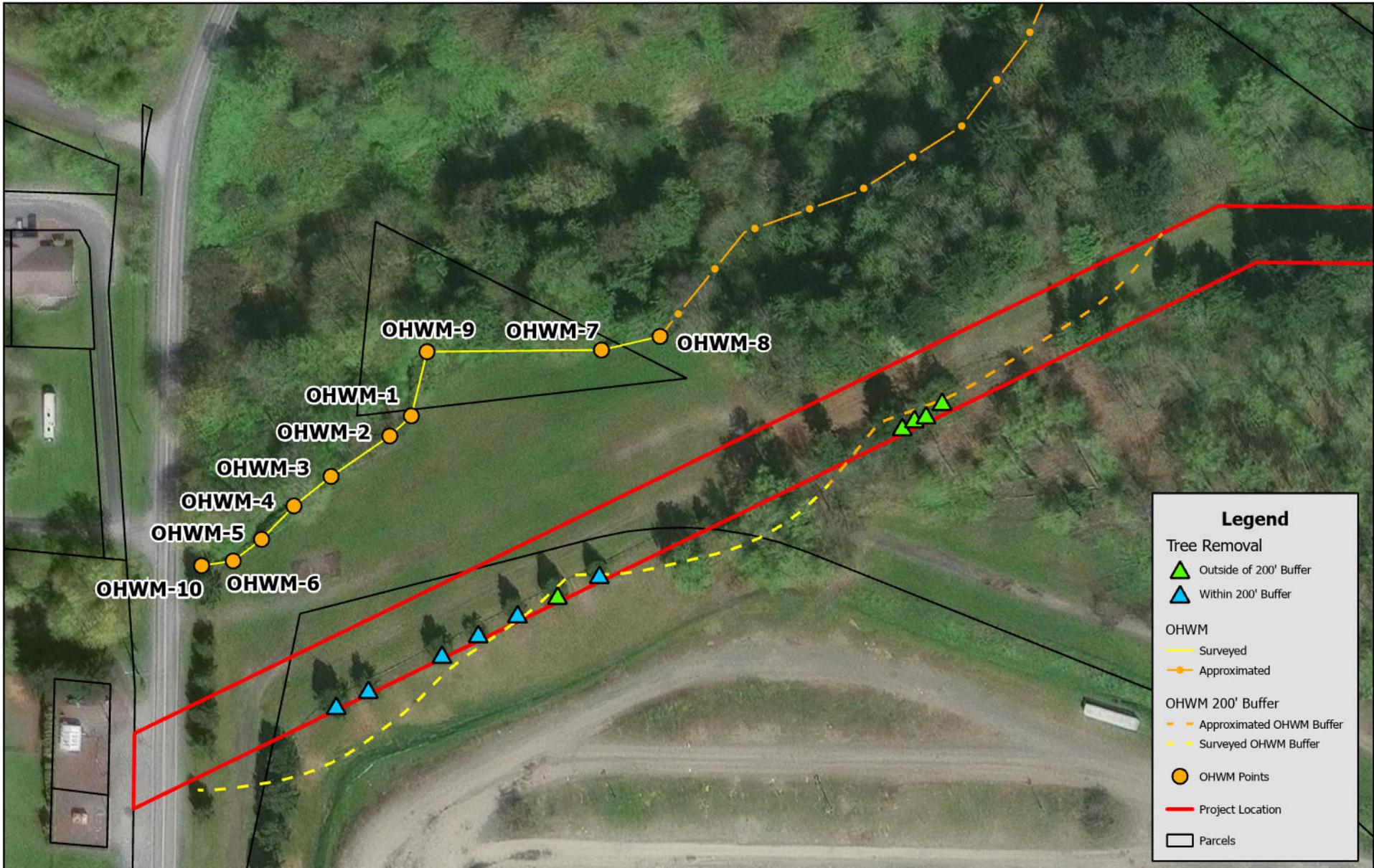
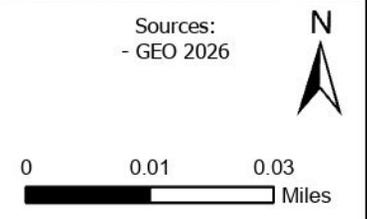


Figure 9 - Tree Removal Adjacent to Critical Areas

Trombley Hill AC Water Main Replacement
Snohomish County, WA



Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

APPENDIX B: WETLAND DATA FORMS

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

Project/Site: Trombley City/County: Kirkland/Snohomish Sampling Date: 2026/02/05
 Applicant/Owner: CPH Consultants State: WA Sampling Point: SP-1
 Investigator(s): MM; AC Section, Township, Range: Section 25 and 36, Township 28N, and Range 6E W.M.
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Slope Slope (%): 20%
 Subregion (LRR): A Lat: 47.8735129 Long: -121.9835729 Datum: WGS84
 Soil Map Unit Name: Tokul NWI classification: N/A

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"/>	Is the Sampled Area within a Wetland?	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"/>			
Remarks:					

VEGETATION – Use scientific names of plants.

Stratum	Plot size	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
Tree Stratum (Plot size: <u>30'</u>)					Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20%</u> (A/B)																
1.	<u>Acer macrophyllum</u>	<u>40</u>	<u>X</u>	<u>FACU</u>																	
2.	<u>Populus balsamifera</u>	<u>40</u>	<u>X</u>	<u>FAC</u>																	
3.																					
		<u>80</u>	= Total Cover		Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>40</u></td> <td>x 3 = <u>120</u></td> </tr> <tr> <td>FACU species <u>115</u></td> <td>x 4 = <u>460</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>155</u> (A)</td> <td><u>580</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.74</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>40</u>	x 3 = <u>120</u>	FACU species <u>115</u>	x 4 = <u>460</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>155</u> (A)	<u>580</u> (B)	Prevalence Index = B/A = <u>3.74</u>	
Total % Cover of:	Multiply by:																				
OBL species <u>0</u>	x 1 = <u>0</u>																				
FACW species <u>0</u>	x 2 = <u>0</u>																				
FAC species <u>40</u>	x 3 = <u>120</u>																				
FACU species <u>115</u>	x 4 = <u>460</u>																				
UPL species <u>0</u>	x 5 = <u>0</u>																				
Column Totals: <u>155</u> (A)	<u>580</u> (B)																				
Prevalence Index = B/A = <u>3.74</u>																					
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																					
1.	<u>Oemleria cerasiformis</u>	<u>20</u>	<u>X</u>	<u>FACU</u>																	
2.	<u>Vaccinium parvifolium</u>	<u>5</u>	<u>X</u>	<u>FACU</u>																	
3.																					
4.																					
		<u>25</u>	= Total Cover																		
Herb Stratum (Plot size: <u>5'</u>)																					
1.	<u>Polystichum munitum</u>	<u>50</u>	<u>X</u>	<u>FACU</u>																	
2.	<u>Rubus ursinus</u>	<u>> 5</u>		<u>FACU</u>																	
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					
11.																					
		<u>50</u>	= Total Cover																		
Woody Vine Stratum (Plot size: _____)																					
1.																					
2.																					
			= Total Cover																		
% Bare Ground in Herb Stratum _____																					
Remarks:																					

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 5 - Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

