

THORNDYKE ELEMENTARY SCHOOL

CRITICAL AREAS REPORT



THORNDYKE ELEMENTARY SCHOOL

CRITICAL AREAS REPORT

PREPARED FOR:

TUKWILA SCHOOL DISTRICT
C/O JEFF FEENEY
DIRECTOR OF EDUCATION MANAGEMENT
KMB ARCHITECTS
906 COLUMBIA STREET SW, SUITE 400
OLYMPIA, WA 98501

PREPARED BY:

GRETT ASSOCIATES^{LLC}
2102 NORTH 30TH STREET, SUITE A
TACOMA, WASHINGTON 98403
(253) 573-9300



OCTOBER 2018

CHAD WALLIN
BIOLOGIST

DATE



TABLE OF CONTENTS

1	INTRODUCTION	3
2	FEATURE SUMMARY	3
3	BACKGROUND	5
3.1	Existing Conditions.....	5
3.2	Local Critical Areas Inventory.....	5
3.3	National Wetlands Inventory	5
3.4	Sensitive Wildlife and Plants	5
3.5	Forest Practice Rules.....	6
3.6	Soil Information	6
4	METHODS	6
5	RESULTS	7
5.1	Wetland Results	7
5.2	Stream Results	8
6	REGULATORY CONSIDERATIONS.....	9
7	DISCLAIMER	9
8	BIOLOGIST QUALIFICATIONS	9
8.1	Chad Wallin	9
9	REFERENCES	10

LIST OF FIGURES

Figure 1. Vicinity map3
Figure 2. Typical conditions within the identified micro-ravines.....4
Figure 3. The Gilliam Creek Detention Pond4
Figure 4. Typical conditions within the forested area situated within the subject property7
Figure 5. Soil conditions observed in areas intermixed with red-osier dogwood.....7
Figure 6. Typical conditions within the identified micro-ravines.....8

LIST OF APPENDICES

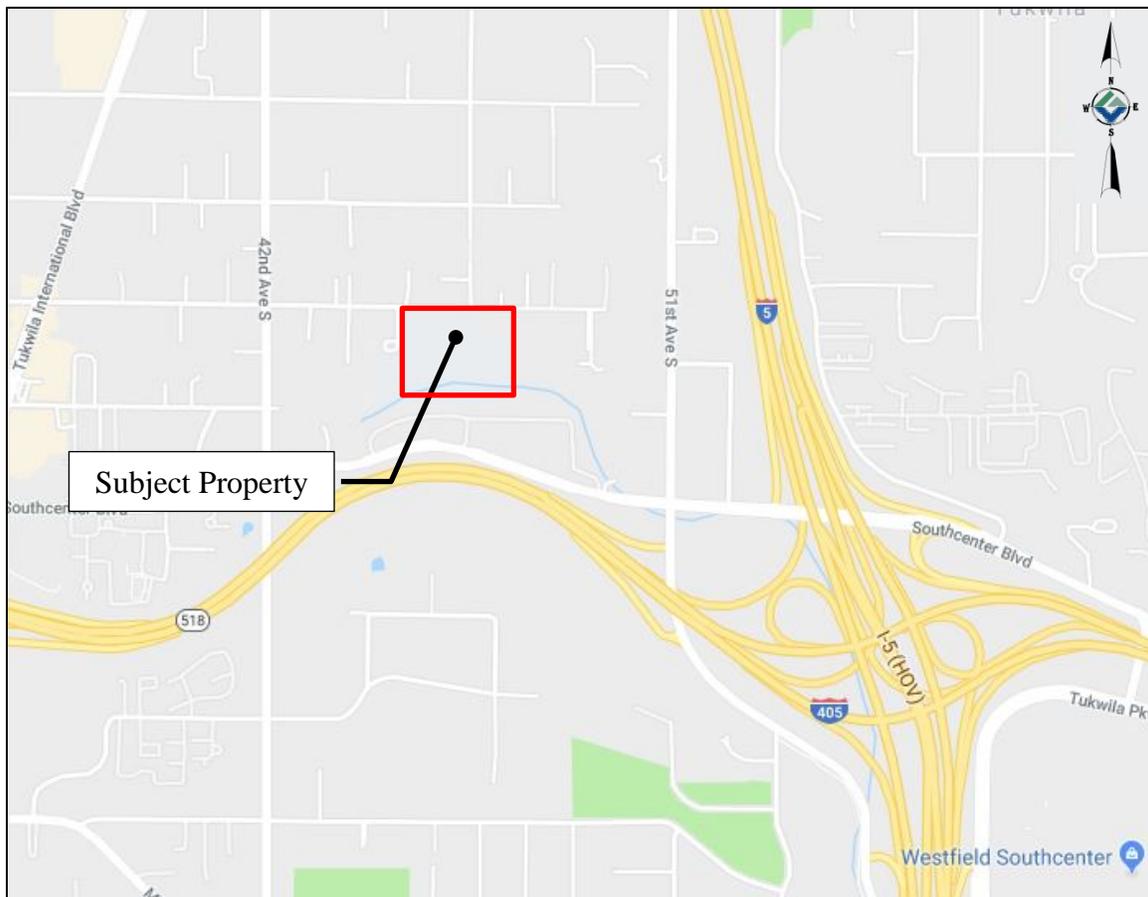
Appendix A. Queried Database Figures

1 INTRODUCTION

Grette Associates is under contract with the Tukwila School District to prepare a critical areas report that summarizes the critical areas reconnaissance performed at the Thorndyke Elementary School located at 4415 South 150th Street (King County parcel 0042000280) in Tukwila, Washington (Figure 1).

The purpose of this report is to document all wetlands and streams that are located within 300 feet of the subject property.

Figure 1. Vicinity map



2 FEATURE SUMMARY

A Grette Associates biologist visited the subject property on October 3, 2018 to conduct an assessment to identify any wetlands or streams within 300 feet of the subject property.

Grette Associates traversed the entire undeveloped area south of the existing school and visually assessed all offsite areas to identify any wetland features on or within 300 feet of the subject property. During the assessment, Grette Associates did not identify any indication of seasonal hydrology that would meet wetland hydrology indicators defined in the U.S. Army Corps of Engineers (USACE) *Federal Wetland Delineation Manual* (1987), and the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (2010). Furthermore, while Grette Associates did identify several shrub species within

the undeveloped portion of the subject property that have a species indicator status of facultative (FAC; Lichvar 2016), Grette Associates did not identify any hydrology or soil characteristics that would indicate a potential wetland feature.

In addition to the wetland investigation, a stream evaluation was completed to identify all areas that would meet the definition of a natural water feature according to Tukwila Municipal Code (TMC) 18.06.920 and WAC 222-16-030. Grette Associates did identify two areas where topographic relief has created micro-ravines; however, no indication of seasonal surface flow was observed. More specifically, Grette Associates did not identify a bed, scouring, or sediment and/or organic deposits that would indicate regular seasonal flow. As a result, no natural water features were observed within the subject property.

Figure 2. Typical conditions within the identified micro-ravines



Photograph on the left captures conditions of the western micro-ravine within the subject property and the photograph on the right captures conditions of the eastern micro-ravine. Please note the lack of a defined bed, scouring, and vegetation in each photograph.

While no natural water features were observed within the subject property, Grette Associates did identify two offsite natural water features within 300 feet. These two features are situated west and southwest of the subject property and are associated with Gilliam Creek. Based on site observations, these two natural water features flow into the Gilliam Creek Detention Pond and into the associated flow control structure prior to flowing into a large culvert that appears to convey water east towards the I-5 and I-405 interchange.

Figure 3. The Gilliam Creek Detention Pond



Photograph on the left captures City of Tukwila signage and the photograph on the right captures the flow control structure that is west of the apartment complex along Southcenter Blvd..

3 BACKGROUND

3.1 Existing Conditions

With the exception of a narrow forested area along the southern property boundary, the subject property is largely developed. The developed area contains Thorndyke Elementary School as well as supporting amenities (parking lots, playground, athletic field, etc.).

The undeveloped portion of the subject property consists of a mature forest dominated by big-leaf maple (*Acer macrophyllum*), red alder (*Alnus rubra*), and black cottonwood (*Populus balsamifera*). Beneath the forest canopy contains a sub-canopy dominated by Himalayan blackberry (*Rubus bifrons*), Indian plum (*Oemleria cerasiformis*), beaked hazelnut, red-osier dogwood (*Cornus sericea*), Oregon grape (*Berberis nervosa*), and sword fern (*Polystichum munitum*). As mentioned above, there are two micro-ravines that are situated within the forested area within the subject property.

3.2 Local Critical Areas Inventory

A review of the City of Tukwila's iMap database was conducted to identify any known critical areas within the vicinity of the subject property (City of Tukwila 2018). According to the City's database, there are two mapped streams situated within the southern portion of the subject property (Appendix A). The western stream is mapped as a Type 3 (Np) natural water feature while the eastern stream is mapped as a Type 4 (Ns) stream.

In addition to Tukwila's iMap database, the King County iMap database was queried to identify any known critical areas within the vicinity of the subject property. According to King County's database, no natural water features are mapped within the subject property (Appendix A).

3.3 National Wetlands Inventory

The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) was queried to determine if previously-identified wetlands are present within 300 feet of the subject property (USFWS 2018). According to the NWI Interactive Online Mapper, there is one aquatic feature mapped within the subject property and one tributary west of the subject property mapped by the NWI (Appendix A). These mapped aquatic features are inconsistent with the streams mapped by the City of Tukwila.

3.4 Sensitive Wildlife and Plants

The Washington Department of Fish and Wildlife's (WDFW) Priority Habitats and Species (PHS) database on-line mapper was queried to determine if state or federally listed fish or wildlife species occur near the subject property (WDFW 2018a). According to the PHS database, no PHS features are mapped on or in the vicinity of the subject property.

Additionally, WDFW's SalmonScape on-line mapper was queried to determine what listed SalmonScape species are identified by WDFW to occur within subject property (WDFW 2018b). According to SalmonScape, the closest mapped modeled distribution of listed SalmonScape species occurs approximately 1-1.5 miles east near the I-5 and I-

405 interchange within Gilliam Creek (Appendix A). This reach of Gilliam Creek as well as the reaches upstream contains numerous partial and total fish passage barriers (Appendix A).

Please note that the stream system mapped in the vicinity of the subject property is not the mapped stream system modeled as providing habitat for listed SalmonScape species. The stream system mapped within the subject property flows east prior to flowing south approximately two miles where it flows into the Green River (near S 180th St. and Andover Park W).

The Washington Department of Natural Resources' (WDNR) Natural Heritage Information System was queried to determine if the subject property occurs in a location reported to contain high quality natural heritage wetland occurrences or occurrences of natural heritage features commonly associated with wetlands. According to WDNR data dated July 11, 2018, there are no records of rare plants or high quality native ecosystems occurring on or in the vicinity of the subject property.

3.5 Forest Practice Rules

The Washington Department of Natural Resources' (WDNR) Forest Practice Application Mapping Tool on-line mapper was queried to identify the water typing of any streams mapped by WDNR (WDNR 2018). According to WDNR, there is one stream within the subject property and one tributary west of the subject property mapped by WDNR (Appendix A). The natural water features mapped by WDNR are shown as Type F streams.

The natural water features mapped by WDNR are mapped in the same location as the two natural water features mapped by WDFW's SalmonScape database. However, WDNR does not map a natural water feature (i.e. Gilliam Creek) along the southern portion of I-405 as the City of Tukwila, King County, and WDFW maps do, which suggests that the lower reaches of Gilliam Creek are no longer situated in their historical channel.

3.6 Soil Information

According to the Natural Resources Conservation Service's (NRCS) Web Soil Survey (NRCS 2018a), the soils within the subject property consists are not mapped by the NRCS.

4 METHODS

The subject property was evaluated according to the wetland criteria as defined in the U.S. Army Corps of Engineers (USACE) *Federal Wetland Delineation Manual* (1987), and the Corps' *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (2010). In addition, all accessible areas within 300 feet of the subject property were visually assessed to identify any potential wetland features.

The definitions of a natural water feature according to Tukwila Municipal Code (TMC) 18.06.920 and WAC 222-16-030 as well as the guidance in Ecology's *Determining OHWM for Shoreline Management Act Compliance in Washington State* (Anderson et al. 2016) was used to identify all natural features on or within 300 feet of the subject property.

5 RESULTS

5.1 Wetland Results

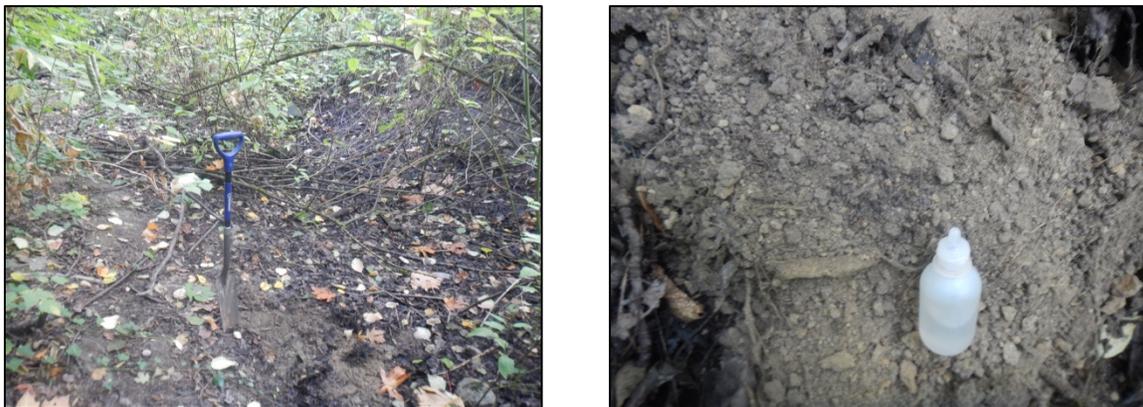
Grette Associates traversed the subject property and all publicly accessible areas within 300 feet to identify any potential area that would meet wetland criteria defined in the USACE's *Regional Guidance* (2010). Grette Associates did not identify any areas on or within 300 feet of the subject property that indicated a potential wetland feature may be present. More specifically, the subject property is largely developed and consists of Thorndyke Elementary School. The slopes along the undeveloped forested area situated in the southern portion of the subject property are dominated by vegetation that is typically not associated with wetlands (Figure 4). At the base of the slope in the western portion of the forested area where the western micro-depression is located the vegetation includes areas intermixed with Indian plum, sword fern, English ivy (*Hedera helix*), and red-osier dogwood. Soils were investigated in this area per the USACE's *Regional Supplement* (2010); however, no hydric soil indicators were observed (Figure 5). The soils observed in the area investigated contained an upper layer (0-10 inches) of dark brown (10YR3/3) silty loam. No redox concentrations were observed.

Figure 4. Typical conditions within the forested area situated within the subject property



Photograph on the left and right captures the dominant vegetation community within the forested area. Please note the big-leaf maple, beaked hazelnut, Indian plum, Himalayan blackberry, and sword fern.

Figure 5. Soil conditions observed in areas intermixed with red-osier dogwood



Photograph on the left captures where soils were investigated and the photograph on the right captures the soil characteristics observed. Please note that the soils were moistened prior to collect matrix color.

5.2 Stream Results

Per TMC 18.06.920, natural waters generally consist of a channel with bed and/or banks where surface water flows naturally. Natural water features can contain seasonal or year-round surface flow. Grette Associates did not identify any seasonal or perennial natural water features situated at base of the identified micro-ravines located within the subject property. While the two micro-ravines contain topographic relief that may resemble a natural water feature, Grette Associates did not identify a defined channel, scouring, or sediment deposits in these features that would suggest seasonal or periodic flow. Furthermore, the base of the micro-ravines are vegetated with an assortment of native and non-native species which suggests that the ravines do not convey surface water. In Grette Associates' professional opinion, if seasonal flows occurred at the base of these micro-ravines they would be devoid of vegetation and there would be evidence of flow (channelization, scouring, and/or sediment deposits) (Figure 2 and 6).

With the exception of Tukwila's iMap, no queried databases map any natural water features within the subject property (Appendix A). King County, WDFW, and WDNR, appear to map Gilliam Creek in its historical alignment; however, according to the Gilliam Creek Basin-Stormwater Management Plan (Herrera Environmental Consultants, Inc. 2001), Gilliam Creek's subbasin that is situated west of I-5 largely consists of open channels and ditches which become piped at the downstream end prior to flowing to the main stem of Gilliam Creek (I-5 and I-405 interchange). Gilliam Creek becomes piped southwest of the subject property.

Figure 6. Typical conditions within the identified micro-ravines



Photograph on the left captures the base of the western micro-ravine and the photograph on the right captures the slope within the base of the eastern ravine. Please note the lack of watermarks, leaf litter, and vegetation within these features. No indication of seasonal flow (bed, scour, sedimentation, or wrack, etc.) was observed.

Grette Associates identified two offsite perennial natural water features. These two features are located west and southwest of the subject property and appear to be situated in the locations mapped by the queried databased (Section 3). While WDFW maps Gilliam Creek and its mapped tributaries as Type F natural waters, WDFW does not map Gilliam Creek west of the I-5 and I-405 interchange as providing fish habitat (Appendix A). Furthermore, according to the Gilliam Creek Basin-Stormwater Management Plan (Herrera Environmental Consultants, Inc. 2001), fish habitat within Gilliam Creek watershed is restricted to open-channel segments in the lower reaches downstream of I-5.

Therefore, given their observed perennial flow, the two natural water features west of the subject property are classified as a Type 3 (Np) stream and are subject to an 80 foot buffer (TMC 18.45.100).

6 REGULATORY CONSIDERATIONS

Wetlands are regulated by agencies at the local, state, and federal levels. At the local level, wetlands and their associated buffers within the City of Tukwila are regulated under Chapter 18.45 of the TMC.

At the state level, wetlands are regulated by the Washington Department of Ecology through the State Clean Water Act (Section 401). The requirement for a Water Quality Certification from Ecology for wetland impacts is triggered by an applicant's applying for a federal Clean Water Act Section 404 permit from the Corps. Ecology may also issue an Administrative Order, allowing them wetland regulatory authority without a federal nexus.

At the federal level, impacts (specifically dredging or filling) to wetlands are regulated by the Environmental Protection Agency through the US Army Corps of Engineers. The USACE administers the federal Clean Water Act (Section 404) for projects involving dredging or filling in Waters of the US (lakes, streams, marine waters, and most non-isolated wetlands).

While it is the regulatory agencies that make the final determination regarding jurisdictional status, project proponents can infer jurisdiction using the guidance provided by each agency or local government. This inference can be used to design a project based on the anticipated regulatory constraints within the project area. However, it is the project proponent's responsibility to contact each potential regulating agency and confirm their regulatory status and requirements.

7 DISCLAIMER

The findings and conclusions documented in this report have been prepared for specific application to this proposed project site. They have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. Our work was also performed in accordance with the terms and conditions set forth in our proposal. The conclusions and recommendations presented in this report are professional opinions based on an interpretation of information currently available to us and are made within the operation scope, budget, and schedule of this project. No warranty, expressed or implied, is made. In addition, changes in government codes, regulations, or laws may occur. Because of such changes, our observations and conclusions applicable to this site may need to be revised wholly or in part.

8 BIOLOGIST QUALIFICATIONS

8.1 Chad Wallin

Chad Wallin is a Biologist with extensive training in wetland science and ecology restoration. Chad also has professional experience in stream and fish restoration, marine monitoring, mitigation monitoring, and fish and wildlife assessments.

Chad has earned a Bachelor's of Arts degree in Environmental Studies from the University of Washington along with certificates in ecology restoration and wetland science.

For a list of representative projects, please contact him at Grette Associates.

9 REFERENCES

Anderson, P., S. Meyer, P. Olson, and E. Stockdale. 2016. Determining OHWM for Shoreline Management Act Compliance in Washington State. Washington State Department of Ecology, Shorelines and Environmental Assistance Program, Lacey, WA. Ecology Publication # 16-06-029.

Herrera Environmental Consultants, Inc. 2001. Gilliam Creek Basin-StormWater Management Plan. Prepared for the City of Tukwila. March 9, 2001.

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

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 Wetland Ratings. *Phytoneuron* 2016-30:1-17. Published 28 April 2016. ISSN 2153 733X.

Natural Resource Conservation Service (NRCS). 2018. United States Department of Agriculture. Web Soil Survey [map online]. Queried October 1, 2018. URL: <http://websoilsurvey.nrcs.usda.gov/>

U.S. Army Corps of Engineers (Corps). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Fish and Wildlife Service (USFWS). 2018. Wetland Mapper [map online]. National Wetlands Inventory Queried October 1, 2018. URL: <http://www.fws.gov/wetlands/Wetlands-Mapper.html> Interactive Layer = "Wetlands".

Washington Department of Fish and Wildlife (WDFW). 2018a. PHS on the Web [map online]. Priority Habitats and Species Queried October 1, 2018. URL: <http://wdfw.wa.gov/mapping/phs/>.

Washington Department of Fish and Wildlife (WDFW). 2018b. SalmonScape [map online]. All SalmonScape Species. Queried October 1, 2018. URL: <http://wdfw.wa.gov/mapping/phs/>.

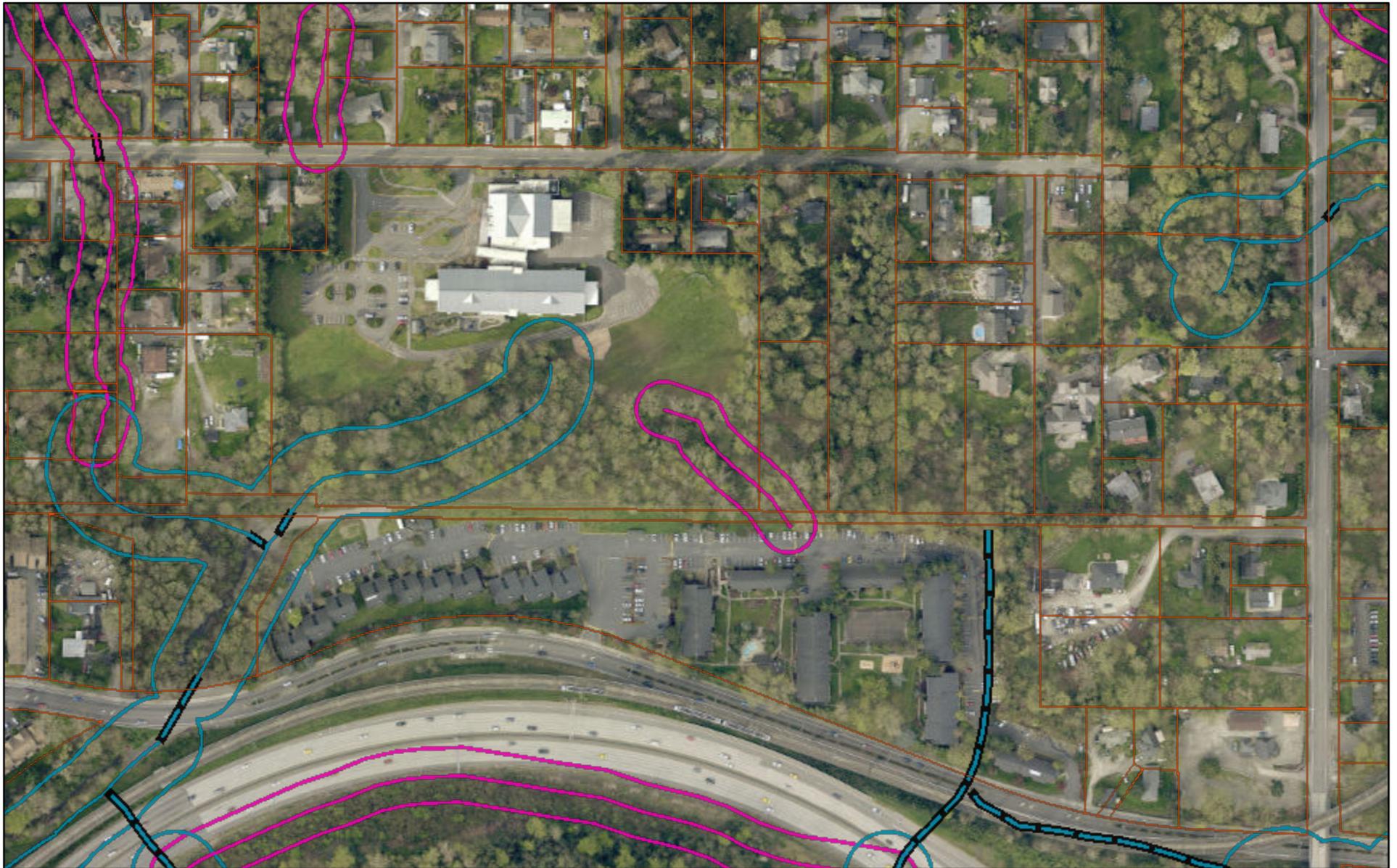
Washington Department of Natural Resources (WDNR). 2018. Forest Practices Application Mapping Tool [map online]. Streams and Water Type Breaks. Queried October 1, 2018. URL: <https://fortress.wa.gov/dnr/protectiongis/fpamt/index.html>

10022 9TH AVE. CT E - PIERCE COUNTY, WA

**WETLAND ANALYSIS REPORT AND HABITAT
ASSESSMENT**

APPENDIX A: QUERIED DATABASE FIGURES

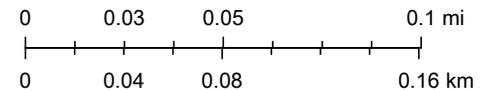
Thorndyke Elementary School



10/2/2018, 12:20:28 PM

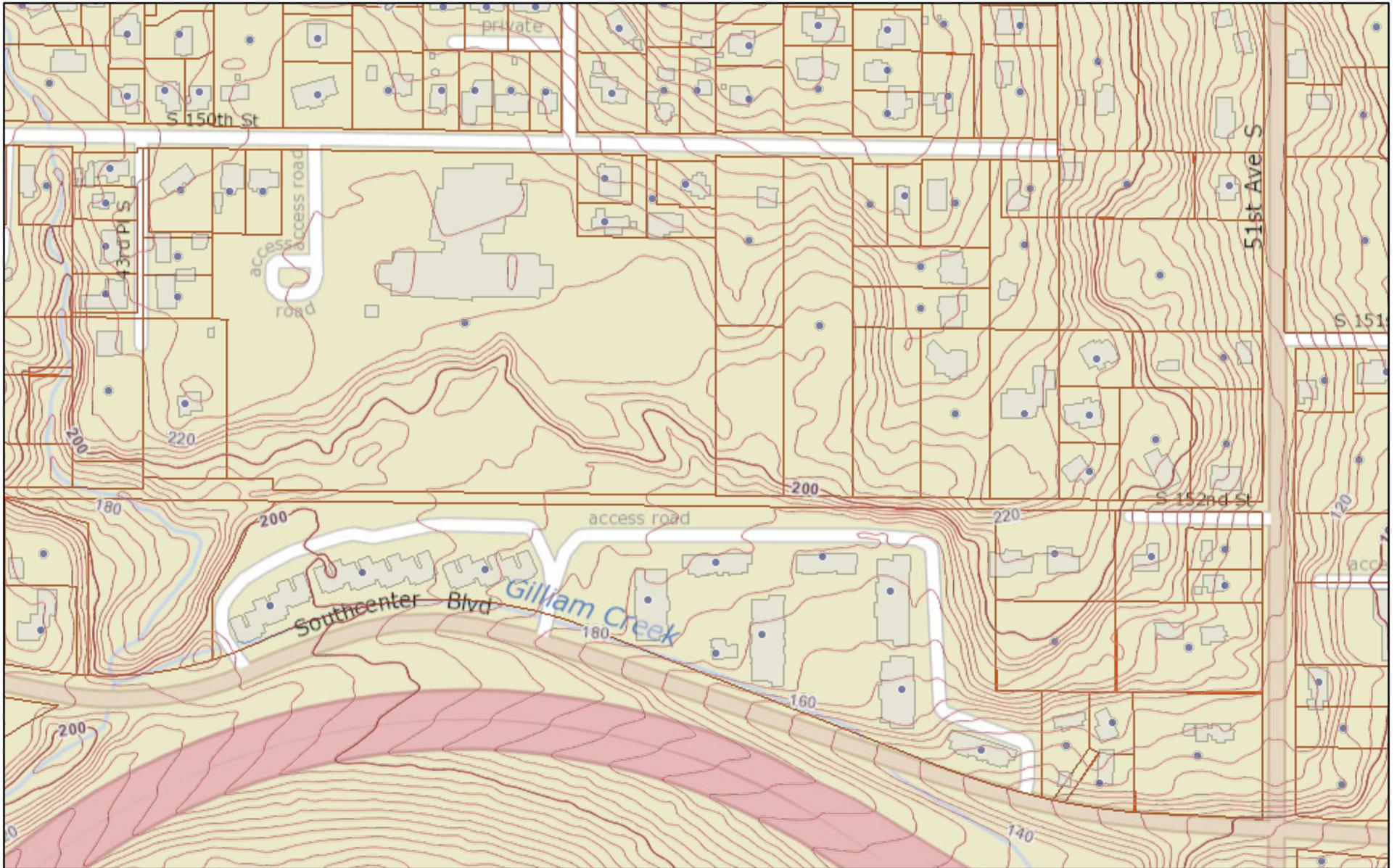
- | | | |
|-------------------|-----------------------|-----------------------|
| Parcels | 80 Streams | Type 3 Stream |
| StreamBuffers 100 | Type 2 Stream | Type 3 Stream in Pipe |
| 50 | Type 2 Stream in Pipe | Type 4 Stream |

1:4,514



Pictometry International Corp., Tukwila Technology Services, King County

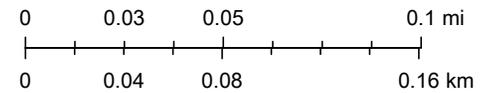
Thorndyke Elementary School



10/3/2018, 8:41:48 AM

- City Limits
- Addresses (Tukwila)
- Potential Annexation Areas
- Buildings
- Parcels
- City Limits

1:4,514



Tukwila Technology Services, King County

King County iMap



The information included on this map has been compiled by King County staff from a variety of sources and is subject to change without notice. King County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a survey product. King County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of King County.

Date: 10/1/2018

Notes:



 **King County**
GIS CENTER



U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov

October 2, 2018

Wetlands

- Estuarine and Marine Deepwater
- Freshwater Emergent Wetland
- Estuarine and Marine Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



WASHINGTON DEPARTMENT OF FISH AND WILDLIFE PRIORITY HABITATS AND SPECIES REPORT

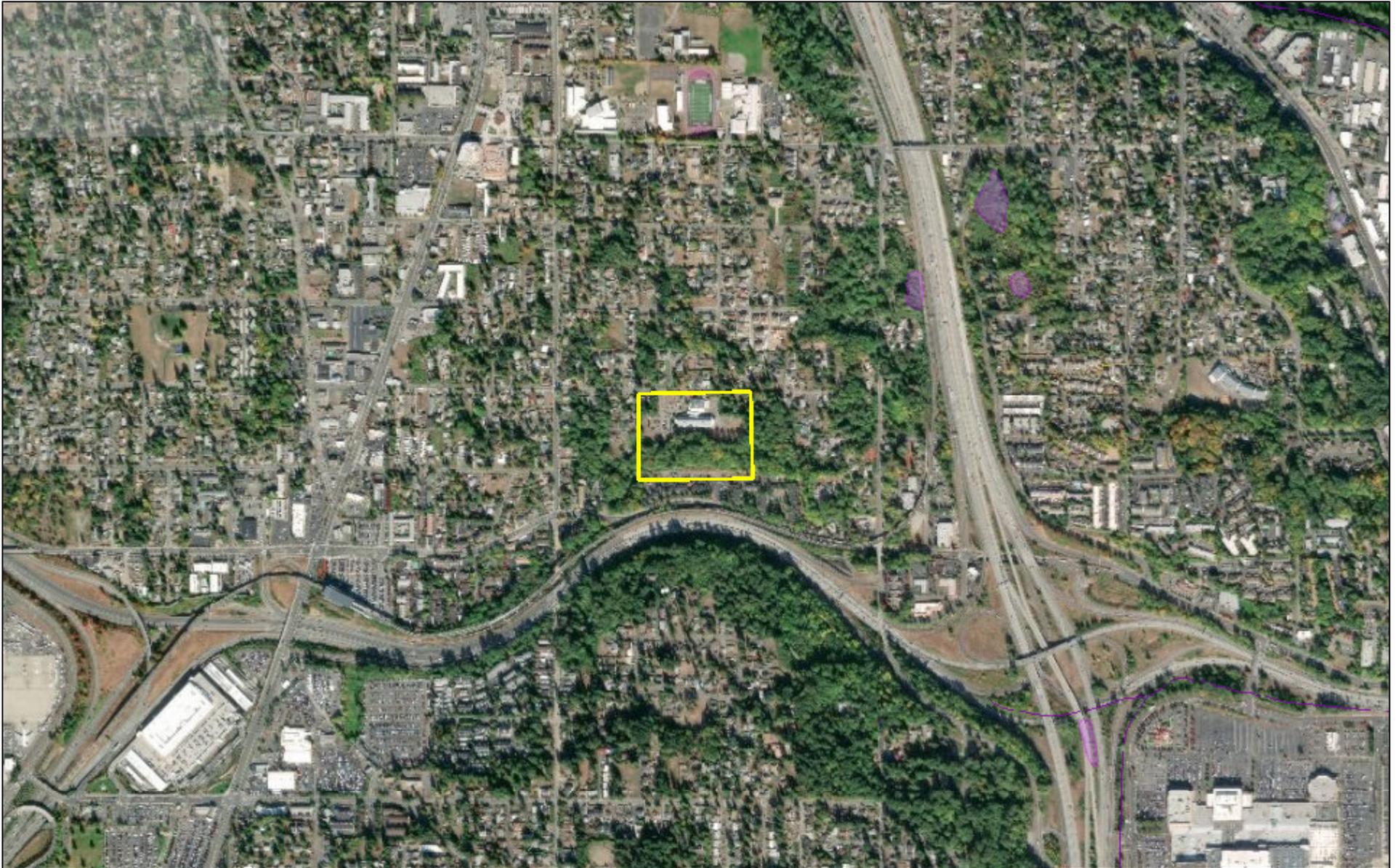
SOURCE DATASET: PHSPublic
REPORT DATE: 10/01/2018 12.32

Query ID: P181001123150

Common Name	Site Name	Priority Area	Accuracy	Federal Status	Sensitive Data	Source Entity
Scientific Name	Source Dataset	Occurrence Type		State Status	Resolution	Geometry Type
Notes	Source Record	More Information (URL)		PHS Listing Status		
	Source Date	Mgmt Recommendations				

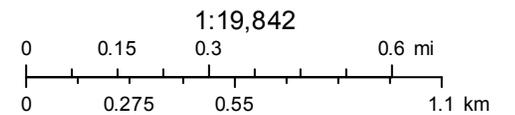
DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

WDFW Test Map

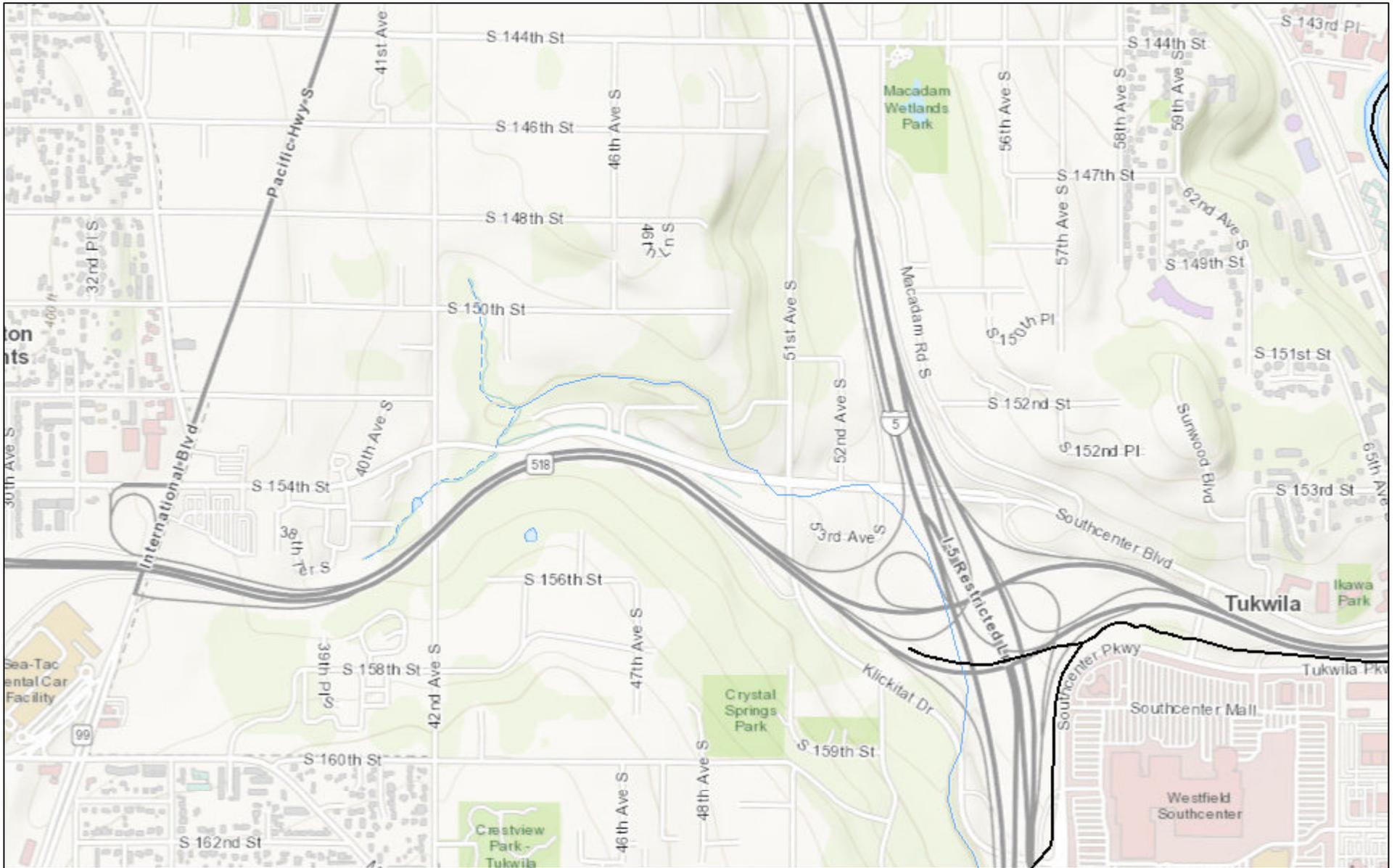


October 1, 2018

- | | | | | | |
|---|----------------------|---|---|---|----------|
|  | PHS Report Clip Area | POLY |  | QTR-TWP | |
|  | PT |  | AS MAPPED |  | TOWNSHIP |
|  | LN |  | SECTION | | |



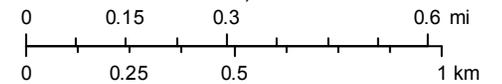
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



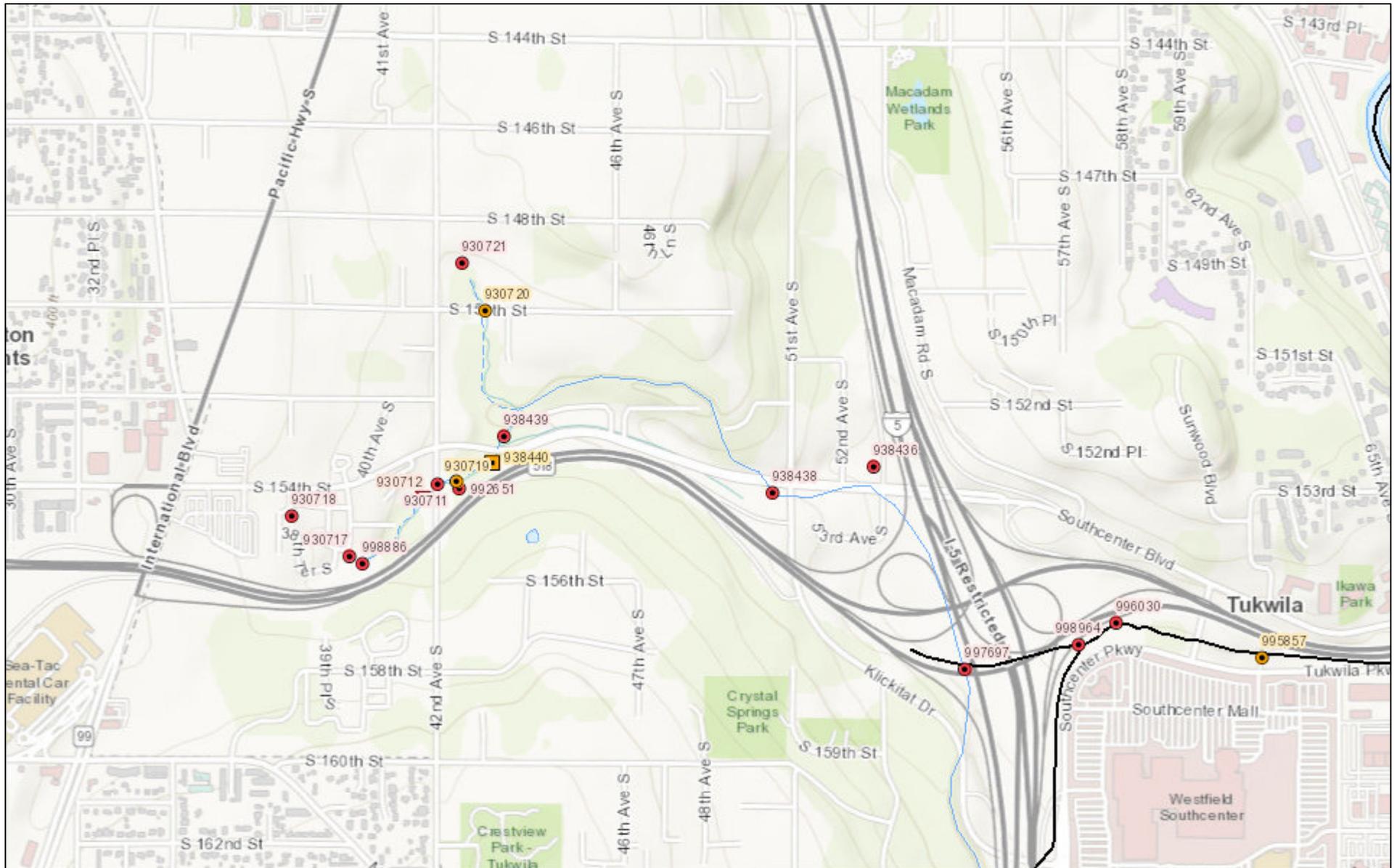
October 1, 2018

— All SalmonScape Species

1:18,056



USGS/NHD
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

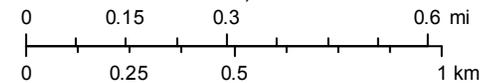


October 1, 2018

Culverts

- Total Blockage
- Total Blockage, Fishway Present
- Partial Blockage
- Partial Blockage, Fishway Present
- Unknown Blockage
- Unknown Blockage, Fishway Present

1:18,056

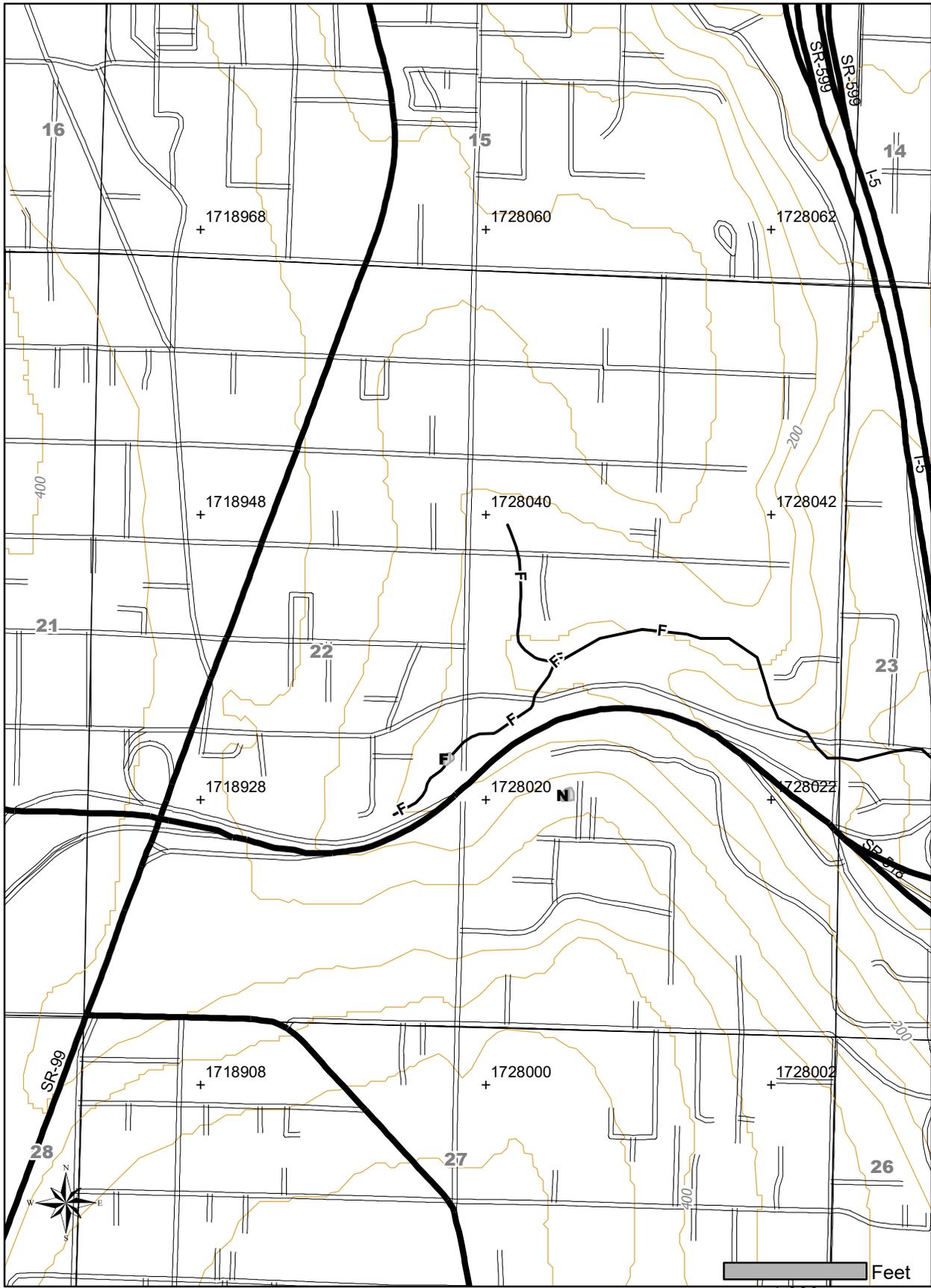


USGS/NHD
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

FOREST PRACTICE ACTIVITY MAP

TOWNSHIP 23 NORTH HALF 0, RANGE 04 EAST (W.M.) HALF 0, SECTION 22

Application #: _____



Please use the legend from the FPA Instruction or provide a list of symbols used.

Date: 10/1/2018 Time: 12:27:42 PM
NAD 83
Contour Interval: 40 Feet