# Biological Assessment - Revised

## City of Marysville – State Avenue Corridor Widening Project

*Marysville, Washington*

June 15, 2018

# Contents

## Tables



## Figures



## Appendices

# 1.0 Introduction

## 1.1 Project Overview

State Avenue is a 3-lane asphalt paved roadway which runs north and south through the City of Marysville. This road runs parallel to Interstate 5 (I-5), and is a major corridor for the transportation network of the city. Currently there is a need to improve State Avenue to address growing transportation needs, stormwater flow, illumination issues, and a lack of sidewalks.

The purpose of the project is to expand the roadway corridor to improve operations, construct a sidewalk to provide safety and non-motorized access along this stretch of roadway, and replace the existing culvert with a single-span bridge over Quil Ceda Creek. The project also includes revisions to luminaire design to provide adequate lighting in the corridor, and implementation of a HAWK signal for a safe pedestrian crossing to a Community Transit bus stop.

The federal nexus for this project consists of authorization from the U.S. Army Corps of Engineers (USACE) for discharge of fill materials into wetlands and work below the ordinary high water mark (OHWM) under Section 404 of the Clean Water Act. This Biological Assessment (BA) is intended to consult on activities related to construction of the proposed project and subsequent effects on species proposed or listed as threatened or endangered, and associated designated or proposed critical habitat that have potential to occur within the project action area. Section 7 of the Endangered Species Act (ESA) of 1973, as amended, requires federal agencies to ensure that their actions do not jeopardize the continued existence of federally listed or proposed, threatened, or endangered species, or result in the destruction or adverse modification of their designated critical habitat. This BA supersedes the November 8, 2017 BA prepared for this project.

## 1.2 Project Location

The project is located within the City of Marysville, Washington, in Sections 16 and 9, Township 30 North, Range 5 East (Figure 1). The proposed project would be approximately 5,300 feet long and is located between 100th Street NE and 116th Street NE. The proposed project would require the purchase of a limited amount of property by the City of Marysville on the east side of State Avenue along the entire length of the project and a limited amount of property on the west side of State Avenue from 100th Street to 105th Street, with the remainder of the project being located in right-of-way (ROW). The State Avenue culvert crossing that is central to this project is on Quil Ceda Creek which is listed as a shoreline of the state (Chapter 90.58 RCW). Quil Ceda Creek is located within water resource inventory area (WRIA) 7, Hydraulic Unit Code 17110011 in the Snohomish River watershed.


FIGURE 1
PROJECT VICINITY

CITY OF MARYSVILLE: STATE AVENUE IMPROVEMENT PROJECT

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## 1.3 Project Description

The project would widen State Avenue from 3 lanes to 5 lanes from the intersection at 100th Street NE to the intersection at 116th Street NE. The project includes a sidewalk on the east side of the roadway throughout the project limits and on the west side from 100th Street to 105th Street to provide a non-motorized access that doesn't exist today. Quil Ceda Creek runs through a culvert located 25 feet below the proposed road improvement section. The current storm drainage on State Avenue conveys stormwater to Quil Ceda creek via embankment sheet-flow, surface runoff, and a few direct outfalls from closed storm facilities on the avenue itself. This project would remove the existing stormwater outfall at Quil Ceda Creek and install stormwater drainage treatment features, replace the existing Quil Ceda Creek box culvert with a single-span bridge over the creek providing for natural stream processes and eliminating a current partial fish passage barrier. Roadway embankment and retaining walls are being constructed outside of the roadway prism to limit the extents of the project upstream and downstream.

## 1.4 Project Elements

Project construction elements include clearing and grubbing the project footprint, construction of the bridge abutments and span, removal of the Quil Ceda Creek culvert under State Avenue, roadway and sidewalk construction, and construction of stormwater drainage, franchise utility, and sewer components.

The first stage of construction involves site preparation that includes marking the construction boundaries, installing temporary erosion and sediment controls (TESC), mobilizing and staging equipment, and clearing vegetation. The contractor shall submit a TESC plan that specifically addresses equipment and site issues for approval by the Project Engineer before beginning any work, and particularly before in-water work. Once the plan is approved, the Contractor would install best management practices (BMPs) which the Project Engineer will inspect before any earthwork can commence. Environmental and project inspectors will monitor BMP installation and construction techniques to ensure compliance with applicable regulations as the construction site changes over the course of improvements.

### 1.4.1 Clearing and Grubbing

Project activities would include approximately 2.8 acres of temporary clearing and grubbing outside the permanent footprint of the project. Vegetation and ground cover to be removed includes roadside mowed grass, shrubs, and some trees. The project construction footprint is minimized by the use of retaining walls and steep side slopes where the roadway is being widened, and matching existing grades of the roadway where feasible. Temporary access roads would be constructed on both sides of State Avenue out of borrow material placed on top of geotextile fabric to move construction equipment to and from the site. The access roads would be removed at the end of construction.

### 1.4.2 Bridge Over Quil Ceda Creek

The project would remove the existing culvert conveying Quil Ceda Creek under State Avenue, as the new crossing would become a single-span bridge (Figure 2). The new bridge would be constructed in two phases to maintain traffic flow. Clearing and installation of the abutment pipe piles and retaining wall would begin on the west side of the roadway while traffic is moved to the east side, including removing the sidewalk and making it a driving surface.

The first step in constructing the bridge would be to excavate the area of the abutment down to the future elevation of the top of proposed pipe piles/bottom of future pile cap and the area where the girders and bridge support structure would be set. Next, the steel pipe pile would be driven for the bridge abutments and wall. The pipe piles would be filled with lean concrete to maximize strength. After the pipe pile abutments are in place the bridge girders would be installed and the deck would be constructed for the west half of the bridge. At this point, existing utilities for water, sewer, and gas would be moved from their existing location to the new bridge structure. The utilities would reside between the various girder bays.

The traffic would then be switched to the newly completed west side of the bridge and excavation would begin on the east half. All of the same installation activities would occur for this portion of the bridge as described above for the west half. Because the initial west side section is constructed on a self-supporting fill, the temporary shoring sheet pile wall can be removed. Complete installation of all the rest of the pipe piles, retaining walls, placing the girders and constructing the bridge deck would follow. At this point the entire bridge would be completed and opened to traffic.

The site for the new bridge would be isolated with sheet piling in the slopes above the OHWM prior to excavation of the old culvert. During this work the existing culvert would remain in place and the existing stream channel and flow would be maintained.

After bridge deck construction is completed, the access roadways into the west side and east side of the bridge would be modified to allow excavation under the bridge and around the existing culvert. All work to this point would be conducted prior to the in-water work window, up until the point where the existing culvert is ready to be removed.

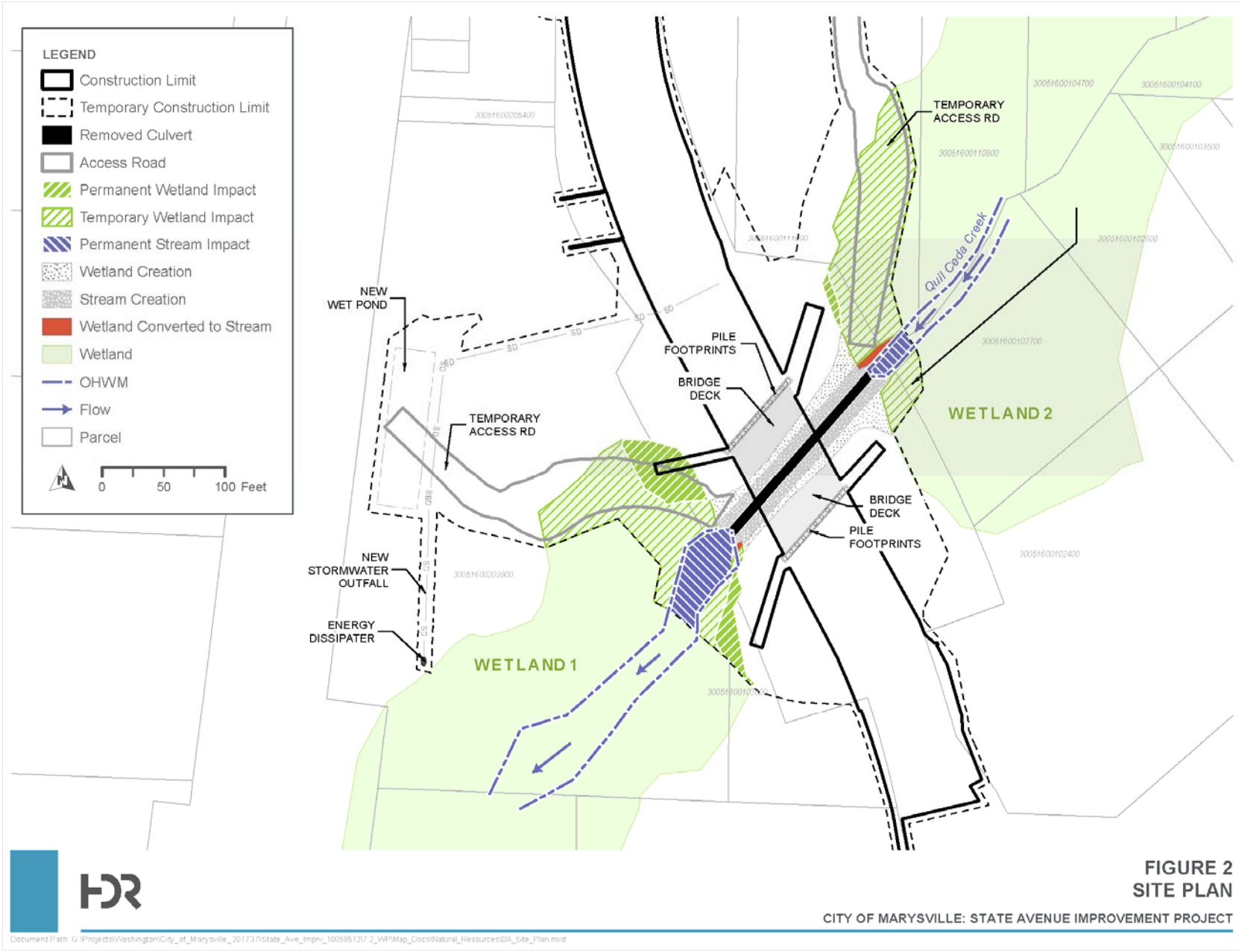
### 1.4.3 In-Stream Work Area Isolation

In order to complete the work to remove the existing culvert and construct the new channel, a temporary stream bypass would be constructed to divert flows around the dewatered old culvert and work area. This would be accomplished via upstream and downstream coffer dams being set up in Quil Ceda Creek around the culvert and new channel construction area. Stream flow would temporarily be diverted through a large diameter pipe and discharged downstream of the work area. This pipe would be removed when the existing culvert removal work and stream restoration is complete and ready to handle the flow. The objective of all flow bypasses is to totally isolate the area of construction on the site while diverting and maintaining stream flow around the project and back into the stream channel downstream.

To install the temporary bypass, an upstream cofferdam would be installed approximately 10 feet upstream of the culvert replacement work area, and a downstream

cofferdam at the flow return location, downstream of the work area. Installation of the cofferdams would be accomplished over several hours during the in-water work window to allow stream flow to be reduced and dewatered gradually. The upstream cofferdam would likely consist of an ecology block/sandbag (or aqua bag or gravel super sack) structure across the channel. Thick plastic sheeting (e.g., 5mm Visqueen) would be placed atop the blocks/bags, which would be anchored with smaller gravel-filled bags to ensure a watertight seal. A small diversion with a vertical culvert intake would be excavated out of the stream bank immediately upstream of the cofferdam. The cofferdam materials and intake construction would likely be installed using an excavator stationed on the bank. Intake pumps would be placed inside the vertical culvert, which would be screened with mesh or cloth. This would require regular cleaning maintenance throughout the operation of the bypass to maintain flows into the intake and temporary pipe. The pump and bypass piping system has been designed to accommodate the maximum 2-year expected flows that could occur during the two month in-water work window.

After the upstream cofferdam and bypass pipe have been placed, the downstream cofferdam would be constructed, including temporary erosion protection measures to prevent scour at the point of return flow. These measures would consist of a bed of washed gravel to dissipate the outlet flows from the bypass pipe.


LEGEND
Construction Limit
Temporary Construction Limit
Removed Culvert
Access Road
Permanent Wetland Impact
Temporary Wetland Impact
Permanent Stream Impact
Wetland Creation
Stream Creation
Wetland Converted to Stream
Wetland
OHWM
Flow
Parcel
0
50
100 Feet
NEW WET POND
TEMPORARY ACCESS RD
NEW STORMWATER OUTFALL
ENERGY DISSIPATER
PILE FOOTPRINTS
BRIDGE DECK
TEMPORARY ACCESS RD
BRIDGE DECK
PILE FOOTPRINTS
Quil Ceda Creek
WETLAND 1
WETLAND 2
FIGURE 2
SITE PLAN
CITY OF MARYSVILLE: STATE AVENUE IMPROVEMENT PROJECT

### 1.4.4 Fish Salvage

During the dewatering of the work site, fish that may occur within that area may become trapped. Upstream of the cofferdam site, block nets would be installed prior to any dewatering activities to prevent fish moving downstream into the cofferdam site and bypass pipe entrance area during installation of the bypass. Once the upstream block net is in place, biologists would use seine nets, and, if necessary, potentially electrofishing equipment, to flush fish downstream past the cofferdam installation site. A downstream block net would then be installed below the cofferdam site. Once the upstream cofferdam is in place, fish biologists would monitor the stream channel downstream of the cofferdam as the water recedes. It is anticipated that most fish in the dewatering area would volitionally move downstream with the outflowing water; however, some fish may become trapped in standing pools. Fish remaining in any residual pools and backwater areas would be salvaged using nets or electrofishing, and transported downstream of the isolated work area.

Qualified fish biologists with fish salvage experience would ensure that all fish are removed and handled safely following National Marine Fisheries Service (NMFS) electrofishing guidelines (2000). Seining or electrofishing would not be used if water temperatures exceed 18°C. Once captured, fish would be placed into a 5-gallon bucket using small dip-nets. Captured fish would be released back into the stream channel a safe distance (approximately 100 feet) downstream of the work area. Fish biologists would record species and lengths of any fish mortalities encountered.

### 1.4.5 New Stream Channel

Grading work on the side slopes of the existing embankment occurs at this same time when extending into the impacted wetland. Slopes would be reinforced fill at a slope between 2:1 and 1.5:1. Encapsulated soil lifts placed at 1:1 slope would be embedded in the sloped embankment (See Appendix C). The proposed material for the new stream channel is engineered streambed sediment WSDOT spec 9-03.11(1). After the new channel is constructed, planting of side slopes of the embankment for stabilization and wetland buffer restoration would occur.

### 1.4.6 Temporary Stream Bypass Removal

Following the completion of all in-water work and the completion of the new channel under the bridge, the temporary bypass pipe would be removed and Quil Ceda Creek would resume flowing through the new channel. Removal of the upstream and downstream cofferdams would be accomplished over several hours during the in-water work window to allow streamflow to be reduced and rewatered gradually. The cofferdam locations would be restored to preconstruction conditions. All temporary bypass and work area isolation materials, except the washed gravels used for flow dissipation at the downstream flow return site, would be removed at the completion of construction. These gravels would be retained in the stream channel and contribute to the gravel substrate in the reach.

### 1.4.7 Roadway and Stormwater Improvements

The proposed project would widen the existing roadway up to 30 feet to the west at the creek crossing location, and add curb, gutter, and sidewalk to the west and east side of the road. As a result of these additions, there would be approximately 1.0 acres of new pollution generating impervious surface (PGIS) and 0.4 acre of new non-pollution generating impervious surface (NPGIS). Stormwater requirements typically mandate that the project is only required to treat the new PGIS, but because the project is using facilities that both treat and detain the stormwater and projects are required to detain all of the new impervious surface, the project would end up treating the entire 1.4 ac of new impervious surface as well.

The project area consists of one threshold discharge area (TDA) that extends from 100th Street NE to just south of 113th Street NE. Stormwater generated by the project site either infiltrates or is conveyed to Quil Ceda Creek within the Snoqualmie-Snohomish River Basin. Quil Ceda Creek ultimately discharges to Possession Sound.

#### Existing Stormwater

The existing stormwater system is made up of natural overland flow and sheet flow to the formal roadway drainage system. Existing drainage infrastructure consists of closed conveyance systems that are made up of catch basins and pipes, and infiltration systems. Stormwater runoff from the west end of 100th Street NE and the portion of State Avenue south of Quilceda Creek is conveyed north through an existing pipe system and discharged to Quilceda Creek. Stormwater runoff generated by the portion of State Avenue north of Quilceda Creek is collected by catch basins along the east side of State Avenue, conveyed south, and discharged to Quilceda Creek. Catch basins at 106th Place NE collect and convey runoff to the east. Stormwater runoff from the eastern half of State Avenue, from 113th Place NE to 116th Street, is collected in catch basins along State Avenue and routed through two existing swales in the commercial parking lot north of 113th Place NE. The runoff is then conveyed across State Avenue and discharged. Stormwater runoff from the western half of State Avenue, north of 113th Place NE, is collected by catch basins and conveyed north, beyond the project limits.

#### Proposed Stormwater

The existing TDA boundary would remain unchanged in the proposed condition. Most of the existing drainage system would be removed. The proposed stormwater management design includes nine infiltration facilities that would provide flow control, a wetpond to provide water quality treatment, and new conveyance systems. The stormwater runoff would be collected by a series of proposed catch basins along the east and west sides of State Avenue and conveyed to infiltration galleries along the roadway edge from 104th Place NE to 113th Place NE. The nine infiltration galleries are comprised of a hollow chamber surrounded by aggregate stone with 30 percent porosity. The design modeling results indicate that all nine infiltration galleries would infiltrate 100 percent of the stormwater runoff from the associated contributing areas.

Stormwater runoff between 100th St NE and 104th Place NE would be conveyed to a stormwater treatment wetpond located on a City-owned parcel to the northwest of the proposed Quil Ceda Creek bridge (Figure 2). Stormwater south of the bridge is collected

and discharged on the existing system on the south side in 100th Street. There is no storm pipe in the bridge, so runoff would move from south to north and is collected and routed to the wetpond. In accordance with Volume V, Section 10 of the Washington State Department of Ecology (2014) *Stormwater Management Manual for Western Washington*, the wetpond was sized with two cells separated by a berm submerged one-foot below the water quality water surface. The wetpond would be a total size of 99 feet in length by 52 feet wide and provide both water quality and detention. There would be no infiltration within the wetpond. After being treated and detained, the runoff would be discharged through an energy dissipater located upland of wetland 1 on the north side of Quil Ceda Creek.

## 1.5 Construction Schedule

Construction of the project is tentatively planned to begin in spring of 2019. Duration of construction is anticipated to take approximately 19 months from March 2019 through September 2020, and project activities are scheduled to occur during daylight hours. All in-water work would be conducted between July 1 and August 31 to be within the USACE in-water work window. A detailed construction schedule has been completed for estimating and timing purposes, but will be dependent on construction funding, ROW acquisition, and advertisement timing.

## 1.6 Operations

Operations of the project are expected to result in changes to current traffic patterns reducing congestion during normal conditions. No new traffic is expected to be generated by the proposed project. The project maintains existing access capabilities of properties along the corridor. Pavement widening and addition/improvement of sidewalks are not expected to increase noise significantly above current noise levels. There are no other projects that are known to be dependent on completion of this project.

# 2.0 Impact Avoidance and Minimization Measures

BMP measures include erosion and sediment control, structural erosion control, sediment retention, water quality/quantity, and stormwater treatment during project construction and operation. The roadway has been designed to use retaining walls to provide a hold for soils and avoid erosion. By having walls in place, the amount of grading required to match existing surfaces is decreased, which minimizes the area of impact to wetlands and wetland buffers.

Temporary construction access to the project area has been located to avoid wetlands to the fullest extent practicable. The proposed project would further avoid and/or minimize effects to natural resources in the project area through the following:

- In-water work will be conducted during the agency-approved in-water work window for Quil Ceda Creek (July 1 through August 31). In-water work will be further minimized by completing bridge construction prior to any in-water work, allowing for quicker construction and dedicated focus on the work to excavate the embankment, remove the existing culvert and construct the new open stream channel. The contractor has the ability to work double shifts as needed to meet the fish window

timelines. Noise is not an impediment, as the area is not adjacent to sensitive residential noise receptors. The use of multiple work shifts in an area without sensitive residential receptors will allow construction to continue 20 hours a day if required to meet fish window constraints. However, double shifts are not expected at this time based on the preliminary construction schedule.

- Limit clearing and land-disturbing activities to the minimum area needed to construct the project.
- Employ temporary (e.g., straw mulch, plastic sheeting) and permanent (e.g., hydroseeding) cover measures to protect disturbed areas.
- Install barriers (e.g., silt fences, straw bale barriers, and sediment ponds or basins) prior to grading to prevent sediment from leaving the site and entering downstream waterways via runoff.
- Restrict the length of time soils are allowed to remain unprotected.
- Stabilize unsurfaced construction site entrances, roads, and parking areas used by construction traffic with rock pads to minimize erosion and tracking of sediment off-site.
- Construct ditches and/or dikes to intercept and divert surface water runoff away from exposed soils in the construction areas to a sediment trap or pond.
- Implement preventive measures, such as watering or covering exposed soils, during summer months to minimize the wind transport of soils.
- Grade and restore the construction area to original grades and drainage patterns to the greatest extent possible immediately following construction. To prevent erosion, immediately mulch ungraded or disturbed areas for protection. Revegetate as soon as possible after grading is completed.
- Limit construction to practical minimum construction corridors through sensitive areas to lessen temporary impacts.
- Stabilize exposed soils with a vegetative cover or other erosion control treatment immediately following construction.
- TESC measures would be established prior to start of construction to prevent any sediment or contaminated stormwater from reaching the creek. The system for this will be silt fence, periodic wattles along the hillside and likely a Baker tank to chemically treat water collected before discharge. The TESC measures would be established as high up on the hillside as feasible to reduce the area of water collected.
- Develop, implement, and maintain a Stormwater Pollution Prevention Plan (SWPPP) to minimize erosion of sediments due to rainfall runoff at construction sites, and to reduce, eliminate, and prevent the pollution of stormwater.
- Develop, implement, and maintain a Spill Prevention Control and Countermeasures Plan (SPCC) to manage toxic materials associated with construction activities (e.g., equipment leakage, disposal of oily wastes, cleanup of any spills, storage of petroleum products/chemicals in contained areas away from streams and wetlands).

## 2.1 Stream and Wetland Impacts and Mitigation

The project has avoided and minimized effects to stream and wetland habitat to the extent practicable; however, the project would result in temporary impacts to stream and riparian habitat. Creation of the new channel segment under the proposed bridge would permanently affect a total of approximately 130 lineal feet of Quil Ceda Creek channel, and 0.09 acre of wetland. Construction of the new bridge would remove the 412-foot-long culvert and open up this section of Quil Ceda Creek channel, and temporarily affect 0.42-acre of wetland.

Compensatory wetland mitigation would be achieved by using credits through the City of Marysville's Advanced Wetland Mitigation site at the Qwuloolt Estuary Restoration Project site located on Ebey Slough, which is approximately 3.5 miles downstream of the project site. This mitigation site is a 400-acre tract of former agricultural land located in the southern part of the city. The City owns 18.1 acres of the site and has an agreement with USACE and Washington State Department of Ecology (Ecology) for using the site for mitigating the potential wetland impacts resulting from the City's projects. The project proposes to purchase wetland acreage credit at this mitigation site to compensate for permanent wetland impacts. The City is in the process of preparing a Wetland Mitigation Bank Use Plan.

In addition, the project would result in approximately 3,050 square feet (0.07 acre) of wetland creation from the restoration of Quil-Ceda Creek. Approximately 18,300 square feet (0.42 acre) of temporarily impacted wetland area would also be restored after the completion of the project. Wetland buffers temporarily impacted would be restored with planting of native plant species.

Permanent impacts to the stream and stream buffers are anticipated to be mitigated through the removal of the existing culvert and creation of an open channel reach under the bridge that improves in-stream habitat and passage from existing conditions, as well as riparian habitat enhancement within the impacted reach. The stream restoration will incorporate in stream habitat improvements and riparian habitat enhancement (stream bank planting) along the restored Quil Ceda Creek Channel (Appendix C).

# 3.0 Action Area

The action area is defined as the area to be potentially affected directly or indirectly by a federal action (50 CFR §402.02). For the purpose of establishing baseline conditions from which to evaluate potential effects of the project, the project activities, as well as physical site conditions, were examined and evaluated. For this project, the basis for defining the action area takes into consideration the project footprint, stream, riparian and wetland habitat disturbance, and construction noise from construction equipment.

Project activities that are located in or adjacent to streams and wetlands have the potential to introduce and transport sediment into the aquatic environment and downstream of the immediate construction or work area. Chapter 173-201A-200 of the Washington Administrative Code (WAC) was consulted to determine the extent of potential effects of sedimentation and associated turbidity to streams and wetlands in the project area. Compliance with the State of Washington Surface Water Quality Standards

states that a mixing zone for streams with more than 10 cubic feet per second (cfs), but less than 100 cfs of flow at the time of construction shall extend 200 feet downstream of project activities (WAC 173-201A-200).

Installation and removal of the coffer dams and bypass piping associated with connection of the new channel and removal of the existing culvert would cause disturbance to sediment in the stream and soils on and near the banks and create temporary turbidity plumes in the creek. Stormwater would be routed through a flow control facility before being discharged to Quil Ceda Creek just downstream of the new bridge. Therefore, the aquatic action area therefore includes a 200-foot mixing zone at the downstream end.

Excavation and installation of the new bridge support structures and wing walls would be conducted in uplands outside OHWM in the road embankment and areas isolated from Quil Ceda Creek, and therefore would not generate underwater noise. Temporary in-air noise from project construction would define the furthest extent of the action area.

Noise from construction activities is based on reference data provided by the *Washington State Department of Transportation (WSDOT) Advance Training Manual: Biological Assessment for Transportation Project* (WSDOT 2015). The three loudest noise-producing equipment anticipated to be used on site include an impact pile driver (110 dB), pavement scarifier (88 dB), and a dozer (82 dB). Based on the rules of decibel addition (WSDOT 2015), the resultant maximum combined noise level from construction equipment would be 110 dB at 50 feet. Using this number, and considering the soft-site characteristics of the project area, construction noises would attenuate 7.5 dB per doubling distance (WSDOT 2015). Due to the suburban nature of the site and traffic noise from State Avenue, baseline noise levels were conservatively estimated to be approximately 60 dB (WSDOT 2015). Based on these conditions, construction noise should attenuate to baseline levels (60 dB) about 5,000 feet (approximately 0.95 mile) from the limits of bridge construction (Figure 3). Pile driving would only occur at the bridge construction site, and the limits of the terrestrial action area based on noise are centered from that site. Construction noise from excavating and paving equipment from the rest of the project corridor to the north would dissipate to background levels within the area defined by the pile driving noise.


**FIGURE 3**
**ACTION AREA**

CITY OF MARYSVILLE: STATE AVENUE IMPROVEMENT PROJECT

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# 4.0 Status/Presence of Listed Species/Designated Critical Habitat

HDR obtained lists of threatened and endangered species in the vicinity of the proposed project from the following sources:

- U.S. Fish and Wildlife Service (USFWS) (2017) Information for Planning and Conservation (IPaC) report online
- NOAA NMFS (2017) West Coast Salmon and Steelhead Listings online
- Washington Department of Fish and Wildlife's (WDFW) Priority Habitats and Species (PHS) on the web (2017a)
- WDFW Salmonscape interactive mapping (2017b)
- Streamnet online mapper (2017)
- Washington Department of Natural Resources (WDNR) Natural Heritage Information Request Self-Service System (2017)

The USFWS and NMFS species lists were accessed on their websites in March 2017 and are provided in Appendix A. The PHS data (WDFW 2017b) specific to the action area defined for this project was compared to the USFWS and NMFS listings. Species that could potentially occur in the project vicinity are listed in Table 1.

A reconnaissance level environmental investigation of the project site that included fish habitat assessment was conducted by HDR biologists on May 4 and May 11, 2017. No listed terrestrial or aquatic species were observed during these field investigations. The project is not located within any sections listed in the WDNR Natural Heritage Program (NHP) List (2017). No rare plant species or high-quality ecosystems were observed during environmental field investigations.

**Table 1. Listed Species That May Occur in the Project Vicinity**

| Species | ESU/DPS[a] | Status | Federal Jurisdiction | Critical Habitat |
|---|---|---|---|---|
| Bull Trout (*Salvelinus confluentus*) | Coterminous United States | Threatened | USFWS | Designated but not in Action Area |
| Chinook Salmon (*Oncorhynchus tshawytscha*) | Puget Sound ESU | Threatened | NMFS | Designated in Action Area |
| Steelhead (*Oncorhynchus mykiss*) | Puget Sound DPS | Threatened | NMFS | Designated in Action Area |
| Marbled Murrelet (*Brachyramphus marmoratus*) | NA | Threatened | USFWS | Designated but not in Action Area |
| Streaked Horned Lark (*Eremophila alpestris strigata*) | NA | Threatened | USFWS | Designated but not in Action Area |
| Yellow-billed Cuckoo (*Coccyzus americanus*) | Western DPS | Threatened | USFWS | Proposed but not in Action Area |
| Oregon Spotted Frog (*Rana pretiosa*) | NA | Threatened | USFWS | Designated but not in Action Area |

[a] ESU = Evolutionary Significant Unit; DPS = Distinct Population Segment

Other listed species may occur in Snohomish County, but are unlikely to occur in the action area and thus would not be affected by the proposed actions. This is due to lack of suitable habitat, the action area is within urban and human developed areas, and because their presence is so transitory that any temporal effects to these species from construction activities would not be perceived as unusual, cause disruption of behavior, or lead to measurable reductions in their prey base. These species include the North American wolverine (*Gulo gulo luscus*) which is proposed for listing, Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), grizzly bear (*Ursus arctos horribilis*), and Northern spotted owl (*Strix occidentalis caurina*), all listed as Threatened.

## 4.1 Presence of Listed and Proposed Species and Critical Habitat in the Action Area

The following sections describe the ESA-listed species with the potential to occur in the action area, and the presence of these species and habitat.

### 4.1.1 Marbled Murrelet

Marbled murrelets (*Brachyramphus marmoratus*) are listed as threatened under the ESA in 1992 (57 FR 45328) and occur in Puget Sound and the Strait of Juan de Fuca and nest inland in forests that are generally characterized by large trees with large branches or deformities for use as nest platforms. Critical habitat has been designated for the marbled murrelet (76 FR 61599), and includes forested areas around Puget Sound but does not include the project area.

The marbled murrelet is a small, robin-sized, diving seabird that spends the majority of its time on the ocean (> 90%), resting and feeding, but flies inland to nest in old growth forest stands. The range of the marbled murrelet is defined by breeding and wintering areas that extend from the northern terminus of Bristol Bay, Alaska, to the southern terminus of Monterey Bay in central California. In Washington, this species occurs in the greatest numbers in the Puget Sound and Strait of Juan de Fuca.

Marbled murrelets nest inland in forests that are generally characterized by large trees with large branches or deformities for use as nest platforms. Murrelets nest in mixed conifer stands varying in size from several acres to thousands of acres. However, larger, unfragmented stands of old growth appear to be the highest quality habitat.

#### Occurrence in Action Area

The WDFW PHS data (2015) indicates that there are no occurrences of marbled murrelets or their habitat within the project action area and vicinity. Birds have been observed in Possession Sound, approximately 3.8 miles southwest of the project area. Given the project location between Puget Sound and inland nesting areas in the Cascades to the east, there is the potential that a few marbled murrelets could fly over the action area while transiting between marine foraging areas and inland nesting sites. However, noise and activity associated with project construction is not expected to affect murrelets that may fly over while transiting between nest sites and marine waters. Transit flights between inland nesting areas and marine foraging areas typically occur at dawn and dusk when construction activities would have ceased.

#### Critical Habitat

Critical habitat for the marbled murrelet was first designated in 1996 then revised in 2011 (76 FR 61599). The project action area is well outside areas to the east which are included in designated critical habitat, the closest area being over 15 miles away to the west.

### 4.1.2 Streaked Horned Lark

The streaked horned lark (*Eremophila alpestris strigata*) was listed as threatened throughout its range under the ESA in 2013 (78 FR 61451). The streaked horned lark is associated with bare ground or sparsely vegetated areas, particularly early successional habitats such as gravel bars, burned grasslands, and scoured or sediment-deposited floodplains with an open landscape. In Washington, the streaked horned lark nests on grasslands and sparsely vegetated areas at airports, sandy islands and coastal spits (USFWS 2013; Anderson and Pearson 2015).

#### Occurrence in Action Area

The current range of streaked horned lark in Washington is limited to south Puget Sound, the coast, and lower Columbia River islands (Anderson and Pearson 2015). There is no suitable habitat for this species in the project action area or vicinity. Therefore, streaked horned larks are not expected to be present in or near the project action area.

### Critical Habitat

Concurrent with the listing, the USFWS designated 4,629 acres of critical habitat in Grays Harbor, Pacific, and Wahkiakum counties in Washington, and in Clatsop, Columbia, Marion, Polk, and Benton counties in Oregon (78 FR 61505). There is no designated critical habitat in or near the action area.

## 4.1.3 Yellow-billed Cuckoo

The western DPS of the yellow-billed cuckoo (*Coccyzus americanus*) was designated as threatened on October 3, 2014 (79 FR 59991). The western yellow-billed cuckoo has experienced a major decline in its breeding range since the 1800s and is now extirpated throughout most of its historical range except for small and widely dispersed nesting populations in California, Arizona, and New Mexico (WDFW 2013). Yellow-billed cuckoos are considered extirpated in Washington, but they appear extremely rarely during summer (WDFW 2013; Birdweb.org).

Western yellow-billed cuckoos breed in large blocks of riparian habitat, particularly woodlands with cottonwoods and willows (USFWS 2013). Preferred habitat contains a combination of a dense willow understory for nesting and a cottonwood overstory for foraging (Gaines and Laymon 1984). Most nesting in the western region occurs between June and early August, but can extend from late May until late September (Hughes 1999). Migratory habitat includes riparian areas and secondary growth woodland and hedgerows (Hughes 1999).

### Occurrence in Action Area

In Washington, the last confirmed breeding records of yellow-billed cuckoos are from the 1930s (USFWS, 2013b), and the western yellow-billed cuckoo is considered extirpated from most of its historic range. The WDFW PHS database has no record of yellow-billed cuckoo in the action area (WDFW, 2017). However, some potential migratory habitat is present in the action area. Additionally, migrating yellow-billed cuckoo may shelter or feed in urbanized settings, so the urbanized surroundings and the presence of the highway does not preclude them. Despite this potential, due to the rarity of the species in Western Washington, and lack of any recorded occurrences in the region, the yellow-billed cuckoo is not anticipated to be in the action area or vicinity during project construction.

### Critical Habitat

Critical habitat was proposed on December 2, 2014, (78 FR 78321) and includes sections of Arizona, California, Colorado, Idaho, New Mexico, Nevada, Texas, Utah, and Wyoming. No proposed yellow-billed cuckoo critical habitat is in the action area or vicinity.

## 4.1.4 Oregon Spotted Frog

The Oregon spotted frog (*Rana pretiosa*) was formally listed as threatened under the ESA in August 2014 (79 FR 51658). Oregon spotted frogs inhabit emergent freshwater wetlands in forested landscapes, although they are not typically found under forest canopy. Historically, this species was also associated with lakes in the prairie landscape

of the Puget lowlands. This species is the most aquatic native frog in the Pacific Northwest and is almost always found in or near a perennial body of water that includes zones of shallow water and abundant emergent or floating aquatic plants, which the frogs use for basking and escape cover (USFWS 2014).

In Washington, Oregon spotted frogs are known to occur within the Black River drainage, Trout Lake Creek, and at Conboy Lake. These populations are isolated from each other and vulnerable to a wide variety of factors that interfere with reproduction or survival (USFWS 2014).

#### Occurrence in Action Area

Quilceda Creek-Frontal Possession Sound is one of the watersheds listed as having potential for Oregon spotted frog and because of this project sites need to be assessed in order to make determinations of occurrence and potential project impacts WSDOT (2015). Consequently, the screening criteria outlined in WSDOT *Oregon Spotted Frog and OSF Critical Habitat Presence Assessment* (2015) was evaluated for the action area. One of the criteria is the presence of a perennial body of water having a total surface area with less than 50 percent vegetative cover, and shallow water areas with high solar exposure or low (short) canopy cover. The wetlands in the action area do not meet this criteria. The wetlands lack the large open areas, and lack extended sun exposure due to the valley and surrounding trees. Generally there is too much woody shrub cover and trees and not enough open water areas suitable for breeding habitat.

The wetland areas outside the stream channel do have a few of the characteristics of suitable Oregon spotted frog winter habitat but lack lentic pools and connectivity to breeding habitat. Therefore, although this frog species potentially occurs in Snohomish County (USFWS 2014), the project action area lacks suitable habitat. As a result, Oregon spotted frog is not known or expected to occur in the project action area.

#### Critical Habitat

Critical habitat for the Oregon spotted frog was designated in May 2016 and includes river basins in Skagit and Whatcom counties to the north, and Thurston County to the south, but none is located in the action area or vicinity (81 FR 29335).

### 4.1.5 Puget Sound Chinook Salmon

The Puget Sound Evolutionary Significant Unit (ESU) of Chinook salmon was listed as a federally threatened species on March 24, 1999. This listing status was reaffirmed in 2005. The Puget Sound Chinook salmon ESU includes all marine, estuarine, and river reaches that are accessible to listed Chinook salmon in the Puget Sound. In the project vicinity, fall- and summer-run Chinook salmon migrate through Ebey and Steamboat Sloughs to reach spawning grounds in the upper Snohomish River, the Skykomish River, and their tributaries including Quil Ceda Creek (WDFW 2017a,b).

Chinook are the largest of the Pacific salmon species and tend to spawn in the deeper mainstem portions of rivers and streams, and can utilize larger gravels depending on the sizes of the individual. Chinook salmon remain in the ocean for three to four years before returning to their parent streams to spawn. Adult return timing of summer Chinook salmon is generally from June through July, and adult fall Chinook salmon are

documented to return between August and September (City of Everett 2001). Spawning could begin as early as late August, but the majority of spawning mainly occurs between September and October (WSDOT 2009; Haring 2002; City of Everett 2001).

After emerging from spawning gravel, fall Chinook fry forage and start moving downstream within weeks to a few months. Outmigration through the estuary begins from March through April and peaks in late May through early June. By the end of June, most fish move out of the estuary and are found in channels (City of Everett 2001).

### Occurrence in Action Area

Puget Sound Chinook are documented to use the reach in the project area for rearing, migration, and spawning (WDFW 2017a,b). The use of Quil Ceda Creek system by Chinook salmon is reported to be relatively minimal when compared to the Snohomish River system as a whole. This is likely due to the fine channel bed substrate within the Marysville trough area limiting spawning within the watershed (Tulalip Tribes 2009). Habitat in the project reach of Quil Ceda Creek observed on the May 4 field visit did not exhibit characteristics of suitable spawning habitat. The substrate composition was predominantly sand and silt. Gravel and cobble with adequate flows to remove fines and provide fresh oxygenated water for eggs was lacking. It is therefore doubtful that this reach continues to support Chinook spawning.

The habitat features observed were, however, conducive to migration and some potential juvenile rearing, but pool riffle habitat complexity was also lacking. Chinook utilizing Quil Ceda Creek are of the Skykomish stock, an “ocean” type, with juveniles migrating downstream from April to early June, and utilizing estuarine and/or marine habitat before mid-July (Tulalip Tribes 2009). Therefore there is potential for both adult and juvenile Chinook to be seasonally present in Quil Ceda Creek in the project action area, although this occurrence in minimized during the in-water work window.

### Critical Habitat

The NMFS designated critical habitat for Puget Sound Chinook in 2000 and it was revised in 2005. Quil Ceda Creek is included in designated critical habitat. In consideration of those physical and biological features that are essential to the conservation of Chinook salmon and their critical habitat, NMFS has identified six primary constituent elements (PCEs) for Chinook salmon critical habitat (NMFS 2005):

1. Freshwater spawning sites with water quantity and quality conditions and substrate that support spawning, incubation, and larval development.
2. Freshwater rearing sites with: (i) water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; (ii) water quality and forage areas that support juvenile development; and (iii) natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
3. Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

4. Estuarine areas free of obstruction with water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh water and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.
5. Nearshore marine areas free of obstruction with water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels.
6. Offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation.

The PCEs relating to freshwater areas including rearing and spawning sites (PCEs #1-3) are the components of Chinook critical habitat that are applicable to the project action area. The project would not impact estuarine or marine areas downstream in Ebey Slough or Possession Sound.

### 4.1.6 Puget Sound Steelhead

The Puget Sound Distinct Population Segment (DPS) of steelhead trout was listed as threatened under the ESA on May 11, 2007. The DPS includes all naturally spawned winter-run and summer-run steelhead populations including those that inhabit the Snohomish River and Quil Ceda Creek.

Puget Sound steelhead exhibit one of the most complex suites of life history strategies among the anadromous Pacific salmonid species. Unlike other anadromous salmonids, steelhead are iteroparous and can spawn multiple times, often returning to marine waters between freshwater spawning bouts. Puget Sound steelhead usually spend 1 to 3 years in fresh water, with the greatest proportion typically spending two years (Busby et al. 1996). Consequently, steelhead rely heavily on freshwater habitats and are present in streams year round. Outmigration of smolts typically occurs from April to mid-May, and unlike Chinook salmon, it is generally thought that steelhead spend little time in estuarine and nearshore areas and move quickly to the offshore environment (NMFS 2005).

Although both winter and summer runs of steelhead are documented to occur in Quil Ceda Creek (WDFW 2017b), it is unlikely that many summer run steelhead are present since they typically occur where habitat is not fully utilized by winter runs (Tulalip Tribe 2009). Adult summer steelhead generally return between May and October whereas adult winter steelhead return from November through April. Spawning of summer steelhead generally occurs from February through April, and winter steelhead typically spawn from early March to mid-June (Haring 2002). After fry emerge from the gravels, they seek complex habitat consisting of boulders, rootwads, and woody material along the stream margins (Paron and Nelson 2001). Adults spawn in areas with predominantly gravel substrate and adequate escape cover.

### Occurrence in Action Area

Both winter and summer steelhead are documented to occur in Quil Ceda Creek, including the reach through the project action area (WDFW 2017a,b; Tulalip Tribes 2009). Since summer run steelhead usually only occur when habitat is not fully utilized by winter runs, it is unlikely that many summer run steelhead utilize Quil Ceda Creek (Tulalip Tribes 2009). Steelhead are known to use the Quil Ceda Watershed, however due to fine channel bed material, only small areas of the watershed are suitable for steelhead spawning. The creek is primarily used as a migratory corridor with some potential rearing, but spawning is not reported. As described for Chinook salmon above, habitat in the stream reaches in the study area upstream and downstream of the project site is not suitable to support spawning, and lacks gravel and cobble substrate, and pool/riffle habitat complexity.

### Critical Habitat

Critical habitat for Puget Sound steelhead was designated in February 2016 and includes the mainstem Quil Ceda Creek including the project reach (81 FR 9251). PCEs for steelhead are the same as those described above for Puget Sound Chinook.

## 4.1.7 Bull Trout

Bull trout in Quil Ceda Creek are part of the coastal and Puget Sound Distinct Population Segment (DPS) which was federally-listed as threatened under the ESA in 1999. The USFWS defined a single distinct population segment for bull trout within the coterminous United States and listed them as threatened under the ESA in 1999 (64 FR 58910).

Bull trout have more specific habitat requirements than most other salmonids (Rieman and McIntyre 1993). Watersheds must have specific physical characteristics to provide the habitat requirements necessary for bull trout to successfully spawn and rear. Bull trout require very cold water (below 59 degrees Fahrenheit) and spawning temperatures that drop below 48 degrees Fahrenheit in the fall (USFWS 2004). Spawning areas are often associated with coldwater springs, groundwater infiltration, and the coldest streams in a given watershed (Pratt 1992; Rieman and McIntyre 1993). The primary spawning areas associated with the stock include the upper North Fork Skykomish River and its tributaries, the East Fork Foss River, and the upper South Fork Skykomish River (Haring 2002), and no spawning activities occur in the lower reaches of the Snohomish River. Migratory bull trout spawn in tributary streams from late August to mid November, but are more likely to spawn between the first week of October and the first week of November (Haring 2002).

All life history stages of bull trout are associated with complex forms of cover, including large woody debris, undercut banks, boulders, and pools (USFWS 2004). The majority of juvenile bull trout spend 2 or more years in freshwater streams before migrating downstream. Timing of entry to tidal waters for bull trout extends from mid-February to early September but peaks between April and July (USACE 2012; WSDOT 2009).

### Occurrence in Action Area

Bull trout are not documented to occur in the stream reach in the aquatic portion of the action area, but are reported downstream of the railway crossing to Ebey Slough (WDFW

2017a,b). The lower Quil Ceda is presumed habitat for bull trout, however due to its distance from known spawning areas and from suitable spawning habitat, it is likely only utilized by adfluvial fish for foraging (Tulalip Tribes 2009). The project reach does not provide the cold clear waters required for bull trout spawning. Warm water temperatures in summer could preclude bull trout from this section of the stream, and they may only occur seasonally downstream as they make foraging or rearing forays up from Ebey Slough when conditions are favorable.

### Critical Habitat

The USFWS designated critical habitat for the Coastal-Puget Sound bull trout DPS in 2005 and revised in 2010. Designated critical habitat for bull trout includes upstream portions of Ebey and Steamboat sloughs and nearshore marine areas, but does not include Quil Ceda Creek or its tributaries.

# 5.0 Environmental Setting

## 5.1 Terrestrial Habitat

There are two wetlands along Quil Ceda Creek, located on both sides of State Avenue. The wetland on the west side of the roadway is a palustrine shrub-scrub, depressional wetland bisected by Quil Ceda Creek, fed by groundwater and overbank flooding from the creek. The wetland on the east side is a large forested wetland with a large variety of Cowardin classes and respective vegetation, and is also bisected by Quil Ceda Creek. Details about these delineated wetlands are provided in the wetland and stream report prepared for this project (HDR 2017).

The rest of the project corridor is primarily suburban developed with residential housing, businesses, and intersecting streets. The existing habitat in the corridor is roadside mowed grass, paved driveways and intersecting roads, and fences and powerlines. This corridor within the project footprint provides little to no habitat value to terrestrial wildlife species and no habitat for any of the ESA listed species in the county. Some mature conifer and deciduous trees are present along the corridor, but are outside the project footprint.

## 5.2 Aquatic Habitat

The State Avenue culvert crossing that is central to this project is on Quil Ceda Creek which is listed as a shoreline of the state (Chapter 90.58 RCW). Quil Ceda creek is located within WRIA 7 in the Snohomish River watershed, U.S. Geological Survey Hydrological Unit Code (HUC) 17110011. The Quil Ceda Creek watershed is located north of the Snohomish River, and joins the Snohomish at Ebey Slough on the Tulalip Reservation. Quil Ceda Creek originates in the hills just east of North Marysville and flows into Ebey Slough near its confluence with the mouth of Steamboat Slough. The Quil Ceda Creek watershed drains approximately 38 square miles including the I-5 urban corridor in and north of the city of Marysville (Harring 2002). The upper reaches of the watershed consist primarily of agricultural and low-density rural land uses, whereas the

middle and lower reaches consist of urbanized areas with moderate to high density residential, industrial, and commercial development (Carroll 1999).

The watershed includes the mainstream Quil Ceda Creek, middle fork Quil Ceda Creek, Edgecomb Creek, and Hayho Creek which all converge at various points upstream of the project area. The West Fork Quil Ceda Creek is another tributary that joins Quil Ceda Creek downstream of the railroad tracks to the west of the project. Coho and Sturgeon Creeks enter the Quil Ceda further downstream within a tidally-influenced reach prior to the confluence with Ebey Slough. The tidal influence in Quil Ceda Creek extends upstream of I-5 to approximately river mile (RM) 2 (Harring 2002), and the State Avenue crossing is on the mainstem Quil Ceda Creek at around RM 3.75.

Quil Ceda Creek exhibits bank erosion on both the left and right banks at various segments throughout the channel in the project area. This indicates that the system is flashy and can encounter high, fast flows at times. Groundwater is an important source of flow for Quil Ceda Creek, particularly during seasonal periods of low precipitation (Snohomish County 2002; Harring 2002). In the Marysville trough area the groundwater table is relatively high, and wetlands comprise a significant percentage of the area, and flooding is a significant issue. Quil Ceda Creek is included on Ecology's 303(d) list of impaired waterbodies for bacteria (Category 4A) and dissolved oxygen (Category 2).

Upstream of the State Avenue culvert, the stream is a single channel with steep banks through a wetland floodplain. The channel is fairly uniform in width at an average of approximately 16 feet at bankfull and has little sinuosity (Appendix B). The banks are steep and incised and topped with predominantly reed canary grass (*Phalaris arundinacea*) with some Pacific willow (*Salix lasiandra*). Immediately upstream of the culvert there are wetland drainage channels that merge with the creek on both sides. There was little evidence of backwatering although the water level in the culvert was relatively high with little freeboard during the May 4 field visit. The substrate is dominated by sand and silt throughout the upstream delineated reach.

Downstream (west) of the culvert, the stream emerges into a large pool, and a smaller corrugated metal pipe drains to the left bank from under the road embankment (Appendix B). The stream channel becomes shallower downstream, and branches into three channels around vegetated bars and woody debris. Throughout the downstream reach the banks are steep and incised in places. The substrate throughout is sand and silt, with some gravel particularly in a small riffle area at the head of one of the vegetated bars. The riparian areas downstream of State Avenue are more densely vegetated than the upstream side and include more tall woody shrubs including Pacific willow, red alder (*Albus rubra*), and big-leaf maple (*Acer macrophyllum*) (Appendix B).

## 5.3 Fish Use

Salmonid fish species that inhabit Quil Ceda Creek include Chinook, coho, chum, and pink (*Oncorhynchus gorbuscha*) salmon, as well as steelhead and cutthroat trout (*Oncorhynchus clarkii*) (WDFW 2017a,b; Streamnet 2017; Tulalip Tribes 2009; Zach Lamebull, Tulalip Tribes, personal communication, August 2017). Bull trout are documented as occurring just outside of the study area downstream of the railroad crossing (WDFW 2017b). Coastal cutthroat trout are found throughout the watershed and both the resident and anadromous life history forms are present (Tulalip Tribes 2009).

The segment of Quil Ceda Creek in the project reach is low gradient with very little gravel present in the substrate, and this area is primarily used by fish as a migratory corridor and for rearing (Tulalip Tribes 2009). Good spawning habitat is located in tributaries well upstream of the project area and most of the rest of the watershed is primarily rearing habitat, due to the fine substrate of the channel bed (Tulalip Tribes 2009). Both upstream migrating adults and downstream migrating juvenile salmon seasonally pass through the project area reach. Consequently, it is assumed that all Puget Sound salmonid species could be present both upstream and downstream of the culvert under State Avenue. From 1995 to 2014 WDFW and Tulalip Tribe biologists have personally documented steelhead, Chinook, and Chum salmon upstream of the culvert. Pink and coho salmon have also been modeled to be present upstream (Zach Lamebull, Tulalip Tribes, personal communication, August 2017).

# 6.0 Effects of the Action

## 6.1 Direct Effects

### 6.1.1 Terrestrial Impacts

Construction noise during all work would elevate noise levels in the action area during construction activities. ESA-listed terrestrial species are however not known or expected to occur in or near the project action area and would therefore not be impacted by construction noise from the project.

Ground clearing and excavation within the project footprint would remove vegetation and ground cover from temporary construction areas as well as within the permanent footprint of the project. The existing habitat in the corridor north of the wetlands at the Quil Ceda Creek crossing is comprised of roadside mowed grass, paved driveways and intersecting roads, and fences and powerlines. This corridor within the project footprint provides little to no habitat value to terrestrial wildlife species and no preferred habitat for any of the ESA listed species in the county.

### 6.1.2 Wetland Impacts

The project would have temporary impacts to wetlands on both sides of State Avenue at the Quil Ceda Creek crossing location (Figure 2). Wetland 1 (west side) would have 0.18 acre of temporary impact during construction, and an additional 0.07-acre would be permanent. Wetland 2 on the east side of State Avenue would have 0.24-acre of impact during construction, and 0.01-acre would of permanent impacts. An additional 0,01-acre of Wetland 2 would be converted to stream habitat as a result of the construction of the new stream cannel to replace the existing culvert. The project proposes to purchase wetland acreage credit at this mitigation site to compensate for permanent wetland impacts. The City is in the process of preparing a Wetland Mitigation Bank Use Plan. Temporary wetland and riparian impacts would be stabilized and restored by planting with native vegetation following construction.

### 6.1.3 Aquatic Impacts

Construction of the new channel under State Avenue would alter instream morphology and would temporarily increase turbidity and sediment loading to downstream waters during worksite isolation and reconnection of the new channel after construction. With proper channel reconstruction techniques, modifications to instream morphology would be short term in nature. The goal for bank and channel restoration would be to return the banks to preconstruction conditions.

Much of the work installing the new bridge would be done in upland areas outside the OHWM and all would be outside the banks of the existing channel, in areas isolated from the stream, which would continue to flow through the existing culvert. During excavation and removal of the existing culvert, water in the stream would be diverted through a temporary bypass. After the worksite has been dewatered, the old culvert would be removed and new channel constructed. Coffer dam installation and work area isolation would cause temporary direct impacts to the stream that include loss of access to the isolated reach for migration, and sediment plume downstream as the stream bed and banks are disturbed.

Increased turbidity and sediment loading can result in the siltation of gravel streambeds (decreasing their suitability as spawning habitat for EFH species), filling of pool habitat, reduction in benthic macroinvertebrate prey organisms, and alterations in the behavior of juvenile salmonids. Moderate to high levels of suspended sediments and turbidity can reduce salmonid feeding efficiency, clog gill rakers, erode gill filaments (Bruton 1985; Gregory 1993), inhibit primary production, and cause any fish in the area to avoid the disturbed reaches of the creek. These impacts could result in a disruption to normal behavior, causing individuals to avoid available habitat, lose foraging opportunities near the project area, and delay or prevent movement into suitable habitat. These effects would be minimized by the relatively short duration of in-water work, and conducting instream work in the low-flow period.

Several construction elements and best management practices (see Section 2) would be implemented to minimize potential temporary impacts to water quality in the creek due to sediment or pollutant deposition resulting from construction activities. All work within the active creek channel would take place within the agency-approved work window of July 1 through August 31, taking advantage of low flow conditions.

#### Fish salvage

During dewatering of the isolated worksite, it may be necessary to remove some fish that may become stranded in residual pools as the water recedes. Capturing these fish and transporting them to the stream channel outside of the work area would be conducted by qualified biologists, but would still constitute harassment and potential harm to those individuals. Therefore the project would have potential adverse effects to individual Chinook or steelhead if they were present during work site isolation and dewatering. This work would be conducted during the late summer in-water work window when fish are least likely to be present, but due to the presence of migratory and marginal rearing habitat and steelhead life history traits, their presence cannot be completely discounted.

Isolation of the worksite would also preclude the reach from being used as a migratory corridor by any steelhead that may potentially be present in the area. Although unlikely,

any juvenile steelhead and Chinook salmon that are potentially in the project vicinity are likely to be disturbed as a result of construction operations, since it is expected that noise and activity would encourage fish to move to other areas. Juveniles, if present in the vicinity of instream activities, could be affected by a number of construction-related effects including harassment from noise, and displacement during in water activities. During the in-water construction period, the essential behaviors of feeding and sheltering would be interrupted in these areas as the displaced fish may be forced into other habitat or into areas that place them in greater competition with other fish. However, given the small footprint of the proposed project relative to the habitat, and the section of the stream that would be temporarily inaccessible does not provide rearing habitat, so foraging and shelter for juveniles would not be impacted.

### 6.1.4 Stormwater Effects

The proposed project would add approximately 0.80 acres of new pollution generating impervious surface (PGIS) to the project area. The proposed stormwater management design includes nine infiltration facilities that would provide flow control, a wetpond to provide water quality treatment, and new conveyance systems. This system would provide both water quality and detention for the approximately 1.4 acres of new impervious surface. The design modeling results indicate that all nine infiltration galleries would infiltrate 100 percent of the stormwater runoff from their associated contributing areas. The outlet from the wetpond would convey the treated stormwater to the wetland on the north side of Quil Ceda Creek for infiltration. Since there would be no direct discharge of stormwater into Quil Ceda Creek from the project, and would be infiltrated through a wetland, there would be no stormwater impacts to the creek from the proposed project. The new stormwater system would improve conditions by eliminating an existing stormwater pipe outfall that discharges untreated stormwater to the creek near the existing culvert exit on the west side of State Avenue.

## 6.2 Indirect Effects

Indirect effects are caused by or result from the proposed action, but occur later in time, and are reasonably certain to occur. They may occur within or outside of the area directly affected by the action. In general, indirect effects from transportation projects can include the development or redevelopment of either undeveloped or developed areas when that change is induced but the action or can reasonably expected to result from the action (WSDOT 2015).

The project would add two additional lanes to State Avenue from the intersection at 100th Street to the intersection at 116th Street. The project also includes a sidewalk on the east side of the roadway throughout the project limits and on the west side south of 104th Street NE to provide a non-motorized access that doesn't exist today, and replacement of the existing culvert with a fish-passable culvert meeting current regulations and standards. The project also includes revisions to luminaire design to provide adequate lighting in the corridor, and implementation of a HAWK signal for a safe pedestrian crossing to a Community Transit bus stop. These changes may promote increased pedestrian and bicycle use of the corridor and surrounding businesses. No other actions or land use changes have been identified as a result of the proposed project. The action area mostly consists of areas that have already been developed, as

well as the two wetlands and Quil Ceda Creek. Therefore, there are no lands available for development within the action area. The project is not expected to alter growth or land use from what is currently planned by the governing municipalities. As a result, the project has no indirect effect related to land use, and further development.

## 6.3 Cumulative Effects

Cumulative effects are those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation (50 CFR 402.02). Construction of the proposed project would expand the roadway corridor and improve traffic flow, and provide safe non-motorized access with a sidewalk and improved lighting. The proposed project would not add new traffic access to areas in the vicinity. The surrounding lands are currently developed residential and business and the project would improve pedestrian and bicycle access through the corridor; it would not impact changes in development or land use in the corridor and the area is not slated for any known future development. Over time, land use changes can result in reduced habitat quality and quantity for federally listed species and may result in a small, negative effect on the likelihood of survival and recovery of listed species. At this time, however, the project proponent is not aware of any specific future non-federal activities within the action area that would cause greater effects to a listed species or a designated critical habitat than presently occurs.

# 7.0 Preliminary Effect Determinations

This section lists the effect determinations for each of the listed species with potential to occur in the project action area and provides a summary of the factors that led to each determination. Effects to critical habitat are also summarized. Table 2 provides a summary list of the determinations for each species.

Based on no documented occurrences and lack of suitable habitat in the action area, the proposed project will have ***no effect*** on marbled murrelet, streaked horned lark, yellow-billed cuckoo, or Oregon spotted frog. Critical habitat for these species also occurs outside the project action area and would not be impacted, therefore the project will have ***no effect*** on marbled murrelet, streaked horned lark, and Oregon spotted frog critical habitat, and ***will not destroy or adversely modify*** proposed critical habitat for the yellow-billed cuckoo.

The three ESA-listed fish species have been documented to occur in Quil Ceda Creek within the action area and therefore have the potential to be present during project construction. In-water work would however occur during the work window when these fish are least likely to be present. The stream reach in the action area does not provide suitable spawning habitat for any of these fish species and functions as a migratory corridor, with some potential rearing habitat. This limits the likely use of the project reach to seasonal migratory presence. The following describes the preliminary effect determinations for each of the ESA-listed fish species and rationale for that determination.

The project ***may affect*** bull trout because:

- Suitable migratory habitat is present in the action area.
- Bull trout are documented to occur in reaches of the creek downstream from the project.

The project is ***not likely to adversely affect*** bull trout because:

- Work would occur in the in-water work window when bull trout would not be present in the creek.
- Bull trout are not documented to occur as far upstream as the project action area.

The project ***may affect*** Puget Sound Chinook because:

- Suitable migratory habitat is present in the action area.
- Chinook are documented to occur in the reach of the creek in the project action area.
- Spawning habitat is present in the watershed upstream of the project area.

The project is ***not likely to adversely affect*** Puget Sound Chinook because:

- Work would occur in the in-water work window when Chinook would not be present in the creek.
- Stream habitat in the action area is migratory and does not support spawning and contains marginal rearing habitat.

The project ***may affect*** Puget Sound steelhead because:

- Suitable rearing and migratory habitat is present in the action area.
- Water quality in the immediate vicinity would be temporarily degraded as a result of in-water work.

The project is ***likely to adversely affect*** Puget Sound steelhead because:

- Removal of the existing culvert and creation of the new channel would require coffer dam installation and dewatering that has potential to temporarily disrupt movements or foraging.
- Steelhead life history variability provides the possibility that individuals could be present in the creek year-round, but are least likely during the in-water work window.
- Work during the in-water work window would occur when the likelihood of individuals being present is minimized, but the presence of individual steelhead cannot be discounted.

Quil Ceda Creek in the project area is part of designated critical habitat for Puget Sound Chinook and steelhead. Because the project would be modifying the stream channel and affecting PCE#3, freshwater migratory habitat during in-water work, the proposed project would have temporary, localized impacts to critical habitat for Puget Sound Chinook and steelhead. These impacts would, however, be temporary and occur within the in-water

work window, when individuals from these species are unlikely to be present. The extent of the area of temporary impacts is also small relative to the surrounding amount of habitat available. After construction is completed, the new culvert and restored channel would provide improved passage and flows. The project would also result in improved stormwater treatment at the site. For these reasons, the project ***may affect, but is not likely to adversely affect*** critical habitat for Puget Sound Chinook and Puget Sound steelhead.

**Table 2. Summary of Effect Determinations on Federally Listed Species**

| Federally Listed Species | Status | Preliminary Effect Determination |
|---|---|---|
| **Marbled Murrelet** | Threatened | *No effect* |
| **Streaked horned lark** | Threatened | *No effect* |
| **Western DPS Yellow-billed cuckoo** | Threatened | *No effect* |
| **Oregon spotted frog** | Threatened | *No effect* |
| **Bull Trout** | Threatened | *May affect- not likely to adversely affect* |
| **Puget Sound ESU Chinook** | Threatened | *May affect- not likely to adversely affect* |
| **Puget Sound Chinook Critical Habitat** | Designated | *May affect- not likely to adversely affect* |
| **Puget Sound DPS steelhead** | Threatened | *May affect- likely to adversely affect* |
| **Puget Sound steelhead Critical Habitat** | Designated | *May affect- not likely to adversely affect* |

# 8.0 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Act includes a mandate that NOAA Fisheries must identify Essential Fish Habitat (EFH) for federally managed marine fish, and federal agencies must consult with NOAA Fisheries on all activities, or proposed activities, authorized, funded, or undertaken by the agency that may adversely affect EFH. The Pacific Fishery Management Council (PFMC) has designated EFH for the Pacific salmon fishery, federally managed ground fishes, and coastal pelagic fisheries (PFMC 1999). The Pacific salmon management unit includes Chinook, coho, and pink salmon.

The EFH for the Pacific Coast salmon fishery is defined as those waters and substrate necessary for salmon production needed to support a long-term sustainable salmon fishery and salmon contributions to a healthy ecosystem. To that end, EFH includes all streams, lakes, ponds, wetlands, and other currently viable water bodies and most habitat that was historically accessible to salmonids in Washington, Oregon, Idaho, and California. Salmon EFH excludes areas upstream of longstanding naturally impassible barriers (i.e., natural waterfalls in existence for several hundred years), but includes

aquatic areas above all artificial barriers except specifically named impassible dams (PFMC 1999). Freshwater EFH for Pacific salmon consists of four major components: spawning and incubation, juvenile rearing, juvenile migration corridors, and adult migration corridors. Chinook also require adult holding habitat (PFMC 1999).

EFH for Pacific salmon, including Chinook, pink, and coho, is present in the project action area. The project would result in a minor, temporary effect on water quality, and temporary loss of a short reach of channel habitat during removal of the existing culvert and construction of the new channel segment. Timing of the culvert removal is scheduled to occur within the summer low flow in-water work window when fish are least likely to be present. All project impacts to the stream would be restricted to within the project footprint and would be temporary and completed within a single season. Best management construction practices would be used to effectively limit the release of fine sediment into the streams to a point that will not adversely affect designated EFH or critical habitat. After project completion, fish passage and flows through the new open channel would be improved from existing conditions.

Long-term effects to habitat features such as water quality, temperature, food, cover and space would not occur as a result of project actions. Stormwater from increased impervious surface would potentially pose a minor, localized long-term effect to EFH. Stormwater design and treatment and the addition of a flow control facility, as well as the naturally occurring wetlands surrounding the site would minimize any downstream effects of runoff to EFH in Quil Ceda Creek. Because these effects would be very minor and localized to the immediate discharge point, these project effects would be negligible to Pacific salmon EFH.

No permanent adverse effects on EFH for Pacific salmonids or their prey species would therefore result from the proposed project. The new culvert would improve fish passage. Therefore, the project ***will not adversely affect*** EFH for Pacific salmonids.

# 9.0 References

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# Appendix A. iPaC and NMFS Species Lists

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**IPaC** **U.S. Fish & Wildlife Service**

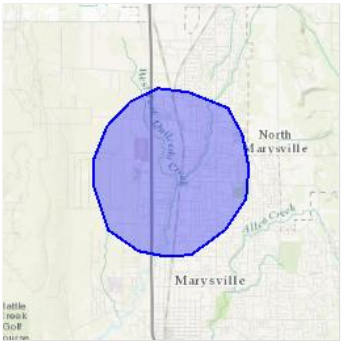
# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Snohomish County, Washington




## Local office

Washington Fish And Wildlife Office

(360) 753-9440
(360) 753-9405

510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263

http://www.fws.gov/wafwo/

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

## Mammals

| NAME | STATUS |
|---|---|
| North American Wolverine Gulo gulo luscus<br>No critical habitat has been designated for this species.<br>https://ecos.fws.gov/ecp/species/5123 | Proposed Threatened |

## Birds

| NAME | STATUS |
|---|---|
| Marbled Murrelet Brachyramphus marmoratus<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/4467 | Threatened |
| Streaked Horned Lark Eremophila alpestris strigata<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/7268 | Threatened |
| Yellow-billed Cuckoo Coccyzus americanus<br>There is **proposed** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/3911 | Threatened |

## Amphibians

| NAME | STATUS |
|---|---|
| Oregon Spotted Frog Rana pretiosa<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/6633 | Threatened |

## Fishes

| NAME | STATUS |
|---|---|

| | |
|---|---|
| Bull Trout Salvelinus confluentus<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/8212 | Threatened |

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

| NAME | TYPE |
|---|---|
| Chinook Salmon Oncorhynchus (=Salmo) tshawytscha<br>Puget Sound ESU<br>For information on why this critical habitat appears for your project, even though Chinook Salmon is not on the list of potentially affected species at this location, contact the local field office.<br>https://ecos.fws.gov/ecp/species/8091#crithab | Final |
| Chinook Salmon Oncorhynchus (=Salmo) tshawytscha<br>Lower Columbia River ESU<br>For information on why this critical habitat appears for your project, even though Chinook Salmon is not on the list of potentially affected species at this location, contact the local field office.<br>https://ecos.fws.gov/ecp/species/8091#crithab | Final |
| Chinook Salmon Oncorhynchus (=Salmo) tshawytscha<br>Upper Columbia spring-run ESU<br>For information on why this critical habitat appears for your project, even though Chinook Salmon is not on the list of potentially affected species at this location, contact the local field office.<br>https://ecos.fws.gov/ecp/species/8091#crithab | Final |
| Chinook Salmon Oncorhynchus (=Salmo) tshawytscha<br>Upper Willamette River ESU<br>For information on why this critical habitat appears for your project, even though Chinook Salmon is not on the list of potentially affected species at this location, contact the local field office.<br>https://ecos.fws.gov/ecp/species/8091#crithab | Final |



# Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured. Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

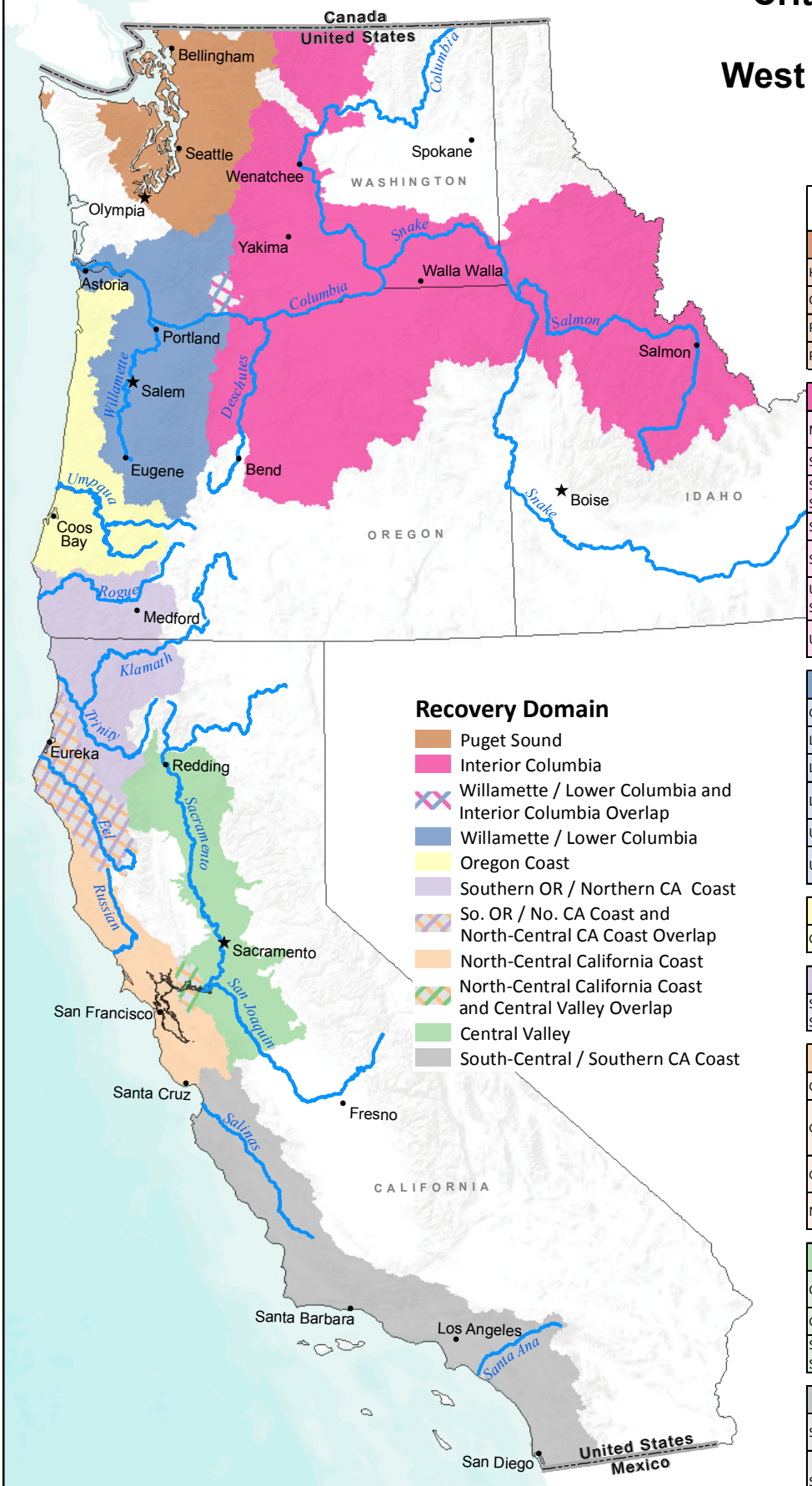
Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are USFWS Birds of Conservation Concern that might be affected by activities in this location. The list does not contain every bird you may find in this location, nor is it guaranteed that all of the birds on the list will be found on or near this location. To get a better idea of the specific locations where certain species have been reported and their level of occurrence, please refer to resources such as the E-bird data mapping tool (year-round bird sightings by birders and the general public) and Breeding Bird Survey (relative abundance maps for breeding birds). Although it is important to try to avoid and minimize impacts to all birds, special attention should be given to the birds on the list below. To get a list of all birds potentially present in your project area, visit the E-bird Explore Data Tool.

| NAME | BREEDING SEASON |
|---|---|

# Status of ESA Listings & Critical Habitat Designations for West Coast Salmon & Steelhead




Updated July 2016

| Evolutionarily Significant Unit / Distinct Population Segment | ESA Status | Date of ESA Listing | Date of CH Designation |
|---|---|---|---|
| **Puget Sound Recovery Domain** | | | |
| Hood Canal Summer-run Chum Salmon | T | 3/25/1999 | 9/2/2005 |
| Ozette Lake Sockeye Salmon | T | 3/25/1999 | 9/2/2005 |
| Puget Sound Chinook Salmon | T | 3/24/1999 | 9/2/2005 |
| Puget Sound Steelhead | T | 5/11/2007 | 2/24/2016 |
| **Interior Columbia Recovery Domain** | | | |
| Middle Columbia River Steelhead | T | 3/25/1999<br>1/5/2006 | 9/2/2005 |
| Snake River Fall-run Chinook Salmon | T | 4/22/1992 | 12/28/1993 |
| Snake River Spring / Summer-run Chinook Salmon | T | 4/22/1992 | 10/25/1999 |
| Snake River Sockeye Salmon | E | 11/20/1991 | 12/28/1993 |
| Snake River Steelhead | T | 8/18/1997<br>1/5/2006 | 9/2/2005 |
| Upper Columbia River Spring-run Chinook Salmon | E | 3/24/1999 | 9/2/2005 |
| Upper Columbia River Steelhead | T | 8/18/1997<br>1/5/2006 | 9/2/2005 |
| **Willamette / Lower Columbia Recovery Domain** | | | |
| Columbia River Chum Salmon | T | 3/25/1999 | 9/2/2005 |
| Lower Columbia River Chinook Salmon | T | 3/24/1999 | 9/2/2005 |
| Lower Columbia River Coho Salmon | T | 6/28/2005 | 2/24/2016 |
| Lower Columbia River Steelhead | T | 3/19/1998<br>1/5/2006 | 9/2/2005 |
| Upper Willamette River Chinook Salmon | T | 3/24/1999 | 9/2/2005 |
| Upper Willamette River Steelhead | T | 3/25/1999<br>1/5/2006 | 9/2/2005 |
| **Oregon Coast Recovery Domain** | | | |
| Oregon Coast Coho Salmon | T | 2/11/2008 | 2/11/2008 |
| **Southern Oregon / Northern California Coast Recovery Domain** | | | |
| Southern OR / Northern CA Coasts Coho Salmon | T | 5/6/1997 | 5/5/1999 |
| **North-Central California Coast Recovery Domain** | | | |
| California Coastal Chinook Salmon | T | 9/16/1999 | 9/2/2005 |
| Central California Coast Coho Salmon | E | 10/31/1996 (T)<br>6/28/2005 (E)<br>4/2/2012 (RE) | 5/5/1999 |
| Central California Coast Steelhead | T | 8/18/1997<br>1/5/2006 | 9/2/2005 |
| Northern California Steelhead | T | 6/7/2000<br>1/5/2006 | 9/2/2005 |
| **Central Valley Recovery Domain** | | | |
| California Central Valley Steelhead | T | 3/19/1998<br>1/5/2006 | 9/2/2005 |
| Central Valley Spring-run Chinook Salmon | T | 9/16/1999 | 9/2/2005 |
| Sacramento River Winter-run Chinook Salmon | E | 11/5/1990 (T)<br>1/4/1994 (E) | 6/16/1993 |
| **South-Central / Southern California Coast Recovery Domain** | | | |
| South-Central California Coast Steelhead | T | 8/18/1997<br>1/5/2006 | 9/2/2005 |
| Southern California Steelhead | E | 8/18/1997<br>5/1/2002 (RE)<br>1/5/2006 | 9/2/2005 |

ESA = Endangered Species Act, CH = Critical Habitat, RE = Range Extension
E = Endangered, T = Threatened,

Critical Habitat Rules Cited

- 2/24/2016 (81 FR 9252) Final Critical Habitat Designation for Puget Sound Steelhead and Lower Columbia River Coho Salmon
- 2/11/2008 (73 FR 7816) Final Critical Habitat Designation for Oregon Coast Coho Salmon
- 9/2/2005 (70 FR 52630) Final Critical Habitat Designation for 12 ESU's of Salmon and Steelhead in WA, OR, and ID
- 9/2/2005 (70 FR 52488) Final Critical Habitat Designation for 7 ESU's of Salmon and Steelhead in CA
- 10/25/1999 (64 FR 57399) Revised Critical Habitat Designation for Snake River Spring/Summer-run Chinook Salmon
- 5/5/1999 (64 FR 24049) Final Critical Habitat Designation for Central CA Coast and Southern OR/Northern CA Coast Coho Salmon
- 12/28/1993 (58 FR 68543) Final Critical Habitat Designation for Snake River Chinook and Sockeye Salmon
- 6/16/1993 (58 FR 33212) Final Critical Habitat Designation for Sacramento River Winter-run Chinook Salmon

ESA Listing Rules Cited

- 4/2/2012 (77 FR 19552) Final Range Extension for Endangered Central California Coast Coho Salmon
- 2/11/2008 (73 FR 7816) Final ESA Listing for Oregon Coast Coho Salmon
- 5/11/2007 (72 FR 26722) Final ESA Listing for Puget Sound Steelhead
- 1/5/2006 (71 FR 5248) Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead
- 6/28/2005 (70 FR 37160) Final ESA Listing for 16 ESU's of West Coast Salmon
- 5/1/2002 (67 FR 21586) Range Extension for Endangered Steelhead in Southern California
- 6/7/2000 (65 FR 36074) Final ESA Listing for Northern California Steelhead
- 9/16/1999 (64 FR 50394) Final ESA Listing for Two Chinook Salmon ESUs in California
- 3/25/1999 (64 FR 14508) Final ESA Listing for Hood River Canal Summer-run and Columbia River Chum Salmon
- 3/25/1999 (64 FR 14517) Final ESA Listing for Middle Columbia River and Upper Willamette River Steelhead
- 3/25/1999 (64 FR 14528) Final ESA Listing for Ozette Lake Sockeye Salmon
- 3/24/1999 (64 FR 14308) Final ESA Listing for 4 ESU's of Chinook Salmon
- 3/19/1998 (63 FR 13347) Final ESA Listing for Lower Columbia River and Central Valley Steelhead
- 8/18/1997 (62 FR 43937) Final ESA Listing for 5 ESU's of Steelhead
- 5/6/1997 (62 FR 24588) Final ESA Listing for Southern Oregon / Northern California Coast Coho Salmon
- 10/31/1996 (61 FR 56138) Final ESA Listing for Central California Coast Coho Salmon
- 1/4/1994 (59 FR 222) Final ESA Listing for Sacramento River Winter-run Chinook Salmon
- 4/22/1992 (57 FR 14653) Final ESA Listing for Snake River Spring/summer-run and Snake River Fall Chinook Salmon
- 11/20/1991 (56 FR 58619) Final ESA Listing for Snake River Sockeye Salmon
- 11/5/1990 (55 FR 46515) Final ESA Listing for Sacramento River Winter-run Chinook Salmon

# Appendix B. Stream Photographs

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Quil Ceda Creek upstream of State Avenue culvert looking downstream towards State Avenue.

Quil Ceda Creek at culvert exit downstream of State Avenue. Pipe in embankment is an exiting stormwater conveyance.

Quil Ceda Creek in downstream reach of study area.

# Appendix C. Stream Channel Plan Drawings

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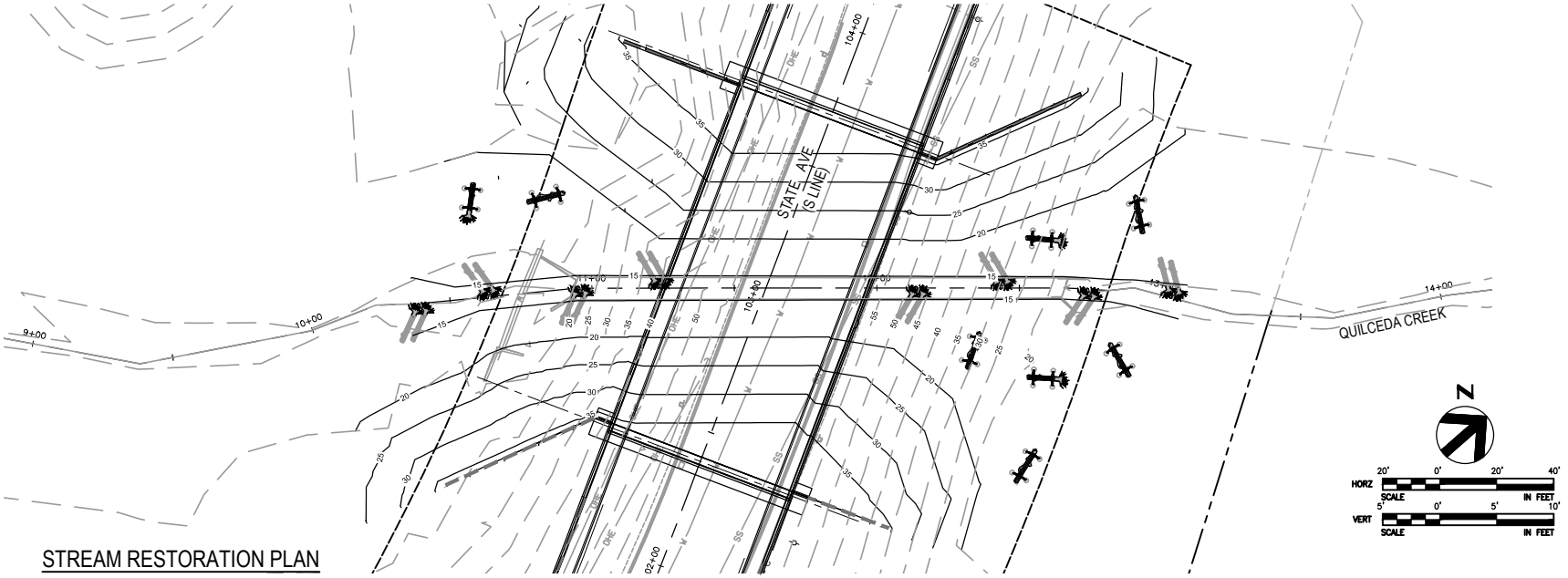
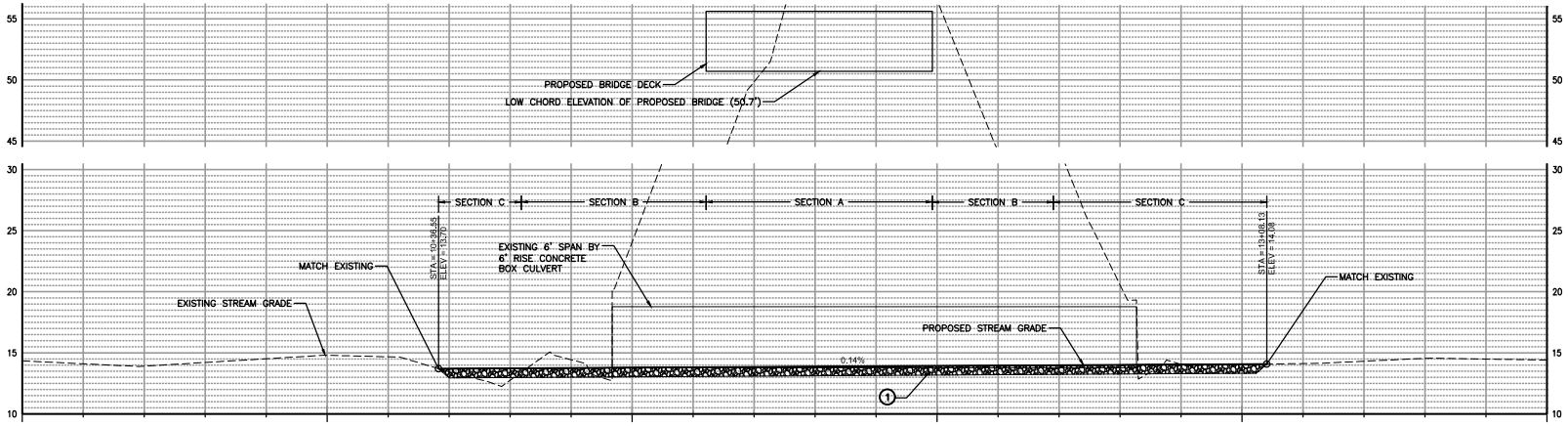



STREAM RESTORATION PLAN




STREAM RESTORATION PROFILE

# Restoration Plan and Elevation View

APPLICANT: City of Marysville

DATUM: North American Datum 1983

ADJACENT PROPERTY OWNERS:
1. K&K Properties LLC
2. Maria Sahagun
3. Francisco Juarez
4. Mack & Michelle Hyatt

State Avenue Corridor Widening Project

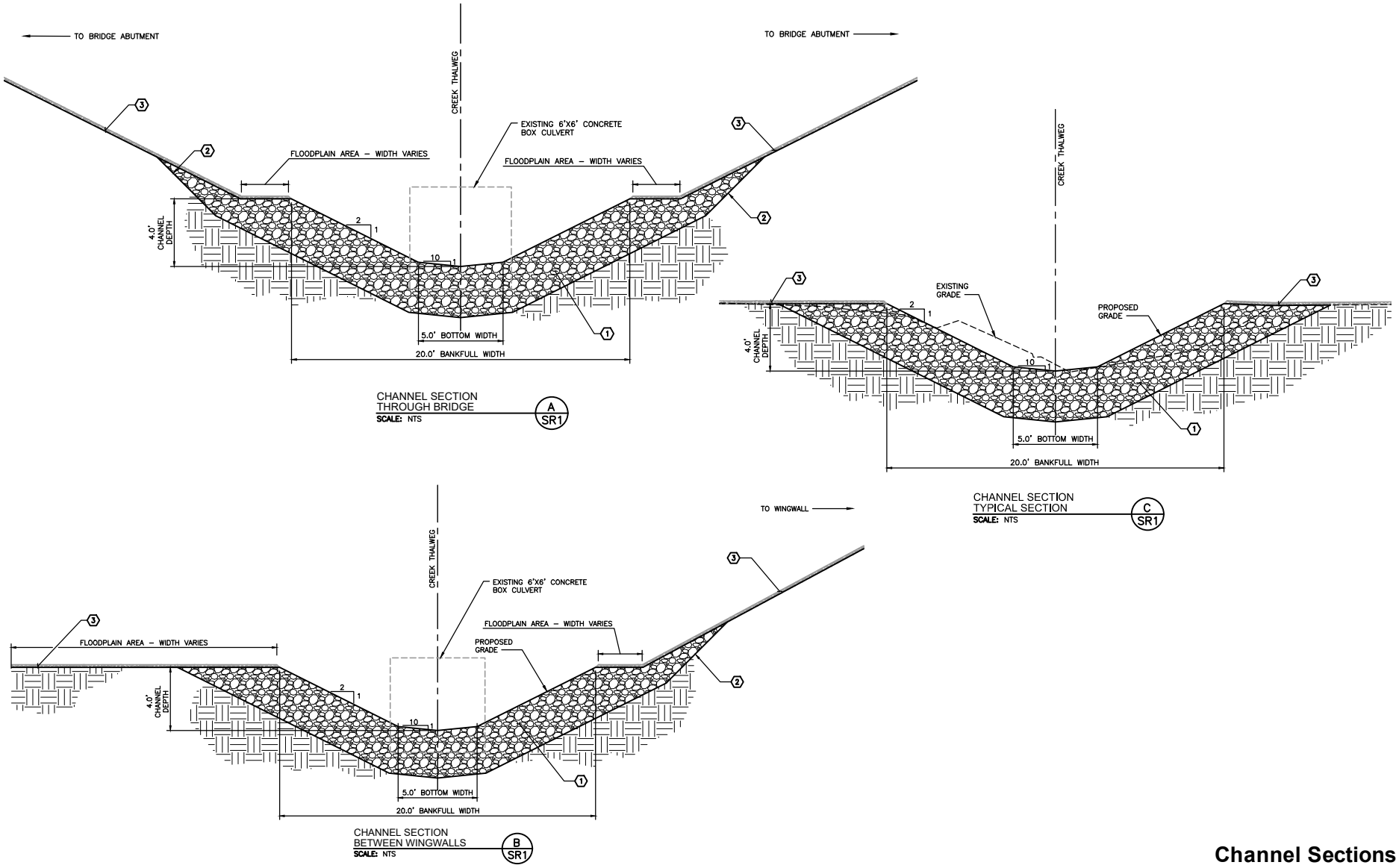
REFERENCE #:

LAT/LONG:
Start: 48.099946/ -122.175367
End: 48.085928/ -122.172279

PROPOSED PROJECT: Expand roadway corridor, construct sidewalk, remove existing culvert, and construct bridge.

IN: Quil Ceda Creek
NEAR/AT: Marysville
COUNTY: Snohomish STATE: WA
SHEET: 4 of 8
DATE: 5/22/2018

Document Path: G:\Projects\Washington\City_of_Marysville_201737\State_Ave_Imprv_10058512\7.2_WP\Map_Docs\JARPA\20180501\SHEET_4_Restoration_Plan_Elevation.mxd




## Channel Sections

APPLICANT: City of Marysville

DATUM: North American Datum 1983

ADJACENT PROPERTY OWNERS:
1. K&K Properties LLC
2. Maria Sahagun
3. Francisco Juarez
4. Mack & Michelle Hyatt

State Avenue Corridor Widening Project

REFERENCE #:

LAT/LONG:
Start: 48.099946/ -122.175367
End: 48.085928/ -122.172279

PROPOSED PROJECT: Expand roadway corridor, construct sidewalk, remove existing culvert, and construct bridge.

IN: Quil Ceda Creek
NEAR/AT: Marysville
COUNTY: Snohomish STATE: WA
SHEET: 5 of 8
DATE: 5/22/2018

Document Path: G:\Projects\Washington\City_of_Marysville_201737\State_Ave_Imprv_10058512\7.2_WP\Map_Docs\JARPA\20180501\SHEET_5_Channel_Sections.mxd