

FLOODPLAIN ANALYSIS AND HABITAT MANAGEMENT PLAN

FIVE RIVERS

APRIL 2016

REVISED AUGUST 2016



**Soundview
Consultants**

Environmental Assessment
Planning + Land Use Solutions

FLOODPLAIN ANALYSIS AND HABITAT MANAGEMENT PLAN

FIVE RIVERS

APRIL 26, 2016
REVISED AUGUST 17, 2016

PROJECT LOCATION

XXX 142ND AVE E
SUMNER, WASHINGTON 98390

PREPARED FOR

SHIAD INVESTMENT
GURDEV SOHAL
3611 19TH AVE CT SE
PUYALLUP, WA 98372

PREPARED BY

SOUNDVIEW CONSULTANTS LLC
2907 HARBORVIEW DRIVE
GIG HARBOR, WASHINGTON 98335
(253) 514-8952



**Soundview
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Environmental Assessment
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Chapter 1. Introduction

Shiad Investments (Applicant) is proposing to develop a site located at 142nd Avenue East in the City of Sumner, Washington. This Floodplain Analysis and Habitat Management Plan provides an assessment of potential impacts upon Endangered Species Act (ESA) listed species to satisfy Federal Emergency Management Agency (FEMA) review requirements under Section 7 of the ESA. The subject property is situated in the SE ¼ of the SW ¼ of Section 12, Township 20 North, Range 04 East W.M. and includes one developed parcel zoned in the light manufacturing district (M-1) and comprising 3.03 acres (Pierce County Tax Parcel Number 0420124031).

The project proposes site development actions including paving an area of the subject property that is currently compact fill material, adding an entrance driveway off of 32nd Street East, and constructing appropriate flood storage compensation. Approximately 76,178 square feet will be covered in asphalt to be utilized as temporary truck storage. The project proposes construction of 23 truck and trailer parking stalls, 19 trailer parking stalls and 15 passenger vehicle parking stalls. No other utilities will be constructed as part of the proposed project, and the proposed impervious surfaces will comprise 59 percent of the site.

The proposed project will require fill within the FEMA-regulated 100-year floodplain. To compensate for placement of fill and the development within the floodplain, additional floodplain storage capacity in excess of filled area will be created on the eastern side of the property unless a more preferable site that provides equal or greater functional benefits is found in the future. Compensatory storage will be provided along the eastern edge of the subject property, and proposed development will not increase floodwater depth, volume, velocity, or severity to other properties and must be accepted by the City of Sumner. Although little to no habitat is currently present, non-compensatory mitigation will be provided through native plantings within the flood storage area to offset any potential impacts to fish and wildlife. Specifically, large woody debris and standing snags will be placed within the flood storage pond, and the area will be seeded with a native grass mix. The outer perimeter of the flood storage pond will be planted with coniferous and deciduous trees to provide screening and shading.

The site is currently used as a truck storage facility, and site use will not change as a result of the proposed project. Onsite fish and wildlife habitat is extremely limited at this time due to the existing level of high-intensity use, the minimal amount of vegetation located on the property, the lack of any watercourses, and the significant amount of invasive species and trash currently present. Soundview Consultants LLC has prepared this Floodplain Analysis and Habitat Management Plan on behalf of the Client in order to fulfill requirements of Section 7 of ESA, which requires that federally approved actions do not jeopardize ESA-listed species, critical habitat, or species that are candidates or proposed for listing. The remainder of this document contains project details such as description, location, discussion and analysis of the project, and determination of potential effects to ESA-listed species and critical habitat. Table 1 provides recommended determinations of effect due to the proposed actions.

Table 1. ESA-listed species and determination of project effects.

Common name and location	Scientific Name	Potential for Impacts
Roy Prairie pocket gopher	<i>Thomomys mazama glacialis</i>	May Affect, Not Likely to Adversely Affect
Olympia pocket gopher	<i>Thomomys mazama pugetensis</i>	May Affect, Not Likely to Adversely Affect
Tenino pocket gopher	<i>Thomomys mazama tumuli</i>	May Affect, Not Likely to Adversely Affect
Yelm pocket gopher	<i>Thomomys mazama yelmensis</i>	May Affect, Not Likely to Adversely Affect
Bull trout	<i>Salvelinus confluentus</i>	May Affect, Not Likely to Adversely Affect
Chinook salmon, Puget Sound ESU	<i>Oncorhynchus tshawytscha</i>	May Affect, Not Likely to Adversely Affect
Steelhead trout, Puget Sound DPS	<i>Oncorhynchus mykiss</i>	May Affect, Not Likely to Adversely Affect
Streaked horned lark	<i>Eremophila alpestris strigata</i>	May Affect, Not Likely to Adversely Affect
Taylor's checkerspot	<i>Euphydryas editha taylori</i>	May Affect, Not Likely to Adversely Affect
Canada lynx	<i>Lynx canadensis</i>	May Affect, Not Likely to Adversely Affect
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	May Affect, Not Likely to Adversely Affect
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	May Affect, Not Likely to Adversely Affect
Oregon Spotted frog	<i>Rana pretiosa</i>	May Affect, Not Likely to Adversely Affect
Northern Spotted owl	<i>Strix occidentalis</i>	May Affect, Not Likely to Adversely Affect
Southern Resident killer whale	<i>Orcinus orca</i>	May Affect, Not Likely to Adversely Affect

Chapter 2. Project Location

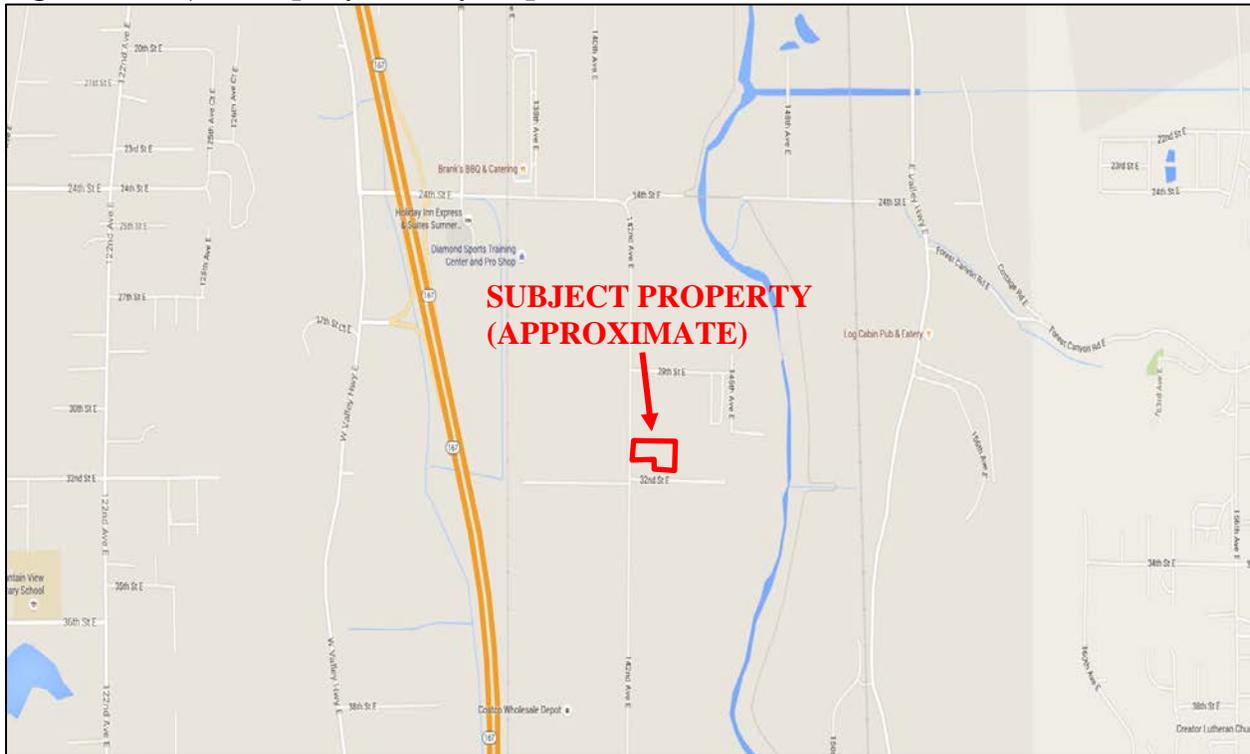
The project location, directions to the project site, purpose and need of the project, a description of work that is being proposed, and identification of the Action Area for evaluation of potential impacts to ESA-listed species are detailed below.

2.1 Location

The subject property is located just northeast of the intersection of 142nd Avenue East and 32nd Street East in the City of Sumner, Washington (Figure 1). The subject property is located at 3200 East Main Avenue in the Puyallup area of unincorporated Pierce County, Washington (Figure 1). The subject property is situated in the SE ¼ of the SW ¼ of Section 12, Township 20 North, Range 04 East W.M. and includes one developed parcel comprising 3.03 acres (Pierce County Tax Parcel Number 0420124031).

To access the site from the Tacoma area via Interstate 5 North, take Exit 135 to merge onto Washington-167 North/East 28th Street toward Puyallup. Turn left onto 66th Avenue East and then turn right onto North Levee Road East and proceed approximately 2.3 miles. Turn right onto North Levee Road and proceed approximately 0.2 mile. Continue onto Washington-167 North and take the 24th Street East exit toward West Valley Highway. Take right onto 24th Street East and then another right onto 142nd Avenue East. The destination will be on the left immediately before the intersection of 142nd Avenue East and 32nd Street East.

Figure 1. Subject Property Vicinity Map



Source: Google Maps

2.2 Purpose and Need

The purpose of the proposed project is to establish additional truck and trailer parking and storage near the southern extent of State-Route 167 and in the industrial areas of the City of Sumner and to improve nearby arterial traffic corridors to meet the growing economic demands for such services in the Sumner/Puyallup valley. With the economic recovery of the region, truck parking stalls to accommodate increased manufacturing warehousing and shipping capacity are in high demand. To meet this demand and provide the services and jobs associated with it, additional parking and storage facilities are needed.

2.3 Project Description

To meet the purpose and need of the project, the proposed site development actions include paving an area of the subject property that is currently compact fill material, adding an entrance driveway off of 32nd Street East, and constructing appropriate flood storage compensation. Approximately 76,178 square feet will be covered in asphalt to be utilized as temporary truck storage. The project proposes construction of 23 truck and trailer parking stalls, 19 trailer parking stalls and 15 passenger vehicle parking stalls. No other utilities will be constructed as part of the proposed project, and the proposed impervious surfaces will comprise 59 percent of the site.

Structural fill of up to 60,000 cubic yards may be required in the project area in order to raise the site to an appropriate elevation to ensure stormwater can be conveyed offsite by gravity. Approximately 1,500 cubic yards of fill may be placed within the FEMA-regulated 100-year floodplain. To compensate for placement of fill and the development within the floodplain, additional floodplain storage capacity equal to the filled area will be created on the eastern side of the property unless a more preferable site that provides equal or greater functional benefits is found in the future. Although little to no habitat is currently present, non-compensatory mitigation will be provided through native plantings within the flood storage area to offset any potential impacts to fish and wildlife. Specifically, large woody debris and standing snags will be placed within the flood storage pond, and the area will be seeded with a native grass mix. The outer perimeter of the flood storage pond will be planted with coniferous and deciduous trees to provide screening and shading.

2.4 Construction Techniques

Equipment used will be typical for land-clearing and grading activities and will be kept in good working conditions and free of leaks. Equipment to be used will likely include a dump truck, backhoe, and roller. Project staging should occur in an area that will create the least impact to traffic. The area will be kept free of spills and/or hazardous materials following methods outlined in a Spill Prevention, Control, and Countermeasure Plan prepared and implemented by the contractor. Temporary erosion and sediment control (TESC) measures consisting of a construction entrance, silt fencing and seeding of disturbed soils will be installed using Best Management Practices (BMPs) outlined in the Stormwater Pollution Prevention Plan (SWPPP) and TESC Plan prepared by the Project Engineer. The fill material used to raise the site will be comprised of native soils that will come from onsite sources during the initial clearing and grading activities or from a clean source.

2.5 Action Area

The “Action Area” for evaluation of potential impacts to ESA-listed species encompasses the locations where project activities will occur plus areas that may be directly or indirectly affected by the

proposed project either through physical, chemical, or biological mechanisms. The geographic limits of the Action Area were defined by considering the potential spatial extent of mechanisms that may lead to impacts on listed species. Please see Appendix A for the Action Area map.

The Action Area for this project is influenced by short-term and long-term impacts. Short-term impacts potentially include terrestrial construction noise as well as potential erosion associated with construction actions within the floodplain. Long-term effects likely include the relocation of flood storage area and onsite habitat improvement.

At certain levels, noise from project activities can adversely affect wildlife with various behavioral and/or health-related consequences (WSDOT, 2015). Terrestrial noise (transmitted through air) is measured in decibels (dB), on a logarithmic scale and reported as an expression of the relative loudness of sounds in air as perceived by the human hear as A-weighted decibels (dBA). The Washington State Department of Transportation (WSDOT) Biological Assessment Preparation Advanced Training Manual, Version 02-2015, provides guidance for calculating project and ambient noise levels that are applicable to this project. Ambient noise levels, exclusive of traffic, for an area containing population densities between 1,000 and 3,000 people per square mile such as found in the City of Sumner (given as 1,258 residents per square mile in 2013 Census) is 50 dBA. The surrounding areas also include commercial and industrial use areas along with several arterial roadways contributing to higher levels of ambient noise than residential areas alone.

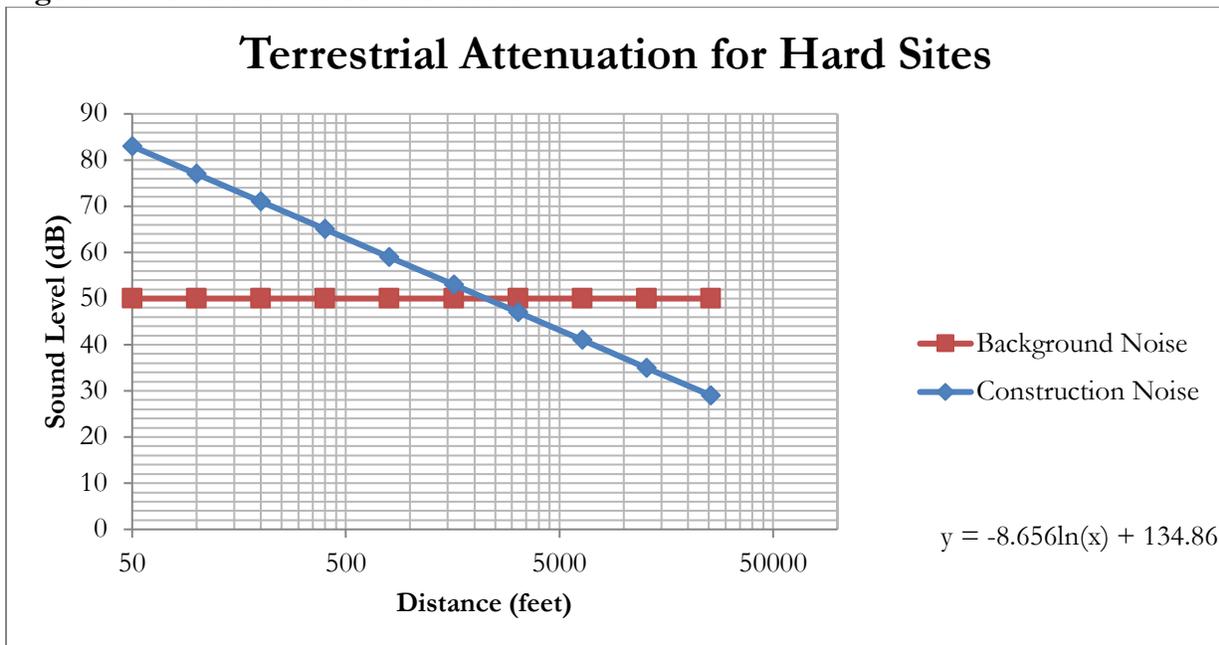
The construction techniques and equipment used by the project are likely to produce sound levels above the area's ambient levels. To be conservative, three pieces of construction equipment likely to be used by the project have been assumed to be operating at the same time to represent the loudest noise produced by the project. The three chosen pieces of equipment were: a Dump Truck at an estimated 76 dBA, Backhoe at an estimated 78 dBA, and Roller at an estimated 80 dBA. The two pieces of equipment producing the least noise (dump truck at 76 dBA and backhoe at 78 dBA) were added together for a difference of 2. Using the rules for decibel additional per Table 7-5, 2 dBA was added to the highest value between the two (backhoe at 78 dBA) to get a combined noise level of 80 dBA. Continuing with the rules of decibel additional, the difference between the previous noise level of 80 dBA and the loudest remaining piece of equipment (Roller at 80 dBA) is 0 dBA; therefore, 3 dBA was added to the loudest between the two (in this case they're equal so 3 is just added to 80) to produce the assumed maximum construction noise level of the project of 83 dBA (WSDOT, 2015).

The terrestrial sound action area is estimated to have a radius of approximately 2,233 feet using the typical method described in the WSDOT manual. A standard attenuation rate of 6 dBA per doubling was applied to the estimated construction noise. No other reduction factors, such as the topography or vegetation of the site, were used to attenuate the noise over a shorter distance; however, it is likely that under real world conditions the noise will attenuate to background levels much more quickly than estimated. As a result, the 2,233-foot terrestrial noise action area is likely a conservative estimate.

Table 2. Terrestrial Noise Attenuation.

Terrestrial Attenuation Table (Hard Sites)					
Distance from Source		Construction Noise	Background Noise	Measured Noise Pressure	
(Feet)	(Miles)	(dBA)	(dBA)	(Micro-Pascals)	(atm)
50	0.009469697	83	50	282507.5089	2.86228E-08
100	0.018939394	77	50	141589.1569	1.43454E-08
200	0.037878788	71	50	70962.67785	7.18973E-09
400	0.075757576	65	50	35565.5882	3.6034E-09
800	0.151515152	59	50	17825.01876	1.80598E-09
1600	0.303030303	53	50	8933.671843	9.05134E-10
3200	0.606060606	47	50	4477.442277	4.53642E-10
6400	1.212121212	41	50	2244.036909	2.27359E-10

Figure 2. Terrestrial Noise Attenuation



The new impervious areas may have an effect on local hydrologic and water quality function within the watershed; however, floodplain restoration actions are anticipated to adequately address the changes in land cover proposed by the project so that no detrimental effects to downstream areas occur.

No in-water work is proposed and no direct discharges of construction stormwater will go enter the White River which lies approximately 1,500 feet to the east of the site. With the implementation of BMPs onsite, the lack of hydrologic connectivity between the construction site and the White River, and the large distance between them, no sedimentation or turbidity impacts are expected within the White River.

As no further mechanisms for project impacts are anticipated, the overall Action Area is characterized by the 2,233 linear foot terrestrial noise radius surrounding the project.

Chapter 3. Environmental Baseline

Project actions are proposed within the FEMA-regulated 100-year floodplain of the White River. Any development actions within the floodplain require compliance with Section 7 of the ESA through FEMA. The project is not anticipated to affect ESA-listed species or floodplain functions; however, the City of Sumner requires assessment and documentation of the potential effects on ESA-listed species to retain FEMA compliance. This chapter is intended to satisfy impact assessment requirements.

3.1 Species information

Federally-listed species found within Pierce County with potential to be located in the vicinity of the proposed project include Roy Prairie pocket gopher (*Thomomys mazama glacialis*); Olympia pocket gopher (*Thomomys mazama pugetensis*); Tenino pocket gopher (*Thomomys mazama tumuli*); Yelm pocket gopher (*Thomomys mazama yelmensis*); bull trout (*Salvelinus confluentus*); Chinook salmon, Puget Sound evolutionary significant unit (ESU) (*Oncorhynchus tshawytscha*); steelhead trout, Puget Sound distinct population segment (DPS) (*Oncorhynchus mykiss*); marbled murrelet (*Brachyramphus marmoratus*); Oregon spotted frog (*Rana pretiosa*); Northern Spotted owl (*Strix occidentalis*); Canada Lynx (*Lynx canadensis*); yellow-billed cuckoo (*Coccyzus americanus*); streaked horned lark (*Eremphila alpestris strigata*); killer whale, Southern Resident DPS (*Orcinus orca*); and Taylor's checkerspot (*Euphydryas editha taylori*).

WDFW Salmonscape indicates that Chinook salmon, coho salmon, chum salmon, pink salmon, sockeye salmon, bull trout, and steelhead trout are located approximately 1,500 feet away in the White River, of which only three are ESA-listed species. In addition, the White River contains ESA-listed critical habitat for Chinook salmon, Steelhead trout (Puget Sound DPS) and bull trout.

In consideration of Washington State and ESA-listed species with possible presence in Pierce County, the review and analysis presented here is relevant to potential floodplain habitat impacts and species specific to the floodplain of the White River. Large terrestrial and aquatic mammals, offshore, coastal, and pelagic species, and geographically remote flora have been excluded from this analysis with a determination of May Affect, Not Likely to Adversely Affect due to the project location and surrounding environmental conditions that do not support the presence of these species, acceptable habitat or other resources.

The following species may be located in the vicinity of the project and may have the potential for project impacts, however, net impact of the project is predicted to be beneficial due to the lack of existing habitat and the proposed actions onsite which include removal of invasive species and planting of native species and trash removal (Table 3).

Table 3. USFWS and NMFS ESA-Listed Species.

Common name and location	Scientific Name	Listing status
Roy Prairie pocket gopher	<i>Thomomys mazama glacialis</i>	Threatened
Olympia pocket gopher	<i>Thomomys mazama pugetensis</i>	Threatened
Tenino pocket gopher	<i>Thomomys mazama tumuli</i>	Threatened
Yelm pocket gopher	<i>Thomomys mazama yelmensis</i>	Threatened
Bull trout	<i>Salvelinus confluentus</i>	Threatened
Chinook salmon, Puget Sound ESU	<i>Oncorhynchus tshawytscha</i>	Threatened
Steelhead trout, Puget Sound DPS	<i>Oncorhynchus mykiss</i>	Threatened
Streaked horned lark	<i>Eremophila alpestris strigata</i>	Threatened
Taylor’s checkerspot	<i>Euphydryas editha taylori</i>	Endangered
Canada lynx	<i>Lynx canadensis</i>	Threatened
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Threatened
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	Threatened
Oregon Spotted frog	<i>Rana pretiosa</i>	Threatened
Northern Spotted owl	<i>Strix occidentalis</i>	Threatened
Southern Resident killer whale	<i>Orcinus orca</i>	Endangered

Roy Prairie pocket gopher, Olympia pocket gopher, Tenino pocket gopher, and Yelm Pocket Gopher

Thomomys mazama glacialis, *Thomomys mazama pugetensis*, *Thomomys mazama tumuli* and *Thomomys mazama yelmensis* – Threatened, listed May 9, 2014

Roy Prairie pocket gopher, Olympia pocket gopher, Tenino pocket gopher, and Yelm pocket gopher are all Mazama pocket gophers and are only found in the State of Washington. They live underground in tunnels and their habitat requirements include well-drained, easily-crumbled soil. Ideal soil types for the Mazama pocket gopher typically do not include soils with a high clay content or sandy soils that do not hold the shape of a tunnel (USFWS, 2016). They are often found in light-colored, porous soils and tend to avoid rocky substrates (Stinson, 2005). Roy prairie pocket gophers mate on an annual basis, in early spring or early summer (WDFW, 2005). They are herbivores that subsist on roots, bulbs, leaves, and stems of plants encountered underground. Roy prairie pocket gophers are generally solitary, with the exception of mating season and when females are caring for young, and do not live in colonies. No Critical Habitat for the Roy prairie pocket gopher has been designated. There is no documented Roy Prairie Pocket Gopher presence on-site or in the vicinity of the project.

Bull trout

Salvelinus confluentus – Threatened, listed November 1, 1999

Coastal/Puget Sound bull trout Distinct Population Segment (DPS) have very complex life histories and little is known about their behavior within Puget Sound and coastal watersheds. Distinct life history forms include resident, fluvial, adfluvial, and anadromous (WDFW, 2000). Anadromous forms migrate through larger rivers to spawn in tributaries and use marine water or estuaries for the majority of their growth and maturation. Spawning occurs between late August and November in most Puget Sound and coastal watersheds (WDFW, 2000). The fry emerge in late winter or early spring. Bull trout occur in less than half their historic range, with scattered populations throughout Oregon, Washington, Nevada, Idaho, and Montana. Bull trout presence is documented within the White River, which lies approximately 1,500 feet to the east of the subject property (WDFW SalmonScape).

Puget Sound Chinook salmon ESU

Oncorhynchus tshawytscha – Threatened, listed (reaffirmed) June 28, 2005

Fry and smolts will stay in freshwater environments for up to eighteen months before moving to downstream estuaries. They will spend up to one-hundred and ninety days in estuaries before moving into ocean waters. Chinook salmon spend an average of three to four years in marine waters before returning to their natal streams to spawn, which occurs in late summer to late fall. Their range is from Kotzebue Sound, Alaska down to Santa Barbara, California. Many of the rivers located within their range are used for Chinook spawning and rearing. Major runs can be found on the Columbia River, Rogue River and within Puget Sound. As juveniles, Chinook feed on insects, amphipods, and other crustaceans and will feed primarily on other fish as adults. During early life stages mortality is high due to natural predation and anthropogenic habitat changes including siltation, increases in water temperature, low oxygen and reduced stream flows (PSMFC, 2012).

Puget Sound Steelhead

Oncorhynchus mykiss – Threatened, listed May 11, 2007

NOAA Fisheries has identified fifteen (15) DPS of steelhead in Washington, Oregon, and California. Steelhead populations can be divided into two (2) basic reproductive ecotypes, based on the state of sexual maturity at the time of river entry (summer or winter) and duration of spawning migration. Steelhead trout are iteroparous and can spend up to seven (7) years in fresh water prior to smoltification (NMFS, 2007). WDFW SalmonScape shows documented presence of Puget Sound Steelhead in the White River, which lies approximately 1,500 feet to the east of the subject property.

Streaked Horned Lark

Eremophila alpestris strigata - Threatened, listed October 3, 2013

Historically, streaked horned larks were found primarily in prairie habitat and coastal dunes. Now, they can also be found in developed areas such as airports, agricultural fields, pasture lands, and gravel roads or shoulders (USFWS, 2013). The primary component is unvegetated to sparsely-vegetated open habitat with no trees and few shrubs (USFWS, 2013). Streaked horned lark are ground-dwelling and nest in shallow depressions built in the open or near grass clumps. They eat a wide variety of insects and seeds, and location is primarily dependent upon vegetation structure rather than food source. Streaked horned larks range from the southwestern corner of British Columbia, through the Puget Sound Trough and Willamette Valley, and south to the Rogue River Valley (USFWS, 2013).

Taylor's Checkerspot Butterfly

Euphydryas editha taylori – Endangered, listed October 3, 2013

Adult Taylor's Checkerspot emerge in April and May and lay clusters of up to 1,200 eggs. Larvae then emerge and feed until June and July when they enter diapause and hibernate through the winter (USFWS, 2013). Taylor's checkerspot is found primarily in open prairie and grass/oak woodland habitat (WSDOT, 2013). Their habitat is dependent upon food sources for larvae and nectar sources for adults, and these are primarily limited to specific members of the snapdragon and plantain families. The decline of Taylor's checkerspot is largely due to loss of suitable habitat resulting from conversion of prairie land to agricultural and urban development, encroachment of trees with the loss of natural fire regimes, and the spread of invasive plant species (USFWS, 2013).

Canada Lynx

Lynx Canadensis – Threatened, listed March 24, 2000

The distribution of Canada Lynx in north America follows the distribution of boreal forest ecosystems and ranges the south up into the subalpine forest of the western U.S. as well as into the

boreal/hardwood forests of the eastern U.S. Their populations persist in areas with deep snow and have a large population of snowshoe hares, which is the main prey of the lynx (USFWS, 2016). No habitat for this species is found in the project vicinity.

Yellow-billed cuckoo

Coccyzus americanus – Threatened, listed November 3, 2014

Yellow-billed Cuckoo are migratory birds and historically ranged from British Columbia to northern Mexico. Approximately 12 sightings in Washington have been reported between 1950 and 2000, 8 of which were east of the Cascades (WDFW, 2013). The yellow-billed cuckoo generally prefers riparian habitat of 50 acres or more (USFWS, 2016) that is wooded with dense cover and available water. The yellow-billed cuckoo also inhabits woodlands with low scrubby vegetation, abandoned farmlands and dense thickets in riparian areas. Their main source of food is caterpillars (WDFW, 2013).

Marbled Murrelet

Brachyramphus marmoratus – Threatened, listed 1992

Marbled murrelet are in the Alcidae family of seabirds such as puffins, murres, and auklets. In Washington, they are year-round residents on coastal waters. They primarily feed in waters within five-hundred (500) feet of the shore to 1.2 miles from shore at depths of less than one-hundred (100) feet. Preferred prey includes small fish and crustaceans; nestlings may be fed larger fish. Prey species (sand lance (*Ammodytes hexapterus*), surf smelt (*Hypomesus pretiosus*), and Pacific herring (*Clupea harengus pallasii*)) are important forage fish for marbled murrelets. Nests and roosts are found in mature and old growth forests of western Washington. Nesting typically occurs from April to September (Hamer et al, 1991). Nest trees are typically greater than thirty two (32) inches diameter at breast height, with nesting preference on large flat conifer branches, often covered with moss (Hamer et al, 1991) and found in old growth forests. Marbled murrelets have been found in the largest numbers in marine, coastal waters surrounding the Olympic Peninsula (Pearson and Lance, 2010). Marbled murrelet are more sparsely distributed elsewhere in this region. Critical habitat has been designated in Oregon and California; no critical habitat has been designated in or near the Action Area.

Oregon spotted frog

Rana pretiosa – Threatened, listed September 29, 2014

Oregon spotted frog is endemic to the Pacific Northwest and spend the majority of life in water. Often the Oregon spotted frog can be found in emergent wetlands with shallow, standing water. Warm, marshy areas are preferable, with an abundance of emergent or floating vegetation, which is used for cover and foraging (Watson, et al., 2000). The species prefers large marshes with a minimum size of 9 acres that can support a large population that will persist even with high predation rates (Hayes, 1994).

Northern Spotted owl

Strix occidentalis – Threatened, listed June 26, 1990

The Northern Spotted Owl prefers large coniferous trees for nest which are often associated with old growth forests. Their habitat areas need to contain platforms, cavities, or other structural features to provide protection from adverse weather conditions and predation. Suitable habitat usually needs to include areas for nesting, roosting, and foraging and dispersal habitats. Owls forage on small nocturnal mammals near their roosting areas. Typical prey includes flying squirrels (*Glaucomys sabrinus*), snowshoe hare (*Lepus americanus*), bushy-tailed woodrats (*Neotoma cinerea*), and boreal red-backed voles (*Clethrionomys gapperi*) (USFWS, 2012). In June of 2012 the USFWS released a Draft Environmental Assessment for the Designation of Critical Habitat for the Northern Spotted Owl in response to

findings indicating strong nesting and foraging competition from the Barred Owl. There are no suitable nesting or foraging habitats on or adjacent to the proposed project site.

Southern Resident Killer Whale

Orcinus orca – Endangered, listed November 15, 2005

The killer whale is found in both open seas and coastal waters. They typically live twenty-five (25) to ninety (90) years and form family groups called pods. They primarily prey on chinook and chum salmon and are threatened by pollution and other human activities. Southern Resident killer whale may be found in the Puget Sound, Straits of Georgia and Juan de Fuca during spring through fall, though their movement into Puget Sound waters historically and most likely still, coincides with prey movement into the Puget Sound (NMFS, 2008). The Puget Sound contains designated critical habitat for the Southern Resident Killer Whale in all waters deeper than twenty (20) feet at high tide.

3.2 Existing Environmental Conditions

3.2.1 Landscape Setting

The subject property is currently vacant but is zoned in the City of Sumner’s Light Manufacturing District (M-1). Surrounding properties are in currently in use as light industrial developments; therefore, the proposed use of the subject property is consistent with surrounding uses and zoning. The subject property is bounded on the north and east by a developed light industrial properties, to the west by 142nd Avenue East, to the south by 32nd Street East as well as a single-family residence and blueberry field.

The property is generally flat and mostly covered in fill material. Historical imagery shows that since at least 2004, the site has remained similar to how it is used today. Currently, the site is used for parking by semi-trucks and passenger vehicles with some trailer storage. Areas of the site not used for parking are also highly influenced by anthropogenic disturbances, such as trash and debris and the parking of recreational vehicles (RVs).

Figure 3. Photo of the Vegetated Area within the Floodplain



Figure 4. Aerial Photo of the Subject Property



Source: Google Maps

3.2.2 Vegetation

The majority of the site consists of a compact soil parking lot with several piles of gravel and crushed asphalt. The southeastern portion of the site is vegetated with mostly invasive species, dominated by Himalayan blackberry, reed canarygrass, Canada thistle, American yellowrocket, and yarrow.

3.2.3 Soils

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and the Soil Survey of Pierce County identifies two types of soil on the subject property: Puget silty clay loam (30A) and Snohomish silty clay loam (39A).

Puget silty clay loam (30A)

According to the survey, Puget silty clay loam is poorly drained and formed in mixed alluvium under hard woods on the flood plains of the Puyallup and White Rivers between elevation ranges from sea level to 150 feet and slopes less than 2 percent. Surfaces are slightly concave to flat with an annual precipitation of 35 to 50 inches and an average annual air temperature of around 50 degrees Fahrenheit. In a typical profile, the surface layer is dark grayish brown silty clay loam about 11 inches thick with the underlying material do a depth of about 24 inches being mottled, dark grayish brown and grayish brown silty clay loam. Between depths of 24 and more than 60, it is mottled, dark grayish brown silty clay loam and dark gray silt loam. Permeability is slow and the available water capacity is high. Surface runoff is slow and there is no erosion hazard (Zulauf et al., 1979).

Snohomish silty clay loam (39A)

According to the survey, Snohomish silty clay loam, is poorly drained soil formed in alluvium and decaying plant remains. In a typical profile, the surface layer is very dark grayish brown silty clay loam to depth of 9 inches. The underlying layer is very dark grayish brown silty clay loam to a depth of 17

inches. Snohomish silty clay loam is listed as hydric on the Pierce County Hydric Soils List (Zulauf et al., 1979).

3.2.4 Sensitive Plant, Fish and Wildlife

The proposed project is located within the Puyallup-White Watershed, water resources inventory area (WRIA) 10. The nearest fish-bearing waterbody to the subject property is the White River, approximately 1,500 feet to the east of the site. WDFW Salmonscape and PHS maps and data documents presence of coho, Chinook, chum, pink, and sockeye salmon and steelhead and bull trout in the White River (Appendix B). With the implementation of BMPs onsite, the lack of hydrologic connectivity between the construction site and the White River, and the large distance between them, no sedimentation or turbidity impacts are expected within the White River. .

3.2.5 FEMA Mapped Floodplain

FEMA maps accessed through FEMA's Map Service Center indicated that the project site is located within the 100-year floodplain, or those areas with 1 percent chance of flooding in any given year, of the White River. The currently proposed actions are situated within the 100-year floodplain of the White River (Appendix B).

Chapter 4. Project Effects

Project actions are proposed within the FEMA-regulated 100-year floodplain of the White River. Any development actions within the floodplain require compliance with Section 7 of the ESA through FEMA. The project is not anticipated to affect ESA-listed species or floodplain functions; however, the City of Sumner requires assessment and documentation of the potential effects on ESA-listed species to retain FEMA compliance.

Potential project impacts are evaluated based upon specific habitat components that would be altered or removed and the degree to which the alteration may occur; the abundance, and distribution of the habitat components; the distribution and population levels of the species (if known); the possibility of direct or indirect impacts to the species and/or habitat including primary food stocks, prey species, and foraging areas, and the potential to mitigate for adverse effects. An analysis of project effects to potential ESA-listed species in the vicinity is provided below.

4.1 Direct Effects

An analysis of project effects to ESA-listed species that have potential for presence in the vicinity is detailed below. The ESA-listed species assessed include Roy Prairie pocket gopher, Olympia pocket gopher, Tenino pocket gopher, Yelm pocket gopher, bull trout, Chinook salmon, steelhead trout, streaked horned lark, Taylor's checkerspot butterfly, Canada lynx, Yellow-billed cuckoo, Marbled Murrelet, Oregon Spotted frog, Northern Spotted owl and Southern Resident killer whale. Potential project impacts are evaluated based upon specific habitat components that would be altered or removed and the degree to which such alteration may occur; the abundance and distribution of the habitat components; the distribution and population levels of the species (if known); the possibility of direct or indirect impacts to the species and/or habitat, and the potential to mitigate for adverse effects. Potential effects from the project upon ESA-listed species primarily include construction noise, potential construction-related erosion, relocation of flood storage area, and improved onsite habitat.

4.2 Short-Term Effects

Impacts to the local environment from project noise may occur within a two-thousand-two-hundred-thirty-three (2,233) foot terrestrial radius around the Project Area. Noise from project activities can adversely affect wildlife with various behavioral and/or health-related consequences (WSDOT, 2010). Short-term effects due to noise will likely be minor due to short duration of construction activities.

As the project proposes grading within the floodplain, potential erosion issues must be considered. However, BMPs and TESC measures, including silt fencing, will still be utilized during construction actions to prevent erosion and sedimentation. In addition, there is no hydrologic connection to the White River, which is located 1,500 feet from the project. Due to the proposed BMPs and TESC measures, lack of hydrologic connection, and project distance from the White River, no sedimentation or turbidity impacts are expected within the White River.

4.3 Long-Term Effects

Long-term effects include the relocation of flood storage area and improved floodplain habitat structure and functionality. As the land is currently under active light industrial use and as no trees or shrubs are present on the property, little to no habitat is currently available onsite. Loss of flood storage capacity will be compensated for by the provision of 1,500 cubic yards of flood storage within other areas of the property. To improve onsite habitat, large woody debris and standing snags will be placed within the flood storage pond, and the area will be seeded with a native grass mix. The outer perimeter of the flood storage pond will be planted with coniferous and deciduous trees to provide screening and shading. In addition, portions of the site along the perimeter will be fully replanted with native trees and shrubs in accordance with landscaping requirements. Overall, the project is anticipated to result in a net gain in habitat functions within the riparian floodplain. Therefore, long-term effects on ESA-listed species are likely to be minimal but beneficial.

4.4 Conservation Measures

The use of standard construction BMPs and TESC measures with erosion control sediment fencing will minimize potential effects to downstream turbidity. Additional erosion and sediment control measures may include hydro-mulching or seeding bare ground as soon as possible to minimize intrusion of invasive species.

Equipment used for the project will be typical for excavation and grading activities and will be kept in good working order free of leaks. All equipment staging and materials stockpiles will be kept out of critical areas, drainages, and the respective buffers, and the areas will be kept free of spills and/or hazardous materials. All fill material and road surfacing will be sourced from upland areas onsite or from approved suppliers, and will be free of pollutants and hazardous materials. All concrete wash water will be contained onsite.

4.5 Determinations of Effect

4.5.1 Critical Habitat

Critical Habitat is defined in Section 3 of the ESA as: (1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (a) essential to the conservation of the species and (b) which may require special management considerations or protection, and (2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination such areas are essential for the conservation of the species. Critical habitat for a listed species contains Primary Constituent Elements (PCE's), as defined below.

4.5.2 Primary Constituent Elements:

In accordance with Section 3(5)(A)(i) of the ESA, and regulations at 50 CFR 424.12(b), in determining which areas are occupied at the time of listing to propose a critical habitat, we consider the physical or biological features essential to the conservation of the species and that may require special management considerations or protection. These features are the PCE's laid out in the appropriate quantity and spatial arrangement for conservation of the species. These include, but are not limited to: (1) Space for individual and population growth for normal behavior. (2) Food, water, air, light, minerals, or other nutritional or physiological requirements; (3) Cover or shelter; (4) Sites for breeding,

reproduction, or rearing (or development) of offspring; and (5) Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species. The only critical habitat located within the Action Area of the proposed project are for fish species. It is not anticipated that the proposed project will have any effect on these critical habitats.

Essential habitat types for salmon, bull trout and steelhead species can be generally described to include the following: (1) juvenile rearing areas; (2) juvenile migration corridors; (3) areas for growth and development to adulthood; (4) adult migration corridors; and (5) spawning areas. Within these areas, essential features of critical habitat include adequate: (1) substrate, (2) water quality, (3) water quantity (4) water temperature (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, and (10) safe passage conditions. The actual regulatory descriptions of Critical Habitat for each ESU can be found at the end of this Federal Register: Vol. 65, No. 32, Wednesday February 16, 2000.

Roy Prairie pocket gopher, Olympia pocket gopher, Tenino pocket gopher, and Yelm Pocket Gopher and Critical Habitat

Thomomys mazama glacialis, *Thomomys mazama pugetensis*, *Thomomys mazama tumuli* and *Thomomys mazama yelmensis* – Threatened, listed May 9, 2014

Critical habitat designated April 9, 2014 (79FR19711)

Mazama pocket gophers require specific types of soils for their habitat. These soils must allow them to tunnel into the ground and must be well-drained and easily-crumbed. Soil types identified onsite by an NRCS survey identify silty clay loams onsite, none of which are suitable soil types for Roy Prairie, Olympia, Tenino and Yelm pocket gophers. In addition, the area surrounding the subject property is fully developed and occupied by commercial, industrial and residential uses. Fragmentation of suitable habitat for Mazama pocket gophers in historically occupied areas means that populations are not able to move around easily, so even if suitable habitat existed onsite, it would be isolated and surrounded by development; therefore, the project **may affect, but not likely to adversely affect on Mazama pocket gophers**. No Critical Habitat has been designated within the Action Area, therefore the proposed project **may affect, but not likely to adversely affect on Mazama pocket gopher Critical Habitat Roy Prairie pocket gopher, Olympia pocket gopher, Tenino pocket gopher, and Yelm Pocket Gopher and Critical Habitat**.

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Bull trout and Critical Habitat

Salvelinus confluentus – Threatened, listed November 1, 1999

Critical habitat designated October 18, 2010(50 CFR Part 17.11)

Bull Trout are members of the salmonid family and are well adapted for living in very cold water. They require stable stream channels, clean spawning gravel, complex and diverse cover and unblocked migration routes. They are rarely found in water where temperatures exceed 59 degrees Fahrenheit (USFWS, 2016). Due to a lack of any water features and therefore any suitable habitat within the vicinity of the project area, the proposed project **may affect, but not likely to adversely affect**. In addition, the large distance between the project site and the nearest watercourse (the White River) eliminates the possibility for sedimentation due to runoff from the site. While the portion of the White River to the east of the subject property is designated as Critical Habitat and is within the Action Area, runoff from project activities is will not reach the White River and terrestrial noise will not affect any fish species, therefore, the proposed activities **may affect, but not likely to adversely affect Bull trout and Critical Habitat**.

Puget Sound Chinook salmon ESU and Critical Habitat

Oncorhynchus tshawytscha – Threatened, listed (reaffirmed) June 28, 2005 (70FR37160)

Critical habitat designated September 2, 2005 (70FR52630)

Presence of Puget Sound Chinook Salmon ESU has been documented by WDFW SalmonScape in the nearby White River, approximately 1500 feet to the east of the subject property, however, no direct effects to Chinook salmon are expected to occur. Temporary sedimentation may occur from construction activities; however, the large distance between the project site and the White River diminishes the possibility for sedimentation due to runoff from the site. As there is no potential for direct impacts and indirect impacts are anticipated to be insignificant, the proposed project **may affect, but not likely to adversely affect**. While the portion of the White River to the east of the subject property is designated as Critical Habitat and is within the Action Area, runoff from project activities will not reach the White River, and terrestrial noise will not affect any fish species, therefore, the proposed activities **may affect, but not likely to adversely affect Puget Sound Chinook and Critical Habitat**

Puget Sound Steelhead ESU and Critical Habitat

Oncorhynchus mykiss – Threatened, listed May 11, 2007

Critical habitat designated 2005 (78 FR 2725)

Puget Sound Steelhead presence has been documented by WDFW SalmonScape in the nearby White River, approximately 1500 feet to the east of the subject property, however, no direct effects to Steelhead trout are expected to occur. Temporary sedimentation may occur from construction activities; however, the large distance between the project site and the White River diminishes the possibility for sedimentation due to runoff from the site. As there is no potential for direct impacts and indirect impacts are anticipated to be insignificant, the proposed project **may affect, but not likely to adversely affect Puget Sound Steelhead Trout**. While the portion of the White River to the east of the subject property is designated as Critical Habitat and is within the Action Area, runoff from project activities will not reach the White River, and terrestrial noise will not affect any fish species, therefore, the proposed activities **may affect, but not likely to adversely affect Puget Sound Steelhead ESU and Critical Habitat**

Streaked Horned Lark and Critical Habitat

Eremophila alpestris strigata - Threatened, Listed October 3, 2013.

Critical habitat designated October 3 2013 (78 FR 61505 61589)

Streaked Horned Lark (*Eremophila alpestris strigata*) habitat consists of open spaces with no trees and few or no shrubs, native prairies, coastal dunes, fallow and active agricultural fields, wetland mudflats, pastures, airports and gravel roads or gravel shoulders of lightly-traveled roads (USFWS, 2016). Nesting habitat for streaked horned larks has been identified at Joint Base Lewis-McChord located approximately thirteen (13) miles southwest of the project area (USFWS, 2013). However, considering the project site only contains a dirt lot used for parking trucks and is surrounded by industrial and commercial development, streaked horned larks are extremely unlikely to nest at the project site. Terrestrial sound resulting from excavators and dump trucks will be below precautionary harassment/injury threshold guidelines for ESA-listed avian species that may be present in the proposed project area. Noise levels may be as high as 83 dBA at 50 feet from project activities but will attenuate at 2,233 feet. As there are no known nesting sites near the project, terrestrial noise **may affect, but not likely to adversely affect** individuals of this species. Due to the lack of presence, and the project producing relatively little noise which will be brief in duration, the proposed project **may affect, but not likely to adversely affect**. The Action Area does not include Critical Habitat;

therefore, the proposed activities **may affect, but not likely to adversely affect Streaked Horned Lark and Critical Habitat .**

Taylor's Checkerspot Butterfly and Critical Habitat

Euphydryas editha taylori – Endangered, Listed October 3, 2013.

Critical habitat designated October 3 2013 (78 FR 61505 61589)

Taylor's checkerspot butterfly is a prairie species historically found on grasslands in the Puget Sound region (USFWS, 2016). Their decline is primarily caused by development and habitat encroachment by humans. Considering that the project site is surrounded by high-intensity commercial and industrial development, the likelihood of Taylor's checkerspot butterfly being found at the project site is extremely low. Their dispersal from known sites is also extremely low. Due to the lack of presence of suitable habitat, the proposed actions **may affect, but not likely to adversely affect**. The action area does not include critical habitat; therefore, the proposed activities will have **may affect, but not likely to adversely affect Taylor's Checkerspot Butterfly and critical Habitat**.

Canada Lynx and Critical Habitat

Lynx Canadensis – Threatened, Listed March 24, 2000

Critical habitat designated September 12, 2014 (79 FR 54781 54846)

The distribution of Canada Lynx in north America follows the distribution of boreal forest ecosystems and ranges the south up into the subalpine forest of the western U.S. as well as into the boreal/hardwood forests of the eastern U.S. Their populations persist in areas with deep snow and have a large population of snowshoe hares, which is the main prey of the lynx (USFWS, 2016). No habitat for this species is found in the Action Area; therefore, the project **may affect, but not likely to adversely affect**. The action area does not include critical habitat; therefore, the proposed activities **may affect, but not likely to adversely affect Canada Lynx and Critical Habitat**.

Yellow-billed cuckoo

Coccyzus americanus – Threatened, Listed November 3, 2014

Critical habitat not designated

Yellow-billed Cuckoo are migratory birds and historically ranged from British Columbia to northern Mexico. Approximately 12 sightings in Washington have been reported between 1950 and 2000, 8 of those sightings were east of the Cascades (WDFW, 2013). The yellow-billed cuckoo generally prefers riparian habitat of 50 acres or more (USFWS, 2016) that is wooded with dense cover and available water. The yellow-billed cuckoo also inhabits woodlands with low scrubby vegetation, abandoned farmlands and dense thickets in riparian areas. Their main source of food is caterpillars (WDFW, 2013). Because of the extremely low population of yellow-billed cuckoos and the lack of appropriate lowland riparian forest habitat in the Action Area, the project **may affect, but not likely to adversely affect Yellow billed Cuckoo**.

Marbled Murrelet

Brachyramphus marmoratus – Threatened, Listed 1992

Critical habitat designated May 1996 (50 CFR Part 17.11)

Marbled Murrelet are members of the Alcidae family of seabirds such as puffins, murrelets, and auklets. In the state of Washington, they are year-round residents on coastal waters. They primarily feed in waters within 500 feet of the shore out to 1.2 miles from shore at depths of less than one hundred feet. Preferred prey includes small fish and crustaceans; nestlings may be fed larger fish. Nests and roosts are found in mature and old growth forests of western Washington. Nesting typically occurs from April to September (WDFW, 1993). Nest trees are typically greater than thirty-two inches diameter at breast height, with nesting preference on large flat conifer branches, often covered with moss (WDFW, 1993) and found in old growth forests. Marbled Murrelets have been found in the

largest numbers in marine waters near the coastal waters surrounding the Olympic Peninsula (Pearson and Lance, 2010). Marbled Murrelet are more sparsely distributed elsewhere in this region. Prey species (sand lance (*Ammodytes hexapterus*), surf smelt (*Hypomesus pretiosus*), and Pacific herring (*Clupea harengus pallasii*)) are important forage fish for marbled murrelets. Critical habitat has been designated in Oregon and California; whereas no critical habitat has been designated in or near the Action Area. Marbled Murrelets are very unlikely to be present in the vicinity of the project site due to a lack of appropriate habitat, therefore, the project will have **May Effect but not likely to Adversely Effect**. The action area does not include designated critical habitat; therefore, the proposed activities **may affect, but not likely to adversely affect Marbled Murrelet**.

Oregon Spotted Frog

Rana pretiosa – Threatened, Listed September 29, 2014

Critical habitat not designated

Oregon spotted frog is endemic to the Pacific Northwest and spend the majority of life in water. Often the Oregon spotted frog can be found in emergent wetlands with shallow, standing water. Warm, marshy areas are preferable, with an abundance of emergent or floating vegetation, which is used for cover and foraging (Watson, et al., 2000). As the Oregon spotted frog is a freshwater species primarily associated with wetland habitat and as no suitable habitat exists within the vicinity of the project area, the project **may affect, but not likely to adversely affect on Oregon Spotted Frog**.

Northern Spotted owl

Strix occidentalis – Threatened, Listed June 26, 1990

Critical habitat designated December 4, 2012 (77 FR 71875 72068)

Northern Spotted owl prefers large coniferous trees which are often associated with old growth forests. No habitat is found in the Action Area or vicinity for this species, and it is highly unlikely that one would be present in the action area; therefore, the project will have **may affect, but not likely to adversely affect on Northern Spotted Owl**. The action area does not include critical habitat; therefore, the proposed activities **may affect, but not likely to adversely affect on Northern Spotted Owl Critical Habitat**.

Southern Resident Killer Whale and Critical Habitat

Orcinus orca – Endangered, listed November 15, 2005

Critical Habitat designated November 2006

Southern resident killer whale may be found in the Straits of Georgia and Juan de Fuca during spring through fall (Grette, 2011) and in South Puget Sound during the fall and winter months. A southern resident killer whale sighting compilation between 1990 and 2008 (Foote et al., 2008) has compiled data regarding the average number of killer whale sightings per month over an eighteen (18) year period. October through February contain the highest number of sightings per month. The project will not impact food sources, pollute water, or permanently compromise ocean waters as the project is located more than 6 miles from the nearest marine shoreline. If the project has any impact on the White River, the planting of native vegetation would reduce pollutant input into the White River which is connected to the Puyallup River and Commencement Bay. Therefore, long term effects, if any, likely include improvement to water quality. In addition, the project **may affect, but not likely to adversely affect** effect on Chinook and chum salmon, which are prey species of the killer whale. Due to lack of impact on habitat or prey, there will be **may affect, but not likely to adversely affect on Southern Resident Killer Whales**. The action area does not include critical habitat; therefore, the

proposed activities **may affect, but not likely to adversely affect** on **Southern Resident Killer Whale Critical Habitat**.

4.6 Essential Fish Habitat Analysis

The Magnuson-Stevens Fishery and Conservation Act (MSA) and the 1996 Sustainable Fisheries Act of 1996 (SFA)(Public Law 104-267) requires Federal agencies to consult with NMFS on activities that may adversely affect Essential Fish Habitat (EFH). EFH is defined by the MSA at 50 CFR 600.905-930 as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The object of this EFH assessment is to notify NOAA Fisheries of the project and potential effects and determine whether or not the proposed actions “may adversely affect” designated EFH for relevant commercially, federally-managed fisheries species within the proposed action area. It also describes conservation measures proposed to avoid, minimize, or otherwise offset potential adverse effects to designated EFH resulting from the proposed action. The following EFH analysis is provided in conjunction with ESA consultation, some previous sections of the document may be referenced in order to reduce redundancies.

The proposed project actions are detailed in Chapter 2. The effects of the actions (see Chapter 4 for overall effects) will occur within the Action Area defined in Section 2.5. Relevant assessment of EFH at the proposed project site includes the White River. Proposed terrestrial noise will have no impact on EFH; however, the proposed enhancement of riparian floodplain areas onsite will improve water quality thus improving the quality of existing EFH in the long run.

Conclusion

Terrestrial noise will not affect fish species; therefore, any noise produced by the project will not impact EFH. The amount fill placement in the floodplain will be compensated for by the addition of increased floodplain storage capacity, and any negative effects will be discountable. Enhancement of onsite riparian floodplain areas would offset any habitat loss and improve water quality running off of the subject property.

Chapter 5. Floodplain and Habitat Mitigation Plan

5.1 Description of Impacts

The proposed development includes construction of a truck and trailer storage parking lot approximately 76,178 square feet in size. Structural fill of up to 60,000 cubic yards may be required in the project area in order to raise the site to an appropriate elevation to ensure stormwater can be conveyed offsite by gravity. Approximately 1,500 cubic yards of fill is located within the FEMA-regulated floodplain. As compensation for floodplain fill, approximately 1,500 cubic yards of flood storage will be created outside of the proposed parking lot. In addition, the flood storage area will be replanted with native vegetation in order to offset any potential impact impacts to fish and wildlife habitat caused by the fill. The proposed project intends to not only offset impacts to floodplain hydrologic functions, but also provide for improvements in ecological and habitat functions over existing conditions.

5.2 Mitigation Strategy

Floodplain impacts will be offset by excavation of an equivalent volume of material as is being filled to provide 1,500 cubic yards of storage in the southeast corner of the subject property unless a more preferable site that provides equal or greater functional benefits is found in the future. In addition, the perimeters of the site will be replanted as part of the landscape plan to provide ecological functions that exceed current conditions.

Compensatory mitigation is proposed to maintain flood storage capacity, and non-compensatory restoration and enhancement actions are proposed to enhance floodplain habitat functionality in an area currently degraded by light industrial uses. This floodplain restoration plan proposes to compensate for floodplain impacts associated with construction of an impervious truck storage area and to provide equal or greater storage capacity, improve water quality output to the White River, improve wildlife habitat complexity, and restore native vegetation and habitat structures.

The proposed actions will involve removal of material to provide approximately 1,500 cubic yards of flood storage compensation in the southeast corner of the site. The area proposed for flood storage compensation is not currently being used and provides little to no habitat and water quality functions. Although little to no habitat is currently present, non-compensatory mitigation will be provided through native plantings within the flood storage area to offset any potential impacts to fish and wildlife. Specifically, large woody debris and standing snags will be placed within the flood storage pond, and the area will be seeded with a native grass mix. The outer perimeter of the flood storage pond will be planted with coniferous and deciduous trees to provide screening and shading.

5.3 Mitigation Goals, Objectives, and Performance Standards

The goals and objectives for the mitigation plan will provide improved floodplain storage capacity and critical areas protections by restoring riparian and floodplain functions near the White River. These restoration actions are capable of improving water quality and hydrologic functions and providing a moderate to high level of habitat function for fish and wildlife habitat over time. The goals and objectives of the floodplain restoration and mitigation actions are as follows:

Goal 1 – Restore floodplain function and riparian processes to offset indirect impacts associated with the project.

Objective 1 – Re-establish native riparian vegetation within the floodplain restoration area to improve long-term floodplain functions.

Performance Standard 3 – By the end of Year 1, at least 100 percent of native trees planted will be present and in healthy condition.

Performance Standard 4 – Planted tree and shrub survivorship will not fall below 80 percent in Years 2 or Year 3.

Goal 2 – Improve habitat functions within the White River floodplain by reducing presence of invasive species and increasing presence of habitat features and plant diversity within these areas.

Objective 4 – Effectively control and/or eliminate invasive species from the floodplain enhancement areas.

Performance Standard 7 – Non-native invasive plants will not make up more than 20 percent total cover in any growing season following Year 1.

5.4 Restoration Specifications

5.4.1 Plant Materials

All plant materials to be used on the site will be nursery grown stock from a reputable, local source or recovered from the property prior to grading actions. In particular, it is recommended that any willows removed during grading be used as donor material for live stakes. Only native species are to be used; no hybrids or cultivars will be allowed. Plant material provided will be typical of their species or variety; if not cuttings they will exhibit normal, densely-developed branches and vigorous, fibrous root systems. Plants will be sound, healthy, vigorous plants free from defects, and all forms of disease and infestation.

If container stock is used, all such stock shall have been grown in its delivery container for not less than six months but not more than two years. Plants shall not exhibit root bound conditions. Under no circumstances shall container stock be handled by their trunks, stems, or tops.

Seed mixture used for hand or hydroseeding shall contain fresh, clean, and new crop seed mixed by an approved method. The mixture is to be mixed to the specified proportions indicated below in Table 5 by weight and tested to minimum percentages of purity and germination.

All plant material shall be inspected by the Project Scientist upon delivery. Plant material not conforming to the specifications above will be rejected and replaced by the planting contractor. Rejected plant materials shall be immediately removed from the site.

Fertilizer will be in the form of Agroform plant tabs or an approved like form. Mulch will consist of sterile wheat straw or clean recycled wood chips approximately 1/2 inch to 1 inch in size and 1/2 inch

thick. If free of invasive plant species, the mulch material may be sourced from woody materials salvaged from the land clearing activities.

5.4.2 Plant Scheduling, Species, Density, and Location

Plant installation should occur as close to conclusion of clearing and grading activities as possible to limit erosion and limit the temporal loss of function provided by the current floodplain area. All planting should occur between September 1 and May 1 to ensure plants do not dry out after installation, or temporary irrigation measures may be necessary. All planting will be installed according to the procedures detailed in the following subsections using species selected from Table 3, below.

Table 4. Flood Storage Area Plant Species

Species Name	Common Name	Size	Typical Spacing	Approximate Quantity
Trees				
<i>Acer circinatum</i>	Vine maple	1 gallon	10-12 ft oc	22
<i>Betula papyrifera</i>	Paper birch	1 gallon	10-12 ft oc	21
<i>Picea sitchensis</i>	Sitka spruce	3 gallon	10-12 ft oc	23
<i>Pseudotsuga menziesii</i>	Douglas fir	3 gallon	10-12 ft oc	23

Table 5. Seed Mix.

Species Name	Common Name	Percentage (by weight)
<i>Agrostis exarata</i>	spike bentgrass	10 percent
<i>Deschampsia cespitosa</i>	tufted hairgrass	10 percent
<i>Deschampsia danthonioides</i>	annual hairgrass	10 percent
<i>Deschampsia elongata</i>	slender hairgrass	10 percent
<i>Elymus glaucus</i>	blue wildrye	25 percent
<i>Hordeum brachyantherum</i>	meadow barley	25 percent
<i>Lupinus polyphyllus</i>	streamside lupine	10 percent

5.4.3 Product Handling, Delivery, and Storage

All seed and fertilizer should be delivered in original, unopened, and undamaged containers showing weight, analysis, and name of manufacturer. This material should be stored in a manner to prevent wetting and deterioration. All precautions customary in good trade practice shall be taken in preparing plants for moving. Workmanship that fails to meet industry standards will be rejected. Plants will be packed, transported, and handled with care to ensure protection against injury and from drying out. If plants cannot be planted immediately upon delivery they should be protected with soil, wet peat moss, or in a manner acceptable the project supervisor. Plants, fertilizer, and mulch not installed immediately upon delivery shall be secured on the site to prevent theft or tampering. No plant shall be bound with rope or wire in a manner that could damage or break the branches. Plants transported on open vehicles should be secured with a protective covering to prevent windburn.

5.4.4 Preparation and Installation of Plant Materials

The planting contractor shall verify the location of all elements of the Restoration Plan with the Project Scientist prior to installation. The responsible Project Scientist reserves the right to adjust the locations of landscape elements during the installation period as appropriate to the compensation actions outlined above. If obstructions are encountered that are not shown on the drawings, planting operations will cease until alternate plant locations have been selected by and/or approved by the Project Scientist.

Circular plant pits with vertical sides will be excavated for all container stock. The pits should be at least 12 inches in diameter, and the depth of the pit should accommodate the entire root system. The bottom of each pit will be scarified to a depth of 4 inches.

Broken roots should be pruned with a sharp instrument and root balls should be thoroughly soaked prior to installation. Set plant material upright in the planting pit to proper grade and alignment. Water plants thoroughly midway through backfilling and add Agroform tablets. Water pits again upon completion of backfilling. No filling should occur around trunks or stems. Do not use frozen or muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water, and install a 4 to 6 inch layer of mulch around the base of each plant.

5.4.5 Temporary Irrigation Specifications

While the native species selected for enhancement and restoration actions are hardy and typically thrive in northwest conditions, and the proposed actions are planned in areas with sufficient hydroperiods for the species selected, some individual plants might perish due to dry conditions. Therefore, irrigation or regular watering will be provided as necessary for the duration of the first 2 growing seasons while the native plantings become established.

5.4.6 Invasive Plant Control and Removal

Invasive species to be removed include reed canarygrass, Himalayan blackberry, Japanese knotweed, Scotch Broom, and all listed noxious weeds. Non-native invasive plant species, specifically reed canarygrass and Himalayan blackberry, are well-established within portions of the floodplain and require an effective control strategy. To ensure non-native invasive species do not expand following the enhancement and restoration actions, non-native invasive plants within the restoration corridor will be pretreated with a root-killing herbicide (i.e. Rodeo) a minimum of 2 weeks prior to being cleared and grubbed from the restoration area. The pre-treatment with herbicide should occur prior to all planned restoration actions, and additional treatments are recommended, if feasible before replanting. Spot treatment of surviving non-native invasive vegetation should be performed again each fall prior to senescence for a minimum of 3 years.

Noxious or non-native invasive plants and other exotic plants will be removed from the restoration area so that the total cover does not exceed 20 percent areal cover. Upon approval of City of Sumner, herbicides registered for such use may be used to control non-native invasive species. Herbicide applications will be made in accordance with the Washington Department of Agriculture pesticide application procedures unless prohibited by City of Sumner. Weed control will be performed throughout the 3-year monitoring period.

5.5 Maintenance & Monitoring

The Applicant is committed to compliance with the approved restoration plan and overall success of the project. As such, the Applicant will continue to maintain the project, keeping the site free from non-native invasive vegetation, trash, and anthropogenic origin waste.

The restoration site will be monitored for a period of 3 years with formal inspections by a qualified professional. Monitoring events will be scheduled at the time of construction, 30 days after planting, and late in the first through final year's growing seasons in Years 1, 2, and 3.

Monitoring will consist of photographic stations established to provide documentation of mitigation success over each of the restoration areas as well as walk-through surveys to identify invasive species presence and dead or dying restoration plantings, wildlife observations, and general qualitative habitat and floodplain function observations.

The primary purpose of the monitoring program is to document the degree of success or failure in achieving the goals of the floodplain and habitat mitigation plan as identified in Chapter 5.3 of this report, and identify remedial actions, if necessary. To achieve the stated goals, the following items will be monitored on a regular basis for the first year following completion of plant installation and annually during late summer/early fall thereafter. The site will be inspected for:

- Survival of planted materials in year one following planting;
- After the first year, monitoring will include qualitative assessments of plant vitality and changes in plant composition;
- Qualitative and quantitative assessment of the presence and abundance of noxious and invasive plant species, and
- Observation and reporting of fish and wildlife use.

5.6 Contingency Plans

If monitoring results during the first 3 years indicate that performance standards are not being met, it may be necessary to implement all or part of the contingency plan. Careful attention to maintenance is essential in ensuring that problems do not arise. Should any portion of the site fail to meet the success criteria, a contingency plan will be developed and implemented with City of Sumner approval. Such plans are adaptive and should be prepared on a case-by-case basis to reflect the failed restoration characteristics. Contingency plans can include additional plant installation, erosion control, and plant substitutions including type, size, and location.

Contingency/maintenance activities may include, but are not limited to:

1. Replacing plants lost to vandalism, drought, or disease, as necessary.
2. Replacing any plant species with a 20 percent or greater mortality rate after 2 growing seasons with the same species or native species of similar form and function.
3. Irrigating the restoration areas only as necessary during dry weather if plants appear to be too dry, with a minimal quantity of water.
4. Reseeding and/or repair as necessary if erosion or sedimentation occurs.
5. Removing all trash or undesirable debris from the floodplain and compensatory water storage areas as necessary.

5.7 Reporting

Following each monitoring event, a brief monitoring summary detailing the current ecological status of the riparian area, measurement of performance standards, and management recommendations will be prepared and submitted to the City of Sumner via email to ensure full compliance with the restoration plan, performance standards, and regulatory conditions of approval. These reports will document compliance with restoration conditions, success in meeting the non-compensatory restoration goals, the changes that have occurred within the restoration areas, and provide recommendations for improvements and/or corrective measures for any problems noted during the monitoring visits. Monitoring reports will be submitted to the City of Sumner by December 31st of each monitoring year.

Chapter 6. References

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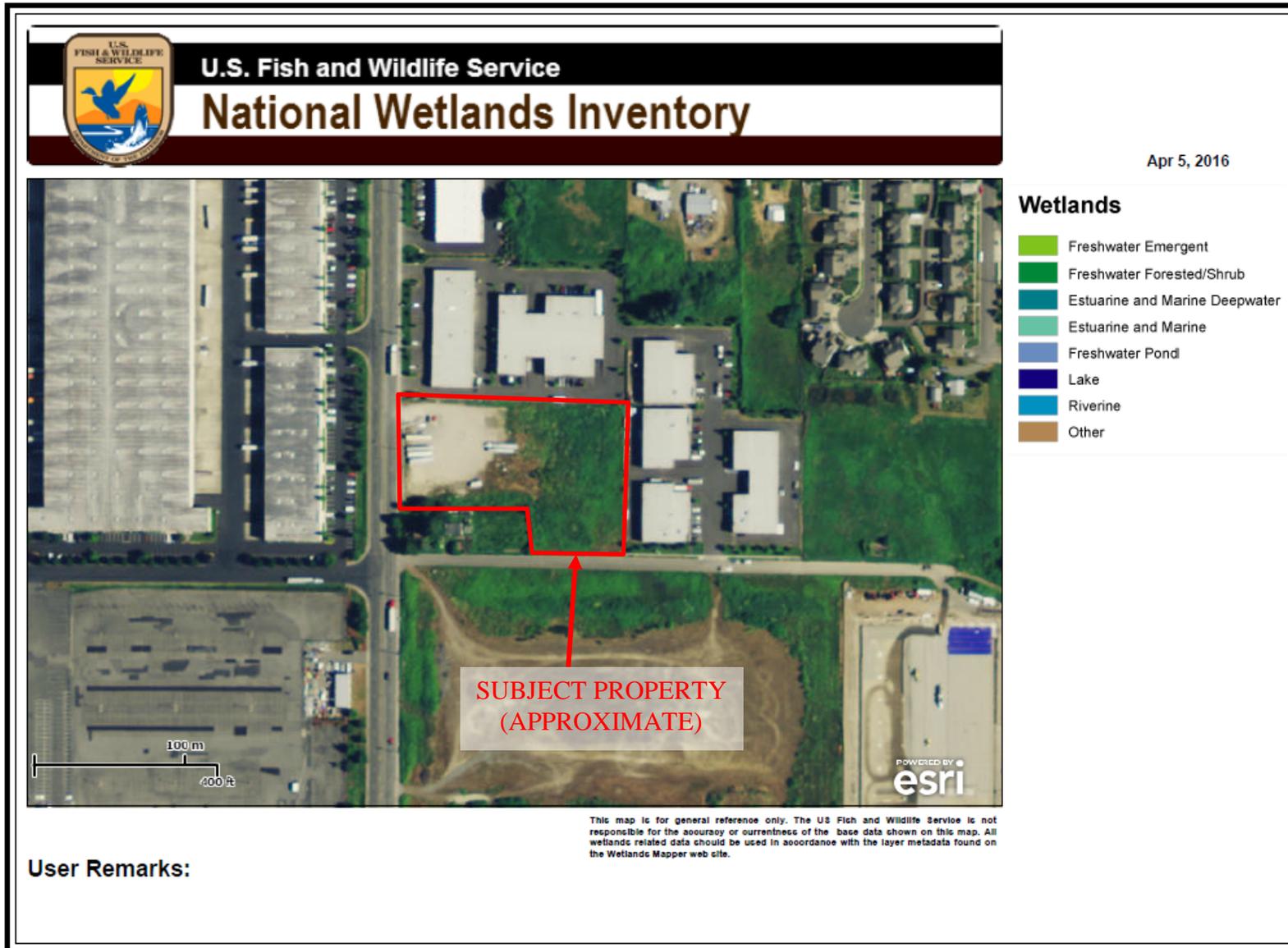
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Appendix A — Action Area

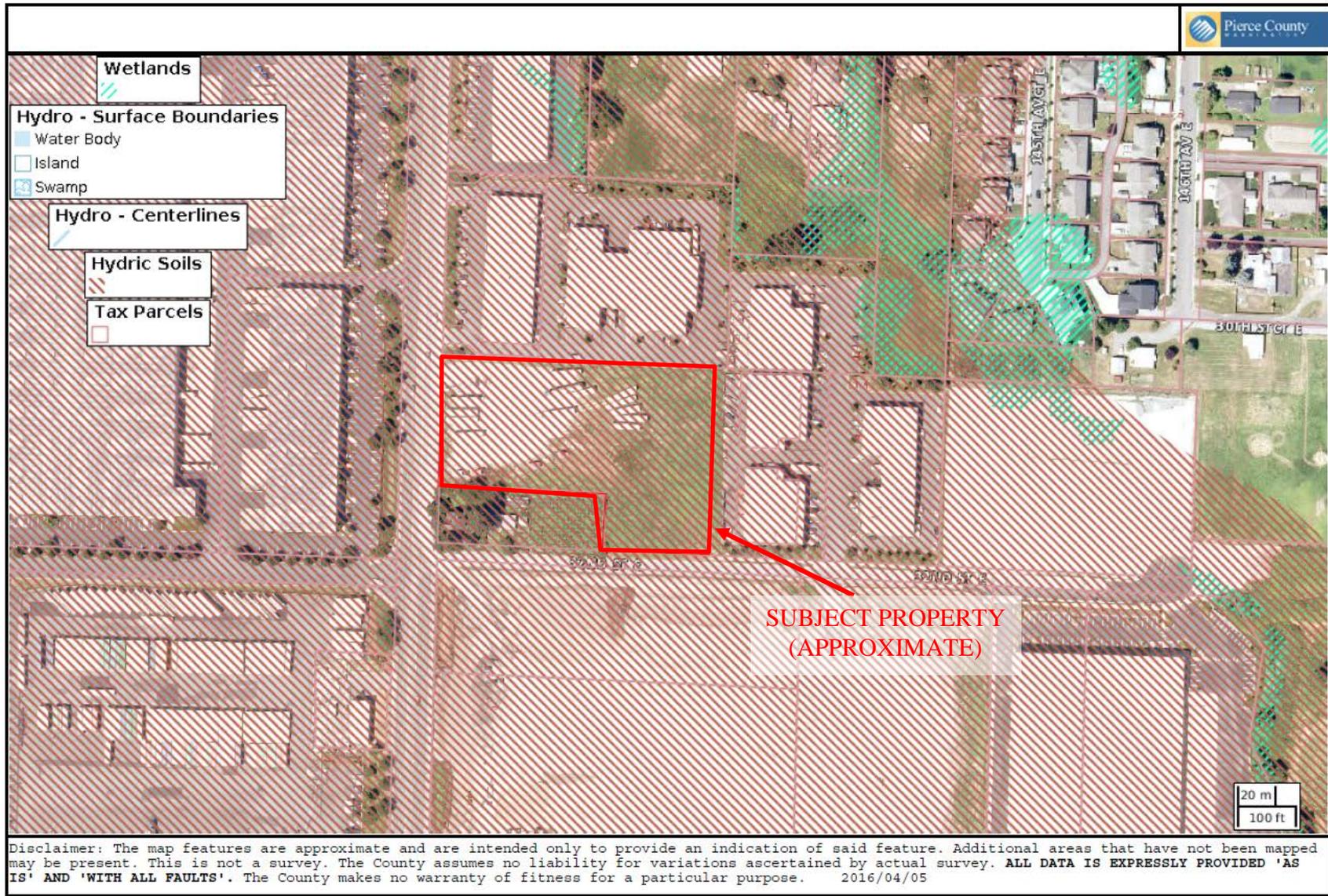
Appendix B — Background Information

This Appendix includes a USFWS National Wetland Inventory map (B1), a Pierce County Critical Areas Map (B2), an NRCS Soil Survey map (B3), a WDFW Priority Habitats and Species map (B4), a WDFW SalmonScape map (B5) and a FEMA National Flood Insurance Map (B6).

Appendix B1. USFWS National Wetland Inventory Map



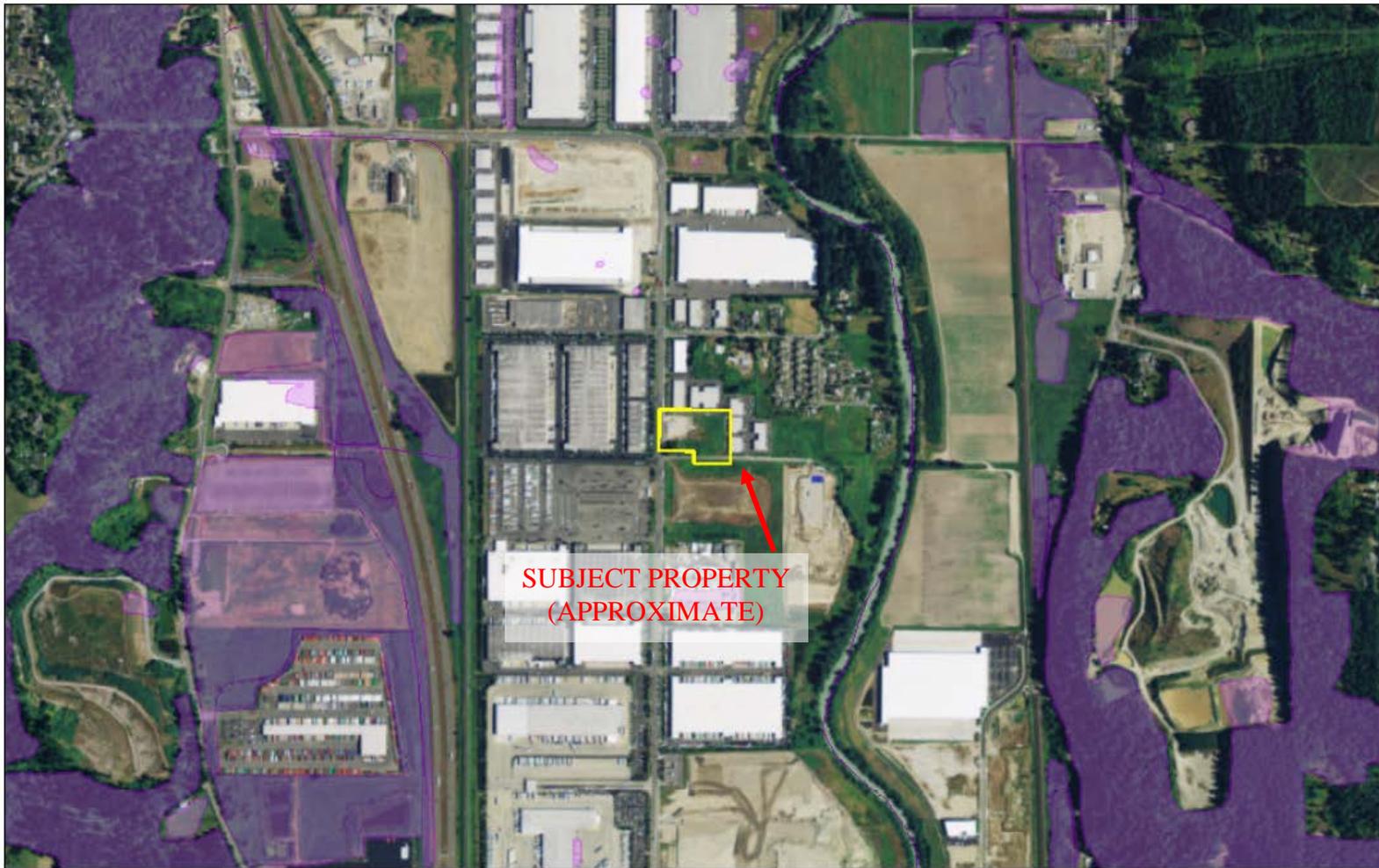
Appendix B2. Pierce County Critical Areas Map



Appendix B3. NRCS Soil Survey Map

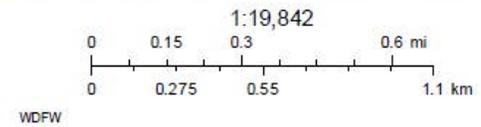


Appendix B4. WDFW Priority Habitat and Species Map

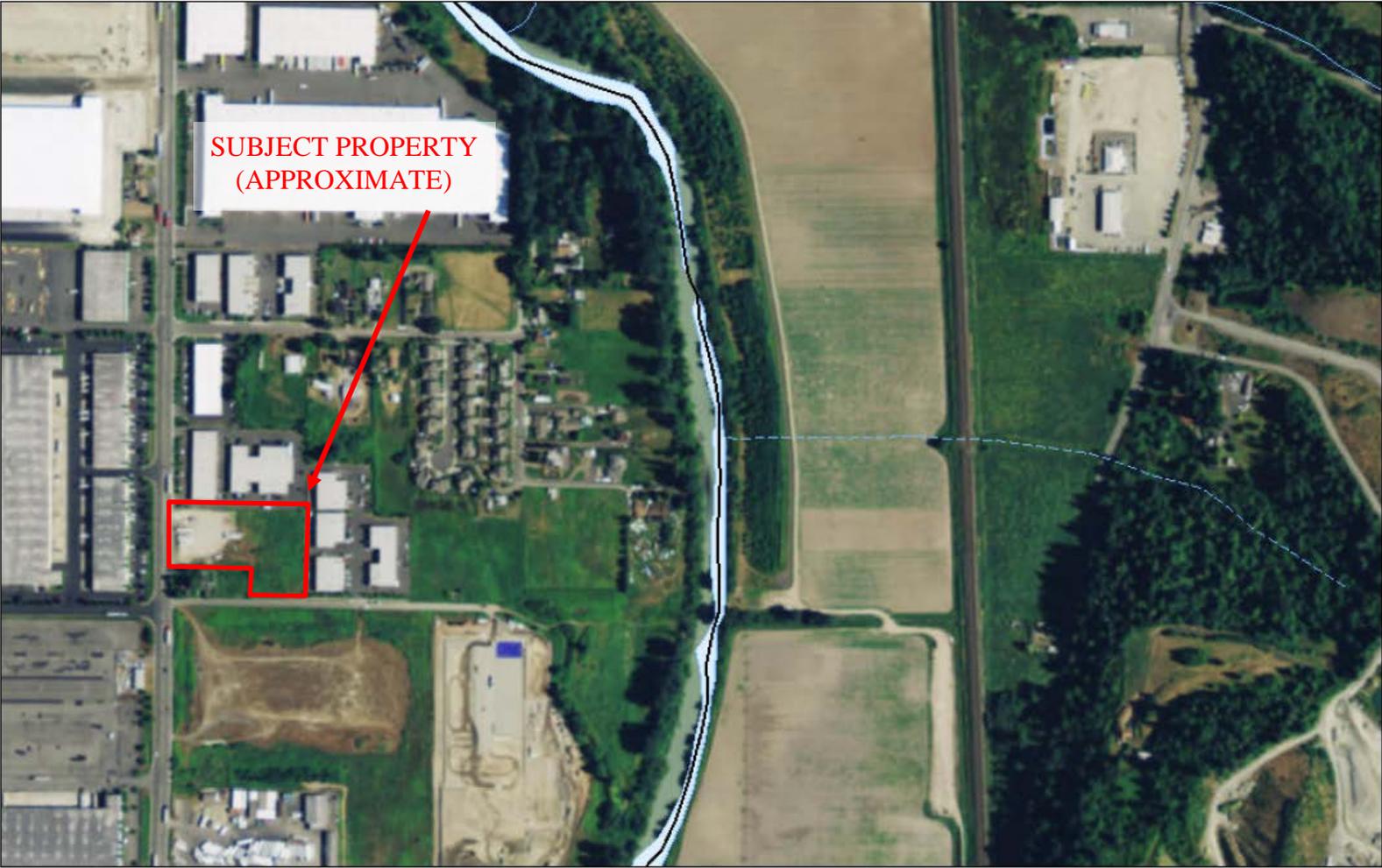


April 5, 2016

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

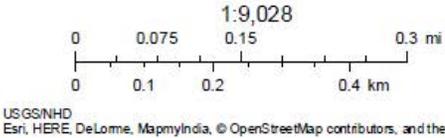


Appendix B5. WDFW SalmonScape Map



April 11, 2016

— Documented presence of Pink salmon, Chinook salmon, Chum salmon, Coho salmon, Sockeye salmon, Bull trout, Steelhead trout



Appendix C — Site Plan

Appendix D — Author Qualifications

Hannah Blackstock

Project Manager

Professional Experience: 4 Years

Hannah Blackstock is a Project Manager with a background in both forest and wetland ecology and fisheries biology and experience with various Federal agencies. Hannah earned a Bachelor's of Science with a double major in Environmental Science and Resource Management as well as Aquatic and Fisheries Sciences at the University of Washington. Hannah has an extensive knowledge of restoration ecology, ranging in topics such as soils, plant familiarity, hydrology, and wetland ecology. Furthermore, she has been certified by the Washington Department of Ecology in the use of the Washington State Wetland Rating System and Selecting Wetland Mitigation Sites Using a Watershed Approach and has received training from the PNW Invasive Plant Council on the identification of newly emerging invasive plant species. She is also a Pierce County Qualified Fisheries Biologist.

Tiffany Ban

Staff Scientist/Systems Coordinator

Professional Experience: 4 years

Tiffany Ban is a Staff Scientist and Systems Coordinator with a background in technical environmental project support, project coordination, data management, geospatial analysis and community outreach. Tiffany earned a Bachelor's of Science degree in Natural Resources Management from Colorado State University in Fort Collins, Colorado. In addition, she holds a Master of Science degree in Civil Engineering from the University of Washington, Seattle, with a concentration in Hydrology and Hydrodynamics. She has past experience working as a consultant for the U.S. Environmental Protection Agency under Superfund Technical Assistance and Response Team, Regional Oversight and SW-846 Methods contracts, as well as working as a Department of Defense contractor producing GIS maps. She has undergone training through the EPA in scientific data management and has a wide range of skills in areas such as hydrologic statistics, analysis and modeling, community outreach, cartography and planning for floodplain regions.