WETLANDS, PLANTS AND ANIMALS, AND FISHERIES ASSESSMENT

47º North
Cle Elum, Washington

Draft Supplemental EIS Report

September 10, 2020

RAEDEKE ASSOCIATES, INC.

Raedeke Associates, Inc.

Wetland & Aquatic Sciences
Wildlife Ecology
Landscape Architecture

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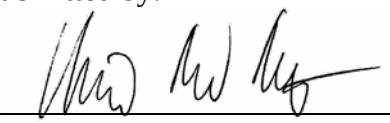

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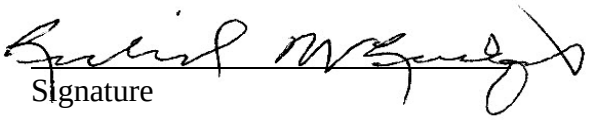

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1.0 INTRODUCTION

1.1 STATEMENT OF PURPOSE

This report documents the results of our investigation of the proposed 47º North Master Site Plan in the City of Cle Elum, Kittitas County, Washington (Figures 1 and 2). The purpose of our investigation was to evaluate impacts of the proposed Master Site Plan on wetlands, plants and animals, including fisheries, as part of the Supplemental Environmental Impact Statement (SEIS) for the project.

This report is intended to provide project-specific analysis of the SEIS Alternatives compared to impacts analyzed in the Trendwest Properties Cle Elum UGA EIS (City of Cle Elum 2001, 2002). Based on UGA EIS documents and other information, the City of Cle Elum approved a Subarea Plan, Master Plan, and Development Agreement for the site and subsequently annexed the site to the City. The current analysis will focus on comparison of the Revised Master Site Plan (SEIS Alternative 6) and the No Action Alternative, the approved Master Site Plan (SEIS Alternative 5 to the Preferred Alternative from the 2002 UGA Final EIS (FEIS Alternative 5).

1.2 STUDY AREA

For purposes of this document, the project site in the 2000 EIS and the approved Master Site Plan encompasses an approximately 1,100-acre property in the southwestern portion of the City of Cle Elum, in Kittitas County, Washington known as Bullfrog Flats (referred to herein as the Bullfrog property or the UGA property). It is generally located between Interstate 90, Bullfrog Road, SR 903, and the City Cemetery (Figures 1 and 2). The Suncadia Resort site is located to the northwest, across Bullfrog Road. The property is currently owned by New Suncadia, LLC ("Suncadia"). In 2002, the City approved a Subarea Plan, Master Plan, and Development Agreement for the property, and it was annexed to the City that same year. Sun Communities is in the process of acquiring approximately 824 ac. of the Bullfrog Flats property from Suncadia and is proposing changes to the approved Master Plan and a new name: 47° North. Suncadia is retaining a portion of the property and intends, in the future, to develop approximately 25 acres for commercial use.

2.0 METHODS

2.1 BACKGROUND REVIEW

2.1.1 2002 EIS

Background information pertaining to wetlands for the Cle Elum UGA EIS included USFWS National Wetlands Inventory maps, the WDNR Natural Heritage Information System, local wetland inventories, and the Kittitas County and Cle Elum Critical Areas Ordinances in effect at that time. Initial review and investigations were conducted by Raedeke Associates, Inc. (1999b) as part of the larger Trendwest property that included the MountainStar Master Planned Resort (now known as Suncadia) and the UGA property that was later annexed to the City of Cle Elum and analyzed in the UGA EIS (City of Cle Elum 2001, 2002).

Raedeke Associates, Inc. (1999a) investigated background information pertaining to wetlands and plants and animals for the project site as part of initial studies for the larger Trendwest property. Information systems for the U.S. Fish and Wildlife Service (USFWS), the Washington Department of Fish and Wildlife (WDFW), and the Washington Department of Natural Resources (WDNR), Natural Heritage Program (NHP) were consulted in 1997 and 1999 to determine the presence, absence, or potential for occurrence of threatened and endangered wildlife and plant species in the Cle Elum UGA. In addition, the WDFW Priority Habitat and Species (PHS) database was reviewed to document the potential occurrence of PHS species in the Cle Elum UGA and surrounding area. WDFW and USFWS web sites were reviewed again as part of the Cle Elum UGA EIS to update since the earlier data searches.

2.1.2 Current Study

In preparation for our current field investigations and data analysis, we reviewed maps and documentation from the previous studies (Raedeke Associates, Inc. 1999, City of Cle Elum 2001, 2002) and information from Kittitas County and City of Cle Elum on-line databases regarding the mapped occurrence of wetlands and streams on the site. In addition, we reviewed federal, state, and tribal reference documents and maps for information on documented occurrences of endangered, threatened, and sensitive species, as well as occurrences of priority wildlife species. We collected maps and information from the Washington Department of Fish and Wildlife Priority Habitats and Species (WDFW 2019a) on-line mapper, the USFWS (2019) list of potential occurrence of threatened and endangered species for the area, and the Kittitas County (2019) Public GIS maps. We also reviewed current and historical aerial photographs (Google Earth 2019) to assist in the extent, history, and definition of existing plant communities and habitat types. We also reviewed the relevant EIS documents prepared for the site and vicinity (City of Cle Elum 2001, 2002). We also referenced previous investigations in the vicinity, most notably wetlands and plants and animals studies of the Suncadia Resort

(fka MountainStar) property (Raedeke Associates, Inc. 1999a, b) as part of previous EIS documents.

Reference lists maintained by the WDFW (2008, 2019a), NOAA Fisheries (2016), and USFWS (2019) were consulted for information on the status of listed wildlife species that could use the site during at least some part of the year. Species accounts and management recommendations provided by WDFW (e.g., Rodrick and Milner 1991, Larsen 1997, Azerrad 2004, Larsen et al. 2004) were consulted to determine habitat associations of such species and to evaluate the likelihood of their occurrence on the project site.

2.2 FIELD INVESTIGATIONS

2.2.1 2002 EIS

Raedeke Associates, Inc. (1999b) originally delineated wetlands on the 47° North site in 1998 as part of studies of the larger Trendwest Properties, including the site that became the Suncadia Resort (fka MountainStar). All wetlands were delineated using the guidelines of the U.S. Army Corps of Engineers wetland delineation manual (Environmental Laboratory 1987). Shapiro & Associates, Inc. investigated the site in November 1998 to verify the delineated wetland boundaries and to determine if any other wetlands occurred on the site. The wetland boundaries were verified, and no additional wetlands were identified at that time.

During initial studies, Raedeke Associates, Inc. (1999b) evaluated and rated the wetlands using the methodologies described in the WDOE Wetland Rating System for Eastern Washington (WDOE 1991), as required at the time by Kittitas County (no date), as the property had not yet been annexed to the City of Cle Elum. As part of the Cle Elum UGA, Shapiro & Associates, Inc. also evaluated and rated the wetlands using the criteria required under the City of Elum Critical Areas Ordinance in effect at the time.

In addition to wetland investigations, Raedeke Associates, Inc. (1999a) conducted extensive studies of plants and animals on the larger Trendwest properties, including Suncadia and the current 47° North site, in 1997 and 1998. These included gathering sample plot data of vegetation cover and composition in representative areas of different cover types, systematic searches for potential occurrence of listed plant species, point-count bird surveys, mammal track and scat surveys, scent stations, an elk telemetry study, and systematic searches for reptiles and amphibians. These studies are described in detail in the technical report prepared for the MountainStar MPR Draft EIS (Raedeke Associates, Inc. 1999a).

2.2.2 Current Study

For the current study of the 47° North project area, Raedeke Associates, Inc. staff visited the project site on October 15, 2019 to review and verify wetland boundaries and to gather information to update the wetland ratings using the Corps of Engineers wetland delineation guidelines (Environmental Laboratory 1987) and the current Washington Department of Ecology Wetland Rating System for Eastern Washington (Hruby 2014), as required under the current City of Cle Elum (2019) critical areas regulations. The boundaries of Wetlands 1, 2, and 3 on the site were verified but not re-delineated, as they are located in the Cle Elum River corridor within a proposed natural open space area. Wetlands 4 and 5 have been re-delineated and surveyed as part of current field investigations. A new small, isolated wetland (Wetland 6) was located and delineated east of Wetland 5.

Biologists from Raedeke Associates, Inc. conducted a reconnaissance of the current project site on October 22, 2019 to describe habitat conditions on the site, update and refine vegetation cover type mapping, and record observations and signs of wildlife use. During these field investigations, we searched for the presence or habitat of wildlife species that have been listed endangered, threatened, or sensitive by the USFWS (2019) or WDFW (2019a, b). In addition, Raedeke Associates, Inc. staff contacted managers at Suncadia, as well as local Washington Department of Fish and Wildlife staff to gather updated information on elk use and fisheries resources and management on the site and vicinity.

3.0 AFFECTED ENVIRONMENT

3.1 WETLANDS

3.1.1 2002 EIS

Raedeke Associates, Inc. (1999b) identified and delineated five wetlands on the UGA property as part of studies during the 1990s, and these were confirmed at that time by the U.S. Army Corps of Engineers and also by Shapiro & Associates, Inc. for the 2001/2002 EIS (Table 1). These wetlands totaled approximately 4.4 acres on site. Wetlands 1, 2, and 3 are riparian-associated wetlands located in the Cle Elum River Corridor and supported by river flows. Wetlands 4 and 5 are isolated depressions located in the west central plateau of the site. Under the Cle Elum critical area regulations in effect at the time, Wetland 1 was rated as Category IV, which required a 25-foot buffer, Wetlands 2 and 3 were rated as Category II (100-foot buffer), and Wetlands 4 and 5 were rated as Category III (50-foot buffers) (City of Cle Elum 2001) (see Table 1).

3.1.2 Current Study

During the current study of the 47° North site, we reviewed the five wetlands previously identified and identified and delineated another (Wetland 6) (Figure 2, Table 1). The boundaries of Wetlands 1, 2, and 3 have been verified but not re-delineated as they are located in the Cle Elum River corridor within a proposed natural open space area. These wetlands have not changed substantially since the previous investigations in extent or characteristics. These wetlands meet the criteria for Category II wetlands under the current WDOE rating system for eastern Washington (Hruby 2014). Because they are located in the 100-year floodplain associated with the Cle Elum River (a Shoreline of the State), the City of Cle Elum (2016) Shoreline Master Program (SMP) requires a 200-foot buffer on these wetlands (Figure 2, Table 1).

Wetlands 4 and 5 were re-delineated and surveyed as part of current field investigations. Wetlands 4 and 5 meet the criteria for Category I and II wetlands, respectively, under the current WDOE rating system, both of which require 75-foot buffers under the current City of Cle Elum (2019) critical areas regulations. A new small, isolated wetland (Wetland 6) was located east of Wetland 5, and the boundaries were delineated. Wetland 6 meets criteria as a Category III wetland, which requires a 60-foot buffer under the City code (Figure 2, Table 1). Brief descriptions of the wetlands follow.

Wetland 1 is a 0.6-acre closed depression located west of the Cle Elum River, south of Bullfrog road, and north of Interstate 90. It is likely that the wetland occurs in an abandoned borrow pit. The boundary of the wetland appears to be unchanged from that described in the 2001 EIS. The wetland contains both emergent and scrub-shrub vegetation and appears to have a fluctuating water surface of up to 2 feet.

Wetland 2 is a 2-acre system located east of the Cle Elum River and south of Bullfrog Road. Wetland 2 has direct hydrologic connection to the Cle Elum River. The boundary of Wetland 2 appears to be the same as that previously identified. Wetland 2 supports emergent, scrub-shrub, and forested vegetation communities. Higher flows in the Cle Elum River likely inundate most of Wetland 2.

Wetland 3 is a 1.4-acre system located west of the Cle Elum River and east of Wetland 1. The configuration of Wetland 3 is unchanged from the previous studies. Wetland 3 appears to be an abandoned meander channel of the river and is likely inundated during high flows in the Cle Elum River. Wetland 3 is similar to Wetland 2 and supports emergent, scrub-shrub, and forested vegetation communities.

Wetland 4 is a closed depression located on a terrace above and east of the Cle Elum River floodplain. Wetland 4 was determined to be larger in extent during the 2019 site visit (0.19 acres) than had been identified in the previous studies. The wetland supports both forested and scrub-shrub plant communities. Hydrology for Wetland 4 is from direct precipitation and run-on from surrounding areas.

Wetland 5 is a closed depression located on a terrace above and east of the Cle Elum River floodplain, southeast of Wetland 4. Wetland 5 appears to be a similar configuration as identified in the previous studies and occupies approximately 0.30-acres. The wetland supports a scrub-shrub plant community. Hydrology for Wetland 5 is from direct precipitation and run-on from surrounding areas.

Wetland 6 was not identified in the 2001 EIS for the project site. Wetland 6 is a small, 0.01-acre closed depression located east of Wetland 5 on the terrace above the Cle Elum River floodplain. The wetland supports a nearly monotypic stand of spirea and is hydrologically support by direct precipitation and surface water runoff from surrounding areas.

3.2 AQUATIC AND FISH HABITATS

3.2.1 2002 EIS

As outlined in the 2001-2002 EIS for the UGA (City of Cle Elum 2001, 2002), the UGA property, as well as the Suncadia Resort are located within the Upper Yakima River basin. The Cle Elum River flows through the western portion of the property before discharging into the Yakima River at a point downstream. That portion of the river within the Cle Elum UGA extends from approximately RM 1.0 to RM 1.75. Other than the river and the wetlands, no other surface waters (i.e., streams) were identified on the UGA property during previous studies.

As former Plum Creek Timber Company property, the site has a long history of logging, as is the case for the overall basin, and the floodplain has been extensively thinned. At

the time the 2002 EIS was prepared, the riparian corridor of the Cle Elum River within the project reach was relatively intact and provided fish spawning and rearing habitat. Winter rearing habitat for resident fish was found principally in the mainstem Cle Elum River and in short portions of the deeper side channels. Existing large cobble and pieces of large woody debris provided adequate velocity shelter from existing flows, which were (and still are) regulated by the Bureau of Reclamation operations at Cle Elum Lake. Review of historic records and sampling (AESI 1999) indicates that water quality within the UGA was excellent and did not limit fish habitat value.

Previous studies have documented a variety of lampreys, minnows, suckers, sticklebacks, skulpins, perches, codfishes, and salmonid fish that have been known to occur in or near the UGA property (City of Cle Elum 2001). Salmonid fish known to occur in the vicinity include spring Chinook, coho, and sockeye salmon, as well as cutthroat trout and bull trout.

Within the UGA property, the river system supported only one run of anadromous fish, the spring chinook salmon, and this run was classified as depressed (Washington Department of Fisheries, et. al. 1993). The Cle Elum River was an important spawning area for this species.

Resident trout were generally common to all fish-bearing reaches in the Yakima Basin. Rainbow trout were ubiquitous to the area, while cutthroat trout were reported (AESI 1999) at relatively lower densities in the mainstem Yakima River; both were assumed to use the Cle Elum River system. Bull trout are also native to the Yakima River. The non-native eastern brook trout was observed (AESI 1999) in high densities in the Cle Elum River side channels during past surveys. Sculpins, mountain whitefish, and dace were other common species in the area. Numerous side channels to the Cle Elum River seasonally supported a high abundance of salmonids and were critical to maintenance of both resident and anadromous fish populations.

The Cle Elum Dam, located upstream of the UGA and MountainStar (now Suncadia) properties, was built without fish passage facilities. Since dam construction was finished in 1933, it has been a complete barrier to upstream fish migration. Before construction, sockeye salmon were known to migrate into the Upper Cle Elum drainage.

Endangered, Threatened, Sensitive, and Other Priority Fish Species

Information on threatened, endangered, sensitive, and other priority fish species from the Cle Elum UGA Draft EIS was summarized from the Water Intake Structure Modifications on the Cle Elum and Yakima Rivers Biological Evaluation, Draft Report (Fisher and McArthur 2000). Fish species with Washington State or federal status at the time the original EIS was prepared that may use or have used the UGA property are listed in Table 3.7-2 of the Draft EIS (City of Cle Elum 2001).

USFWS, WDFW, and Natural Heritage Program database searches were conducted for the Cle Elum and Yakima rivers. Fish species with federal status under the Endangered Species Act (ESA) included bull trout and Middle Columbia River steelhead. Columbia River chum salmon was also included, but this stock was limited to the lower 300 km of the Columbia River and was not in the Yakima system, nor was the system considered critical habitat for chum. Development on Trendwest properties within the Cle Elum UGA would have no significant impact on Columbia River chum salmon.

Bull trout were thought previously to be fluvial (migrating as adults between the Yakima River mainstem and upper tributaries) and to occur in the Yakima River above and below the confluence with the Cle Elum River. The WDFW had not documented bull trout in the Cle Elum River below the Cle Elum Dam.

At the time of the previous Final EIS (City of Cle Elum 2002), small numbers of steelhead used the upper Yakima River. Tagging studies between 1989 and 1993 documented three steelhead out of 109 tagged above the Roza Dam, and none was recorded in the Cle Elum River.

3.2.2 Current Study

On the 47° North site, the Cle Elum River and associated riparian area remains in similar condition as recorded in previous studies. As a Shoreline of the State, the Cle Elum River requires a 150-foot buffer under the City of Cle Elum (2016) Shoreline Master Program (SMP). The river is designated as a "Natural" Shoreline through the site. Under the SMP, the shoreline jurisdiction encompasses the river, the associated wetlands, the floodway, and extends into the contiguous 100-year flood plain 200 feet landward from the floodway. Other than the wetlands, no other surface drainages were found to occur on the project site during our 2019 investigations of the site.

Endangered, Threatened, Sensitive, and Other Priority Fish Species

Based on the WDFW (2019a) database, salmonid fish species, including Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), bull trout (*Salvelinus malma*), rainbow trout (*Oncorhynchus mykiss*) and steelhead trout (*Oncorhynchus mykiss*), all are known to occur in the Cle Elum River. These species are all also indicated on WDFW Salmonscape (2019b) maps. Of these species, only the bull trout and Middle Columbia River steelhead trout are listed as threatened species. Middle Columbia River (which includes this project area) spring Chinook are not listed as threatened or endangered (although both Lower and Upper Columbia River runs of Chinook salmon are listed). Columbia River chum salmon remain listed as threatened, but as report in the previous EIS (City of Cle Elum 2001, 2002), they only occur in the lower Columbia River and are not in the Yakima River or its tributaries.

Bull Trout (Salvelinus confluentus)

Bull trout were listed as a threatened species by the USFWS on November 1, 1999, and critical habitat was designated by the USFWS on September 26, 2005. Under the ESA listing, the USFWS assumes that bull trout are present in suitable habitat in Kittitas County waters unless proven otherwise. However, their numbers in the upper Yakima River and Cle Elum are very small (Mr. Alex Conley, Yakima Basin Fish and Wildlife Recovery Board, personal communication, March 27, 2020).

The current status of bull trout life history and numbers are summarized by the WDFW (2020) as follows:

> *Although fluvial bull trout/Dolly Varden are present in the mainstem of the upper Yakima River, they are infrequently encountered. Most bull trout/Dolly Varden that inhabit the upper Yakima River are likely fish that outmigrate from upper river tributaries and juvenile or sub-adult fish that are flushed out of upper river reservoirs during irrigation water releases. Fluvial bull trout/Dolly Varden grow and mature in the mainstem and then migrate during the late summer into upper tributaries to spawn.*

Steelhead Trout (O. mykiss)

Middle Columbia River steelhead trout (including the resident form rainbow trout) were listed as Threatened in1999 with listings affirmed again in 2006 and 2012 (Northwest Fisheries Science Center 2015) and critical habitat has been designated in the Cle Elum and Yakima Rivers. Steelhead populations in the upper Yakima and Cle Elum Rivers have seen significant increases in recent years due to improved fish passage in key steelhead tributaries, extensive habitat restoration and improved river flow management (Mr. Alex Conley, Yakima Basin Fish and Wildlife Recovery Board, personal communication, March 27, 2020).

Juvenile steelhead (and other salmonids) remain a limiting factor for improvement of populations due to loss of side channel habitat. Recent habitat restoration projects near the project site have added new juvenile rearing side channel habitat (Ms. Elizabeth Torrey, WDFW, personal communication March 27, 2020).

Other Salmonid Fish Species

Middle Columbia River Spring Chinook salmon are not a federally listed species; however, the Cle Elum River remains a primary spawning area but numbers are declining in recent years (personal communication Mr. Alex Conley, Yakima Basin Fish and Wildlife Recovery Board 3/27/20).

Since the previous EIS (City of Cle Elum 2001, 2002), coho salmon have begun to be reintroduced with a new coho facility recently being started. Goals for the facility are to

support returning runs of approximately 20,000 adults. These runs are also aimed to develop runs in Cle Elu lake once the fish passage facilities there are complete.

Sockeye salmon formerly existed in the upper lakes and tributaries of the upper Yakima River. A reintroduction program has begun in Cle Elum Lake, with recent stocking of the lake and construction of a fish passage facility to allow both upstream and downstream migration. Self-sustaining sockeye runs are estimated to develop in possibly 20 years.

3.3 PLANTS & ANIMALS

3.3.1 Vegetation

2002 EIS

As discussed in the UGA Draft EIS from previous studies, the UGA property lay within the Douglas fir zone as described by Franklin and Dyrness (1973) and was characterized by dry Douglas fir (*Pseudotsuga menziesii*) vegetation associations. Upland cover types identified in the project site include ponderosa pine forest, early successional ponderosa pine forest, mixed coniferous forest, mixed coniferous/deciduous forest, deciduous forest, and mixed shrub/grassland communities. Most of the site had been logged during the last century. The majority of forested stands within the property were second- or third-growth regeneration. In addition, most of the conifer stands in the UGA had been selectively thinned (typically by 50 to 75%), resulting in an open forest canopy. These vegetation cover types are described in detail in the UGA Draft EIS (City of Cle Elum 2001). A comprehensive list of plant species observed in the Cle Elum UGA and the results of the vegetation surveys are included in Appendix E of the 2001 Draft EIS.

The property was open to unauthorized use and trespass. Roads and trails that traverse the site were heavily used by motorcycles, all-terrain vehicles, and snowmobiles. As a result, the area showed signs of disturbance related to erosion, unauthorized dumping, and off-road vehicle travel (Raedeke Associates, Inc. 1999a).

Endangered, Threatened, Sensitive, and Other Species of Concern

A variety of endangered, threatened, sensitive, or other plant species of concern by the USFWS or Washington DNR at the time were listed as potentially occurring on the property or in the surrounding area and described in the UGA Draft EIS and associated appendices (City of Cle Elum 2001). Of those, the USFWS indicated the potential for Wenatchee Mountain checker-mallow (*Sidalcea oregana* var. *calva*) and Ute ladies' tresses (*Spiranthes diluvialis*) to occur in the UGA property. Wenatchee Mountain checker-mallow was proposed for federal listing as endangered and Ute ladies' tresses was listed as a federal threatened species. Neither species was found during extensive field investigations on site at the time. Utes ladies' tresses is a perennial orchid that

typically occurs above 5,000 feet elevation in wetland and riparian areas, well above the elevation of the project site, which is below 3,000 feet. Wenatchee Mountain checker-mallow typically occurs in wet meadows and riparian areas, and occasionally occurs in sagebrush. No sagebrush habitat occurs in the project site, and wetland and riparian areas would be protected under the propose site plan.

Current Study

Currently, the 47° North site and contiguous 25-acre Suncadia property remain largely undeveloped, vacant land. The site is mostly covered by second and third growth forests; grassland with scattered shrubs are present in the two Puget Sound Energy (PSE) electrical transmission line easements that pass through the site. Horseback riding, hiking, and snowmobiling occur on dirt roads throughout the site; easements are in place for use of the site and certain trails by the Horse Park, which is located immediately to the south. A few equestrian facilities, such as a small building, parking area, and load/unload areas, are located onsite.

Our 2019 field investigations of the 47° North project area led to the slight refinement of these vegetation communities, identifying 9 upland vegetation communities. These include mixed conifer forest-open canopy, mixed conifer forest-open canopy (thinned), Douglas-fir dominant coniferous forest – closed canopy, Ponderosa pine dominant coniferous forest – closed canopy, Ponderosa pine dominant coniferous forest – closed canopy (thinned), mixed deciduous forest, mixed deciduous and coniferous forest, mixed conifer forest – early successional, and herbaceous & scattered shrubs/saplings. Table 2 summarizes the relative percentages of vegetative cover types within the 47° North project area, and Figure 3 depicts the boundaries of each habitat type within the 47° North project area. Descriptions of each vegetation cover type, which consist of essentially the same composition as described in previous studies, are outlined below.

Mixed conifer forest-open canopy: (Fc-c). These stands are dominated by at least 90% coniferous tree species in the overstory. The dominant species in these stands are ponderosa pine *(Pinus ponderosa)* and Douglas fir with quaking aspen *(Populus tremuloides),* western larch *(Larix occidentalis),* and black cottonwood *(Populus balsamifera)* scattered throughout. In some stands, grand fir *(Abies grandis)* and western red cedar *(Thuja plicata)* make up a significant proportion of the overstory. Overall growth is denser than type Fc-ct stands. This cover type is primarily found in the southwestern portion of the 47° North project area, adjacent to I-90, bullfrog road, and the Cle Elum River.

Mixed conifer forest-open canopy (thinned): (Fc-ct). These stands are also dominated by at least 90% coniferous tree species in the overstory. They have a similar species composition to the Fc-c type stands, apart from thinning timber-harvesting practices, which have created an open overstory canopy in these stands. Trees range in size from 8 to· 24 inches in diameter at breast height (dbh). Shrub species that dominate the

understory include oceanspray *(Holodiscus discolor),* snowberry *(Symphoricarpos a/bus),* rose *(Rosa* sp.), beaked hazelnut *(Cory/us cornuta),* vine maple *(Acer circinatum),* and western serviceberry *(Amelanchier alnifolia).* Ground cover includes primarily bracken fem *(Pteridium aquilinum),* Cascade Oregon grape *(Mahonia nervosa),* and perennial wildflowers. This cover type is widespread throughout the project area.

Douglas-fir dominant coniferous forest – closed canopy: (Fc-f). This cover type has similar characteristics to Fc-ct stands, with the primary difference being the dominant tree species is Douglas-fir. Relatively little of the project area is characterized by this cover type.

Ponderosa pine dominant coniferous forest – closed canopy: (Fc-p). This cover type has similar characteristics to Fc-ct stands, with the primary difference being the dominant tree species is Ponderosa pine. These areas are characterized by more closed canopy cover and sparser understory. This cover type is found on the steeper slopes northeast of Wood Duck road, and North of the powerline ROW.

Ponderosa pine dominant coniferous forest – closed canopy (thinned): (Fc-pt). This cover type has similar characteristics to Fc-p stands, apart from thinning timber-harvesting practices, which have created an open overstory canopy in these stands. Trees in these stands are Ponderosa pine that range in size from 8 inches dbh to more than 24 inches dbh. Shrub species that dominate these stands include blue elderberry (Sambucus caerulea), snowberry, bitterbrush (*Purshia tridentata*), vine maple, and rose. Ground cover consists of bare ground, mixed grasses, and annual and perennial herbaceous species. This is one of the most prevalent cover types throughout the project area.

Mixed deciduous forest: (Fd). This cover type is dominated by 90 to 100% deciduous trees and occurs entirely in the riparian area along the Cle Elum River. The dominant species include red alder, black cottonwood, bigleaf maple, willow, paper birch *(Betula papyrifera),* and quaking aspen.

Mixed deciduous and coniferous forest: (Fm). This cover type occurs entirely in the riparian area along the Cle Elum River. Overstory vegetation consists of mixed deciduous and coniferous tree species. Common tree species that occur in this cover type include Douglas fir, black cottonwood, ponderosa pine, big-leaf maple *(Acer macrophyllum),* and grand fir. Common shrub species include oceanspray, snowberry, and willow *(Salix* sp.).

Mixed conifer forest – early successional: (Fs-c). These stands are also dominated by at least 90% coniferous tree species in the overstory. However, this cover type is characterized by less mature trees and a more established shrub layer. These stands also have occasional large remnant trees left from previous logging activity. This cover type is primarily found in the central portion of the 47° North project area.

Herbaceous & Scattered Shrubs/Saplings: (ROW). Managed shrubs and dry grassland within the 47° North project area are present along the electrical transmission corridors. Shrubs and low trees are distributed in patches across these areas. Dry grasslands are dominated by native and exotic grass species including quackgrass *(Agropyron repens)*, wheatgrass *(Agropyron* sp.), European beach grass *(Ammophila arenaria)*, orchardgrass *(Dactylis glomerata)*, wild oat *(Avena fatua)*, wild rye *(Elymus glaucus)*, and Idaho fescue *(Festuca idahoensis)*. The transmission corridors also include bare ground such as maintenance roads and other areas disturbed by off-road-vehicle use.

City of Cle Elum / Priority Habitats and Critical Areas Observed On-Site

Critical areas identified in the City of Cle Elum (2019) Critical Areas Ordinance include wetlands, riparian corridors, fish and wildlife conservation areas (including those outlined in the WDFW PHS list), frequently flooded areas, and geologically hazardous areas. The following is an update to the summary provided in the 2002 Final EIS of WDFW priority habitats located in the 47° North project area.

Edge habitats between different vegetation communities are a special habitat feature used by a variety of wildlife species. The most distinct edge habitat in the 47° North project area is still located between the wetland, riparian, and forested vegetation communities.

Snags and downed woody material provide nesting, feeding, and roosting habitat for a variety of wildlife species, including raptors, woodpeckers, amphibians, reptiles, and small mammals. Most snags in the 47° North project area are located within the riparian, wetland, and steeply sloped areas; however, during the 2019 field investigations Raedeke biologists did note dispersed occasional snags occurring throughout the project area. The highest concentration of snags in the upland habitats remains in the steeply sloped areas.

Instream habitat is valuable for a variety of fish and wildlife, including invertebrate, amphibian, fish, bird, and mammal species that have evolved aspects of their respective life cycles in conjunction with instream resources. Instream habitat in the 47° North project area includes the Cle Elum River, which still provides quality habitat features for many salmonid species.

Riparian habitat encompasses the area beginning at the ordinary high water mark and extends to the portion of the terrestrial landscape that is influenced by, or that directly influences, the aquatic system. Riparian habitat includes the entire extent of the floodplain and riparian areas of wetlands, which are directly connected to stream courses (WDFW 2019a). New wetlands have been identified in Raedeke Associates' 2019 investigations of the 47° North project area and are outlined in detail in that respective section of this report.

Endangered, Threatened, Sensitive, and Other Species of Concern

As in previous studies, none of the plant species listed as endangered, threatened, sensitive, or other species of concern were found to occur on site during our 2019 field studies.

3.3.2 Wildlife

2002 EIS

The UGA Draft EIS (City of Cle Elum 2001) described priority habitats and critical areas in the UGA property that are identified as having significant value to wildlife species. It also identified existing wildlife species that were either observed or are likely to use the UGA, and discussed federal and state endangered, threatened, sensitive, and other priority species.

The UGA Draft EIS summarizes the variety of wildlife species observed during field surveys (Raedeke Associates, Inc. 1999a) and species likely to occur in the UGA project site based on their known occurrence in similar habitats within the state of Washington at the time. A comprehensive list of wildlife species observed in the UGA property, or known to occur in similar habitats in Washington State, was provided in Appendix E of the Draft EIS (City of Cle Elum 2001).

Endangered, Threatened, Sensitive, and Other Species of Concern

Elk. Elk use of the Cle Elum UGA property and surrounding vicinity was determined by information gathered from existing WDFW databases, radio-telemetry studies, and field surveys. Information on herd size, behavior, and forage species reflects field surveys performed from 1995 to 1999 by Plum Creek Timber, IES Associates, and Raedeke Associates, Inc. (Raedeke Associates, Inc. 1999a). Figure 4 shows elk distribution in Upper Kittitas County based on previous studies.

Elk are considered a significant resource. They are regarded for their intrinsic wildlife value, as well as for their status as a big game species. WDFW considers elk a priority species. The herd that uses the UGA property winters along the Cle Elum and Yakima rivers and east to the Teanaway River. This herd was (and still is) a subherd of the Colockum elk herd, which historically ranged between the Columbia River and the Cascade crest. Population estimates of this sub herd at the time of the previous studies ranged between l00 and 200 animals (IES 1997).

Cover is an important component of elk wintering and calving habitat. Elk are grazers and concentrate browsing activity on shrubs and small-stature trees when grasses are not available. Elk rely on river bottom, floodplain, riparian, and forested upland habitats for wintering, calving, and migration.

As described in the Draft EIS, elk use of the UGA property was highest between November and April. Elk concentrate in the area of the Cle Elum River, and numbers and use increase with snow accumulation. As snow began to melt in early spring, elk moved to higher elevations to the east and northeast and to the south-facing slopes of Easton Ridge (Raedeke Associates, Inc. 1999a). Elk use of the UGA property was limited during the summer months because elk move to higher elevations. Elk were foraging on blue elderberry, red-osier dogwood, oceanspray, willow, beaked hazelnut, and serviceberry, which occurred throughout the UGA. Table E-6 in Appendix E of the Draft EIS (City of Cle Elum 2001) lists plant species browsed by elk during field surveys conducted in 1996-1997 (IES 1997).

Unauthorized supplemental feeding of elk during the winter months was observed near Bullfrog Road near the powerline right-of-way. Concentrations of up to 67 animals were reported near this feeding station (IES, unpublished data, 1997); In 1998, an unauthorized feeding station was located near Bullfrog Pond. These stations not only influenced elk movement across the UGA, but they also concentrated animals in areas where the species typically would not congregate. This could dispose the animals to disturbance and/or harassment. In the past, WDFW allowed seasonal sport hunting of elk on the Cle Elum UGA property. The UGA property has been closed for hunting since 1998.

Protected Wildlife Species: The Draft EIS (City of Cle Elum 2001) provided a description of all federally listed threatened, endangered, or proposed wildlife species that were identified by USFWS and/or WDFW as likely to occur in the UGA property or vicinity. Species identified by USFWS and/or WDFW as likely to occur in the UGA property that were not protected under ESA (federal candidate or species of concern status; state threatened, endangered, candidate, sensitive, monitor, or priority game status) were described in Appendix E of the Draft EIS (City of Cle Elum 2001), Plant and Animal Species with Federal and/or State Status. In addition, a description of habitats and the likelihood of occurrence within the UGA property of all species with federal and/or state status are presented in Appendix E of the Draft EIS. The Draft EIS provided a list of all wildlife species with federal and/or state status at the time identified by USFWS and/or WDFW as likely to occur in the UGA property or surrounding area.

Federally listed species at the time included the bald eagle and northern spotted owl. Bald eagles, then listed as a federal threatened species, were known to winter along the Cle Elum, Yakima, and Teanaway Rivers, and winter concentration areas were documented approximately 1 mile south of the UGA property along the Cle Elum and Yakima Rivers. No nests were known to occur within the UGA property, but a nest was known to occur along the shore of Cle Elum Lake (IES 1997, Raedeke Associates, Inc. 1999a). Bald eagles have since been de-listed by the USFWS and WDFW, but are still protected under the federal Bald and Golden Eagle Protection Act.

The northern spotted owl, a federal threatened species, typically uses old-growth conifer forest habitat, but may also use a wider range of forested types in the eastern Cascades.

The edge of a spotted owl management circle (1.8-mile radius) was located at the time of previous studies approximately 2 miles north of the UGA property (Section 9, T20N, RISE). Spotted owl breeding sites and management circles were numerous within forestlands of the Ronald, Cle Elum Lake, Kachess Lake, Teanaway Butte, and Easton quadrangles (Raedeke Associates, Inc. 1999a). However, preferred spotted owl habitat-where Douglas fir dominates the stands and canopy closure is dense enough to be conducive to owl use-was not found within or in the immediate vicinity of the UGA.

For the Final EIS (City of Cle Elum 2002), Shapiro and Associates, Inc. contacted the USFWS and WDFW in October 2001 to identify any changes or omissions in the wildlife species addressed in the Draft EIS. USFWS adjusted the status or the geographic range of five wildlife species that were not previously identified in the Draft EIS. Table 3.6-3 in the Draft EIS presents a list of all wildlife species with federal and/or state status that were identified at that time. The additional five wildlife species are listed in Table 3.6-2 in the Final EIS.

Current Study

A general summary of the conditions on the 47° North site and adjacent 25-acre property with respect to wildlife habitat is presented below. A summary of each wildlife species of concern and their current regulatory status (as indicated on various databases) and potentialto occur within the project area is outlined at the end of this section.

WDFW PHS Map

The WDFW (2019a) PHS database depicts 14 "species of concern" (i.e., state endangered, threatened, sensitive, or candidate) within the 47° North site boundaries (Appendix A). These species include Columbia spotted frog (*Rana luteiventris*), elk (*Cervus elaphus Canadensis*), gray wolf (*Canis lupus*), northern goshawk (*Accipiter gentilis*), Northern spotted owl (*Strix occidentalis*), pileated woodpecker (*Dryocopus pileatus)*, sharp-tailed snake (*Contia tenuis*), Townsend's big-eared bat (*Corynorhinus townsendii)*, and wood duck (*Aix sponsa*).

The WDFW (2019a) PHS map (Appendix A) depicts a large area (shown in purple) of "regular concentration" of elk, a WDFW [2008, 2019a] species of recreational, commercial, and/or tribal importance, within the project boundary. As noted in previous studies, the elk herd found on the 47° North and Suncadia Resort sites is a subherd of the Colockum elk herd which historically ranged between the Columbia River and the Cascade crest. A detailed description of the herd history is given in Raedeke Associates, Inc. (1999a). Population estimated of this subherd ranges from 100 to 200 animals. WDFW reports that with liberal hunting seasons the overall Colockum herd is now declining in numbers. They contend that the Colockum herd is limited by hunting seasons and summer range and not winter range that might be found on the 47° North site (WDFW 1997 and 2018). However, hunting is prohibited on the 47° North site as well

as the adjacent Suncadia development, and winter forage conditions may be more limiting for this elk subherd.

The City of Cle Elum (2019) critical areas regulations provide for protection of WDFW-designated priority habitats and species as one type of fish and wildlife conservation areas. The project site and areas to the north are shown as a "regular concentration" area for elk (WDFW 2019a, b). Based on a combination of radio-telemetry data and direct observations, Raedeke Associates, Inc. (1999) identified the winter range of elk within the 47° North area to be primarily the riparian corridor of the Cle Elum River. Distribution of radio-collared elk is shown in Figure 4, which was included in the 2001 Draft EIS.

Within the 47° North site, elk use has been documented to be concentrated in the river corridor and associated riparian areas and wetlands (RAI 1999, City of Cle Elum 2002). Field reconnaissance of the site in October 2019 by Raedeke Associates, Inc. staff observed most evidence of elk use in these areas. We did observe widely scattered elk sign (pellet groups) in the uplands forests as well as some bedding sites and rubbing on young trees. These areas are used by elk both in the summer and winter.

Both the Columbia spotted frog and sharp-tailed snake are listed as Washington State Priority Species and State Candidate Species. The sharp-tailed snake is also listed as federal species of concern. Both the WDFW PHS map and Elizabeth Torrey at WDFW (personal communication 2020) confirmed occurrences of these species immediately adjacent to the project site. It is possible that these species are utilizing this site, especially in the open space areas near the Cle Elum River and within the wetland areas found on-site.

Both species are associated with wetter soils as well as streams, rivers and ponds. We did not encounter either of these species during our 2019 field investigation.

No other terrestrial species of concern are mapped (WDFW 2019a) as occurring on the project site. There are no other priority wildlife species or habitats mapped (WDFW 2019a) within approximately 2,000 feet of the 47° North site.

Federal Databases

Information regarding endangered and threatened species to address in this document was compiled from agency web sites (WDFW 2019a, b, USFWS 2019; NOAA Fisheries 2016, 2019).

The USFWS (2019) list of threatened and endangered species for the project area includes the Canada Lynx (*Lynx canadensis*), gray wolf, North American wolverine (*Gulo gulo luscus*), marbled murrelet, northern spotted owl, yellow-billed cuckoo, and bull trout, as well as final designated critical habitat for bull trout.

Since the publication of the 2002 Final EIS there have been a number of changes to the listing statuses of threatened and endangered species. Table 3 outlines a complete list of endangered, threatened, proposed, candidate, species of concern, and sensitive animal species identified by federal and state agencies as potentially occurring in the 47° North site vicinity as of December 2019. Any changes in listing status of these species since the release of the final EIS in 2002 are highlighted in the table. Species that have been up-listed (more stringent regulations) are highlighted in yellow, species that have been down-listed (less stringent regulations) are highlighted in green.

Gray Wolf (Canis lupus). In 1973, under provisions of the federal Endangered Species Act (ESA), gray wolves (*Canis lupus*) were classified as an endangered species in Washington. In 2011, wolves in the eastern third of Washington were removed from federal protections under the ESA. Wolves in the western two-thirds of Washington continue to be protected under the ESA and are classified as an endangered species under federal law. At present, wolves are classified as an endangered species under state law (WAC 220-610-010) throughout Washington regardless of federal classification. The state has been divided into three recovery areas: Eastern Washington, the Northern Cascades, and the Southern Cascades and Northwest Coast. All the known packs in Washington occur within the Eastern Washington and North Cascades recovery areas. Further, any occurrence of the gray wolf is considered a Priority Area in Washington (WDFW 2008). The 47°N project footprint is within this western two-thirds area and therefore any wolves observed within the project area would fall under regulations of the Endangered Species Act.

The gray wolf is now restricted to scattered populations in Alaska, Minnesota, Michigan, Wisconsin, Montana, Idaho, and Washington. Habitat requirements for gray wolf include an adequate prey base, denning and rendezvous sites, travel corridors, minimal human disturbance, and a large home range containing hundreds of acres of undisturbed, forested habitat (Boise National Forest 1981). Wolves prefer tundra and forested habitat, and normally feed on large mammals, such as deer, elk, and moose, and small mammals including mice. Sightings in Washington in the last two decades suggest that gray wolves may be recolonizing the Cascade Mountains, likely from populations in Canada. Although the habitat in the 47° North site is mostly forested and potential prey species are prevalent, the forest is fragmented with dirt roads and trails and, in the past, has been subject to year-round recreational activity. Wandering adult gray wolves are present within the region and their population may be increasing. The most recent occurrence of gray wolf listed in the WDFW (2019a) PHS map in the vicinity of the 47°N project site is a polygon approximately 2 miles to the southwest of the project area where an occurrence of gray wolf was listed in 1996. More recent sightings have been recorded within several miles of the project site (e.g., near Easton and Cle Elum Ridge; WDFW 2019c).

The nearest documented wolf packs are the Teanaway and Naneum packs, which are approximately 2.5 miles NE and 14 miles ENE, respectively (WDFW, 2019c, d). It is

possible that occasionally dispersing or foraging individuals could utilize the 47°N site and its associated elk herds, but the core range of neither of these packs extends onto the the 47°N project site.

***Northern Spotted Owl (Strix occidentalis caurina*).** USFWS lists the northern spotted owl as a threatened species, and the state of Washington lists it as endangered. The northern spotted owl typically uses old-growth conifer forest habitat, but may also use a wider range of forested types in the eastern Cascades. The edge of a spotted owl management circle (1.8-mile radius) is located approximately 2 miles north of the 47°N site (Section 9, T20N, Rl5E), but no owl circles extend onto the project perimeter. Spotted owl breeding sites and management circles have been numerous within forestlands of the Ronald, Cle Elum Lake, Kachess Lake, Teanaway Butte, and Easton quadrangles (Raedeke Associates, Inc. 1999a). However, spotted owls are now experiencing rapidly declining numbers (Dugger et. al., 2016), and as a result, many spotted owl site circles that were historically occupied consistently in the early 90's, including those around the 47°N site may now be unoccupied and could have been potentially unoccupied for many years. Preferred spotted owl habitat-where Douglas fir dominates the stands and canopy closure is dense enough to be conducive to owl use-is not found within or in the immediate vicinity of the 47°N site. Site visits in 2019 did not find any changes to the site that would indicate this habitat is now present.

North American Wolverine (Gulo gulo luteus). In 2013, the USFWS proposed threatened status for the North American wolverine, but the proposed rule was withdrawn in 2014 (Federal Register 2013, 2014d). Any area with a confirmed occurrence of wolverine is considered a priority area in Washington State (WDFW 2008). Although indicated as proposed threatened and as potentially occurring within the project area vicinity in Kittitas County by the USFWS (2019), the North American wolverine has not been regularly documented within Kittitas County, particularly within lower elevations or the developed areas. Recent sightings of wolverines in Washington include the southern Washington Cascades (WDFW 2019e; Conservation Northwest 2019). However, established populations in Washington have been documented only in the North Cascades and northeastern Washington (Aubry et al. 2007, 2016), and the existence of a breeding population farther south in the Washington Cascades and foothills has not yet been determined (WDFW 2019d). Wolverines are generally associated with alpine vegetation and climatic conditions (Aubry et al, 2007). Habitat characteristics observed during our October 2019 field visit do not indicate likely presence of wolverines or their associated denning habitat. Due to existing human disturbance at areas adjacent to the 47°N project location and the general lack of alpine-type habitat and climate, we would not expect wolverines to be present at this project location.

***Marbled Murrelet (Brachyramphus marmoratus*).** Marbled murrelets have been known to occasionally occur in Kittitas County throughout the year (Smith et al. 1997, WDFW 2019a). They typically occur in many areas of western Oregon and Washington where suitable forested habitat occurs within approximately 50 miles of Puget Sound

or the Pacific Ocean (Hamer and Cummins 1991). The marbled murrelet forages almost exclusively in the nearshore marine environment (mainly within a few miles of shore) but flies inland to nest in mature and old growth conifer forests (Ralph et al. 1995). Nest trees are typically large-diameter conifers (32 inches in diameter at breast height or larger) found in inland forest stands, with large-diameter limbs. Nest stands in Oregon and Washington are typically composed of low-elevation conifers with average sizes of 19 inches diameter at breast height, multiple canopy layers, overstory canopy height of 210 feet, and canopy closure of 56%. Average nest stand age is 641 years, and the average stand size is 996 acres (Federal Register 1992).

However, the lack of old, multi-layered forest on the site or in the vicinity and the urbanizing, lowland setting – along with its relative distance from pelagic/inshore foraging areas – make it highly unlikely that this species would occur in the project area. Data from the PHS database maintained by WDFW (2019a) provide no records of known breeding sites or occurrences of murrelets within at least several miles of the project site. The stands of trees within the site or vicinity are generally too young with branches that are not large enough to provide suitable breeding sites for this species for nesting. Potential marbled murrelet habitat has been described as mature coniferous forest, coniferous forest with an old-growth component, old-growth forest, or younger coniferous forests that have deformations or structures suitable for nesting. We did not observe any suitable habitat, nor any individuals during our October 2019 field investigations. Based on all these factors, we do not expect this species to be present within the project site or vicinity.

Western yellow-billed cuckoo (Coccyzus americanus). In October 2014, the U.S. Fish and Wildlife Service listed the western distinct population segment (DPS) of the yellow-billed cuckoo as a threatened species (Federal Register 2014b). In western North America, the yellow-billed cuckoo typically occupies forested streamside habitat, particularly where dominated by willows and cottonwoods that form open woodlands with dense, low vegetation; they are generally absent from large, urban areas and dense forests (Seattle Audubon Society 2019). Yellow-billed Cuckoos apparently have been extirpated as a breeding population in Washington, with only occasional sightings over the last 20 years (Seattle Audubon Society 2019; Smith et al. 1997). They are not currently listed as occurring in Kittitas County on the WDFW (2008, 2019a) PHS distribution map, although have been detected in the vicinity of Cle Elum before 1950 (Wiles and Kalasz, 2017).

This species is associated with deciduous habitat that has dense shrubby vegetation, open canopy cover, and is especially associated with rivers, streams, and wetlands (Hughes 2015). They typically breed in riparian areas with deciduous forests typically 25 to 100 acres in area (Stokes and Stokes 1996). Some areas of the project site, such as the deciduous forest cover adjacent to the Cle Elum River in the southwest portion of the site, have habitat that appears suitable for Yellow-billed cuckoos; however, there have been no confirmed detections of yellow-billed cuckoos in recent years according to the

WDFW (2019a) PHS map.

Grizzly Bear (Ursus arctos horribilis). Grizzly bears require large tracts of undisturbed, forested habitat (Ingles 1965). Grizzly bears currently occupy the Selkirk Mountain Range in the northeastern corner of Washington but are not currently known to occupy the North Cascades Ecosystem in north-central Washington (i.e., the North Cascades Recovery Zone) (Lewis 2019). The 47°N project location is outside of the defined recovery zone for grizzly bear. No key grizzly bear areas, including den sites, are likely within the study area (Wenatchee National Forest 1997, Lewis 2019). According to the WDFW (2019a) database, grizzly bears have not been documented within 2 miles of the 47°N project location. Grizzly bears avoid areas with human activity. Because of the fragmented, forested habitat and high human activity, grizzly bears are not expected to use the immediate vicinity of the 47°N project location.

Canada Lynx (Lynx canadensis). Canada lynx occur in mesic coniferous forests that have cold, snowy winters, and tend to use habitats where snowshoe hares are most abundant (Ruggiero et al. 2000). Lynx generally occur in favorable habitats above 4,000 feet in elevation (Koehler and Britten 1990). In Washington, lynx denning sites are typically in lodge-pole pine, spruce, and subalpine forests more than 200 years old, with northern and northeastern aspects, and a high density of downed logs (Koehler 1990). Lynx have been observed (by snow tracking) avoiding large openings, either natural or created, during daily movements within their home range (Ruediger et al. 2000). They are considered moderately tolerant of human disturbance and even continued presence (Mowat et al. 2000). According to the WDFW database, lynx have not been documented within 2 miles of the 47°N project location. Because of the fragmented, forested habitat, elevation below 4,000 feet, and high human activity, Canada lynx are not expected to use the immediate vicinity of the 47°N project location. Observations during the October 2019 investigation found no indication there was suitable habitat at the project location.

Wildlife Observed On-Site

During our October 22, 2019 field investigations Raedeke biologists directly observed, or observed the signs of 20 wildlife species, including 17 bird species and 3 mammal species. Table 4 summarizes these observed wildlife species.

All species observed during the 2019 field investigations, with the exception of two species had been observed during prior investigations of the 47° North project vicinity and were included in Table B1.1 of Appendix E of the 2001 Draft EIS. White-breasted nuthatches and varied thrushes were previously unobserved on the 47° North project vicinity, but both are common year-round residents of Kittitas County. No other species were observed during our 2019 field investigations.

4.0 IMPACTS

This discussion of probable impacts of the Proposed Action and alternatives is based on our field surveys, review of available literature, as well as information provided by project consultants. Two alternatives are under consideration and are compared to the FEIS Alternative 5 (Original Bullfrog Flats Master Site Plan) from the 2002 Final EIS:

- ***SEIS Alternative 6 – Proposed 47° North Master Site Plan Amendment***: SEIS Alternative 6 represents the Applicant's proposed revisions to the approved Master Plan, and includes phased development of a mix of residential, RV resort, and open space/recreational facilities on the 824-ac. project site (Figure 5). A 25-ac property adjacent to the site could be developed in commercial uses in the future.

- ***SEIS Alternative 5/No Action – Approved Bullfrog Flats Master Site Plan***: According to SEPA, "No action" does not necessarily mean that nothing (no development) would occur on the site. This alternative is typically defined as what would most likely happen if the proposal did not occur. Given that there is an approved Master Plan for the site, the No Action Alternative studied in this SEIS represents development of that Plan (Figure 6), which was revised somewhat from Alternative 5 from the 2002 Final EIS ("FEIS Alternative 5," Figure 7). Both SEIS Alternative 5 and FEIS Alternative 5 include development of a mix of residential and employment uses, open space/recreational facilities, and future development areas on a 1,100-ac. site (Figures 6 and 7).

Detailed descriptions of each alternative may be found in the Draft SEIS text. Table 5 provides a summary comparison of the land use breakdowns under each SEIS alternative, along with those under FEIS Alternative 5 (Original Bullfrog Flats Master Site Plan). The probable impacts of each of these alternatives on the plant and animal communities of the property are discussed in the following sections.

Both alternatives involve aspects of urbanization. The process of urbanization will affect the existing plant and animal communities in three ways: (1) direct changes in and loss of the habitats available; (2) increase in human use and disturbance associated with the roadway; and (3) potential for changes in the hydrologic characteristics of the site, with potential for impacts to wetland and riparian communities (both plants and animals).

Urbanization is a process of habitat alteration that changes the characteristics of the plant communities and the habitat available for wildlife. The major features of urbanization include loss of vegetation, isolation or fragmentation of remaining vegetation patches, replacement of native vegetation with ornamental species, removal of snags and downed logs, potential for increase in the use of pesticides, insecticides, and herbicides, the presence of "super" predators (domestic dogs and cats), and increased noise and other disturbance factors (Thomas et al. 1974, Penland 1984, Adams et al. 1985).

4.1 SEIS ALTERNATIVE 6 – PROPOSED 47° NORTH MASTER SITE PLAN AMENDMENT

As noted above this alternative (hereafter, "SEIS Alternative 6") would involve development of a mixture of residential uses, including single-family, multifamily, and an RV resort area, along with recreational facilities on an approximately 824-acre site. As with FEIS Alternative 5 and SEIS Alternative 5, this alternative includes designation of an approximately 12-acre site in the northeastern part of the property between Bullfrog Road and the powerline corridor (Figure 5) for future development of a public municipal recreation center (no development of this site is proposed at this time, and additional SEPA review will be required when specific development is proposed).

This alternative differs from the Original Bullfrog Flats Master Site Plan (FEIS Alternative 5) and the Approved Bullfrog Flats Master Site Plan (SEIS Alternative 5) in that the single-family housing would be manufactured housing, the addition of RV resort uses, and that no commercial development is included in the Master Site Plan Area (the 25-acre area designated for commercial development is not part of the SEIS Alternative 6 area, but is included in the analysis for the SEIS). The FEIS Alternative 5 and the adopted Master Plan also include a much larger area for commercial development. Also, this alternative does not include the areas on which the Washington State Horse Park, public school expansion, and the wastewater treatment plant and maintenance area have since been built.

The total number of residential units under this alternative would be the same as under SEIS Alternative 5 and FEIS Alternative 5 (1,334), but a substantial portion of these would be in the RV resort (627 units). Consequently, the number of permanent residents (occupying the single-family and multifamily units) would be substantially less than under Alternative 5 (just under 1,500 residents versus 2,809 under SEIS Alternative 5 to 2,945 under FEIS Alternative 5). The number of visitors to the RV park areas is estimated to average 941 visitors per day under SEIS Alternative 5, with some seasonal variation.

With the differences in proposed land uses, including a lack of commercial uses within the Master Site Plan area, SEIS Alternative 6 would involve somewhat less clearing and grading overall than under either SEIS Alternative 5 or FEIS Alternative 5 (ESM Consulting Engineers, LLC 2020), excluding the facilities that have been built that were part of the Adopted Master Plan. Approximately 477 acres (58% of the site) would be retained as undeveloped open space, including a large area along the Cle Elum River. This area of dedicated open space under this alternative is greater than the area under FEIS Alternative 5 (450 acres), but less than under SEIS Alternative 5 (524 acres; Table 5).

Under SEIS Alternative 6, stormwater management will be designed using the design standards, including hydrologic modeling, from the Washington Department of Ecology (2019a) Stormwater Management Manual for Eastern Washington, with reference to

other current manuals for western Washington (WDOE 2019b, King County 2016), as well as the WSDOT (2019) Highway Runoff Manual. A site-specific hydrologic model was used to design the system that was previously developed for both Suncadia and the 47° North site. Stormwater runoff from the developed project areas impervious and landscaped surfaces will generally be collected in catch basins or roadside water quality swales and directed to water quality and infiltration or detention facilities (depending on existing soil features) via pipes or conveyance swales or dispersed, if feasible. Overflow routes will be provided for all proposed stormwater facilities (ESM Consulting Engineers, LLC 2020).

4.1.1 Impacts on Wetlands

Under SEIS Alternative 6, the proposed project would result in no direct impacts to wetlands. As under FEIS Alternative 5, Wetlands 1, 2, and 3 are within the Cle Elum River Corridor Open Space area and will be preserved in their existing condition. Under SEIS Alternative 6, Wetlands 4, 5, 6 are located within the RV 1 zone; however, the wetlands would be preserved and buffered within an open space tract that includes the required buffers and additional retained open space beyond the buffer limits (Figure 5). The plan includes minimal clearing and grading within this tract to construct an access road between Wetlands 5 and 6. FEIS Alternative 5 (as well as the Approved Bullfrog Flats Master Plan) would also have retained Wetlands 4 and 5, but with smaller buffers that were required at the time. However, we assume that development under either the FEIS Alternative 5 or SEIS Alternative 5 would be subject to current City of Cle Elum critical areas regulations, which would result in ratings and buffers comparable to SEIS Alternative 6. Wetland 6 was not known to exist at the time of the Draft or Final EIS, and development of the site under either FEIS Alternative 5 or the adopted Master Plan (SEIS Alternative 5) would impact Wetland 6 and its buffer; the plan under either of these alternatives would need to be refined to avoid such impacts.

No wetlands are known to occur on the site reserved for a municipal recreation center, so future development there would have no direct impacts on wetlands.

The estimated catchment area that provides hydrologic support of Wetlands 4, 5, and 6 extends just beyond the proposed open space tract under SEIS Alternative 6, particularly at the northwest end (Figure 8). Clearing and grading of the area around the open space tract encompassing the buffers of Wetlands 4, 5, and 6 would impact approximately 20% of the overall estimated catchment area (Figure 8). This has the potential to reduce hydrologic inputs to the wetlands, particularly Wetland 4, the northwestern most of these wetlands where the largest impact to the catchment area would occur (approximately a 27% reduction). Some supplemental drainage from RV lots to the northwest will likely be necessary to minimize hydrologic impacts to Wetland 4. We understand that the stormwater plan will match pre-development flows to Wetland 4 with pervious and pre-treated impervious runoff from adjoining lots (Ms. Laura Bartenhagen, ESM Consulting

Engineers, personal communication, April 9, 2020). The catchment areas contributing to Wetlands 5 and 6 would be relatively unaffected.

Clearing and grading outside of the wetland buffers could result in an increase in sediment reaching the wetlands as a result of stormwater runoff. It is likely that best management practices would be employed to control erosion and sediment in the vicinity of Wetlands 4, 5, and 6, and it is unlikely any significant impact to the wetlands would occur under SEIS Alternative 6 or under either FEIS Alternative 5 or SEIS Alternative 5.

Operational impacts on wetlands would likely be minor under SEIS Alternative 6. Wetlands would be subject to City of Cle Elum CAO regulations. Encroachment on wetlands and wetland buffers from buildings, landscaped areas, and access roadways would not be allowed. Some increase in human access to the wetlands and associated disturbance would be anticipated because of increased human activity in the vicinity, and this is expected to be generally comparable to FEIS Alternative 5 in that respect. This disturbance is not expected to be significant because these wetlands do not have a significant wildlife habitat value.

Proposed stormwater management facilities would meet or exceed all applicable detention and water quality standards. Development regulations requiring adequate wetland buffers would be implemented and the buffers would remain in their natural state to protect wetland hydrology maintained primarily through precipitation. Some supplemental drainage from lots adjoining Wetland 4 would be provided as needed to match pre-development flows to maintain hydrologic support of this wetland. No significant adverse impacts are anticipated.

4.1.2 Impacts on Aquatic and Fish Habitats

SEIS Alternative 6, the Revised Master Plan, FEIS Alternative 5, and SEIS Alternative 5, the Approved Bullfrog Flats Master Site Plan alternative, are similar with respect to the locations and scale of designated land use areas and thus their potential impacts. The most significant of these similarities between the Alternatives related to potential impact to aquatic and fish habitats are:

- designation of the river corridor open space and managed open spaces at the west end of the property encompassing the Cle Elum River, and
- providing treatment and complete infiltration of stormwater from the developed portions of the project, thereby having no direct discharges to either the Cle Elum or Yakima Rivers.

Retention of Aquatic Habitats

As noted above, SEIS Alternative 6 would retain the entire Cle Elum River and associated riparian wetlands and habitat within dedicated open space. An adjoining area of managed open space would be retained as well, allowing only recreational activities,

such that no residential or RV resort development would occur within at least 1,900 feet of the river. Thus, no direct impacts to aquatic and fish habitat would occur under this alternative or under FEIS Alternative 5 or the Adopted Master Plan (SEIS Alternative 5). No surface waters are known to occur on the site reserved for a municipal recreation center, so future development there would have no direct impacts on aquatic habitat or fisheries.

Stormwater Management and Water Quality Treatment

Development will not occur in the Cle Elum River basin portion of the site, will be phased over time, and during construction will follow erosion control measures as directed in the Stormwater Management Manual for Eastern Washington (SWMMEW; WDOE 2019a) and associated regulations for the City of Cle Elum and Kittitas County. Somewhat less clearing will occur under SEIS Alternative 6 than under either FEIS Alternative 5 or SEIS Alternative 5 (not including the areas that were dedicated to features that have since been built), resulting in less ground surface disturbance and associated stormwater impacts during construction (ESM Consulting Engineers, LLC 2020). As no other stream channels occur on site, infiltration of stormwater will result in no stormwater discharges to the Cle Elum or Yakima Rivers during construction. As noted above, under SEIS Alternative 6, the isolated wetlands within the RV park site will be retained along with their required buffers, and any supplemental stormwater runoff provided from impervious surfaces to help maintain pre-development flows to Wetland 4 would undergo water quality treatment prior to discharge.

At full buildout, stormwater collection and treatment will follow recommended treatment in the SWMMEW (ESM Consulting Engineers, LLC 2020). These measures provide collection and treatment through combined infiltration ponds, swales, and dispersion to upland infiltration, with no surface discharges to the Cle Elum or Yakima Rivers. No discharge of stormwater runoff from developed areas would occur within the Cle Elum drainage basin.

Because the soils in the areas of infiltration provide considerable transmissivity, infiltrated stormwater will disperse broadly in the near surface groundwater beginning 2000 feet or more from Yakima River surface waters. Surface geology and groundwater conditions are summarized by Associated Earth Sciences, Inc. (2020), and no significant new conditions were discovered from the previous EIS. The resulting transmission of stormwater through the near surface groundwater should result in no discernable impact to Yakima River surface water quality or associated fish and habitat.

Non-point Water Quality: Landscaping

Residential use of fertilizer and pesticides would be expected to occur under SEIS Alternative 6. However, use of these compounds may be less than under FEIS Alternative 5 and SEIS Alternative 5, because this alternative includes fewer permanent

residents. Seasonal RV occupancy units under SEIS Alternative 6 would presumably require less landscape maintenance than single-family residential units.

Direct infiltration on site and in stormwater treatment systems will provide some treatment through adsorptive removal and degradation. Like the stormwater treatment and flow through the groundwater described above, fertilizers and pesticides are not expected to have a discernable impact on Yakima River surface waters or associated fish and habitat.

Population Impacts on Fish and Aquatic Habitat

As under FEIS Alternative 5 and SEIS Alternative 5, increased local population could have impacts on riparian and shoreline habitats, and fish populations through increased recreation and fishing in the local area, including nearby tributaries to the Yakima River. While the year-round population estimates are less than for FEIS Alternative 5 and SEIS Alternative 5, the RV visitor population may present more recreational activity during the nine-month visitors' season.

Fishing in the Yakima River is quite active, with fishing rules in the upper Yakima River remaining essentially the same as in 2002. These regulations specify selective gear and catch and release with some exceptions, such as closures around bull trout protection.

As a surrogate for potential fishing pressure, total fishing licenses sold in 1998 and 1999 were 7,370 and 8,055 respectively (see Table 3.6-1 from the Final EIS, City of Cle Elum 2002). Currently, annual licenses are expected to be greater in number, reflecting the overall increase in population in the local area in Kittitas County, as well as adjoining counties in the Puget Sound region, over the last 20 years. Population increases from the proposed development of residential units under SEIS Alternative 6 (not including seasonal visitors in the RV resort areas) would be less than under FEIS Alternative 5 and SEIS Alternative 5 (estimated at approximately 1,500 people, versus 2,800 to 2,900). However, seasonal visitors to the RV resort areas would add a substantial number of people to the site at various times of the year. The RV transient population may represent a proportionally larger degree of impacts on natural environments and fishing pressure if these visitors are more oriented to outdoor activity during their stay. The degree of this difference is uncertain, so the impact of additional residents in the project area under this alternative may be comparable to that anticipated in the 2002 FEIS.

Impacts to Threatened or Endangered Fish Species

As noted above, several species of salmonid fish, including steelhead, and bull trout, both listed as federal threatened species, are known to occur within the Cle Elum and Yakima Rivers. Middle Columbia Chinook salmon, though not listed, also occur in these rivers. As described above, no direct impacts to riparian habitat on the Cle Elum or Yakima Rivers will occur, and infiltrated stormwater will not have a measurable direct effect on

the Yakima River. Thus, impacts to fish and associated habitat should be minimal under SEIS Alternative 6 or FEIS Alternative 5 or SEIS Alternative 5.

4.1.3 Impacts on Vegetation

Development of the 47 North site under SEIS Alternative 6 would convert much of the existing forest vegetation communities within the approximately 824 acres to developed land uses, including single-family and multifamily residential, commercial, and a recreational vehicle resort area (Figure 5, Table 5). Existing vegetation would be replaced by buildings, roads, and other impervious surfaces, as well as non-native plantings. Developed uses on the site under SEIS Alternative 6 would total approximately 348 acres (plus the 25-acre commercial development site along SR 903, which is currently owned by Suncadia). The area to be cleared under this alternative would total approximately 315 acres, plus approximately 18 acres for the commercial development, for a total of 333 acres, slightly less than under either FEIS Alternative 5 or SEIS Alternative 5 (ESM Consulting Engineers, LLC 2020). Most of the forest vegetation impacted by the proposed development under this alternative consists of previously thinned mixed conifer and Ponderosa pine stands with a developing understory of young trees. Portions of the RV Resort area would be located in early successional mixed conifer forest, with remnant larger trees, that has developed since timber harvest in the early 1990s. Future development of the site reserved for a municipal recreation center would impact primarily closed-canopy Ponderosa pine forest.

SEIS Alternative 6 would retain approximately 477 acres of open space (58% of the site), all of which, except the powerline corridors, would remain as undeveloped forest (Figure 5, Table 5). Under SEIS Alternative 6, as with FEIS Alternative 5 and SEIS Alternative 5, areas within the Cle Elum River corridor, including Wetlands 1, 2, and 3, as well as their required buffers, would be retained as undeveloped open space all the way to the boundary of the geomorphic floodplain (west ridge). This open space area includes all of the deciduous and mixed riparian forest along the river, mixed coniferous forest west of the river, more open, thinned forest of Ponderosa pine and Douglas fir east of the river (Bullfrog Flats area, shown as "Managed Open Space" on the SEIS Alternative 6 site plan), as well as denser conifer forest dominated by pine on the slopes above on the west ridge.

Other areas of undeveloped open space to be retained across the site include the isolated wetlands (4, 5, and 6) and buffers in the proposed RV-1 area, steeper slope areas, a perimeter buffer along Bullfrog Road, and existing powerline corridors (Figures 5 and 7). The proposed development under this alternative would result in disjunct patches or "fingers" of native forest, increasing forest fragmentation on the site and leaving these retained open space areas within or between the various development areas to become mostly edge habitat. Most of these areas of retained forest would remain connected to off-site forest areas, including the river corridor.

The retained open space areas on site would include a network of trails and associated active and passive features such as gazebos, viewpoints, benches, and gathering places. The 104-acre "Managed Open Space" area in the western part of the 47° North site (Figure 5), would allow for continued forest management to provide open, "firewise" stands for healthy forest, wildlife habitat, and recreational opportunities. The area may include features such as benches, gazebos, exhibits, or overlooks. The 160-acre River Corridor (Figure 5) is intended for wildlife habitat and recreational uses with no improvements allowed.

4.1.4 Impacts on Wildlife

Impacts of constructing the development under SEIS Alternative 6 across the site include both temporary impacts during construction and longer-term impacts of habitat alteration. Construction related impacts include increases in noise, dust, human activity, temporary disturbance of vegetation for staging areas, potential erosion and sediment transport from exposed soils, and other potential water quality impacts. These can alter animal behavior, causing avoidance of adjoining habitats, alteration of movement and dispersal patterns, abandonment of nest sites, reduced breeding success, and increased mortality.

Direct alteration (removal) of the existing mixture of vegetation communities resulting from construction of these developed areas and associated facilities under SEIS Alternative 6 would affect the distribution and composition of wildlife populations on the project area and vicinity. As previously mentioned, at buildout the proposed development and associated facilities would convert approximately 348 acres to urban and recreational uses (373 acres including the commercial development area), which would remove approximately 315 acres (333 acres including the commercial development area) of existing habitats available for wildlife across the project area, including a variety of forest cover of different composition and age classes, including early successional areas, and both open- and closed-canopy forest types. As noted above, the total area of wildlife habitat to be removed (cleared) under SEIS Alternative 6 is slightly less than under either FEIS Alternative 5 or SEIS Alternative 5 (Table 5). Also, future development of the 12-acre site reserved for a municipal recreation center would remove an additional area of Ponderosa pine habitat.

Elimination of native vegetation cover and replacement with impervious surfaces and landscaped areas would displace animals inhabiting those areas and would reduce the local populations of most native species in the area and may make the area less suitable for a number of native wildlife species. Planted ornamentals often support far fewer insect species per unit area than native vegetation due to a smaller amount foliage (less foliage volume) and simpler vegetation structure. Landscaped areas along the roadways throughout the development would likely be managed to limit the growth of tall woody vegetation. Developed landscapes can often facilitate the spread of exotic invasive species (both plants and animals), especially along a linear corridor. No invasive species would be included in the proposed landscaping of the development.

At buildout, proposed development under SEIS Alternative 6 would reduce the habitat available for native wildlife across the site. This would reduce the local populations of most native species on the property and cause a number of changes in the species composition associated with an urban level of development. Some native species would likely be eliminated from the site. Bird species diversity may decrease on developed portions of the site, which can be accompanied by an increase in bird density (Batten 1972, Vale and Vale 1976, Woolfenden and Rohwer 1969; see also Bollinger and Linder 1994, Dowd 1992, Herkert 1994, Martin-Yanny 1992). This may result in increased densities of omnivores and seed-eaters and a corresponding decrease in insectivores (Beissinger and Osborne 1982). The species typically favored in urban or urbanizing environments are habitat generalists, some of which are invasive exotic species. Birds in the urban environment primarily forage on the ground while birds in the nearby forest primarily forage in the tree canopy. Planted ornamentals often support far fewer insect species per unit area than native vegetation due to a smaller amount foliage (less foliage volume) in the upper canopy.

Species that dwell primarily in forested habitats, but can persist in partly-urbanized environments, such as chickadees, squirrels, shrews, garter snakes, and some species of amphibians, may persist in the larger open space areas in southwest parts of the site near the Cle Elum River as well as the perimeter of the site, but in lower numbers. Other native species adapted to a wide range of habitats, or urban environments, such as American robin, American crow, hummingbirds, swallows, bushtit, dark-eyed junco, house wren, song sparrow, raccoon, and coyote may increase in abundance on the site, especially in developed areas (Robbins 1979, Penland 1984, Tilghman 1987).

Animals that are least tolerant of human disturbance, such as ground- and shrub-nesting birds, ground-dwelling mammals, and carnivores, would be most affected by the proposed development. Examples include spotted towhee, ruffed grouse, deer mouse, weasels, and black bear. Because SEIS Alternative 6 generally involves urban development, the diversity and abundance of bird species that breed locally and migrate to the tropics ("Neotropical migrants"), such as vireos, warblers, thrushes, and tanagers, as well as their reproductive viability, would likely decrease across the site as more developed areas are introduced (e.g., Donovan et al. 1995, Friesen et al. 1995). For areas of native habitat that remain (such as in the open space areas near the Cle Elum River), studies have shown that some species may not be able to consistently produce young due to competition from urban-adapted species, habitat fragmentation, or increased exposure to edges (e.g., Donovan et al. 1995, Friesen et al. 1995). For example, species such as brown creeper, golden-crowned kinglet, and black-throated gray warblers, which tend to occupy forest interior settings (e.g., Pearson and Manuwal 2000, 2001) may be adversely affected by predation, nest parasitism, and competition with other species under the proposed development (Marzluff et al. 2007).

Populations of reptiles and amphibians, which rely on forest duff, downed logs, snags, and wetlands, would be substantially reduced within developed areas across the site. Existing wetlands and streams on the site will remain intact, but other special habitat features throughout the site and some local dispersal habitat would be eliminated due to increased fragmentation of retained habitats and the introduction of roadways throughout all the dwelling areas.

The clearing, grading, and construction of SEIS Alternative 6 would separate habitat areas and increase fragmentation. This, together with increased disturbance (e.g, vehicular traffic, human presence throughout the trail systems) may affect movement patterns of some wildlife species, creating a barrier to movements of small mammals, reptiles, and amphibians. Increased mortality would likely result from animals attempting to cross roads, and some animals may alter movement patterns to avoid areas or time periods of high activity. Increased fragmentation of remaining native habitat, together with the expected increased human activity on existing and proposed trails, would affect animal movement patterns by causing the animals to avoid areas or time periods of high activity. However, many species would probably continue to use undeveloped areas of the site. Anticipated road crossings in the developing areas would likely represent barriers to movement of some species, such as small mammals and some amphibians, but little or no barriers to other mammals and most birds.

Larger, more wide-ranging carnivores would likely reduce their usage of the site as it develops; however, this site also likely represents a small portion of the home range of species such as black bear and coyotes.

Impacts Due to Increased Human Activity

The introduction of large number of dwellings, RV sites, and activity centers under SEIS Alternative 6 will result in increased amount of human activity throughout the project site. This includes human presence on trails, driving through the site on developed roads, increased noise at the dwellings and RV sites, and introduction of foreign materials by occupants. All these activities could lead to avoidance by local wildlife populations and even mortality due to interactions such as vehicular strikes. The impact from human activity under SEIS Alternative 6 is expected to be comparable to or slightly less than FEIS Alternative 5 and SEIS Alternative 5, with fewer permanent residents and seasonally variable activity of visitors to the RV resort areas.

In addition, an increase in the presence of domestic pets would increase the likelihood of disturbance of retained habitats and potentially affect movements and activities of animals on site. Native species can be adversely impacted by domestic cats and dogs, which can act as “super-predators,” (Leu et al. 2008, Odell and Knight 2001, Penland 1984), particularly with a greater human population at full buildout.

Materials brought on-site by new occupants could have potentially detrimental impacts on local wildlife populations. The use of insecticides by homeowners has been shown to reduces the food resource of insectivorous animal species (Penland 1984), and the introduction of features such as birdfeeders could also lead to an increase in generalist bird species that could compete with previously present populations. With fewer permanent residents, SEIS Alternative 6 would likely result in less of these types of impacts than FEIS Alternative 5 or SEIS Alternative 5.

4.1.5 Impacts to Endangered, Threatened, Sensitive, and Other Priority Species

No endangered, threatened, or sensitive plant species are known or likely to occur in the project area, including the 12-acre site reserved for future development of a municipal recreation center. Consequently, development of the site under SEIS Alternative 6, or under FEIS Alternative 5 or SEIS Alternative 5, would not adversely impact such species.

Similarly, development of the site under SEIS Alternative 6 (or under FEIS Alternative 5 or SEIS Alternative 5), including future development of the site reserved for a municipal recreation center, is generally not expected to have significant impacts on endangered, threatened, or sensitive animal species. Discussions of specific species are provided in the following sections.

Gray Wolf

As noted above, the nearest know wolf packs are located 2.5 miles and 14 miles ENE of the project site, and the core range of neither of these packs extends onto the 47° North project site. Wolves are wide-ranging and can travel great distances in a single day, and it is possible that dispersing or foraging individuals could occasionally wander onto the site or vicinity in search of prey (deer or elk). However, wolves tend to avoid conflict with humans, and the existing developments in the vicinity, as well as year-round recreational activities probably discourage regular use of the area by wolves, despite the prevalence of potential prey species such as elk, especially during the winter.

Increased forest fragmentation and increased human disturbance associated with the proposed development would further discourage wolves from using this area. Increased car traffic, increased noise, and increased visual human presence on the site would all act as deterrents for these individuals. Although development of the site under SEIS Alternative 6 or the other alternatives may have adverse impacts on prey species, given the existing development and human activity in the area, they would not likely have a significant adverse impact on local wolf populations.

Northern Spotted Owl

The nearest known spotted owl management circle is approximately 2 miles north, but given recent population declines, it is not clear whether the management circle is still occupied. Spotted owls are known to travel while foraging, and young owls will

potentially travel great distances when dispersing and establishing a new home range. Given the relative lack of preferred habitat on the site or in the vicinity and that much of the surrounding areas contain already fragmented forest or developed areas, it is unlikely that spotted owls would occur on site. Consequently, we do not anticipate significant adverse impacts on spotted owls from the proposed development under SEIS Alternative 6 or the other development alternatives.

Other Listed Species

Wolverines are not expected to occur on site or find suitable habitat. Similarly, marbled murrelets are not regularly found in Kittitas County, and the site lacks suitable habitat (old, multi-layered forests with large trees and a relatively closed canopy) for nesting. Yellow-billed cuckoos are thought to be extirpated as a breeding population in Washington, and only occasional sightings have been recorded in recent decades; the only potentially suitable habitat on site, deciduous riparian forest, is limited, but would be retained under the proposed development. Grizzly bears are not known to occur in the area, and because of the fragmented forest cover in the general area and high human activity, the site lacks suitable habitat. Canada lynx are not known to occur in the area, and because of the fragmented, forested habitat, elevation below 4,000 feet, and high human activity, lynx are not expected to use the immediate vicinity of the project site or vicinity. Consequently, the proposed development under SEIS Alternative 6 is not expected to adversely affect these species.

Other Priority Species

Elk

The 47° North development under SEIS Alternative 6 (as well as FEIS Alternative 5 or SEIS Alternative 5) would reduce the amount of elk habitat available and likely reduce the elk population using the site. While large portions of the uplands within 47° North would be developed and no longer elk habitat, the identified riparian corridor that connects the 47° North site with offsite habitat in the Suncadia development and surrounding lands would be retained as undeveloped open space. The retained open space area contiguous with the river corridor under SEIS Alternative 6 is slightly larger (wider) than under FEIS Alternative 5 and essentially the same as under the Adopted Master Plan (SEIS Alternative 5). This corridor area and associated wetlands provide the majority of foraging areas on the 47° North site and would allow continued elk movement to offsite properties where elk feeding still occurs and to other seasonal range areas (e.g., summer range). As such, we expect there to be minimal impact to the overall elk sub-herd.

SEIS Alternative 6 would likely result in elk and human conflicts. Beck (2019) and Craven (2019) both report that, with hunting prohibited within Suncadia, the elk have habituated to humans and the activities within the development. Elk have been observed throughout the development, and there have been issues of elk foraging on landscape

plants and damage to golf course features. Similar conflicts can be expected within the 47° North development. Increased traffic on Bullfrog Road would increase the likelihood of conflicts between elk and vehicles, with potential for more road kill or injury to the animals and damage to vehicles, particularly during winter when elk use of the site is expected to be the highest.

The RV resort under SEIS Alternative 6 is located adjacent to the retained river corridor open space where we would expect most elk habitat to be located. Recreational activity associated with the RV resort would disrupt elk use of the open space unless the recreational activity is closely regulated. This risk may be slightly greater than under FEIS Alternative 5 or FEIS Alternative 5, which do not include RV uses. Hiking trails could be located outside the river corridor such that elk viewing would be possible without traversing the elk habitat. Elk viewing areas could be established.

Columbia Spotted Frog/Sharp-Tailed Snake

The wetland and moist soil habitat found on the project site that are associated with these species would be retained in the open space areas in the southwest portions of the site under SEIS Alternative 6, as well as the other development alternatives, thus preserving the most suitable habitat. However, development of the RV park under SEIS Alternative 6 or other residential uses under FEIS Alternative 5 or SEIS Alternative 5 around the smaller wetlands could impact dispersal and connectivity to and from this habitat, which could adversely impacting individuals that could occur in these locations.

Bald Eagle

Bald eagles, now a delisted species, have been observed in the vicinity on occasion, and known winter concentration areas occur to the south along the Cle Elum and Yakima Rivers, but as noted above, the nearest known nest was several miles away near Lake Cle Elum. Eagles would be expected to continue to forage for salmon along the Cle Elum River. Clearing of well-developed forest throughout the site could eliminate some potential perching habitat for wintering or breeding eagles, but most of the existing forest along the river, would remain. Consequently, the proposed project under SEIS Alternative 6 (or FEIS Alternative 5 or SEIS Alternative 5) is not expected to have significant adverse impacts on bald eagles.

Pileated Woodpecker

The loss or alteration of native forest on-site upon buildout under SEIS Alternative 6 could reduce the amount of potentially suitable habitat available in the area for pileated woodpeckers (a State Candidate species). The development would eliminate a substantial area of forest on site, but large snags suitable for nesting in the upland forests are rare, given past forest management, and no nest or roost sites are known to occur on the project site. As noted above, SEIS Alternative 6 would likely result in less clearing than

the other development alternatives, and it would retain more area in designated open space than FEIS Alternative 5, but less than SEIS Alternative 5. Pileated woodpeckers would likely continue to forage within remaining forested portions of the local area as the project continues to undergo development but would do so over a larger range to compensate for the habitat loss.

4.2 SEIS Alternative 5/No Action – Approved Bullfrog Flats Master Site Plan

As noted above, SEIS Alternative 5 include development of a mix of residential and employment uses, with recreational facilities and dedicated open space, as well as future development areas on an 1,100-acre site (Figure 6, Table 5). The approved Master Plan does not include a permanent RV resort, but the commercial property on site could be used as a temporary RV site for construction workers. The approved Master Plan site includes areas dedicated for public school expansion, a wastewater treatment plant and associated maintenance area, and a "Reserve" area that includes the Washington State Horse Park, which have all been built since the 2002 Final EIS. These areas are not included in the Master Site Plan Area under SEIS Alternative 6.

The total number of residential units under this alternative (1,334) is the same as under SEIS Alternative 6, but they would all be permanent single-family or multifamily units (Table 5). This alternative includes an area for commercial development (75 acres) which is larger than the commercial development site adjacent to the SEIS Alternative 6 Master Site Plan area. As noted above, this alternative is expected to result in a greater number of permanent residents than under Alternative 6 at full buildout. This alternative would retain slightly more dedicated open space (524 acres), but it represents a smaller percentage of the site (48%) than under SEIS Alternative 6. SEIS Alternative 5 would result in essentially the same amount of vegetation clearing as FEIS Alternative 5, but slightly more than under SEIS Alternative 6 (333 acres, including 18 acres in the adjacent 25-acre commercial development property; see Table 5).

4.2.1 Impacts to Wetlands

As under SEIS Alternative 6, no direct impacts to wetlands would occur under SEIS Alternative 5. Under SEIS Alternative 5, no development was proposed within any of the identified wetlands or wetland buffers within the project area. Wetlands 1, 2, and 3 are within the Cle Elum River corridor, which is designated as undeveloped open space. Wetlands 4 and 5 would be protected by buffers. SEIS Alternative 5 would keep all development at least 50 feet away from Wetlands 4 and 5, consistent with regulations in place during the 2002 EIS preparation. If the site were to be developed under the adopted Master Plan, impacts to Wetland 6 and its buffer would occur; the plan would need to be adjusted to eliminate these impacts.

As under SEIS Alternative 6, impacts during construction are anticipated to be minor because the construction industry's best management practices would be in effect and erosion and sedimentation mitigation measures would be required to control stormwater runoff. If uncontrolled sediment release occurred in onsite wetlands, short-term water quality impairment could occur.

Operational impacts on wetlands would likely be minor under SEIS Alternative 5, as the wetlands would be subject to City of Cle Elum CAO regulations, as under SEIS Alternative 6. Significant encroachment on wetlands and wetland buffers from buildings, landscaped areas, and access roadways would not be allowed. Some increase in human access to the wetlands and associated disturbance would be anticipated because of increased human activity in the vicinity. This disturbance is not expected to be significant because these are very small wetlands do not have a significant wildlife habitat value.

As under SEIS Alternative 6, stormwater management facilities under Alternative 5 would meet or exceed all current applicable detention and water quality standards. Development regulations requiring adequate wetland buffers would be implemented and the buffers would remain in their natural state to protect wetland hydrology maintained primarily through precipitation. No significant impacts are anticipated.

Under SEIS Alternative 5, potential impacts on wetlands within the project area from pesticides and herbicides associated with maintenance of landscaping are expected to be minor because of the required wetland buffers.

4.2.2 Impacts to Aquatic and Fish Habitats

As the site layout of SEIS Alternative 5 is generally similar to that under SEIS Alternative 6, SEIS Alternative 5 would have no direct impacts to the fish or fish habitats of the Cle Elum or Yakima Rivers. As under SEIS Alternative 6, stormwater runoff would be collected, undergo water quality treatment in accordance with applicable stormwater management regulations, and infiltrated and dispersed such that no direct discharges would be routed to waters of the Yakima River, which are located approximately 2,000 feet away. Consequently, no significant impacts to the water quality of receiving waters are expected under this alternative.

Somewhat greater estimates of future permanent residents under this alterative (as well as FEIS Alternative 5) could increase fishing pressure on local rivers by a small amount, compared with SEIS Alternative 6. On the other hand, seasonal occupants of the RV resort areas may be more inclined to fish than permanent residents, resulting in some additional fishing pressure under SEIS Alternative 6, compared with SEIS Alternative 5 or FEIS Alternative 5, which may render the overall impacts comparable under either alternative.

4.2.3 Impacts to Vegetation

In addition to the areas set aside for facilities that are already built (school expansion, horse park, wastewater treatment plant, and maintenance area, development under SEIS Alternative 5, the adopted Master Plan, would convert a generally comparable area of existing forest to urban uses as under Alternative 6. SEIS Alternative 5 would retain slightly more area in dedicated undeveloped open space tracts (524 acres, or 48% of the site) than Alternative 6 (477 acres, or 58% of the site under that alternative), or under FEIS Alternative 5 (450 acres; Table 5). However, with more area dedicated to commercial development, SEIS Alternative 5 (not including the built facilities such as the horse park in the Reserve Area) would result in more clearing and grading than SEIS Alternative 6 (ESM Consulting Engineers, LLC 2020; Table 5).

SEIS Alternative 5 would impact the same general areas, and thus the same general forest types, of the site as under SEIS Alternative 6 (and FEIS Alternative 5) and retain the same general areas as undeveloped open space. The dedicated open space areas include the river corridor and the large area of adjoining forest in the geomorphic floodplain, as well as steep slope areas and perimeter buffers. Thus, as under Alternative 6, Alternative 5 would retain the deciduous and mixed riparian forest along the river, the riparian and isolated wetlands, and a portion of the mixed conifer forests on site (both the very open, thinned forest on Bullfrog Flats, as well as portions of the previously thinned mixed conifer and pine stands that have matured somewhat since 2002), as well as the powerline corridors. Alternative 5 would similarly fragment remaining native forest habitat over the site, particularly in the eastern with similar risk of encroachment by non-native, invasive species.

As under SEIS Alternative 6, neither SEIS Alternative 5 nor FEIS Alternative 5 are expected to impact any endangered, threatened, or sensitive plants, as none of these species are known or expected to occur on the project site.

4.2.4 Impacts to Wildlife

In general, SEIS Alternative 5 would affect wildlife communities in essentially the same ways as under SEIS Alternative 6. Most existing wildlife habitat would be eliminated from the developed portions of the site, to be replaced with buildings, paved roads, and associated graded and landscaped areas. This alterative would similarly displace wildlife occupying those areas and would reduce local populations of most wildlife species currently in the area.

As under SEIS Alternative 6, development of the adopted Master Plan under SEIS Alternative 5 is not expected to substantially affect endangered, threatened, or sensitive species. With respect to other priority species, Alternative 5 is expected to have generally comparable impacts to habitat for these species as SEIS Alternative 6.

With respect to elk habitat, SEIS Alternative 5 would be similar in magnitude as the basic footprint of development is comparable to SEIS Alternative 6. Development in both alternatives is located in the upland areas away for the riparian river corridor and wetlands. More permanent residents expected under SEIS Alternative 5 (and under FEIS Alternative 5) may result in more potential for elk harassment and habitat degradation than under SEIS Alternative 6, unless activity was restricted to limit such impacts in the retained open space.

4.3 CUMULATIVE IMPACTS

Cumulative impacts to wetlands, plants and animals, and fisheries resources would result from this and other developments in the vicinity of the 47° North site. For purposes of this analysis, cumulative impacts include the existing Suncadia Master Planned Resort (MPR) development, as well as two other developments within the Urban Growth Area of Cle Elum: City Heights and Cle Elum Pines West (Daily Record 2017). The Suncadia MPR, which continues to be under construction, encompasses well over 6,000 acres and includes 4,400 residential units, three golf courses, a lodge and inn/convention center, recreational facilities, multiuse trails and other related amenities. Approximately 1,129 of the residential homes are built or are under construction, and most of the other amenities are built. The MPR site includes over 3,400 acres of natural and managed (undeveloped) open space, primarily the Cle Elum River corridor and in the western portions of the site up to Easton Ridge.

The City Heights is a mixed-use master planned development on 358 acres within the north Urban Growth Area of Cle Elum north of the original downtown. The project includes a mixture of single-family and multi-family residential units (totaling up to 955 units), along with two commercial use spaces, a series of public parks. None of the residential units or other features are built or under construction to date, but the applicant The development includes 40-46% open space, including retention of mature conifer trees, steep slope areas, wetlands, and streams.

Cle Elum Pines West is mixed-use community under construction on a 29-acre site north of state Route 903 and west of the existing Cle Elum Pines housing development. When completed over the next 20 years or so, the development is expected to be 68% residential with approximately 150 residential units, 42 of which are built or under construction to date; 15% of the property is designated for commercial use and 17% is designated for open space (along Crystal Creek).

4.3.1 Impacts on Wetlands

The existing Suncadia MPR directly impacted less than 1 acre of wetlands and less than 4 acres of wetland buffers. These impacts are completed, and compensatory mitigation plans were approved and implemented. The City Heights development in Cle Elum includes up to 46% open space, including retention of steep slopes, wetlands, and streams. Similarly, the Cle Elum Pines West Development includes 15% open space that

encompasses Crystal Creek and its buffer. Thus, we assume that impacts to any existing wetlands and buffers would largely be avoided, and if any impacts are proposed, compensatory mitigation would be implemented in accordance with local, state, and federal regulations. Development of the 47° North site under any of the alternatives would not contribute to cumulative impacts on wetlands, as no direct impacts are proposed, and would largely avoid impacts to wetland buffers.

Development of the 47° North site, along with the other projects, has the potential to increase risk to wetlands from stormwater runoff and associated sediment and contaminants. However, stormwater management plans developed and implemented in accordance with current stormwater manuals (i.e., WDOE 2019a), along with appropriate BMPs would minimize this risk.

4.3.2 Impacts on Aquatic and Fish Habitats

The Suncadia MPR largely avoided direct impacts fish-bearing streams, including the Cle Elum River, other than bridged crossings for roads. As with wetlands, mitigation plans for impacts to stream buffers were approved and implemented. It is assumed that the City Heights and Cle Elum Pines West developments also largely avoided direct impacts to streams and other surface waters, and that any impacts would be mitigated in accordance with applicable critical areas regulations. Development of the 47° North site under any of the alternatives would not contribute to direct cumulative impacts to streams or other surface waters, as no impacts are proposed.

Development of the 47° North site along with Suncadia MPR and the other projects represent sources of potential pollutant loading on the underlying groundwater aquifer and with it potential for adverse impacts to fish habitat in receiving waters. However, the lack of direct discharge to receiving waters, together with implementation of water quality treatment and infiltration facilities and expected groundwater mixing, adverse impacts to water quality of receiving waters from Suncadia and 47° North are expected to be minimal. In addition, it is assumed that development of City Heights and Cle Elum Pines West include stormwater management plans developed and implemented in accordance with current stormwater manuals, with water quality treatment measures to avoid or minimize impacts to water quality of nearby streams.

The projects do not involve direct impacts to the Cle Elum or Yakima Rivers or associated riparian habitat in which endangered or threatened fish species occur, and the projects are not expected to result in substantial impacts to water quality of the rivers. Consequently, no substantial impacts to these species are expected to occur due to habitat loss or water quality impacts.

As discussed above, the increase in human population and associated recreational activities (e.g., fishing, wading, rafting, etc.) from gradual buildout of these projects has the potential to cause impacts on fish, streams, and riparian functions. To what extent

these impacts occur depends on the effectiveness of conservation measures in the dedicated open space areas as well as enforcement of these measures. Potential population impacts from development of the Suncadia MPR and 47° North property (under SEIS Alternative 6) are generally comparable to those discussed in the 2002 Final EIS (City of Cle Elum 2002). Development of the City Heights and Cle Elum Pines West projects would add another estimated 2,000 residents to the area during the course of buildout of the 47° North property (assuming a 17-year buildout).

As discussed in the Final EIS (City of Cle Elum 2002), the increase in local population from development and continued buildout of Suncadia, as well as the 47° North project site is expected to increase fishing pressure on local rivers and tributaries. The impacts on fish populations from these two developments are likely comparable to those discussed in the Final EIS. Development of City Heights and Cle Elum Pines West, as well as general population growth in Kittitas County (and adjoining counties in the Puget Sound region) over the last 18 years, would likely add to this pressure. Fishing pressure from new residents and guests would most likely occur in areas already used by existing anglers, and those areas most accessible by roads.

4.3.3 Impacts on Plants and Animals

Cumulative impacts on vegetation communities from development of the Suncadia MPR and the 47° North property would be generally comparable to those described for the MPR and UGA property in the 2002 Final EIS (City of Cle Elum 2002). However, as discussed above, development under SEIS Alternative 6 for 47° North would result in slightly less vegetation clearing than FEIS Alternative 5 or the Adopted Master Plan (SEIS Alternative 5). In addition, development of City Heights would convert approximately 55% to 60% of the existing vegetation (mostly conifer forest) on that 358-acre site to urban uses, and development of Cle Elum Pines West would eliminate approximately 83% of the existing conifer forest vegetation on that 29-acre site to residential and commercial uses. Conversely, substantial portions of the MPR and 47° North properties would be retained as undeveloped in designated open space tracts, as would portions of the City Heights and Cle Elum Pines West sites. These tracts would retain and protect critical areas, including the Cle Elum River corridor, streams, wetlands, and steep slopes, and associated habitats.

Clearing and removal of existing forest vegetation on these project sites would increase forest fragmentation in the area, which would increase the risk of spread of invasive plant species. Removal of existing forest habitat would reduce local populations of wildlife, particularly those adapted to interior forest conditions, and favor species adapted to artificially created edges.

Residential development on the 47° North site, as well as continuing and expected development of the Suncadia MPR site and the two other projects, would contribute to increases in population in the area, with associated human activity. Increased

recreational activities associated with increased human population include use of trails for hiking, bicycling, and horseback riding, fishing (as discussed above), along with vehicular traffic during the summer and snowmobile traffic in the winter. These activities can cause increased disturbance of herbaceous and woody understory vegetation and soil compaction, both on these project sites and in the surrounding areas. It is difficult to predict the locations or relative magnitude of impact to specific vegetation communities from these types of activities.

Impacts on wildlife from increased recreational activities on surrounding lands include potential disruption of habitat use and movement patterns (such as for large mammals), or direct effects on vegetation cover. This can induce abnormal vigilance, prevent access to important resources, and potentially reduce productivity and survival. Increased human activity could render some areas unsuitable for species sensitive to disturbance, either by alteration of habitat conditions or by causing animals to avoid areas of particularly high use. These effects, or conversely tolerance to human intrusion, vary considerably within and among species and among habitats (e.g., Gutzwiler et al. 1998). Because of this, and because actual changes in levels of specific recreational activities are uncertain, specific impacts to wildlife are difficult to predict.

Conversion of these additional areas to urban and rural development would eliminate additional native habitat that could be used by listed and priority species. However, no endangered, threatened, or sensitive plant species are known to occur on the MPR and 47° North properties. Most of the terrestrial species listed as endangered or threatened are not expected to find primary habitat within the project sites or regularly occur there. Consequently, we do not expect significant adverse impacts on those species. Development of the City Heights and Cle Elum Pines West projects would add incrementally to habitat and human disturbance impacts to priority species such as elk, as described for the development of the MPR and 47° North (UGA property), as described in the 2002 FEIS (City of Cle Elum 2002).

5.0 SUMMARY OF MITIGATION

5.1 MITIGATION SEQUENCE

Mitigation has been defined by the State Environmental Policy Act (SEPA) (WAC 197-11-768; cf. Cooper 1987), and subsequently in a Memorandum of Agreement between the Environmental Protection Agency and the COE (Anonymous 1989). In order of desirability, mitigation may include:

- Avoidance - avoiding impacts by not taking action or parts of an action;
- Minimization - minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- Compensatory Mitigation - may involve:
  a) repairing, rehabilitating, or restoring the affected environment;
  b) replacing or creating substitute resources or environments;
  c) mitigation banking.

The Proposed Action under SEIS Alternative 6 incorporates a number of measures to avoid or minimize potential impacts on wetlands, plants and animals, and fisheries .

5.2 REQUIRED AND PROPOSED MITIGATION

Wetlands and streams are protected by Section 404 of the Federal Clean Water Act and other state and local policies and ordinances including City of Cle Elum code. Similarly, listed fish and wildlife species and their habitats are protected under federal and state law, and other priority wildlife species are protected by state and local laws. As such, the 47° North project will adhere to the City of Cle Elum critical areas ordinance and Shoreline Master Program regulations regarding avoidance and minimization of impacts, as well as buffer requirements and protection of fish and wildlife habitat conservation areas.

No direct impacts would occur to wetlands or the Cle Elum River under the Revised Master Plan (SEIS Alternative 6). The riparian wetlands along the Cle Elum River would be retained within dedicated open space that encompasses their required buffers and the entire river corridor and additional forest habitat. Isolated Wetlands 4, 5, and 6 would be retained in an open space tract within the RV resort area that encompasses their required buffers. No compensatory mitigation for direct impacts would be required.

In addition, the Revised Master Plan includes a number of measures to minimize impacts to wetlands, water quality, and associated vegetation and fish and wildlife habitat both during and after construction:

- Construction limits, including staging areas, would be clearly marked in the field prior to beginning construction activities.
- Clearly marking the limits of wetland buffer areas on construction plans and in the field to prevent unauthorized damage to critical areas during construction
- A permanent stormwater management system would be designed and installed consistent with the Stormwater Management Manual for Eastern Washington (WDOE 2019a) and applicable City of Cle Elum development regulations in place at the time of permitting for project. Operation of this system would avoid and minimize the potential for impacts on surface waters and fisheries resources.
- Appropriate BMPs and TESC measures would be implemented in accordance with an approved SWPPP, consistent with standards of the current Stormwater Management Manual for Eastern Washington, including specific measures to prevent and control spills of pollutants, and to handle, control, and store potential contaminants
- Construction staging areas would be located outside of wetland buffers within the RV resort area to minimize impacts to vegetation
- If any wetland buffer areas temporarily disturbed for construction access and staging would be revegetated, subject to an approved mitigation plan, with a mixture of native plant species following completion of construction activities
- Avoiding vehicle re-fueling and maintenance activities within wetland buffers, or within at least 100 feet of wetlands
- The proposed landscaping onsite would generally consist of natural, local, and drought tolerant plants that may benefit wildlife, including hydroseed mixes that could include wildflowers, but not any plants considered to be noxious weeds. Also, imported soil materials would be weed-free.

With respect to impacts of increased angler fishing pressure on fisheries resources and habitat, WDFW is expected to continue to manage the regional fishery in much the same way as it has in the past. They would continue to monitor fishing in the Cle Elum and Yakima Rivers and evaluate local fish populations. If problems were identified, the WDFW would likely implement selective gear rules in affected areas. If populations continued to decline, WDFW could apply catch and release regulations in additional areas, narrow the fishing season, or as a last resort enact closures.

With respect to overall fish and wildlife habitat, as outlined in the UGA Final EIS (City of Cle Elum 2002), mitigation measures inherent to the project include those provisions in the Cooperative Agreement among Trendwest, WDFW, and the Yakama Nation that apply to potential cumulative impacts from the MPR and Cle Elum UGA developments. For example, the agreement identifies use restrictions within the river corridor to protect the value of fish and wildlife resources.

Programmatic elements of that agreement included:

- MountainStar (now Kittitas) Conservation Trust. The Cooperative Agreement established this non-profit organization, in which Trendwest, WDFW, and the Yakama Nation agreed to participate for the purpose of owning and managing conservation easements in the Cle Elum River corridor and West Side Open Space Areas (in the Master Planned Resort**).** The Kittitas Conservation Trust (KCT) was created for the purpose of holding conservation easements in the Cle Elum River Corridor and in Managed and Natural open spaces within the Trendwest Properties.
- Offsite Conservation Easement. The Trust will acquire a Conservation Easement on, or development rights to, an additional 1,500 acres outside of lands owned by Trendwest.
- Development/Implementation of a Land Stewardship Plan. A conceptual Land Stewardship Plan was originally developed by Raedeke Associates, Inc. (2000a), and was subsequently followed by specific LSPs covering the Cle Elum River corridor and other portions of the Master Planned Resort (MPR) property (Raedeke Associates, Inc. 2018). Conservation Easements granted under this plan include natural and managed open space within the entire Cle Elum River corridor, including the portion on the current 47° North property. This plan is intended to promote the effective management of open space areas on Trendwest (now Sundcadia) land with a primary focus on: (1) healthy aquatic and upland ecosystems, (2) maintaining and enhancing forest health, and (3) protecting and enhancing fish and wildlife habitat.

The KCT monitors and enforces compliance with restrictions contained in the conservation easements in perpetuity. KCT also undertakes additional activities to protect and enhance natural resource and recreation values within the upper Yakima basin including owning land, holding conservation easements, and restoring and enhancing critical open space that support fish and wildlife habitat.

Lands within the conservation easements are to be forever managed predominately for their wildlife habitat and compatible recreational opportunities. The easements prohibit use of the conservation easement lands that would significantly impair or interfere with these stated objectives. The terms of the easements also include the requirement for KCT approval of Land Stewardship Plans developed for these areas, and any changes and revisions to these land stewardship plans. This also includes approval of forest management activities occurring on easement lands. Management activities may include actions that promote firewise and healthy forests.

Protection and management of forest and wildlife habitat under conservation easement encompassing the river corridor would protect the areas most used by elk. Minimizing

the extent of trails within the river corridor open space would help minimize potential human-elk conflicts.

5.3 OTHER POTENTIAL MITIGATION MEASURES

Conservation easements could be conveyed to additional designated open space areas across the site, where feasible, beyond the Cle Elum River corridor, which would enable these to be managed for healthy forests and wildlife habitat in coordination with recreational uses.

Landscape strips within the road corridors may also include native plants that have some value for wildlife cover and food, where feasible, given considerations of maintaining adequate sight distance for public safety and other applicable road standards.

As noted in the 2002 FEIS, additional potential measures to mitigate impacts of increased fishing pressure on fisheries resources could include: (1) exploring angler management options with the WDFW and Yakama Nation, such as increased angler education, dispersing angling pressure to underused areas, and providing alternatives to traditional fishing opportunities; (2) implementation of creel surveys (coordinated with WDFW) to address issues directly related to angler fishing presence; or (3) implementation of fish population surveys (coordinated with WDFW to assess quantitative changes in discrete stream reaches.

Hiking trails could be located outside the river corridor so that elk viewing would be possible without traversing the elk habitat. Elk viewing areas could be established.

6.0 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Similar to the conclusion reached in the 2002 EIS, no significant impacts to wetlands or aquatic or fish habitat are expected under the Revised Master Plan (Alternative 6). Development of the project site under either SEIS Alternative 5 or 6 would result in the following unavoidable adverse impacts:

1. Removal of a substantial area of the existing native vegetation and soils and replacement by non-native communities or impervious surfaces; retained native vegetation communities among the various development areas would become primarily edge habitat;

2. A reduction in the local populations of most native wildlife species in the area, and continuation of a shift in species composition to favor species more adapted to urban environments; those animals displaced from the site would likely perish; and

3. An increase in disturbance of adjoining areas of native forest and riparian habitat and on adjacent lands as a result of increased human activity including vehicular traffic.

Such impacts are typical and unavoidable in the context of urban development.

No additional significant unavoidable adverse impacts to plants and animals not identified for this project area in the Draft or Final EIS (City of Cle Elum 2001, 2002) would likely occur under either SEIS Alternative 5 or SEIS Alternative 6.

7.0 LIMITATIONS

We have prepared this report for the exclusive use of The City of Cle Elum, Sun Communities, EA EST, and their consultants. No other person or agency may rely upon the information, analysis, or conclusions contained herein without permission from them.

The determination of ecological system classifications, functions, values, and boundaries is an inexact science, and different individuals and agencies may reach different conclusions. With regard to wetlands, the final determination of their boundaries for regulatory purposes is the responsibility of the various agencies that regulate development activities in wetlands. We cannot guarantee the outcome of such determinations. Therefore, the conclusions of this report should be reviewed by the appropriate regulatory agencies.

We warrant that the work performed conforms to standards generally accepted in our field, and prepared substantially in accordance with then-current technical guidelines and criteria. The conclusions of this report represent the results of our analysis of the information provided by the project proponent and their consultants, together with information gathered in the course of the study. No other warranty, expressed or implied, is made.

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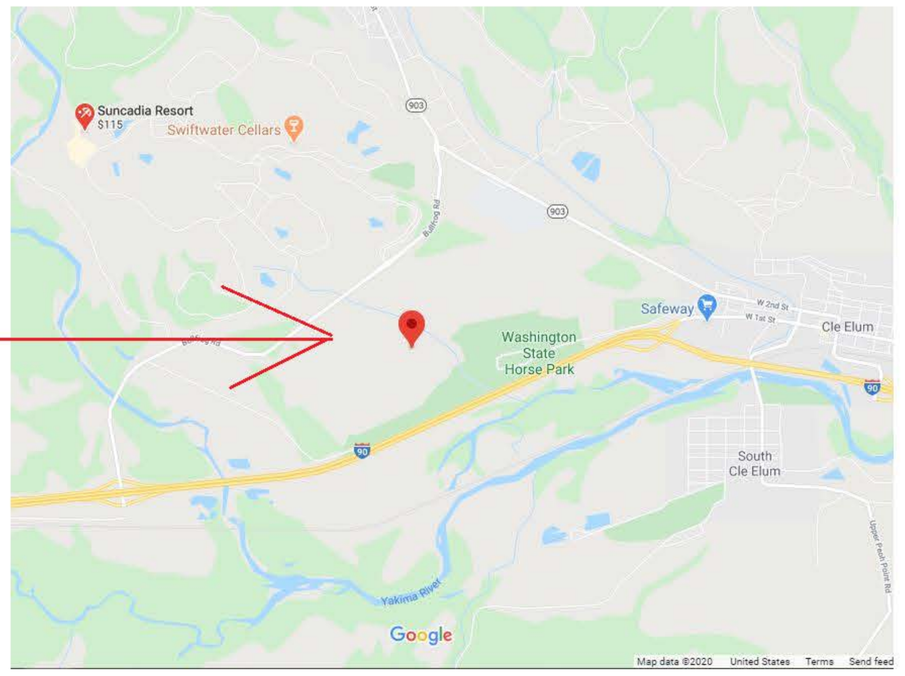
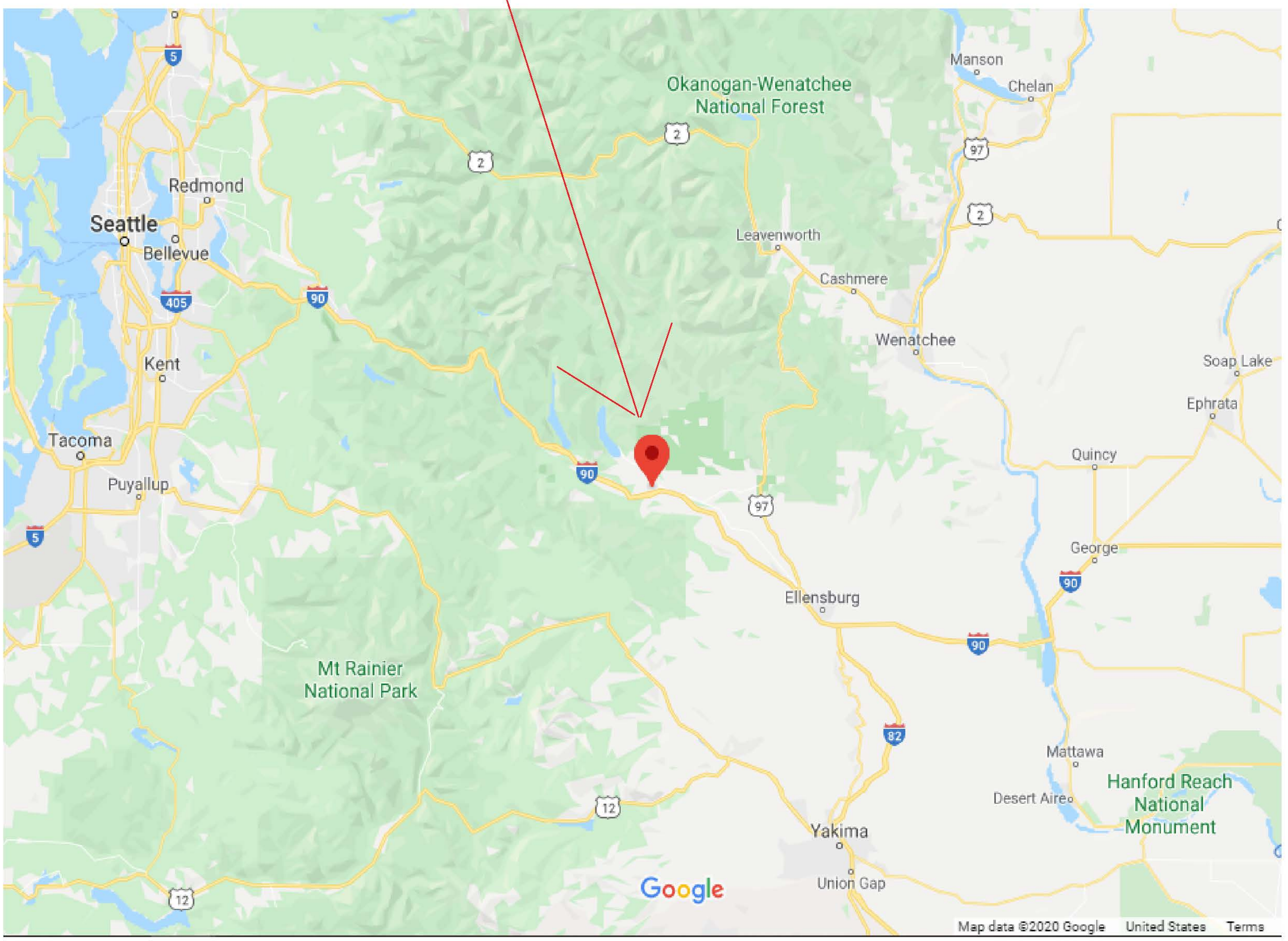
FIGURES AND TABLES

Approximate Project Location





47 N Vicinity Map

Map Created By: Andrew Rossi

Date Created: 10th April, 2020

RAI Project Number: 2019-084

Source: Google Earth

N

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Seattle, WA 98133
Phone 206-525-8122
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Wildlife Biology
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Plotted: 4/10/2020 1:10 PM Plotted By: Jeff Hiiva

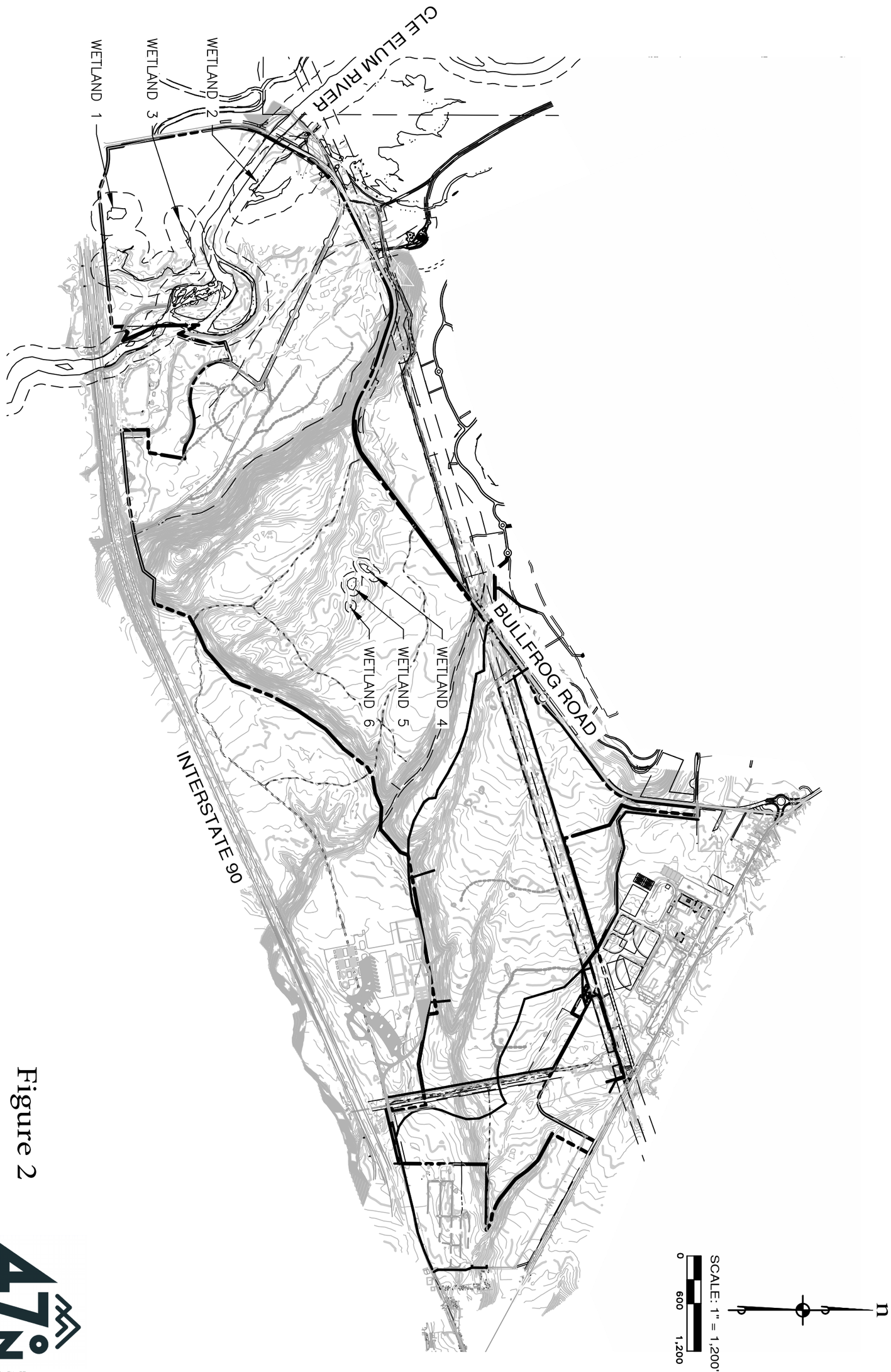

Figure 2

47° NORTH
RV RESORT & RESIDENCES

DRAWING: EN-37

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SUN COMMUNITIES INC

47° NORTH

WETLAND AREAS AND BUFFERS

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NOTE:
WETLANDS 1, 2 AND 3 SHOWN ARE DEPICTED ON APPROXIMATE BOUNDARY BASED ON PREVIOUS DELINEATION.

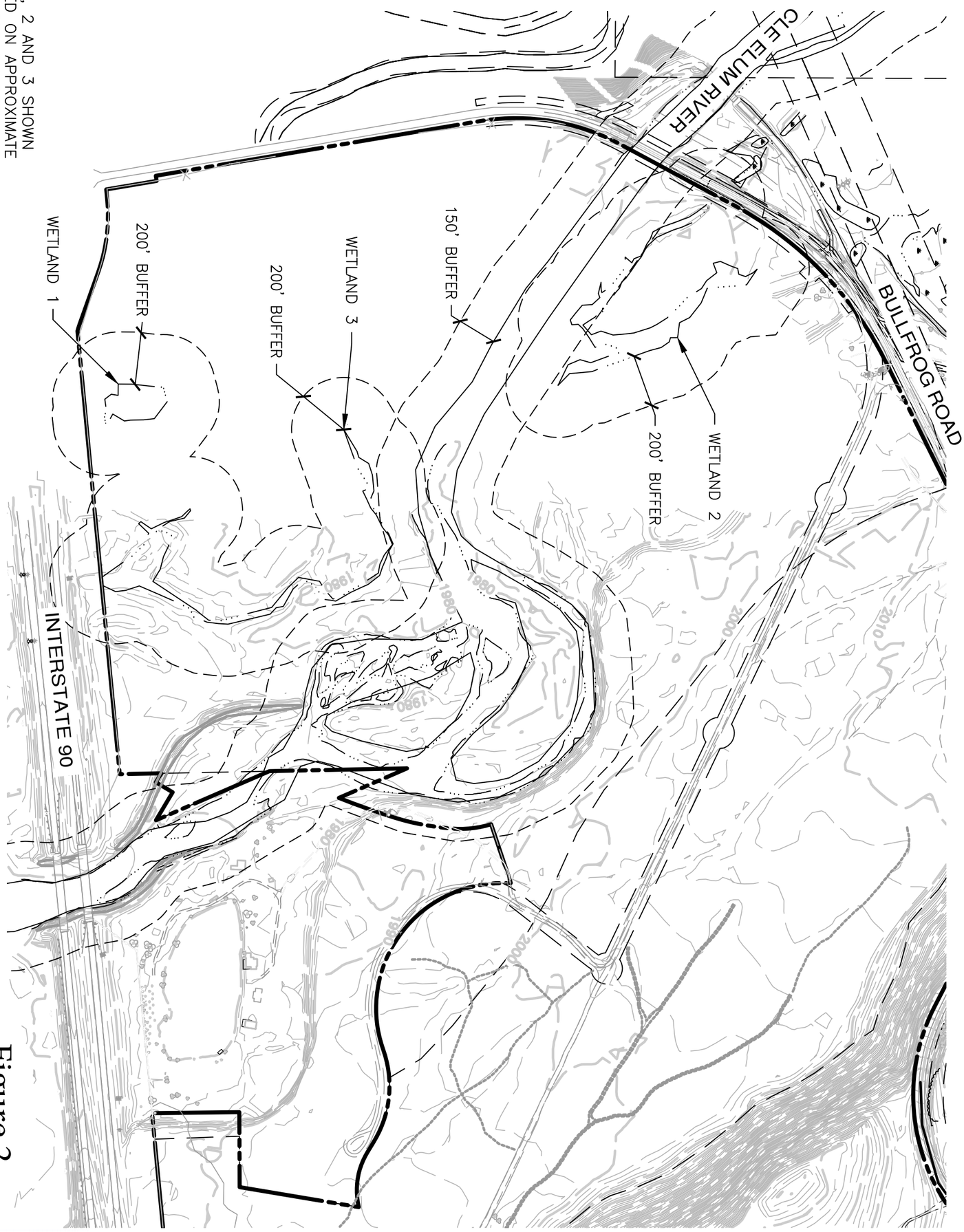

Figure 2

47° N
RV RESORT & RESIDENCES

SCALE: 1" = 400'
0 200 400

DRAWING: EN-37

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SUN COMMUNITIES INC

47° NORTH

WETLAND AREAS AND BUFFERS

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Plotted: 4/10/2020 1:11 PM Plotted By: Jeff Hiiva

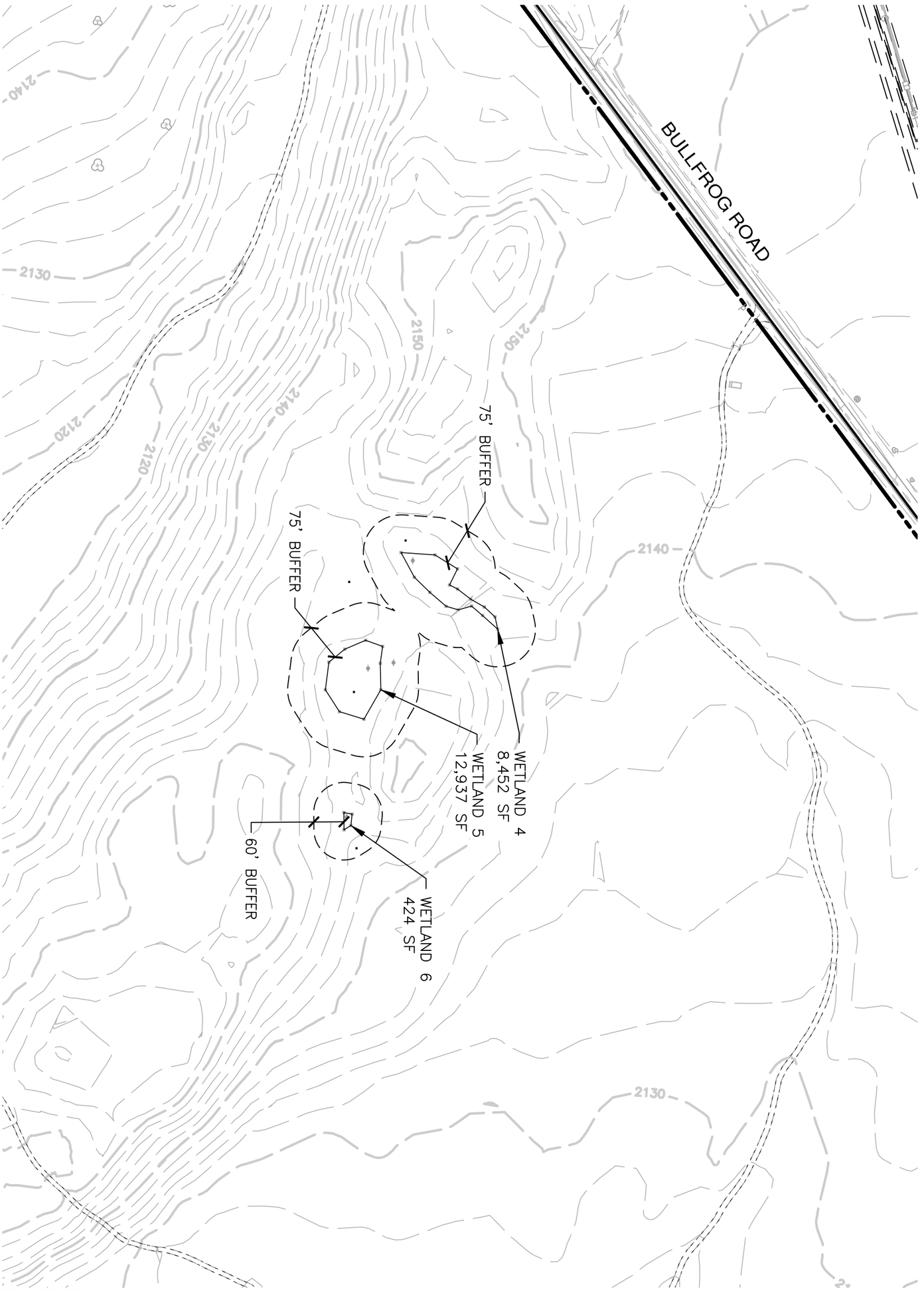

Figure 2

47° N
RV RESORT & RESIDENCES

SCALE: 1" = 200'
0 100 200

DRAWING: EN-37

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SUN COMMUNITIES INC

47° NORTH

WETLAND AREAS AND BUFFERS

N

0 0.25 0.5 1 Mile

Fc-p

ROW

Fc-ct

Fc-pt

Fc-pt

ROW

Fc-ct

WL

WL WL

Fs-c

Fc-ct

Fm

WL

Fc-pt

Fm

Fm

River

Fd

Fd

Fc-p

Fc-f

Fd

Fc-ct

Fm

Fc-c

WL

WL

Fm

Fm

Legend

Habitat Type

- Fc-c: Forested Coniferous: mixed coniferous species, open canopy
- Fc-ct: Forested Coniferous: mixed coniferous species, open canopy (thinned)
- Fc-f: Forested Coniferous: Douglas-fir dominant, closed canopy
- Fc-p: Forested Coniferous: Ponderosa Pine Dominant, closed canopy
- Fc-pt: Forested Coniferous: Ponderosa Pine Dominant, closed canopy (thinned)
- Fd: Forested Deciduous: mixed deciduous species
- Fm: Forested Mixed: mixed deciduous and coniferous species
- Fs-c: Forested Early Successional: Mixed Conifer
- Powerline Corridor Right-of-way: Herbaceous & Scattered Shrubs/Saplings
- Cle Elum River
- Wetland
- Project Perimiter (approximate)

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

Figure 3

Bullfrog Flats / 47° North - SEIS Updated Habitat Type Map

Created By: Andrew Rossi RAI Project #: 2019-084-001 Date: 18 November, 2019

Note: Wetland boundaries are approximate and were recorded using a handheld GPS unit. This map is intended for planning purposes only.

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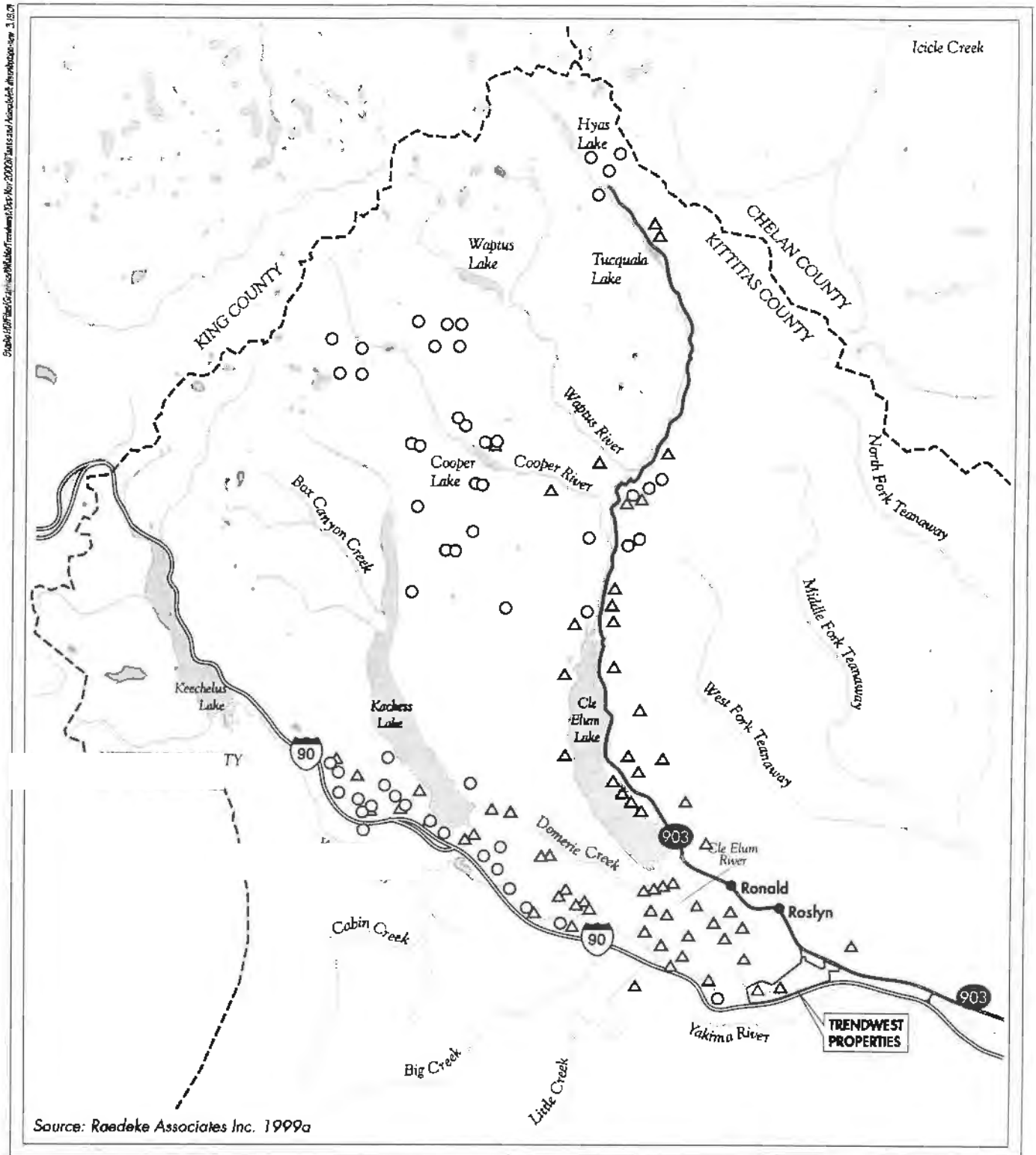


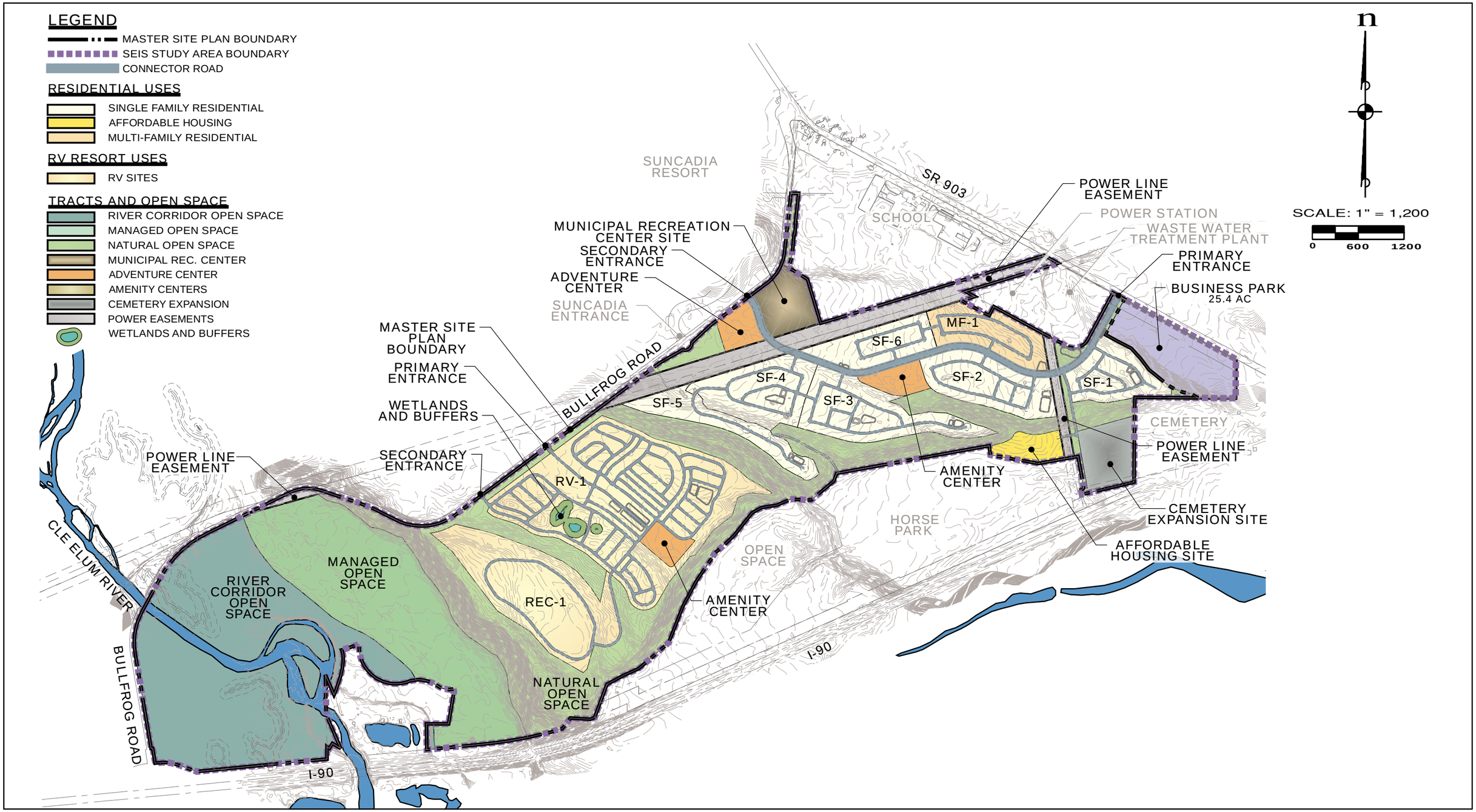
Figure 4

REPRESENTATION OF SEASONAL ELK DISTRIBUTION IN UPPER KITTITAS COUNTY

TRENDWEST PROPERTIES: CLE ELUM UGA
DRAFT EIS

SHAPIRO & ASSOCIATES, INC.

1981069



Source: ESM Consulting Engineers, 2020.

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Figure 5

Proposed 47° North Master Site Plan Amendment -- SEIS Alternative 6

LAND USE SUMMARY

RESIDENTIAL USES	AREA (Acres)	Quantity Proposed
Single Family Residential	165	810 Units
Multi-Family Residential	56	524 Units
Affordable Residential	7.5	*
Subtotal	228.5 (20.8%)	1334 Units
NON-RESIDENTIAL USES: Trendwest Facilities		
Neighborhood Clubhouse & Lake	18	
Recreation Expansion	10.5	
Subtotal	28.5 (2.6%)	
OTHER USES		
Community Recreation Center	12	
School Expansion	35	
Cemetery Expansion	10	
Business Park	75	950,000 SF
Water Treatment Plant	12	
Reserve	175	
Subtotal	319 (29.0%)	
OPEN SPACE		
Undeveloped Open Space	246	
Buffers / Steep Slope Areas	172	
Powerline R.O.W.	37	
Residential Buffers	69	
Subtotal	524 (47.6%)	
Total	1100 (100%)	1334 Units

* 50 Units of Affordable Housing not included in total units

RESIDENTIAL USES

Housing Type	Gross Acreage (Acres)	Approximate Unit Yield	Density (Dwelling Units Per Acre)
Single Family			
Parcel P-1	30.1	120	2-5 DU/Acre
Parcel P-2	39.3	184	2-5 DU/Acre
Parcel P-3	19.4	118	3-7 DU/Acre
Parcel P-4	31.1	144	3-7 DU/Acre
Parcel S-1	17.7	96	3-7 DU/Acre
Parcel S-2	27.4	148	3-7 DU/Acre
Multi-Family			
Parcel B	17.3	150	8-15 DU/Acre
Parcel J	17.6	184	8-15 DU/Acre
Parcel M	21.1	210	8-15 DU/Acre
Affordable			
Parcel A	7.5	*	5-8 DU/Acre
Total	228.5	1334	2-15 DU/Acre

* 50 Units of Affordable Housing not included in total units

Source: City of Cle Elum, 2002.

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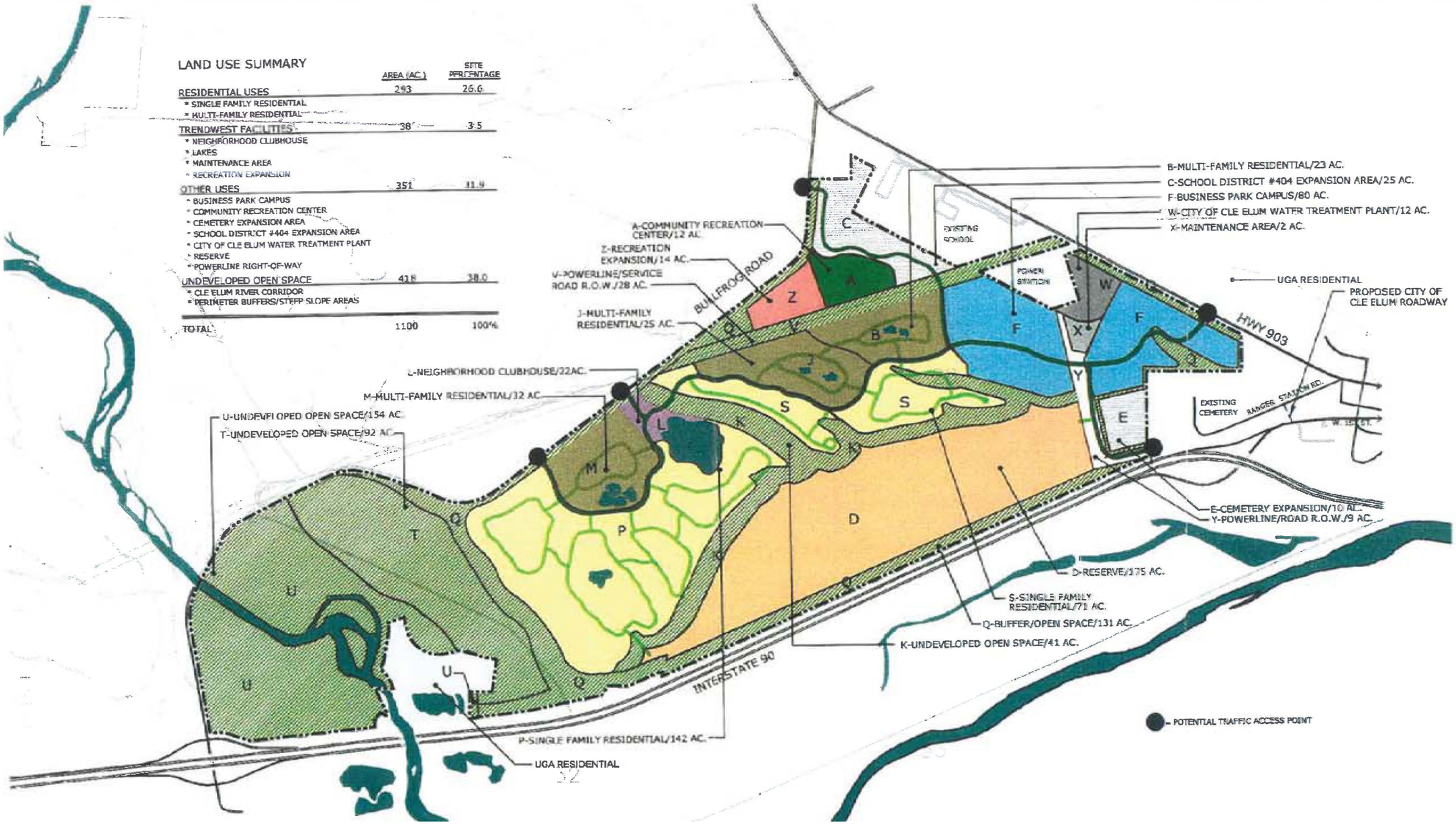
Figure 6

Approved Bullfrog Flats Master Site Plan—SEIS Alternative 5



Note: This figure is not to scale

Source: City of Cle Elum, 2002.

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Figure 7

Original Bullfrog Flats Master Site Plan—FEIS Alternative 5

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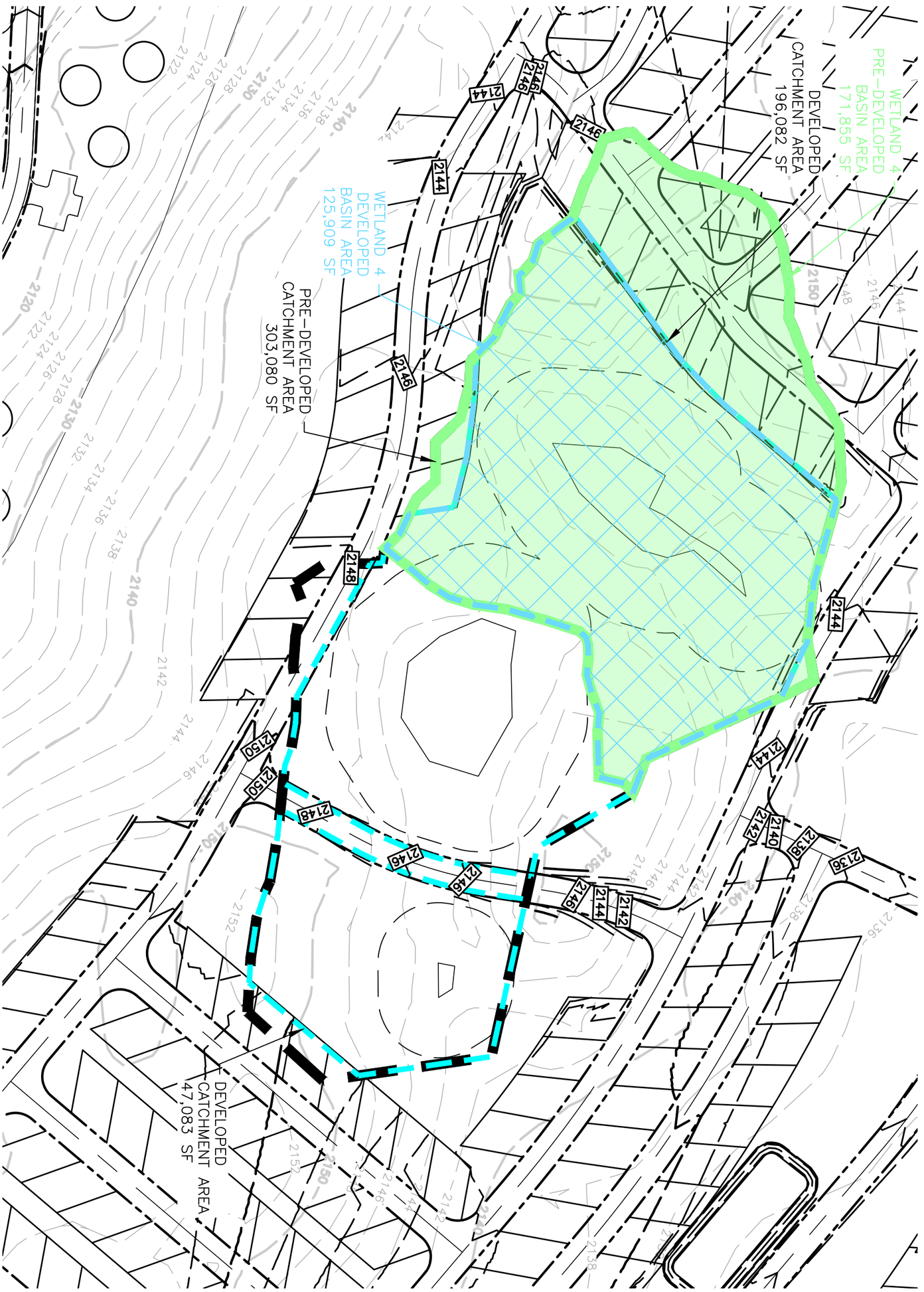

Figure 8

47° N
RV RESORT & RESIDENCES

DRAWING: EN-23

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SUN COMMUNITIES INC

47° NORTH

CATCHMENT AREA EXHIBIT

Table 1. Summary of wetlands on the 47° North project site based on previous EIS studies (City of Cle Elum 2001, 2002) and the current EIS Update.

Wetland	Vegetation Class	Size (acres)	2001/2002 EIS[1]		2020 SEIS[2]	
			Rating	Buffer (ft)	Rating	Buffer (ft)
1	PEM/PSS	0.6	IV	25	II	200[3]
2	PSS/PFO	2	II	100	II	200[3]
3	PSS/PFO	1.4	II	100	II	200[3]
4	PSS/PFO	0.19	III	50	I	75
5	PSS	0.30	III	50	II	75
6	PSS	0.01	--	--	III	60

1 Ratings and buffers from the 2001/2002 EIS are based on then-current City of Cle Elum code requirements.

2 Ratings and buffers for the current SEIS are based on the current WDOE rating system (Hruby 2014) and the current City of Cle Elum (2019) critical areas regulations.

3 Wetlands 1, 2, and 3 are located in the flood plain of the Cle Elum River, which requires 200-foot buffers under the City of Cle Elum (2016) Shoreline Management Program.

Table 2. Summary of vegetative Cover types within the 47° N project site, based on 2019 field investigations.

Cover Type	Cover Type Symbol	Existing Habitat (Acres)	Percentage of Cover Within 47° N Footprint
Forested Coniferous: mixed coniferous species, open canopy	Fc-c	21.4	2.7%
Forested Coniferous: mixed coniferous species, open canopy (thinned)	Fc-ct	313.0	39.0%
Forested Coniferous: Douglas-fir dominant, Closed canopy	Fc-f	12.1	1.5%
Forested Coniferous: Ponderosa pine dominant, closed canopy	Fc-p	66.8	8.3%
Forested Coniferous: Ponderosa pine dominant, closed canopy (thinned)	Fc-pt	140.6	17.5%
Forested Deciduous: mixed deciduous species	Fd	21.4	2.7%
Forested Mixed: mixed deciduous and coniferous species	Fm	36.9	4.6%
Forested Early Successional: mixed conifer	Fs-c	128.2	16.0%
Cle Elum River	River	16.4	2.0%
Powerline Corridor Right-of-way: herbaceous & scattered shrubs/saplings	ROW	38.9	4.8%
Wetland	WL	7.4	0.9%
Total		**803.1**	**100.0%**

Table 3. Endangered, Threatened, Proposed, Candidate, Species of Concern, and Sensitive Animal Species Identified by Federal and State Agencies as Potentially Occurring in the project Vicinity.

Scientific Name	Common Name	Federal Status	State Status
Haliaeetus leucocephalus	Bald eagle	none	sensitive
Strix occidentalis caurina	Northern spotted owl	threatened	endangered
Rana cascadae	Cascades frog	none	none
Rana luteiventris	Columbia spotted frog	None	candidate
Plethodon larselli	Larch Mountain salamander	species of concern	sensitive
Ascaphus truei	Tailed frog	species of concern	monitor
Chlidonias niger	Black tern	none	none
Buteo regalis	Ferruginous hark	species of concern	threatened
Hisrrionicus hisrrionicus	Harlequin duck	none	none
Empidonax traillii brewsteri	Little willow flycatcher	none	none
Accipiter gentilis	Northern goshawk	species of concern	candidate
Contopus cooperii	Olive-sided flycatcher	species of concern	none
Falco peregrinus	Peregrine falcon	species of concern	none
Myotis (five species)	Myotis bats	species of concern	monitor
Martes pennanti	Pacific fisher	candidate	endangered
Corynorhinus townsendii	Pacific/Pale Townsend's big-eared bat	species of concern	candidate
Sciurus griseus griseus	Western gray squirrel	species of concern	threatened
Contia tenuis	Sharp-tailed Snake	species of concern	candidate
Picoides arcticus	Black-backed Woodpecker	none	candidate
Dryocopus pileatus	Pileated Woodpecker	none	candidate
Chaetura vauxi	Vaux's swift	none	candidate
Pandion haliaetus	Osprey	none	none
Cathartes aura	Turkey vulture	none	none
Sialia mexicana	Western bluebird	none	none
Odocoileus hemionus	Rocky Mountain mule deer	none	priority game species
Cervus elaphus nelsoni	Rocky Mountain Elk	none	priority game species
Canis lupus	Gray wolf	endangered	endangered*
Lynx canadensis	Canada lynx	threatened	endangered
Ursus arctos	Grizzly bear	threatened	endangered
Gulo gulo luteus	North American wolverine	candidate	candidate
Brachyramphus marmoratus	Marbled murrelet	threatened	threatened
Coccyzus americanus	Western yellow-billed cuckoo	threatened	endangered

Source: WDFW 2008; USFWS 2012, 2019

* Gray wolf is listed as endangered in the western two-thirds of Washington and not listed in the eastern third of Washington

** Species that have been up-listed (more stringent regulations) since 2002 are highlighted in yellow, species that have been down-listed (less stringent regulations) since 2002 are highlighted in green.

Table 4. Common and scientific names of wildlife observed (seen or heard) and wildlife sign recorded within the project site during our October 2019 field investigation.

Common Name	Scientific Name
BIRDS	
Golden-crowned kinglet	*Regulus satrapa*
White-breasted nuthatch	*Sitta carolinensis*
Black-capped Chickadee	*Poecile atricapillus*
American Crow	*Corvus brachyrhynchos*
Common Raven	*Corvus corax*
Mountain Chickadee	*Poecile gambeli*
Red-breasted nuthatch	*Sitta canadensis*
Varied thrush	*Ixoreus naevius*
Downy Woodpecker	*Picoides pubescens*
Hairy Woodpecker	*Leuconotopicus villosus*
Pileated Woodpecker	*Dryocopus pileatus*
Red-tailed Hawk	*Buteo jamaicensis*
American Robin	*Turdus migratorius*
Dark-eyed Junco	*Junco hyemalis*
Steller's Jay	*Cyanocitta stelleri*
Gray Jay	*Perisoreus canadensis*
Spotted Towhee	*Pipilo maculatus*
Ruffed Grouse	*Bonasa umbellus*
MAMMALS	
Black-tailed deer	*Odocoileus hemionus*
Elk	*Cervus elaphus*
Towsend's Mole	*Scapanus townsendii*

Table 5. Summary of Land Use by Alternative.

	FEIS Alt. 5		SEIS Alt. 5		SEIS Alt. 6	
	Ac.	**Units**	**Ac.**	**Units**	**Ac.**	**Units**
Residential Uses						
Single-Family	213	810	165	810	124.7	527
Multi-Family	78	524	56	524	18.6	180
RV Resort	---	---	---	---	145.6	627
Affordable Housing Site	---	---	7.5	(50)[2]	6.8	---[1]
Subtotal	**291**	**1,334**	**228.5**	**1,334[2]**	**295.7**	**1,334**
Non-Residential Uses						
Neighborhood Clubhouse & Lake (Amenity/Adventure Centers)	22		18		16.9	
Recreation Expansion	11		10.5		---	
Subtotal	**33**		**28.5**		**16.9**	
Other Uses						
Community (Municipal) Recreation Center	12		12		12.2	
School Expansion Site	35		35		---[3]	
Cemetery Expansion Site	10		10		13.4	
Commercial Development	80		75		(25.4)[4]	
Water Treatment Plant Site	12		12		---[3]	
Reserve: Horse Park, Open Space, Buffer	175[5]		175[5]		---[5]	
Maintenance Area	2		---		---	
Connector Road	---[6]		---[6]		9.5	
Subtotal	**326**		**319**		**35.1**	
Open Space						
Undeveloped Open Space	287		246		436.1[7]	
Steep Slope Areas/Buffers	126		172		---[8]	
Wetlands/Buffers	---[9]		---[9]		3.4	
Powerline Right of Way	37		37		37.2	
Residential Buffers	---		69		---[10]	
Subtotal	**450**		**524**		**476.7**	
TOTAL	**1,100**	**1,334**	**1,100**	**1,334[2]**	**824.4**	**1,334**
TOTAL CLEARED AREA[11]	**403[12]**		**401**		**333.3**	

Source: 2002 UGA FEIS, 2002 Development Agreement and Sun Communities, 2019.

[1]No development of affordable housing units are assumed at this time under SEIS Alt. 6.

[2]The affordable housing units are not included in the total residential unit count under SEIS Alt. 5.

[3]The school expansion and water treatment sites have been dedicated to the Cle Elum Roslyn School District and the City of Cle Elum, respectively. Therefore, these areas are not included under SEIS Alt. 6.

Table 5. Continued.

[4]The commercial development is not included in SEIS Alt. 6 because it is currently owned by Suncadia. The cleared area (18.0 acres) is included in the SEIS Alt. 6 total cleared area.

[5]The reserve area consists of the Horse Park (112 ac.) to the south of the 47°N site, open space between the Horse Park and the 47°N site (55 ac.), and the buffer along I-90 (8 ac.). The reserve area is not included as cleared in FEIS Alt. 5, SEIS Alt. 5, or SEIS Alt. 6.

[6]The connector road is incorporated into the other developed areas under FEIS Alt. 5 and SEIS Alt. 5.

[7]The undeveloped open space includes river corridor open space (160.0 ac.), managed open space (103.9 ac.), and natural open space (172.2 ac.) under SEIS Alt. 6.

[8]The steep slope areas and the buffers in RV-1 are included in the undeveloped open space under SEIS Alt. 6; other wetlands/buffers are included in the river corridor open space.

[9]The wetlands/buffers are included in the river corridor open space.

[10]While some vegetation would be preserved/provided in the residential areas under SEIS Alt. 6, these areas are not included in the open space calculations.

[11]Some of the areas assumed to be cleared and in impervious surfaces differ between the alternatives (e.g., the areas for the public facilities, community recreation center, school expansion, and cemetery expansion) because different assumptions were made for these areas in the 2002 EIS for FEIS Alt.5, the 2002 DA for SEIS Alt. 5, and the current revised plan for SEIS Alt. 6.

[12]Cleared area for FEIS Alt. 5 was obtained from 2002 EIS Appendix E, Site Engineering Technical Report Table 1-1.

APPENDIX A:

Agency Species of Concern Lists:
WDFW Priority Habitats and Species
NOAA Fisheries Status of ESA Listings, West Coast Salmon & Steelhead
USFWS List of Threatened and Endangered Species

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic
REPORT DATE: 10/16/2019 10.05

Query ID: P191016100524

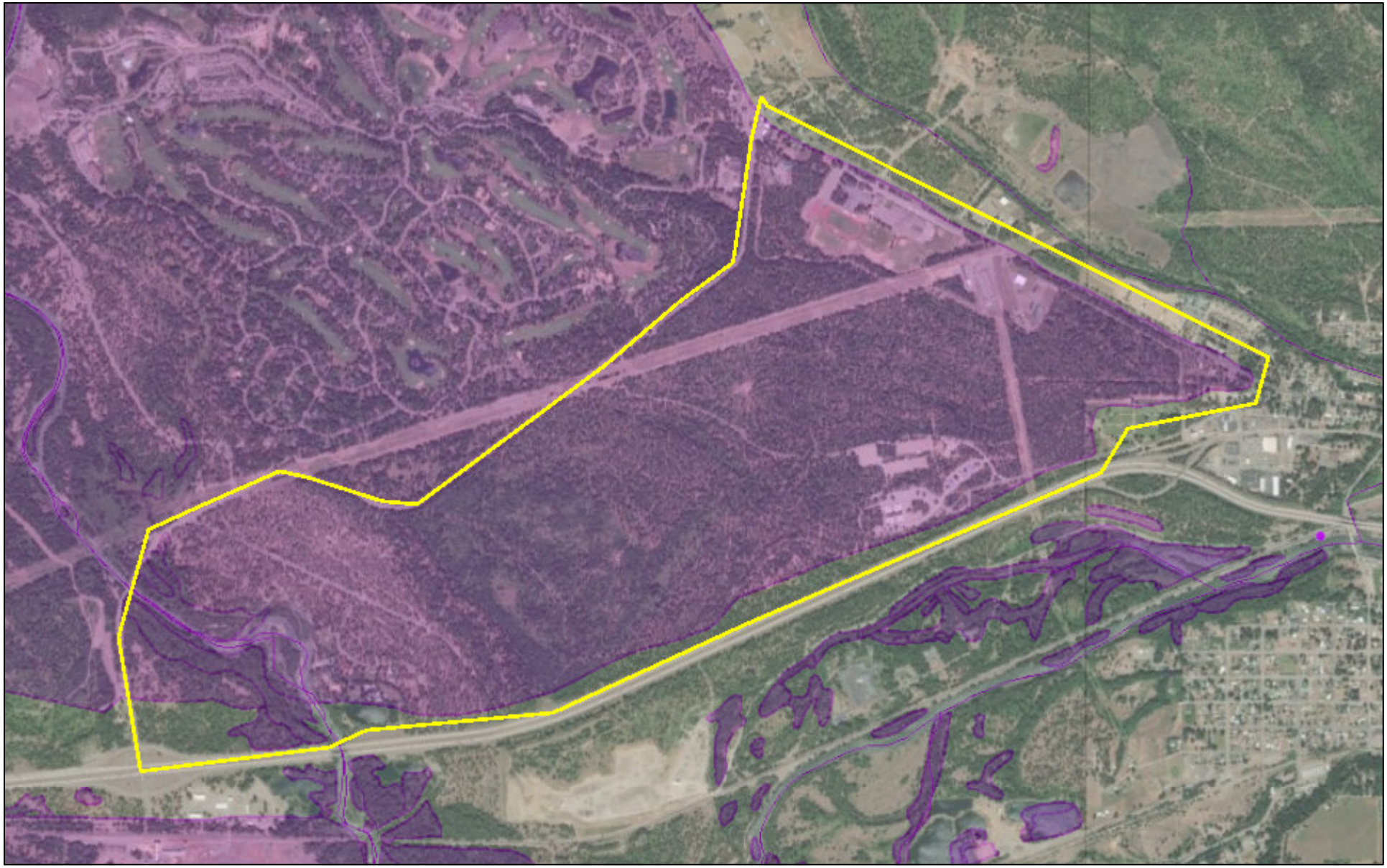
Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Chinook Oncorhynchus tshawytscha	Cle Elum River SASI 1747	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Not Warranted N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Coho Oncorhynchus kisutch	Cle Elum River SWIFD 5615	Breeding Area Breeding area http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Dolly Varden/ Bull Trout Salvelinus malma	Cle Elum River SWIFD 5619	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Elk Cervus elaphus	DOMERIE FLATS ELK PHSREGION 901287	Regular Concentration Regular concentration http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons
Freshwater Forested/Shrub	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons

Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Freshwater Forested/Shrub	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Northern Spotted Owl Strix occidentalis	WS_OccurPoint 75817 May 17, 2003	Occurrence Biotic detection http://wdfw.wa.gov/publications/pub.php?	Map 1:24,000 <= 40	Threatened Endangered PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Points
Northern Spotted Owl Strix occidentalis	WS_OwlStatus_Buf	Management Buffer Management buffer http://wdfw.wa.gov/publications/pub.php?	NA	Threatened Endangered PHS Listed	Y TOWNSHIP	WA Dept. of Fish and Wildlife Polygons
Rainbow Trout Oncorhynchus mykiss	Cle Elum River SWIFD 5627	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Riverine	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Sharp-tailed Snake Contia tenuis	WS_OccurPoint 17662 August 21, 1999	Occurrence Biotic detection http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Points
Sharp-tailed Snake Contia tenuis	WS_OccurPoint 146725 May 06, 2018	Occurrence Biotic detection http://wdfw.wa.gov/publications/pub.php?	GPS	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Points

Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Sharp-tailed Snake Contia tenuis	WS_OccurPoint 10681 April 21, 1994	Occurrence Biotic detection http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Points
Sharp-tailed Snake Contia tenuis	WS_OccurPoint 17488 April 12, 1994	Occurrence Biotic detection http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Points
Sharp-tailed Snake Contia tenuis	PHSREGION 917950	Occurrence Individual occurrence http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Polygons
Sharp-tailed Snake Contia tenuis	WS_OccurPoint 10272 July 01, 1978	Occurrence Biotic detection http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Points
Sharp-tailed Snake Contia tenuis	WS_OccurPoint 10274 May 01, 1978	Occurrence Biotic detection http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Points
Sharp-tailed Snake Contia tenuis	WS_OccurPoint 10686 May 18, 1994	Occurrence Biotic detection http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Points
Sharp-tailed Snake Contia tenuis	WS_OccurPoint 17493 July 02, 1997	Occurrence Biotic detection http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Points
Sharp-tailed Snake Contia tenuis	PHSREGION 917950	Occurrence Individual occurrence http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Candidate PHS LISTED	Y QTR-TWP	WA Dept. of Fish and Wildlife Polygons

Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Spring Chinook Oncorhynchus tshawytscha	Cle Elum River SWIFD 5612	Breeding Area Breeding area http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	 Lines
Steelhead Oncorhynchus mykiss	Cle Elum River SASI 6894	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Threatened N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Summer Steelhead Oncorhynchus mykiss	Cle Elum River SWIFD 5628	Breeding Area Breeding area http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	 Lines
Westslope Cutthroat Oncorhynchus clarki lewisi	Cle Elum River SWIFD 5630	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	 Lines

WDFW Test Map



October 16, 2019

PHS Report Clip Area

PT

LN

POLY

AS MAPPED

SECTION

QTR-TWP

TOWNSHIP

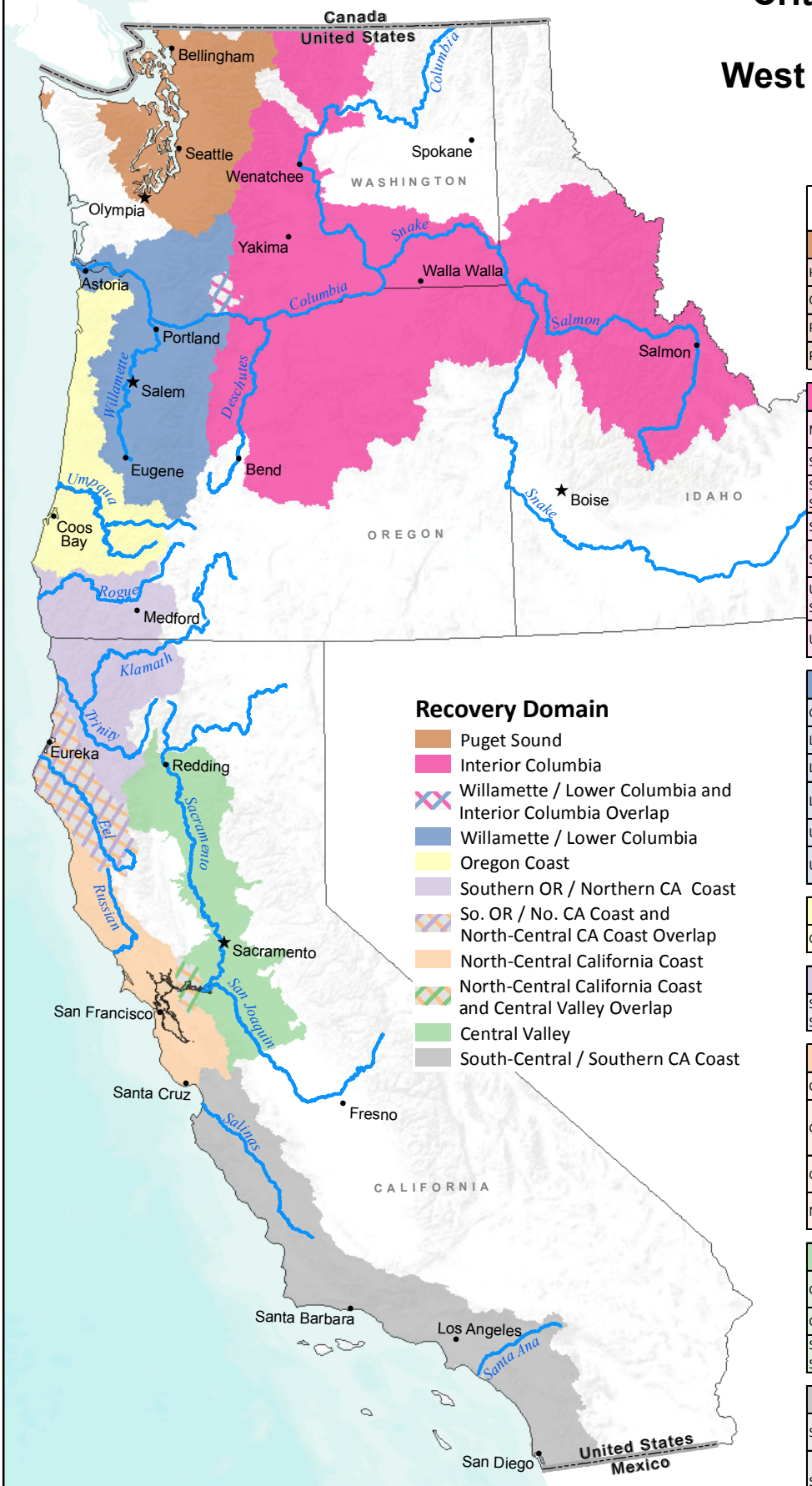
1:32,858

0 0.275 0.55 1.1 mi

0 0.45 0.9 1.8 km

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

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 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 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 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 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 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) 6/28/2005 (E) 4/2/2012 (RE)	5/5/1999
Central California Coast Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Northern California Steelhead	T	6/7/2000 1/5/2006	9/2/2005
Central Valley Recovery Domain			
California Central Valley Steelhead	T	3/19/1998 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) 1/4/1994 (E)	6/16/1993
South-Central / Southern California Coast Recovery Domain			
South-Central California Coast Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Southern California Steelhead	E	8/18/1997 5/1/2002 (RE) 1/5/2006	9/2/2005

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

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

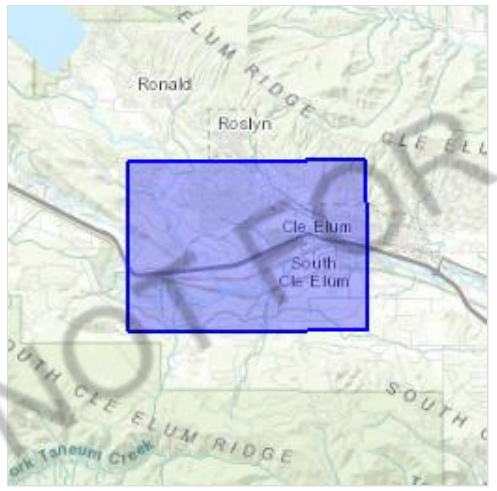
IPaC resource list

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

Kittitas 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] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME	STATUS

Canada Lynx Lynx canadensis — Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/3652

Gray Wolf Canis lupus — Endangered

U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico.

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/4488

Gray Wolf Canis lupus — Proposed Endangered

Western Distinct Population Segment

No critical habitat has been designated for this species.

North American Wolverine Gulo gulo luscus — Proposed Threatened

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5123

Birds

NAME	STATUS

Marbled Murrelet Brachyramphus marmoratus — Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/4467

Northern Spotted Owl Strix occidentalis caurina — Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/1123

Yellow-billed Cuckoo Coccyzus americanus — Threatened

There is **proposed** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/3911

Fishes

NAME	STATUS

Bull Trout Salvelinus confluentus — Threatened

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
https://ecos.fws.gov/ecp/species/8212

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
Bull Trout Salvelinus confluentus https://ecos.fws.gov/ecp/species/8212#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 person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider 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.

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 birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black Swift Cypseloides niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Brewer's Sparrow Spizella breweri This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10
Golden Eagle Aquila chrysaetos This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Lewis's Woodpecker Melanerpes lewis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Sage Thrasher Oreoscoptes montanus — Breeds Apr 15 to Aug 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9433

White Headed Woodpecker Picoides albolarvatus — Breeds May 1 to Aug 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9411

Williamson's Sapsucker Sphyrapicus thyroideus — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8832

Willow Flycatcher Empidonax traillii — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/3482

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence

across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

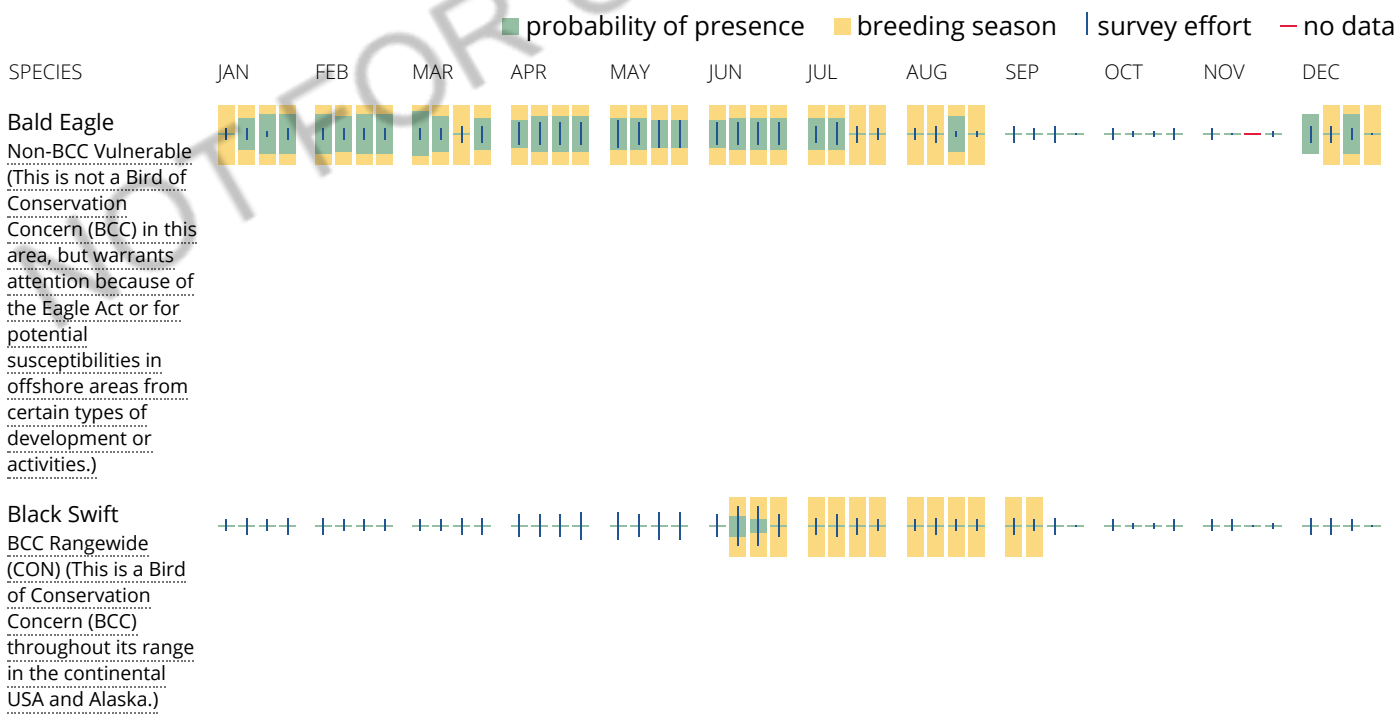
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

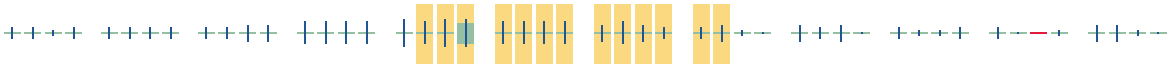
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

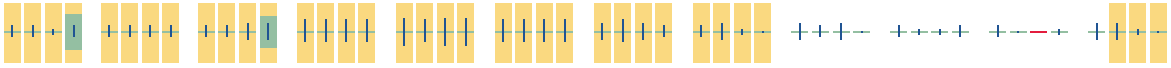
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



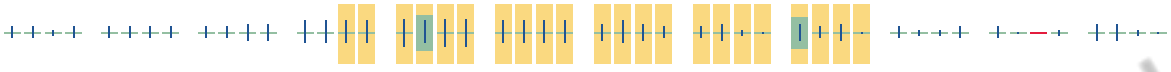
Brewer's Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



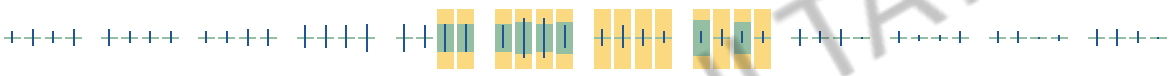
Golden Eagle
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



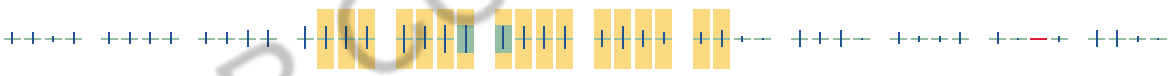
Lewis's Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Olive-sided Flycatcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



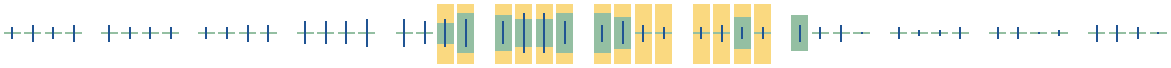
Sage Thrasher
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



White Headed Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Williamson's Sapsucker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Willow Flycatcher
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1F
- PEM1C
- PEM1Fx
- PEM1A
- PEM1Cx

FRESHWATER FORESTED/SHRUB WETLAND

- PSSC
- PFOA
- PSSA
- PFOC
- PSS/FOC
- PFO/SSC

FRESHWATER POND

- PUBHx
- PUBH
- PABHx

RIVERINE

- R3UBH
- R4SBCx
- R4SBC
- R5UBH
- R3USA
- R3USC
- R5UBFx
- R4SBA

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.