Exhibit 7
SHOR19-03





Critical Areas Report

NE Lake Road and NE Everett Street

City of Camas | Project # T1011

Prepared for

City of Camas

Camas, Washington

January 2020

Critical Areas Report

Northeast Lake Road and Northeast Everett Street Intersection Improvements
City of Camas Project #T1011

Prepared for

City of Camas
616 Northwest Fourth Avenue
Camas, Washington 98607

January 2020

Submitted by

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CRITICAL AREAS REPORT

City of Camas
Northeast Lake Road and Northeast Everett Street
Intersection Improvements

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1.0 INTRODUCTION

The City of Camas (City) proposes to improve traffic flow and reduce congestion at the intersection of Northeast Lake Road and Northeast Everett Street by constructing a roundabout. Northeast Everett Street (State Route 500 [SR 500]) and Northeast Lake Road currently meet in a three-legged signalized intersection. The surrounding area includes Lacamas Lake, Round Lake, Fallen Leaf Lake Park, Lacamas Regional Park, Lacamas Lake Lodge and Conference Center, Camas Produce, and private residences. The two roads that meet at the Northeast Lake Road and Northeast Everett Street intersection are critical links between the south shore and north shore areas of Camas. Average daily traffic entering the intersection is well over 15,000 vehicles. The City has received state preconstruction funds from the Public Works Board to complete design and permitting and to secure the property rights needed for this project.

The project limits extend from the entrance to Fallen Leaf Lake Park (located to the south of the intersection) to the Everett Street Bridge to the north, and from the sidewalk terminus at the Lodge, to the intersection of Lake Road and Everett Street. (See Figure 1 for a vicinity map; all the figures are included in Appendix A.) The project also includes the City-owned property east of the intersection in its entirety. The project area is located in the NW 1/4 of Section 02, Township 01 North, Range 03 East of the Willamette Meridian (WM).

This critical areas report has been prepared consistent with the requirements of Section 16.51.130 of Appendix C to the Camas Shoreline Master Program (SMP) (Appendix C). The project has been designed to avoid and minimize, to the greatest extent possible, impacts to critical areas within the City's jurisdiction, and this report documents the measures proposed to avoid and minimize impacts to critical areas and the actions proposed as mitigation for unavoidable impacts.

2.0 PROJECT DESCRIPTION

The existing intersection at Lake Road and Everett Street does not meet the minimum level of service required by the City, and road and intersection improvements are needed to create adequate capacity. PBS Engineering and Environmental (PBS) conducted an alternatives analysis that considered concepts consisting of roundabout and signalized intersection designs. The analysis resulted in the selection of one roundabout design replacing the existing signal and accommodating free vehicle movements through the intersection. (See Figures 2A and 2B for an overview of the project.) Of the alternatives explored by the City, the preferred alternative minimizes critical area impacts to the greatest degree possible. The community provided input on this chosen alternative via two public open houses, and the City intends to use various means to continue to engage residents.

The preferred design splits the travel lanes in two as they approach the roundabout. The outer lane will allow right-hand turning movements while requiring vehicles to yield to automobiles within the roundabout or pedestrians using the crosswalks. The inside lane will allow vehicles to continue through the roundabout to accommodate turn movements onto westbound Lake Road from northbound Everett Street or from eastbound Lake Road to northbound Everett Street. The sidewalks proposed at the roundabout and along Northeast Everett Street will establish a pedestrian connection from the Fallen Leaf Lake

Park driveway to the parking lot of Lacamas Park. Sidewalks are also proposed along the north side of Lake Road connecting to the existing sidewalk near Lacamas Lake Lodge. These improvements will enhance pedestrian access and safety.

2.1 QUALIFICATIONS

WSP environmental scientists Dustin Day, Allison Kinney, and Bridget Wojtala prepared this critical areas report. Dustin is a certified professional wetland scientist (PWS #2066) with a bachelor's degree in biology, a master's degree in environmental management, and over 20 years of experience as a practicing natural resources professional, including preparing natural resource inventories and characterizations and technical documentation. Allison is an environmental scientist with a bachelor's degree in environmental science and five years of experience conducting wetland delineations and habitat assessments and preparing technical documents. Bridget is an environmental scientist with a bachelor's degree in natural resources management, and three years of experience conducting natural resources assessments and preparing technical documents.

2.2 METHODOLOGY

The WSP scientists visited the site and reviewed existing literature and documentation to determine the extent and condition of the critical areas present within the project area and vicinity.

A Wetland and Waterbodies Delineation and Assessment was completed in January 2019 by BergerABAM (BergerABAM 2019b). (See shoreline narrative for copy of Wetland and Waterbodies Delineation and Assessment.) The wetland delineation was conducted consistent with the *U.S. Army Corps of Engineers (USACE) 2010 Regional Supplement to the USACE Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2* (the regional supplement) (USACE 2010). The scientist used the methodology discussed in the regional supplement, as well as technical guidance and documentation issued by the USACE and the Washington State Department of Ecology (Ecology). Wetlands were classified according to the U.S. Fish and Wildlife Service (USFWS) classification system (Cowardin et al. 1979) and the hydrogeomorphic (HGM) classification system (Adamus et al. 2001). Wetlands were also rated based on Ecology's revised Washington State Wetland Rating System for Western Washington: 2014 Update (Hruby 2014).

Additionally, a Baseline Habitat Assessment was completed in February 2019 by BergerABAM (BergerABAM 2019a). (See shoreline narrative for copy of Baseline Habitat Assessment.) The site's baseline conditions were determine through site visit observations and by reviewing relevant reference materials, including those listed below.

Additional technical resources used to prepare this critical areas report include the following.

- Clark County (County) MapsOnline – GIS online database
- Federal Emergency Management Agency (FEMA) flood insurance rate map (FIRM), Clark County, Washington, Map Numbers 53011C0529D and 53011C0532E (FEMA 2012a)

- Liquefaction Susceptibility and Site Class Maps of Washington State, by County: Clark County (Stephen P. Palmer et al., 2004)
- National Marine Fisheries Service Endangered Species Act (ESA) List of West Coast Salmon and Steelhead
- U.S. Environmental Protection Agency Troutdale aquifer system map
- USFWS Information for Planning and Consultation System (IPaC) database (USFWS 2019a)
- USFWS National Wetlands Inventory (NWI) – online database (USFWS 2019b)
- Washington Department of Fish and Wildlife (WDFW) Priority Species and Habitat (PHS) PHS on the Web – online database (WDFW 2019a)
- Washington State Department of Natural Resources (DNR) geologic hazards maps (DNR 2019a)
- DNR Forest Practices Application Mapping Tool – online database (DNR 2018b)

2.3 STATEMENT OF ACCURACY

The analysis and findings presented in this critical areas assessment are based on the best available science at the time of preparation, as well as on the best professional judgment of the scientists conducting the analysis. The findings are to be considered preliminary until the assessment has been reviewed and approved in writing by City staff.

2.4 REGULATED ACTIVITIES AND REQUIRED PERMITS

The project area is within the jurisdiction of the City and will be subject to its critical areas ordinance in the SMP, Sections 16.51 through 16.61 of Appendix C. The City is applying for a critical areas permit. The results of this assessment indicate that the project area contains wetlands regulated under Section 16.53 of Appendix C, critical aquifer recharge areas (CARA) regulated under Section 16.55, frequently flooded areas under Section 16.57, and fish and wildlife habitat conservation areas regulated under Section 16.61. Not present within the project area are geologically hazardous areas that do occur on the site are of very low risk (Section 16.59).

3.0 EXISTING CONDITIONS

The project site is located in the portion of the city north of SR 14 and the Columbia River along Northeast Everett Street (SR 500). The project limits extend from the entrance to Fallen Leaf Lake Park (located to the south of the intersection of Lake Road and Everett Street) to the Everett Street Bridge to the north, and from the sidewalk terminus at the Lodge, to the intersection of Lake Road and Everett Street. The project also includes the City-owned property east of the intersection in its entirety.

The scientists examined the topography of the site, which is generally flat. (See Figure 3 for a map of the topography in the vicinity.) The scientists identified two wetlands, Wetland A and Wetland B, in the project area (BergerABAM 2019b). Slopes are fairly gradual near the western boundary of Wetland A and short and steep down to Wetland B.

Vegetation within the project area is dominated by a variety of native and non-native herbaceous species and three native tree species. Native species within the project area include slough sedge (*Carex obnupta*, OBL), soft rush (*Juncus effusus*, FACW), clasping twisted stalk (*Streptopus amplexifolius*, FAC), western sword fern (*Polystichum munitum*, FACU), Oregon ash (*Fraxinus latifolia*, FACW), Douglas fir (*Pseudotsuga menziesii*, FACU), red osier dogwood (*Cornus sericea*), red alder (*Alnus rubra*), and big-leaf maple (*Acer macrophyllum*, FACU). The non-native species found within the project area include English ivy (*Hedera helix*, FACU), Himalayan blackberry (*Rubus armeniacus*, FAC), and reed canarygrass (*Phalaris arundinacea*, FACW).

The surrounding area consists of a combination of developed residential and commercial lots and parkland and open space with limited development. (See Figure 4 for a parcel map.) Generally, areas to the east and west of the project site are less developed, while areas to the north and south have experienced more development. There are three waterbodies close to the project area, Lacamas Lake to the north and west, Round Lake to the east, and Fallen Leaf Lake to the south and west (BergerABAM 2019b). Riparian areas adjacent to these lakes are generally well forested and provide a significant level of habitat function. In the more highly developed residential areas, most habitat is limited to use by species that have adapted to urbanized areas − rabbits, raccoons, opossums, common mice, and songbirds, among others. Outside of the wetland and riparian areas, the vegetation is generally characterized by lawn and landscaping and reflects the preferences of the individual landowner. In these areas, canopy cover is more limited and for the most part, the habitat lacks natural structure and complexity.

The two wetlands identified on the site share hydrologic connections with the lakes. The wetlands are identified as freshwater ponds by the NWI and fall on either side of Northeast Everett Street.

The project area is located in the southern portion of the Lacamas Lake watershed. Hydrology generally flows to the south in this area. Water is carried through Lacamas Lake, through Round Lake, and is discharged into Lacamas Creek, which eventually drains into the Columbia River. Wetland A shares a direct hydrological connection to Round Lake. Several small tributaries drain into Fallen Leaf Lake, which drains to Wetland B before water is discharged into Lacamas Lake via a culvert at the north end of the wetland.

Wetland A is classified as a palustrine, unconsolidated bottom, permanently flooded waterbody (PUBH) under the Cowardin classification system. Wetland B is classified as a palustrine, aquatic bed, permanently flooded waterbody (PABH) under the Cowardin classification system.

The DNR Forest Practices Application Mapping Tool database identifies Lacamas Lake, Round Lake, and Lacamas Creek as shorelines of the state. Fallen Leaf Lake is identified as a Type F (fish-bearing) waterbody. Wetland B is identified as a marsh area with an unnamed stream passing through it connecting Fallen Leaf Lake with Lacamas Lake.

4.0 REGULATED CRITICAL AREAS

The project area is located within the jurisdiction of the City and is subject to the critical areas ordinance section of its SMP (Sections 16.51 through 16.61 of Appendix C). The purpose of these code sections is to designate and classify ecologically sensitive and hazardous areas and protect them and their functions and values while allowing the reasonable use of property. Critical areas regulated under the code include wetlands, CARAs, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas. An assessment follows of the presence of these critical areas within the project site.

4.1 WETLANDS AND BUFFERS

The purpose of Section 16.53 of Appendix C is to designate, classify, and protect wetland areas. During BergerABAM's 2019 delineation of the wetlands in the project area for the project, the scientists identified two palustrine wetlands within the boundaries of the project area (BergerABM 2019b). Figure 5 identifies the wetlands delineated within the project area and their buffers.

Wetland A – This is an approximately 4.66-acre wetland located between Northeast Everett Street and Round Lake. The western portion of this wetland was delineated on December 21, 2018. The wetland is separated from Round Lake by a spit of land that forms the lake's eastern boundary and by a water control structure. The wetland extends beyond the eastern boundary of the study area. As stated in Section 3.0, Wetland A is classified as a PUBH waterbody under the USFWS wetland classification system (Cowardin et al. 1979). This wetland meets the HGM classification of a depressional wetland because it occurs in a topographic depression – a dam structure impounds water and allows the accumulation of surface water here. Wetland A scored 21 points, resulting in a Category II rating. Additional hydrology sources may include groundwater flow and/or surface water flow from the adjacent streets and parking lots. Approximately 0.82 acre of Wetland A is located within the study area.

Vegetation in Wetland A meets the hydrophytic vegetation criteria and is dominated by reed canary grass, slough sedge, and mosses. Soils within the wetland display hydric soil characteristics, which included brownish black (10YR 2/2 and 10YR 3/2), yellowish gray (2.5Y 4/1), and dark brown (10YR 3/3) matrix colors with brown (10YR 4/6) redox concentrations and pore linings within the matrix. This soil profile meets the description of a depleted matrix (indicator F3 in the regional supplement). The wetland has the primary hydrology indicators of oxidized rhizospheres along living roots (indicator C3) and saturation (indicator A3), and the secondary hydrology indicators of geomorphic position (indicator D2) and saturation visible on aerial imagery (indicator C9).

Wetland B – This approximately 6.36-acre wetland stretches west of Northeast Everett Street, east of Fallen Leaf Lake, and south of Northeast Lake Road. The wetland extends beyond the western boundary of the study area. Wetland B meets the HGM classification of a depressional wetland because it occurs in a topographic depression that allows the accumulation of surface water. Wetland B received a Category II rating with a score of 21. The scientists delineated the eastern portion of the wetland on December 21 and 27, 2018. According to the USFWS wetland classification system and as stated in Section 3.0, Wetland B is a PABH waterbody. It receives hydrologic inputs from Fallen Leaf

Lake to the west. Additional hydrology sources may include direct precipitation and overland sheet flow. Approximately 0.06 acre of Wetland B is located within the study area.

Vegetation in Wetland B meets the hydrophytic vegetation criteria and is dominated by slough sedge, English ivy, and Oregon ash. Soils within the wetland display hydric soil characteristics, which include brownish black (7.5YR 3/1), yellowish gray (2.5Y 4/1), and brownish black (2.5Y 3/2) soils within the matrix, with dark yellowish brown (10YR 5/6) redox concentrations and pore linings within the matrix of the soil profile. Hydric soil indicators include hydrogen sulfide (indicator A4) and sandy mucky mineral (indicator S1). The wetland has primary hydrology indicators of oxidized rhizospheres along living roots (indicator C3), high water table (indicator A2), and saturation (indicator A3), and the secondary hydrology indicators of geomorphic position (indicator D2) and saturation visible on aerial imagery (indicator C9).

Wetland Buffers – SMP Section 16.53.040 of Appendix C specifies buffer widths based on wetland category, functional characteristics, and associated land use intensity. All residential, commercial, and industrial zones, including road systems, are identified as high-intensity land uses. SMP Table 16.53.040-2, establishes buffer widths for Category II wetlands based on a wetland's habitat score and land use intensity. Based on the rating system, Wetland A received 7 points for habitat functions, and Wetland B received 6 points. Because they are both Category II wetlands adjacent to areas of high land use intensity, Wetland A requires a 220-foot protective buffer, and Wetland B requires a 180-foot protective buffer.

Table 1. Summary of Identified Wetland Areas

Wetland	Wetland Classification			Wetland Area (ac)	Buffer Width (ft)[c]
	Cowardin[a]	HGM	Wetland Rating[b]		
Wetland A	PUBH	Depressional	II	4.66	220
Wetland B	PABH	Depressional	II	6.36	180

Notes:
[a] Cowardin et al. (1979) class: PUBH = palustrine, unconsolidated bottom, permanently flooded; PABH = palustrine, aquatic bed, permanently flooded
[b] Wetland rating according to Hruby (2014).
[c] Buffer width based on CMC 16.53.040.

4.2 CRITICAL AQUIFER RECHARGE AREAS

As defined by Section 16.55.010 of Appendix C, CARAs are "those areas with a critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030(2). CARAs have prevailing geologic conditions associated with infiltration rates that create a high potential for contamination of ground water resources or contribute significantly to the replenishment of groundwater." These areas include wellhead protection areas, sole source aquifers, susceptible groundwater management areas, special protection areas, and moderately or highly vulnerable/susceptible aquifer recharges areas.

According to Clark County MapsOnline, the project area is mapped as a Category II CARA. According to EPA's map of the Troutdale aquifer, which is a sole source aquifer, the entire city (and nearly the entirety of Clark County), including the project site, is

within a CARA. The project does not propose any of the prohibited or specially regulated operations defined in Section 16.55.080 of Appendix C. For this reason, the project would not result in any impacts to CARAs, and no further analysis of CARAs is required.

4.3 FREQUENTLY FLOODED AREAS

According to Section 16.57.010 of Appendix C, frequently flooded areas include the areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report by FEMA entitled "The Flood Insurance Study for Clark County, Washington, and Incorporated Areas" dated September 5, 2012, and accompanying FIRM (FEMA 2012b).

According to FIRM Map Numbers 53011C0531D and 53011C0532E, a portion of the project area, including all of Wetlands A and B and a portion of Northeast Everett Street, is located within a frequently flooded area. (See Figure 7 for a map of frequently flooded areas.)

4.4 GEOLOGICALLY HAZARDOUS AREAS

Geologically hazardous areas include areas susceptible to erosion hazard, landslide hazard, seismic hazard, mine hazard, and other geologic events. (Figure 8 shows geologically hazardous areas.) Excerpts follow of the definitions of specific hazard areas included in Section 16.59.020 of Appendix C.

- Erosion hazard areas are areas where there is not a mapped or designated landslide hazard, but where there are steep slopes equal to or greater than 40 percent slope. Steep slopes that are less than 10 feet in vertical height and not part of a larger steep slope system, and steep slopes created through previous legal grading activity, are not regulated steep slope hazard areas.
- Landslide hazard areas are areas potentially subject to landslides based on a combination of geologic, topographic, and hydrologic factors. These areas are susceptible because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors.
- Seismic hazard areas are those areas subject to the risk of severe damage as a result of earthquake-induced soil liquefaction, ground shaking amplification, slope failure, settlement, or surface faulting.
- Other geologically hazardous areas include areas determined by the City to be susceptible to other geological events, including mass wasting, debris flows, rock falls, and differential settlement.

A review of Clark County MapsOnline and other available pertinent information indicates the following (Clark County 2019, DNR 2019a).

- There are no severe erosion hazard areas within the boundaries of the project area.
- There are mapped slopes greater than 15 percent to the west of Northeast Everett Street. These slopes are outside the boundaries of the project site and are not a landslide hazard, and all other slopes within or near the project site are at 5 to 15 percent.

- The project area is mapped as NEHRP Site Class C and as having a very low potential for soil liquefaction susceptibility. The DNR Geologic Information Portal indicates that the Lacamas Lake Fault is situated parallel to Lacamas Lake along its length and just north of the project area.

None of the designated geologic hazards are present within the project site or have a very low risk of liquifaction. The proposed project, therefore, will have no effect on geologically hazardous areas, and no further assessment of geologic hazards is required.

4.5 FISH AND WILDLIFE HABITAT CONSERVATION AREAS

Section 16.61.010 of Appendix C defines the following fish and wildlife habitat conservation areas.

- Areas with which state or federally designated endangered, threatened, and sensitive species have a primary association.
- State priority habitats and areas associated with state priority species. Priority habitats are those habitat types or elements with unique or significant value to a diverse assemblage of species. A priority habitat may consist of a unique vegetation type or dominant plant species, a described successional stage, or a specific structural element.
- Habitats of local importance are habitats identified by the City that are not designated as state priority habitats.
- Naturally occurring ponds under 20 acres. These are ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat, including artificial ponds intentionally created from dry areas in order to mitigate impacts to ponds.
- Waters of the state, including lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington as classified in WAC 22-16-031.
- Bodies of water planted with game fish by a governmental or tribal entity.
- State natural area preserves and natural resource conservation areas as designated and established by DNR.

The following section evaluates the potential presence/absence of these features within the project site. (See Figure 9 for a map of fish and wildlife habitat conservation areas.)

4.5.1 Threatened and Endangered Species

The WSP scientists reviewed various readily available resources — the USFWS IPaC database, the NOAA Fisheries regional website, the WDFW database SalmonScape, and the online StreamNet mapper — to determine if any threatened and endangered species or habitat are known or expected to occur within the project area (USFWS 2019a, NOAA Fisheries 2019, WDFW 2019b, Pacific States Marine Fisheries Commission 2019).

The USFWS IPaC database identifies the following federally listed species as having the potential to occur within the project area.

- Streaked horned lark (*Eremophila alpestris strigata*)
- Yellow-billed cuckoo (*Coccyzus americanus*)
- Oregon spotted frog (*Rana pretiosa*)
- Bull trout (*Salvelinus confluentus*)
- Golden paintbrush (*Castilleja levisecta*)

None of these species were identified during the site visit, nor did any of the habitat characteristics necessary for these animals and plant species occur within the project area. Oregon spotted frog exists in only six locations within Washington, and none are near the project site. Streaked horned lark nest on grasslands and sparsely vegetated areas, which are not present within the project site. Yellow-billed cuckoo prefer riparian deciduous forests, but the species is extremely scarce in Washington. Bull trout need cold water to survive and are not likely to be present in Lacamas Lake or Round Lake, which have elevated water temperatures due to their impounded nature. Golden paintbrush is found on open grasslands and does not tolerate shade from nearby trees and is, therefore, not likely to be found on site (USFWS 2019b).

The project site, therefore, does not provide any habitat for any ESA-listed species nor does it provide any designated or proposed critical habitats for any ESA-listed species.

4.5.2 Priority Species and Habitats

The WDFW PHS database indicates that the priority species rainbow trout (*Oncorhynchus mykiss*) and resident coastal cutthroat (*Oncorhynchus clarki*) are present in Lacamas Lake, Round Lake, and Lacamas Creek. These species are considered a priority because they meet the criteria for state-listed and candidate species and are species of recreational, commercial, and/or tribal importance. Additionally, PHS on the Web indicates that the forested areas surrounding Fallen Leaf Lake and Round Lake are part of a biodiversity area/corridor, and that Wetland B is a freshwater pond (WDFW 2018a). The Camas biodiversity area is noted to support mature timber, and occurrences of Vaux's swift surrounding Fallen Leaf Lake have also been frequently observed.

Vaux's swift is a state candidate species for listing, and it does not have a federal status. This species is typically associated with old-growth coniferous forests, where it often uses the insides of large hollow trees and snags for nesting and roosting. The species occasionally uses chimneys as nest sites, with older brick chimneys preferred. Older coniferous trees have been observed in the area, but it is unknown if any are hollow. It is assumed that the area has the potential to provide habitat for Vaux's swift.

The PHS database also indicates "caves or cave-rich environments" as potentially occurring within the boundaries of the project area. It should be noted, however, that the display resolution for this management buffer is at the township level and includes an area that stretches from the Columbia River to Northeast 99th Street in Vancouver, including nearly all of Camas. The project site itself does not contain any cave features, and none would be affected by the proposed project.

PHS data maps the western and eastern portions of the study area as the Camas biodiversity area. Under Section 16.61.010 of Appendix C, biodiversity areas are

regulated as state priority habitats. This mapped biodiversity area/corridor also extends across the entireties of Round Lake and Fallen Leaf Lake and includes the project area.

WDFW identifies biodiversity areas as those that are biologically diverse through a scientifically based assessment conducted over a landscape or as an area within a city or urban growth area (UGA) that contains habitat that is valuable to fish and/or wildlife and mostly comprises native vegetation. Relative to other vegetated areas in the same city or UGA, the mapped area is vertically diverse (e.g., multiple canopy layers, snags, or containing downed wood), horizontally diverse (e.g., contains a mosaic of native habitats), or supports a diverse community of species as identified by a qualified professional who has a degree in biology or closely related field and professional experience related to the habitats or species occurring in the biodiversity area. These areas may have more limited wildlife functions than other priority habitat areas because of their general nature and the constraints on them — they are often isolated or surrounded by highly urbanized lands. The Camas biodiversity area has limited habitat function because of invasive species coverage and the area's proximity to roadways and urban environments (BergerABAM 2019a). A site visit with a WDFW representative confirmed the degraded nature of the site; the understory is completely overgrown with English ivy (*Hedra helix*), and the site lacks the diverse community of species typical of a well-functioning habitat system. The site does contain a native overstory of mature conifer and deciduous trees that do provide some value. Therefore, while the site is degraded and provides limited functions, it is still a priority habitat and is regulated as a critical area in accordance with the City's SMP.

4.5.3 Habitats of Local Importance

The City's critical areas ordinance identifies the following two habitats of local importance.

- Oregon white oak trees (*Quercus garryana*), including individual trees with a 20-inch-diameter at breast height, stands greater than 1 acre when found to be valuable to fish and wildlife, and all Oregon white oak snags (unless identified by an arborist to be a hazard)

- Camas lily (*Camassia quamish*) fields of a significant concentration (1/4 acre).

There are no Oregon white oak trees within the study area, and no Oregon white oak trees, snags, or stands would be affected by the project. Similarly, there are no Camas lily fields of any size within the study area. Therefore, the project site does not include any habitats of local importance. This critical area will not be affected as a result of the project and will not be discussed further in this report.

4.5.4 Naturally Occurring Ponds

Both Wetlands A and B are identified as freshwater ponds according to the NWI mapping application (Figure 9).

4.5.5 Waters of the State

As previously stated, the DNR Forest Practices Application Mapping Tool database identifies Lacamas Lake, Round Lake, and Lacamas Creek as shorelines of the state.

Fallen Leaf Lake is identified as a Type F (fish-bearing) waterbody. Wetland B is identified as a marsh area with an unnamed stream passing through it, connecting Fallen Leaf Lake with Lacamas Lake, with both Fallen Leaf Lake, and the connection between Wetland B and Lacamas Lake indicated as fish-bearing waterbodies (Figure 9).

Section 16.61.040(D) of Appendix C establishes protective stream buffer widths based upon the DNR water typing system (DNR 2019c); buffer OHWM, or from the top of bank if the OHWM cannot be identified. The code states that buffer areas should be wide enough to achieve the full range of riparian and aquatic ecosystem functions. They include, but are not limited to, the protection of instream fish habitat through the control of temperature and sedimentation in streams, the preservation of fish and wildlife habitat, and the connection of riparian wildlife habitat to other habitats.

Section 16.61.040(D) of Appendix C indicates that Type S streams require a 150-foot riparian buffer, which would apply to Lacamas Lake, Round Lake, and Lacamas Creek. The section also indicates that there are two different buffer width requirements for Type F streams depending on anadromous fish use. Type F anadromous fish-bearing streams flowing to reaches with anadromous-fish-bearing access require a 100-foot riparian buffer, while Type F anadromous fish-bearing streams flowing to reaches without anadromous fish-bearing access require a 75-foot buffer.

As stated previously, the unnamed stream within the project area is considered a Type-F, non-anadromous fish-bearing stream. Consistent with Section 16.61.040(D) of Appendix C, the stream, therefore, would receive a 75-foot stream buffer.

4.5.6 Bodies of Water Planted with Game Fish

No bodies of water within the project area, including the unnamed stream, have been planted with game fish by any governmental or tribal entity. No impacts to any bodies of water planted with game fish by governmental or tribal entities will be impacted as a result of this project, and they are not addressed further in this report.

4.5.7 State Natural Area Preserves and Natural Resource Conservation Areas

There are no state natural area preserves or natural resource conservation areas within the project site or its vicinity. This critical area will not be impacted as a result of the project and is not discussed further in this report.

4.6 REGULATED CRITICAL AREAS SUMMARY

Critical areas are regulated under Section 16.51 of Appendix C and include wetlands and their associated buffers, CARAs, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas. Wetlands, CARAs, and fish and wildlife habitat conservation areas are present within the study area. The project would not result in any impacts to CARAs, so no further analysis of CARAs is required. Impacts to wetlands and fish and wildlife habitat conservation areas are discussed in the sections below.

5.0 AVOIDANCE AND MINIMIZATION

The proposed project has looked to avoid and minimize impacts in accordance with Section 16.51.150 of Appendix C. The project has avoided all direct impacts to Wetland A, Wetland B, and Lacamas Lake. However, impacts to wetland buffers, riparian buffers, and priority habitats were not able to be avoided given the constrained nature of the site, while still meeting the project objectives. Unavoidable impacts have been minimized to the greatest extent practicable and will be mitigated on-site as detailed below in Section 7.0.

6.0 UNAVOIDABLE IMPACTS

6.1 WETLAND BUFFER IMPACTS

6.1.1 Summary

The project will result in approximately 1.89 acres of wetland buffer impacts by the development of the proposed roadway improvement activities. Approximately 1.22 acres of Wetland A buffer will result from the development of the roundabout, and approximately 0.67 acres of Wetland B buffer will result from road widening activities along NE Everett Street and portions of the roundabout.

Table 2 presents a summary of the proposed impacts to wetland buffers that would occur as a result of the project, and Figure 9 shows proposed impacts to wetland buffers.

Table 2. Wetland Buffer Impacts

Wetland	Permanent Wetland Impacts (acre)	Temporary Wetland Impacts (acre)	Buffer Impacts (acre)
Wetland A	--	--	1.22
Wetland B	--	--	0.67
Total	**0.00**	**0.00**	**1.89**

6.1.2 No Net Loss

The project has avoided and minimized impacts to wetlands and wetland buffers to the extent practicable. The alignment and design of the project have undergone several iterative modifications in an effort to avoid impacts to wetlands and minimize impacts to wetland buffer resources, as well as to accommodate design requirements and site constraints. The project will also include several typical construction best management practices (BMPs) for working near wetlands, waters, and critical area buffers.

Because impacts to wetland buffers could not be avoided completely, the City proposes to use compensatory on-site mitigation for these impacts in accordance with Section 16.51.150(B) of Appendix C. Section 16.53.050(C)(4) of Appendix C allows crossing wetland buffers with road/utility crossings provided buffer functions are replaced as they pertain to protection wetlands. The mitigation measures described in Section 7.0 will replace buffer functions and result in no net loss of wetland buffer functions.

6.2 RIPARIAN IMPACTS SUMMARY

6.2.1 Summary

The project has avoided all impacts to Lacamas Lake but will result in unavoidable, direct, permanent impacts to approximately 0.001 acre of the riparian buffer that protects Lacamas Lake, just north of NE Lake Road near the Lacamas Lake Lodge.

Table 3 is a summary of the impacts to riparian buffers that would occur as a result of the project, and Figure 9 shows these proposed riparian buffer impacts on a map.

Table 3. Riparian Buffer Impacts

Location of Impact	Impact Area (acres)
Riparian Buffer Impacts	0.001
Total	**0.001**

6.2.2 No Net Loss

Through an iterative process, the design of the project avoids and minimizes impacts to riparian habitats to the greatest extent practicable. The impacts to the riparian buffer are necessary to meet road width standards and could not be avoided.

The proposed design will maintain the hydrologic function of the lake in this location but will reduce habitat function somewhat. Unavoidable permanent impacts will be compensated through on-site mitigation as described in Section 7.0.

6.3 PRIORITY HABITAT IMPACTS

6.3.1 Summary

Because of the location of the on-site biodiversity area (priority habitat), which covers the entire City owned parcel located east of the intersection, the project could not avoid direct impacts to the area while still meeting the project objectives. Section 16.51.030(C) of Appendix C states that when there is a conflict with other provisions, provisions which provides more protection to the critical area should be applied. Therefore, the 1.22 acres of wetland buffer described above also occur to the priority habitat but the wetland provisions provide more protection. The remaining unavoidable, direct, permanent impacts to approximately 0.34 acre of the on-site biodiversity area will occur as a result of project development.

Table 4 is a summary of the impacts to priority habitat that will occur as a result of the project, and Figure 9 shows these proposed priority habitat impacts on a map.

Table 4. Priority Habitat Impacts

Location of Impact	Impact Area (acres)
Priority Habitat Impacts	0.34
Total	**0.34**

6.3.2 No Net Loss

Through an iterative process, the design of the project avoids and minimizes impacts to priority habitats to the extent practicable. The unavoidable impacts to the priority habitat are necessary to meet design standards associated with the roundabout.

6.4 TREE REMOVAL

The project area contains trees regulated under the City's tree ordinance. The project team anticipates the removal of the minimum number of trees necessary to accommodate the road improvements. Roughly 201 trees are proposed to be removed for the road improvements as outlined in the September 2019 Tree Survey and Assessment completed by PBS (PBS 2019). (See shoreline narrative for copy of Tree Survey and Assessment.) However, most of those trees (117 or 58 percent) are classified as hazardous or in poor condition based on a preliminary tree analysis by the consulting team. Based on the completed road alternatives analysis, the project is designed to limit tree impacts while enhancing pedestrian safety, and also while preserving a chestnut tree that is locally valued by the community because of the species' rich history in the United States.

6.4.1 Tree Mitigation

Road projects are not exempt from requiring "vegetation removal permits" (Section 16.51.110(C) of Appendix C) and the removal of trees under local ordinances would require a vegetation removal permit and need a critical areas report and mitigation plan. According to Section 16.51.110(C)(5) of Appendix C, mitigation must include replacement trees that are native species with a minimum caliper of 2 inches, and, if the trees provide critical habitat, biologists must determine the methods of removal.

It should be noted that the applicant is proposing to deviate from the 2-inch caliper requirement noted in the code (Section 16.51.110[C] of Appendix C) and is proposing to plant 402, 5-gallon container stock, a minimum of 4-feet in height. The justification for the proposed deviation relates to industry standards, a caliper size is aimed towards a deciduous specification and of commercial application. Evergreen species and, more notably, in a restoration application, are usually specified in a different format using container size or minimum height. Additionally, containerized material retains a greater portion of the fibrous (nutrient up-taking) roots during nursery production versus ball & burlap stock where most of the roots are severed during harvesting. The rate of recovery and establishment has been shown to be faster after installation when the fibrous root systems are left intact. Thus, the trees will have a minimum height of 4 feet and a 5-gallon container size. The applicant is also proposing to deviate from tree staking requirements. The project's arborist has indicated that tree staking can be detrimental to proper tree development by producing less tree taper and smaller root systems, which can lead to breaking and falling during high wind events.

In addition to the 4-foot 5-gallon containerized stock, the applicant is proposing to plant 60 additional seedlings within areas identified as archaeological sensitive. The applicant's archaeological consultant has advised the project to employ smaller seedlings to avoid disturbing archaeologically sensitive areas. Further details are discussed in section 7.6 below. The additional seedlings are proposed to account for the loss of biomass when reducing the size of plant stock from a 2-inch caliper tree to a minimum height of 4 feet.

Overall, the number of trees will increase and will have a greater chance of survival resulting in adequate compensation for tree removal activities. Tree mitigation is detail further in sections 7.2 and 7.7 below. (See shoreline narrative for copy of Tree Survey and Assessment for further details.)

7.0 CRITICAL AREAS MITIGATION PLAN

The overall goal of the mitigation plan is to ensure that there is no net loss of critical area functions. Through the activities described below, any loss of functions will be mitigated and/or restored, resulting in no net loss of functions when compared to existing conditions. The proposed mitigation is expected to fulfill the requirements described in Section 7.1.

7.1 CRITICAL AREAS MITIGATION REQUIREMENTS

Section 16.51.150 of Appendix C describes the following mitigation requirements for critical areas.

A. The applicant shall avoid all impacts that degrade the functions and values of a critical area or areas. Unless otherwise provided in these provisions, if alteration to the critical area is necessary, all adverse impacts to or from critical areas and management zones resulting from a development proposal or alteration shall be mitigated in accordance with an approved critical area report and SEPA documents.

B. Mitigation should be in-kind and on-site, when possible, and sufficient to maintain the functions and values of the critical area, and to prevent risk from a hazard posed by a critical area.

C. Mitigation shall only be implemented after City approval of a critical area report that includes a mitigation plan; and mitigation shall be in accordance with the provisions of the approved critical area report.

Mitigation sequencing is described in Section 16.51.160 of Appendix C. The program states that "applicants shall demonstrate that reasonable efforts have been examined with the intent to mitigate impacts to critical areas. When an alteration to a critical area is proposed, mitigation can be accomplished through a variety of methods. Generally, avoiding the impact altogether is the preferred option. Methods to reduce impacts and mitigate for them should follow a series of steps taken in sequential order."

The highest priority mitigation measure, avoiding the impact altogether, is not feasible for this project as the location of the project site cannot be changed. To mitigate for and offset critical areas impacts, the on-site buffer areas will be enhanced. Enhancing these local environments will compensate for critical areas impacts.

7.2 TREE IMPACT MITIGATION WITHIN CRITICAL AREAS

Within the on-site critical areas, 201 trees will be removed during project construction (PBS 2019). With an approximately 2.3:1 replacement ratio for each tree removed within the critical areas, 462 trees are proposed to be planted in the buffer by a landscape architect. The area of replacement will be on the site and within the remaining area of the

eastern property between the park and proposed roadway. (See Figure 10 for the proposed mitigation, including buffer averaging, plantings, and invasive species removal.)

Douglas fir (*Pseudotsuga menziesii*) plantings will make up 60 percent of the replacement trees, Western red cedar (*Thuja plicta*) will make up 30 percent of the replacement plantings, and big leaf maple (*Acer macrophyllum*) plantings will make up the final 10 percent of tree replacements. The proposed tree species are proven to become established and have a longer life expectancy than weak-wooded, short-lived species, such as alder and cottonwood. In addition, the larger percentage of evergreens in the mix will provide additional screening for and from park users and vehicular traffic.

As noted in Section 16.51.110(C) of Appendix C, the tree replacement size is a 2-inch caliper; however, a caliper size is aimed towards a deciduous specification and of commercial development. Evergreen species and, more notably, in a restoration application, are usually specified in a different format using container size or minimum height. Thus, the trees will have a minimum height of 4 feet and a 5-gallon container size.

7.3 WETLAND BUFFER COMPENSATORY MITIGATION

Section 16.51.150 of Appendix C states that if an alteration to a critical area is necessary, all adverse impacts to or from critical areas resulting from a development proposal shall be mitigated in accordance with an approved critical area report. In addition, Section 16.53.050(C)(4) of Appendix C allows crossing wetland buffers with road/utility crossings provided buffer functions are replaced as they pertain to protection wetlands. To compensate for the 1.89 acres of permanent wetland buffer impacts, the City proposes to enhance wetland buffers on the site (see Figure 10).

Project development will result in permanent impacts to the wetland buffer in the form of a loss of habitat functions. The vegetative communities within the wetland buffer are degraded but still provide limited functions and values, including slowing the downhill movement of water from precipitation events and providing nutrient uptake, as well as foraging, nesting, and protective cover opportunities for wildlife.

To ensure no net loss of wetland buffer functions or values, the 1.89 acres of wetland buffer impacts will also be mitigated through buffer averaging as specified in Section 16.53.050 of Appendix C, which states:

> *The community development department shall have the authority to average buffer widths on a case-by-case basis, where a qualified wetlands professional demonstrates, as part of a critical area report, that all of the following criteria are met:*
>
> *a. The total area contained in the buffer after averaging is no less than that contained within the buffer prior to averaging;*
>
> *b. Decreases in width are generally located where wetland functions may be less sensitive to adjacent land uses, and increases are generally located where wetland functions may be more sensitive to adjacent land uses, to achieve no net loss or a net gain in functions;*

c. *The averaged buffer, at its narrowest point, shall not result in a width less than seventy-five percent of the required width, provided that minimum buffer widths shall never be less than fifty-feet for all Category I, Category II, and Category III wetlands, and twenty-five feet for all Category IV wetlands; and*

d. *If wetland mitigation occurs such that the rating of the wetland changes, the requirements for the category of the wetland after mitigation shall apply.*

The proposed roundabout will reduce wetland buffer functions and values. Therefore, to compensate the impacts and replace buffer functions, the City proposes to increase the wetland buffer on the west side of Wetland A, landward of the 220-foot buffer. Buffer averaging numbers are shown in Table 5 and located on Figure 10.

Table 5. Buffer Averaging Area (Acres)

Dominant Vegetation	Permanent Wetland Buffer Impacts	Proposed Wetland Buffer Averaging
Forest/Shrub/Invasive Ground Cover	1.89	0.38

Mitigation for these wetland buffer impacts will also include the on-site removal of invasive plant species, such as English ivy and Himalayan blackberry to enhance and improve the functionality of the wetland buffers and preserve older, healthy trees. English ivy is growing up the trunk of all of the 285 trees that will be retained within the wetland buffer, so the removal of this invasive species will help preserve these remaining trees and restore them to a healthy state and improving buffer functions. All invasive species removal will be completed in accordance with Sections 16.51.110(C)(5) and 16.51.110.C.5(C)(6) of Appendix C, and will be completed with hand labor and light equipment (e.g., push mowers, power trimmers, etc.) with spot application of herbicides in accordance with the WDFW Management Recommendations, and the regulations of the Department of Agriculture and the U.S. Environmental Protection Agency.

Finally, native trees and shrubs will be planted in the remaining and averaged buffer to enhance the buffer functions. As mentioned, for each tree that will be removed, trees will be planted at a 2.5:1 ratio. In addition to the trees that will be planted, native shrubs will be planted throughout the critical areas to enhance them.

The averaged and enhanced wetland buffers will provide functions equal to the existing conditions by removing invasive plant species and planting new trees and shrubs. Buffer averaging will provide additional wetland protection, increase plant diversity and nutrient uptake, and promote infiltration. All these steps will benefit the adjacent wetland. Thus, the proposed wetland buffer compensatory mitigation will result in no net loss of wetland buffer functions.

7.4 RIPARIAN BUFFER COMPENSATORY MITIGATION

The minimal impact to riparian buffer will be sufficiently mitigated by removing invasive species, replacing trees at a 2.3:1 ratio, and planting native shrubs in the enhancement area. Further mitigation within the riparian buffer areas will not be needed.

7.5 PRIORITY HABITAT COMPENSATORY MITIGATION

The on-site biodiversity area has limited habitat function due to the invasive English ivy and Himalayan blackberry coverage and its proximity to roadways and urban environments (BergerABAM 2019a). Compensatory mitigation will be performed by removing these invasive species, replacing trees at a 2.3:1 ratio, and planting native shrubs so that the remaining on-site portions of the biodiversity area will be enhanced (Figure 10).

Compensatory mitigation will result in no net loss of biodiversity area functions. Overall, the mapped Camas biodiversity area is over 800 acres, and the amount within the project area that will be impacted by development is minor in comparison. This priority habitat area was already degraded, and a multistory forested canopy with increased biodiversity will provide wildlife with increased opportunities for foraging, shelter, and nesting.

7.6 PLANTING PLAN

After the initial permit application submittal, the project archaeologist determined that planting approximately 500, five to ten gallon trees would negatively impact the archaeology resources identified onsite. According to the project archaeologist, the preferred approach to re-vegetating the area within the identified archaeological sites would be planting bare-root seedlings in small shovel or trowel cuts into the ground, so that no soil is dug up and displaced. This would allow the area to be re-vegetated without displacing the archaeological deposits. This planting approach has previously met with approval from DAHP, and would ensure that the archaeological sites are protected.

The alternative, which is not currently preferred by the project, would be to hand-excavate holes for larger container trees within the archaeological sites. If holes need to be excavated for tree-planting, then the archaeological deposits can no longer be protected by the project. This type of ground disturbance is discouraged by DAHP and reviewing Tribes, because the planting holes would extend into the archaeological deposits and artifacts will be displaced along with the soil.

Therefore, the planting plan has been revised to include a minimum of 402 5-gallon trees within areas outside of the identified archaeological sites, but within the enhancement area, and 60 bareroot trees planted within the identified archaeology sites. Container trees will be planted approximately 14 feet on center, and bareroot trees will be planted 12 feet on center.

The project landscape architect determined that the larger spacing would provide a greater benefit to the proposed plantings rather than reducing the plant spacing and increasing the number of plants. The larger spacing allows the trees to establish under less competition for light and reduces branch suppression from adjacent trees during establishment. The larger spacing also allows the areas to receive natural wind exposure that will encourage reactive wood for shear strength production resulting in stronger wind

firm trees when mature. The larger spacing will also provide opportunities to plant in natural groupings remnant of the surrounding reference community.

In addition to the tree plantings, 1,218 native shrubs will be planted within the enhancement area. The planting plan will improve habitat complexity and water quality functions and increase nutrient cycling.

The City will replace plants as necessary to keep the proposed mitigation on a trajectory to achieve the stated performance standards. If a species fails because the conditions of the site prove to be inappropriate for it, then other native species may be substituted to improve the rate of plant survival. Table 6 below lists the size, density, and number of trees to be planted in the enhancement area.

Table 6. Tree Replacement Plantings

Species	Mode of Propagation	Minimum Height	Plant Spacing	Number of Trees
Douglas Fir (*Pseudotsuga menziesii*)	5 gallon	4 feet	14-foot centers	242
Western Red Cedar (*Thuja plicta*)	5 gallon	4 feet	14-foot centers	120
Big Leaf Maple (*Acer macrophyllum*)	5 gallon	4 feet	14-foot centers	40
			Total	**402**
Species	**Mode of Propagation**	**Minimum Height**	**Plant Spacing**	**Number of Trees**
Douglas Fir (*Pseudotsuga menziesii*)	bareroot	12 – 18 inches	12-foot centers	30
Western Red Cedar (*Thuja plicta*)	bareroot	12 – 18 inches	14-foot centers	20
Big Leaf Maple (*Acer macrophyllum*)	bareroot	18 - 24 inches	14-foot centers	10
			Total	**60**
			Grand Total	**462**

Table 7 lists the size, density, and number of shrubs to be planted.

Table 7. Native Shrub Plantings

Species	Mode of Propagation	Minimum Size	Minimum Plant Spacing	Number of Plants
Snowberry (*Symphoricarpos albus*)	Bare root	24 - inches	8-foot centers	260
Nootka Rose (*Rosa nutkana*)	Bare root	24 - inches	8-foot centers	200
Vine Maple (*Acer circinatum*)	Bare root	24 - inches	8-foot centers	235
Hazelnut (*Corylus cornuta*)	Bare root	24 - inches	8-foot centers	225
Oregon Grape (*Mahonia nervosa*)	Bare root	24 - inches	8-foot centers	200
Serviceberry (*Amelanchier alnifolia*)	Bare root	24 - inches	8-foot centers	98
			Total	**1,218**

7.7 CRITICAL AREAS MARKINGS

Critical areas markers, signs, and fencing are required under Section 16.51.200 of Appendix C. In regard to temporary markers, the outer perimeter of the critical areas may need to be marked in the field in such a way as to prevent unauthorized intrusion and to be verified by the director prior to the commencement of permitted activities. This temporary marking, if required, will be maintained throughout construction and will not be removed.

Orange fencing will be installed during project construction to prevent any access to portions of the critical areas that will not be impacted. No fencing will be installed after the project is complete, but permanent signs to City standards will be installed along the boundary of the critical areas.

7.8 MITIGATION GOALS AND OBJECTIVES

The goals and objectives for the mitigation plan are described below. Annual monitoring will be performed for five years and annual monitoring reports will be submitted to the City. The overall goal of this plan is to ensure no net loss of critical areas functions and values within the watershed and to satisfy the regulatory requirements of the City. This goal will be accomplished by restoring temporary impacts and compensating for permanent impacts.

The objectives identify the elements involved in meeting the goal of the mitigation plan — to ensure that there is no net loss of critical area functions, including wetland and shoreline ecological functions. This plan establishes two objectives as the basis for evaluating mitigation compliance and success.

The first objective will be to enhance critical areas conditions within the existing wetland buffers and biodiversity area by planting a native plant community suitable to the project site's ecological characteristics. Enhancing the vegetative structure of these plant

communities will enhance habitat complexity, improve water quality functions, and increase nutrient cycling.

The second objective is reducing the cover of non-native, invasive weed species within the enhancement areas.

7.9 PERFORMANCE STANDARDS

Performance standards are the criteria that measure whether the goal and objectives are being achieved. All the performance standards presented below are meaningful and achievable and include site-specific targets for vegetation survival and cover. The site enhancement will be judged successful if the performance standards for plant survivorship and weed cover are met.

To ensure the performance standards are meaningful and achievable, the following site-specific targets for survival and cover have been developed based on the planting plan, mitigation goals, and objectives. If monitoring determines that performance standards are not being met, contingency measures will be implemented to correct identified problems as described in Section 7.12.

Year 1 Percent Survival – Planted native woody species at the enhancement sites will achieve 100 percent survivorship. If dead plantings are replaced, the performance standard will be judged to have been met.

Year 2 Percent Survival – Planted native woody species at the enhancement sites will achieve 80 percent survivorship. If dead plantings are replaced, the performance standard will be judged to have been met.

Year 3 Percent Survival – Planted native woody species at the enhancement sites will achieve 80 percent survivorship. If dead plantings are replaced, the performance standard will be judged to have been met.

Year 5 Percent Cover – By Year 5, the enhancement areas will have a minimum of 45 percent areal cover by native, woody vegetation.

By the end of the five-year monitoring period, non-native, invasive plant species (i.e., English ivy and Himalayan blackberry) will not exceed 10 percent areal cover in the enhancement sites.

7.10 DETAILED CONSTRUCTION PLANS

Section 16.51.170(C) of Appendix C requires written specifications and descriptions of the mitigation proposed. The proposed mitigation does not include any grading or excavation and no erosion control measures are specified for the mitigation area, aside from what is required for the overall project construction. Additionally, scaled cross-sectional drawings, topographic maps showing slope percentage and final grade elevations are not include because there is no need to provide such drawings.

The overall project will start construction in spring 2020 and will be completed by winter 2020. Mitigation plantings will be installed during the winter of 2020/2021. Written plant species, quantities, size and spacing are detailed in Section 7.7 above. Measures to

protect and maintain the plants until well established are detailed in Section 7.11 below. Detailed site diagrams, including planting plan specifying plant species, quantities, locations, size, spacing and density will be provided during the final site plan review.

7.11 MONITORING PROGRAM

Section 16.51.170 of Appendix C identifies mitigation plan requirements for critical areas, including monitoring program standards. For this project, annual monitoring will be conducted during the growing season, when plants are identifiable, for five years. The monitoring will assess the achievement of the performance standards and, ultimately, the goal of compensating for the critical areas impacts. The survival rate of installed trees and shrubs will be monitored by a direct, comprehensive count of live and dead plants. The species of the live and dead plants will be recorded and an overall survival rate for the site will be calculated. The cover of invasive non-native species will be determined by visual estimation.

In addition to monitoring vegetation, a qualified biologist will walk the entire project area to identify potential problems. Photographs from fixed photo stations will provide a visual record of the development of vegetation over time. Monitoring reports will be submitted to the City by December 31 in Years 1, 2, 3, and 5. The monitoring reports will document milestones, successes, problems, and contingency actions of the mitigation project.

Routine maintenance will be necessary to ensure the successful establishment of the native plants. Maintenance will include weed control. Dead plants will be replaced as necessary to meet the performance standards. Maintenance will begin the spring following planting season and will continue, as necessary, through the end of the monitoring period.

7.12 CONTINGENCY PLANS

If monitoring shows that the performance standards are not being met, the City will implement contingency plans. Potential problems include, but are not limited to, high plant mortality, animal damage, human disturbance, and invasive weed growth. Contingency measures may include, but are not limited to, the following.

- Replanting with different species more suited to the particular site conditions.
- Protecting trees and shrubs from herbivory.
- Investigating and implementing options to minimize human disturbance.
- Installing additional plants to compete with non-native or invasive species.
- Increasing maintenance to control non-native and invasive species.

8.0 CONSERVATION COVENANT

As required in Section 16.53.040(C) of Appendix C, a conservation covenant will be recorded in a form approved by the City as adequate to give notice of the requirement to obtain a critical areas permit prior to engaging in the regulated activities within critical area buffers. (See Figure 10 for an outline of the area to be placed within a conservation covenant.) The conservation covenant will ensure the long-term preservation or maintenance of mitigation actions.

9.0 COMPLIANCE WITH APPROVAL CRITERIA

The following paragraphs discuss how the project complies with the applicable mitigation sequencing for critical areas consistent with Section 16.51.160 of Appendix C.

9.1 AVOID IMPACTS

The project has been designed to avoid and minimize impacts to aquatic resources to the greatest extent practicable. The size and configuration of the structures have been kept to the minimum necessary to support their needed functions.

The alignment and design of the project went through several iterative modifications in an effort to minimize impacts to wetland buffer, riparian buffer, and priority habitat resources, as well as to accommodate design requirements and site constraints. The wetland buffer, riparian buffer, and priority habitat impacts will be a consequence of roadway and intersection widening to accommodate the roundabout approaches and circular roundabout design, and to enhance water quality runoff in the lake and wetland vicinities by constructing new stormwater facilities.

9.2 MINIMIZE IMPACTS

The project will include several typical construction BMPs for working near wetlands, waters, and critical area buffers. The following BMPs will be applied during the construction of each project element in order to reduce, eliminate, or minimize the effects of the proposed action on wetland buffers, riparian buffers, and priority habitats:

- All temporary construction areas necessary for project construction are planned to be located either in the right-of-way within the area of potential impact or on previously paved or graveled areas that will not need to be modified or improved.
- Staging will occur in upland areas only.
- The contractor will provide a site-specific spill prevention plan, which will include proactive measures for prevention, as well as spill response methodologies.
- The contractor will prepare and implement a construction temporary erosion and sediment control plan that will address measures to ensure that sediment-laden runoff does not reach nearby waters.
- To the extent practicable, all equipment will be fueled and maintained at least 150 feet from wetlands or lakes. Secondary containment will be used.
- To ensure that equipment is clean and free of external petroleum-based products, it will be inspected daily for leaks and proper function.
- Any waste resulting from the project will be disposed of at a site properly permitted for that type of waste.
- The project will comply fully with local agency-approved erosion control plans.

Excavated material will be disposed of at a permitted upland location.

9.3 CONSISTENCY WITH GENERAL PURPOSES

Section 16.51.010 of Appendix C specifies that the proposed project must be consistent with the general purposes of Section 16.51, and the general purpose of the ordinance, as

stated in Section 16.51.010(A), is to designate and classify ecologically sensitive and hazardous areas, and to protect them, while allowing some reasonable use of property.

As shown in this report, through avoidance, minimization, and mitigation, the project has been designed to protect ecologically sensitive areas that have been designated on the site. Section 16.51.010(C) of Appendix C states that the goals of the chapter include protecting members of the public and public resources and facilities from injury, loss of life, or property damage; protecting unique fragile and valuable elements of the environment; directing activities not dependent on critical areas resources to less ecologically sensitive sites and mitigating necessary impacts to critical areas; and preventing cumulative adverse environmental impacts.

The proposed project has been designed to be consistent with the prevailing intent of the code and does not pose a significant threat to the public because the design.

- Complies with all the applicable sections of the SMP (Section 16.51 through Section 16.61 of Appendix C)
- Provides for reasonable use of the property through a design that will not interfere with existing uses and zoning designations
- Includes mitigation measures to ensure no net loss of critical area functions and values

10.0 CONCLUSIONS

This report documents the presence of three regulated critical areas within the project corridor — wetlands, CARAs, and fish and wildlife habitat conservation areas — and evaluates the project against adopted standards for development. The project has been designed to avoid and minimize the extent of impacts to critical areas at the site to the extent practicable and incorporates compensatory mitigation measures to offset the impacts that are unavoidable.

The unavoidable impacts to critical areas and buffers on the site will be mitigated through on-site compensatory mitigation. The net result is that the project will not result in any net loss of any critical area functions or values.

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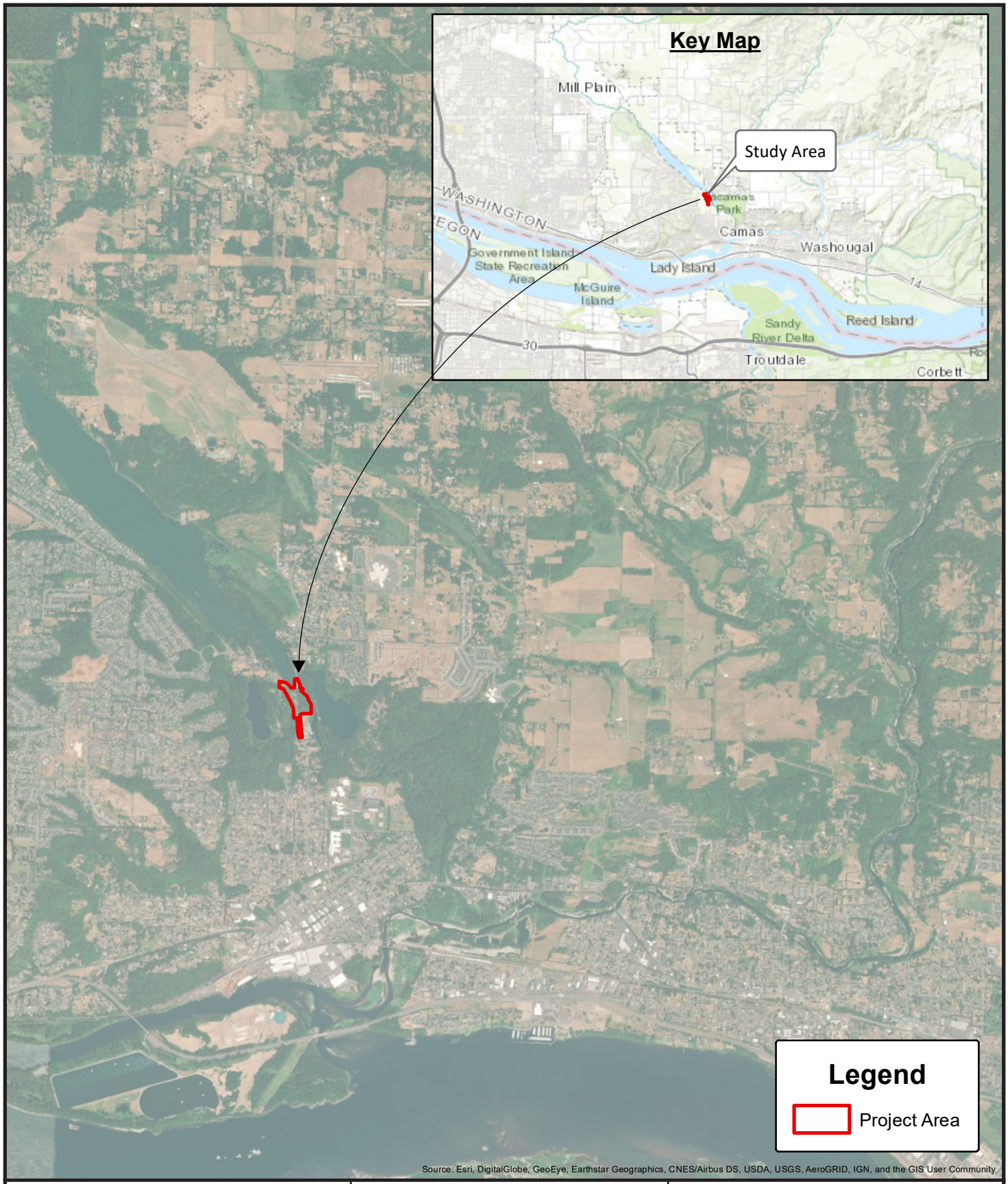
APPENDIX A

FIGURES



PROPOSED : CRITICAL AREAS REPORT

LATITUDE: 45.602829°
LONGITUDE: -122.407072°

CITY OF CAMAS
616 NE 4th Avenue
Camas , WA 98607

NE LAKE RD. & NE EVERETT ST.
INTERSECTION IMPROVEMENTS

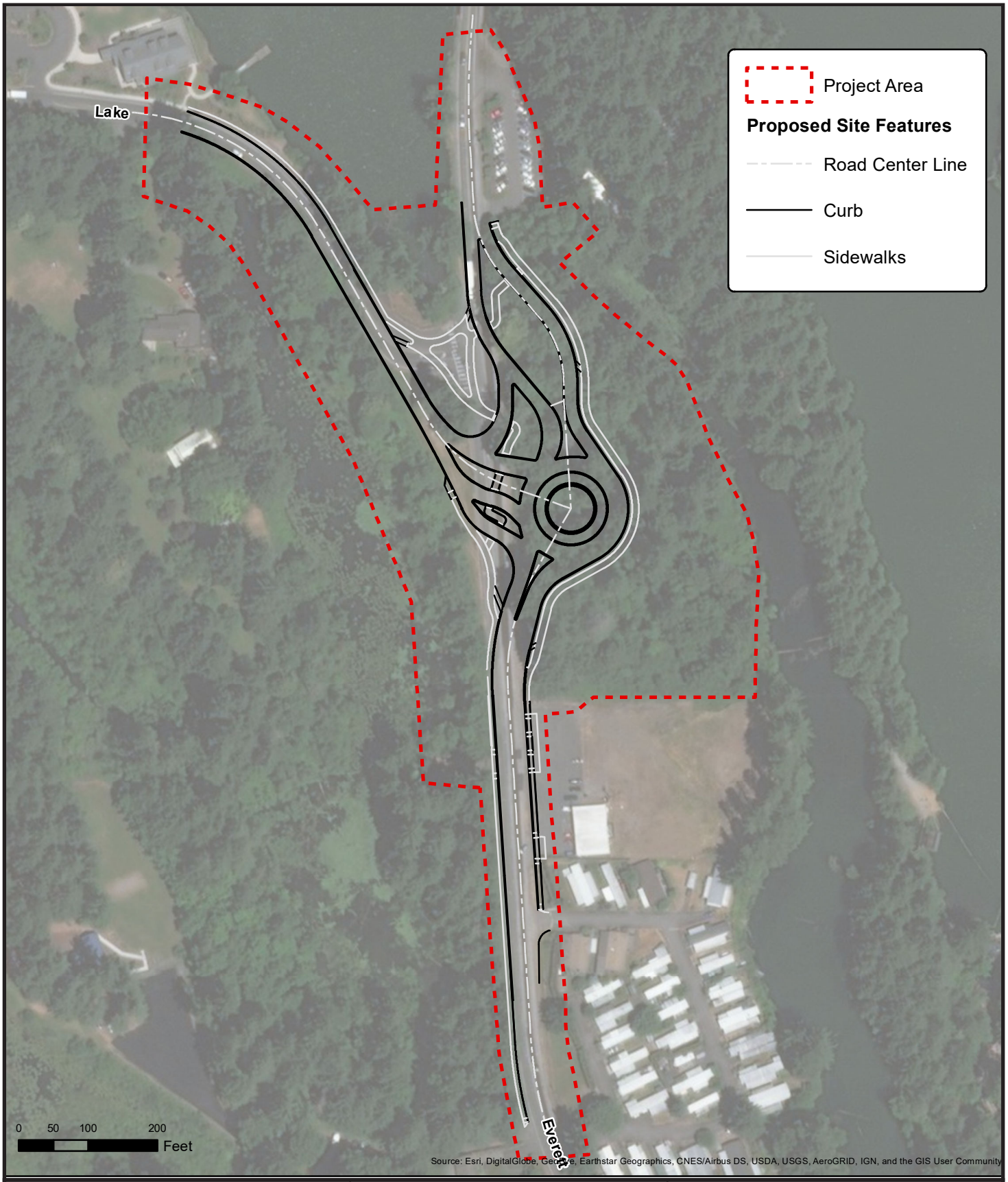
wsp

FIGURE 1: VICINITY MAP

WATERSHED: Lacamas Lake
CITY: Camas, Washington
COUNTY: Clark
DATUM: NAD 1983

SHEET: 1 of 10

January 2020



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LONGITUDE: -122.407072°

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FIGURE 2: SITE PLAN

WATERSHED: Lacamas Lake
CITY: Camas, Washington
COUNTY: Clark
DATUM: NAD 1983

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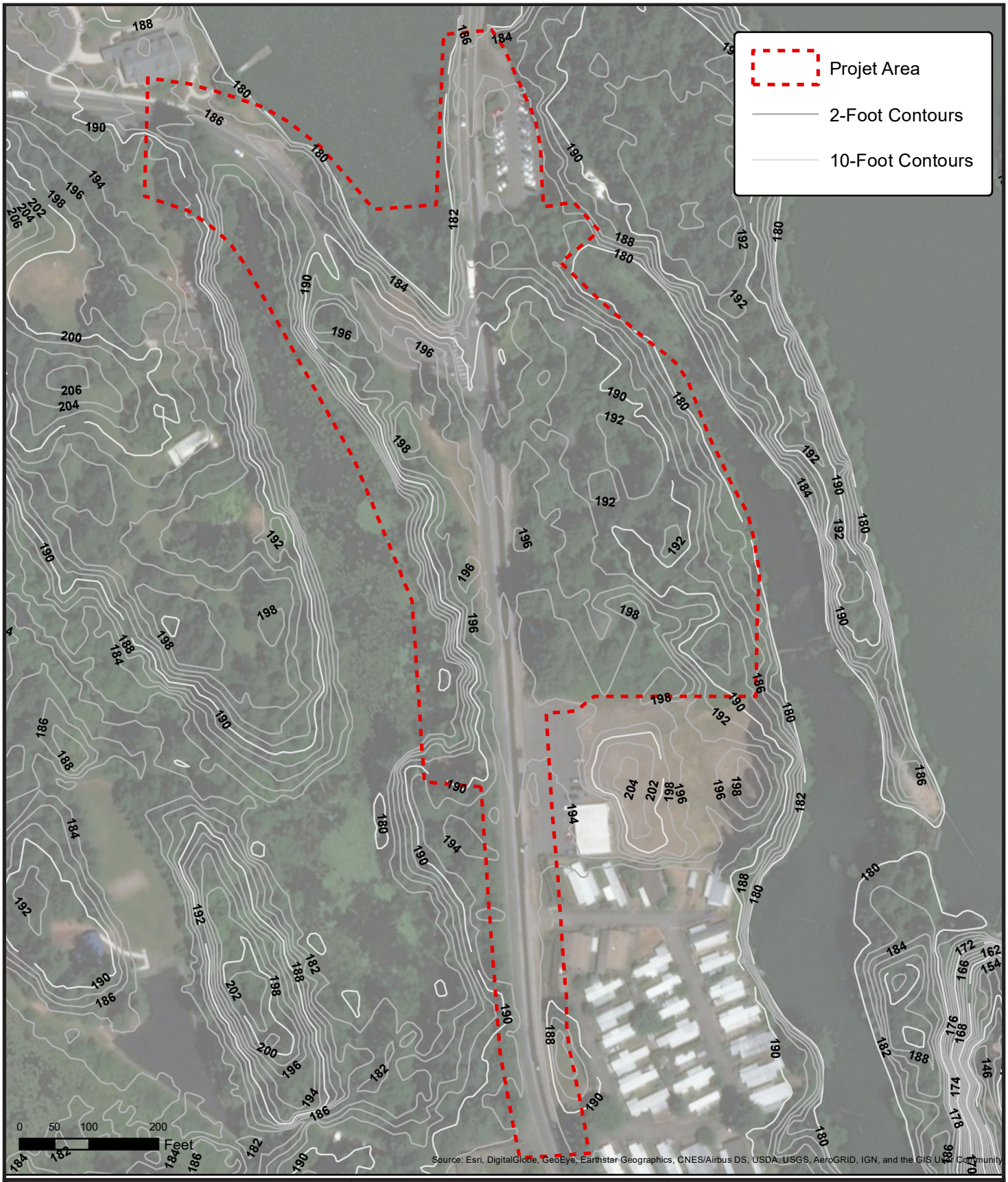
January 2020



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LONGITUDE: -122.407072°

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FIGURE 3: TOPOGRAPHIC MAP

WATERSHED: Lacamas Lake
CITY: Camas, Washington
COUNTY: Clark
DATUM: NAD 1983

SHEET: 3 of 10

January 2020

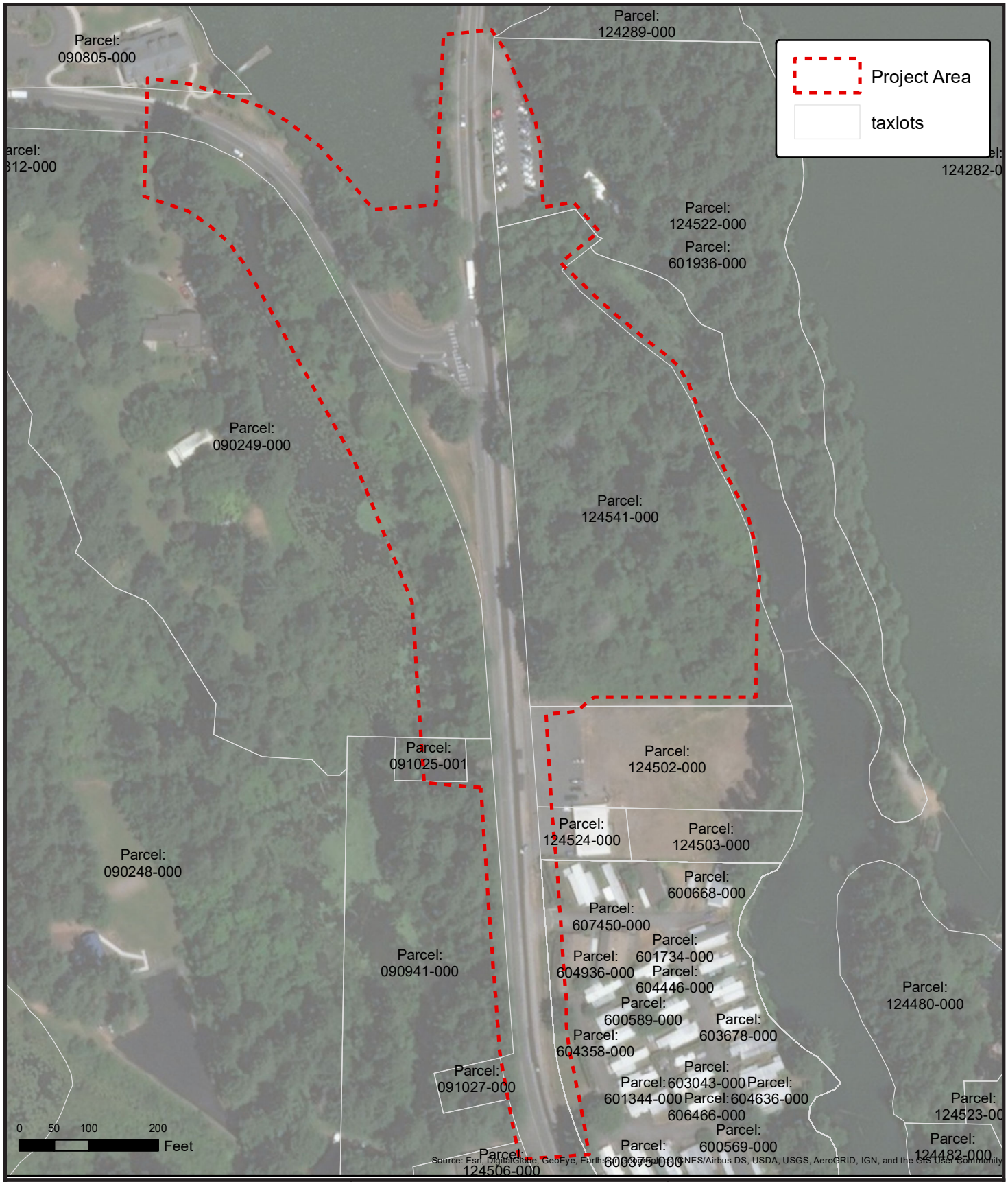

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FIGURE 4: PARCEL MAP

WATERSHED: Lacamas Lake
CITY: Camas, Washington
COUNTY: Clark
DATUM: NAD 1983

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January 2020

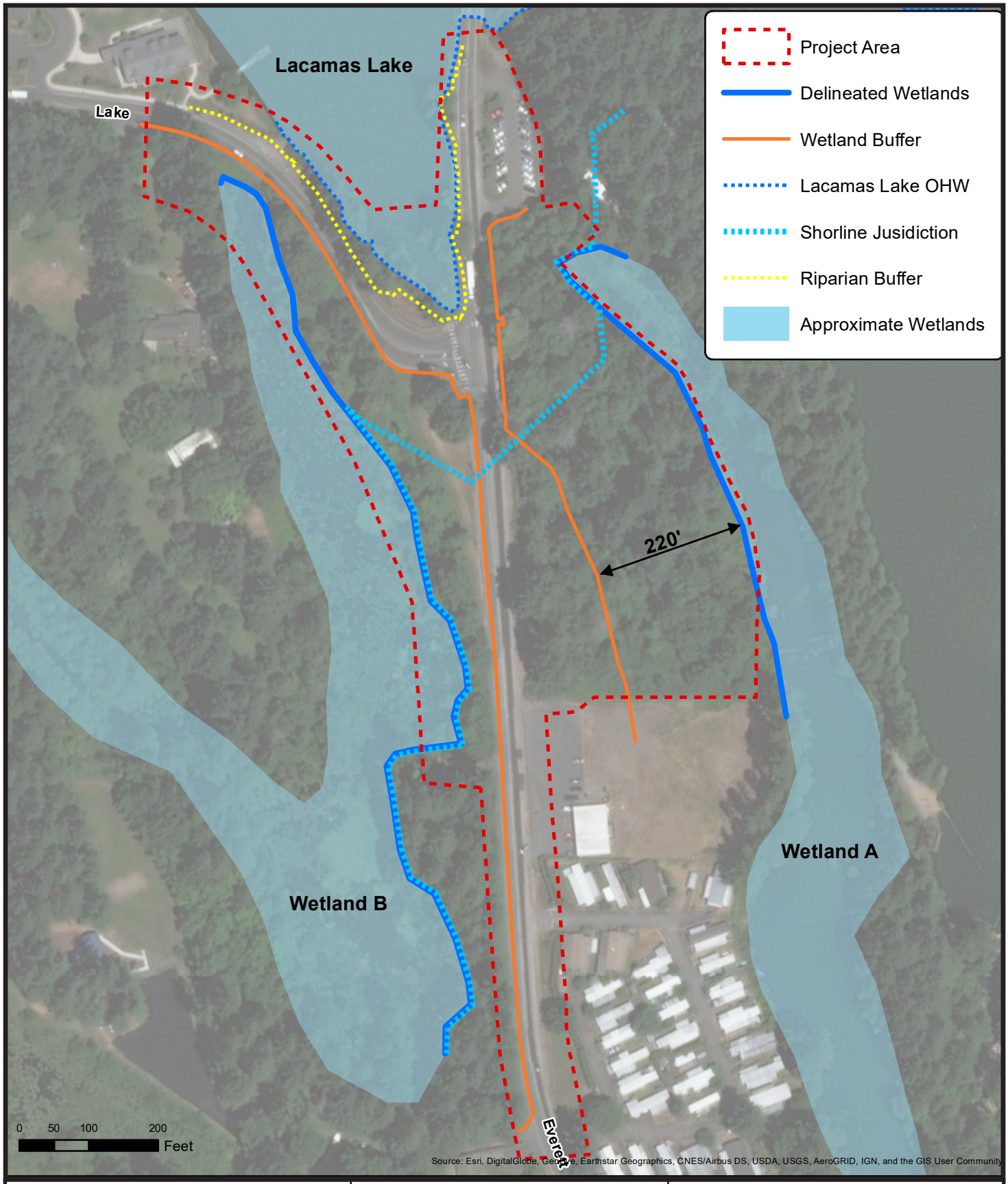

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FIGURE 5: DELINEATED WETLAND & WETLAND BUFFERS MAP

WATERSHED: Lacamas Lake
CITY: Camas, Washington
COUNTY: Clark
DATUM: NAD 1983

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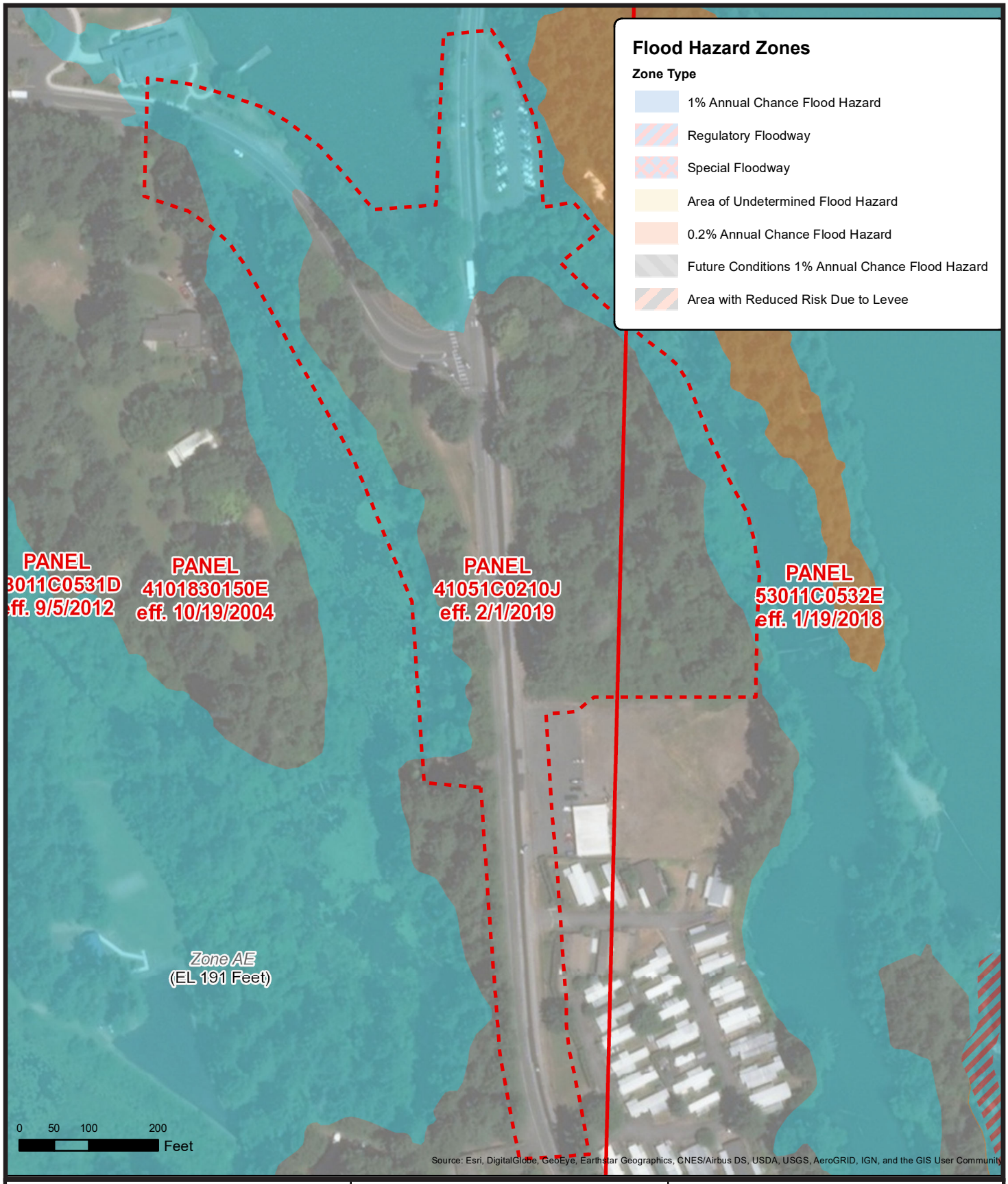
January 2020



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616 NE 4th Avenue
Camas , WA 98607

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FIGURE 6: FREQUENTLY FLOODED AREAS

WATERSHED: Lacamas Lake
CITY: Camas, Washington
COUNTY: Clark
DATUM: NAD 1983

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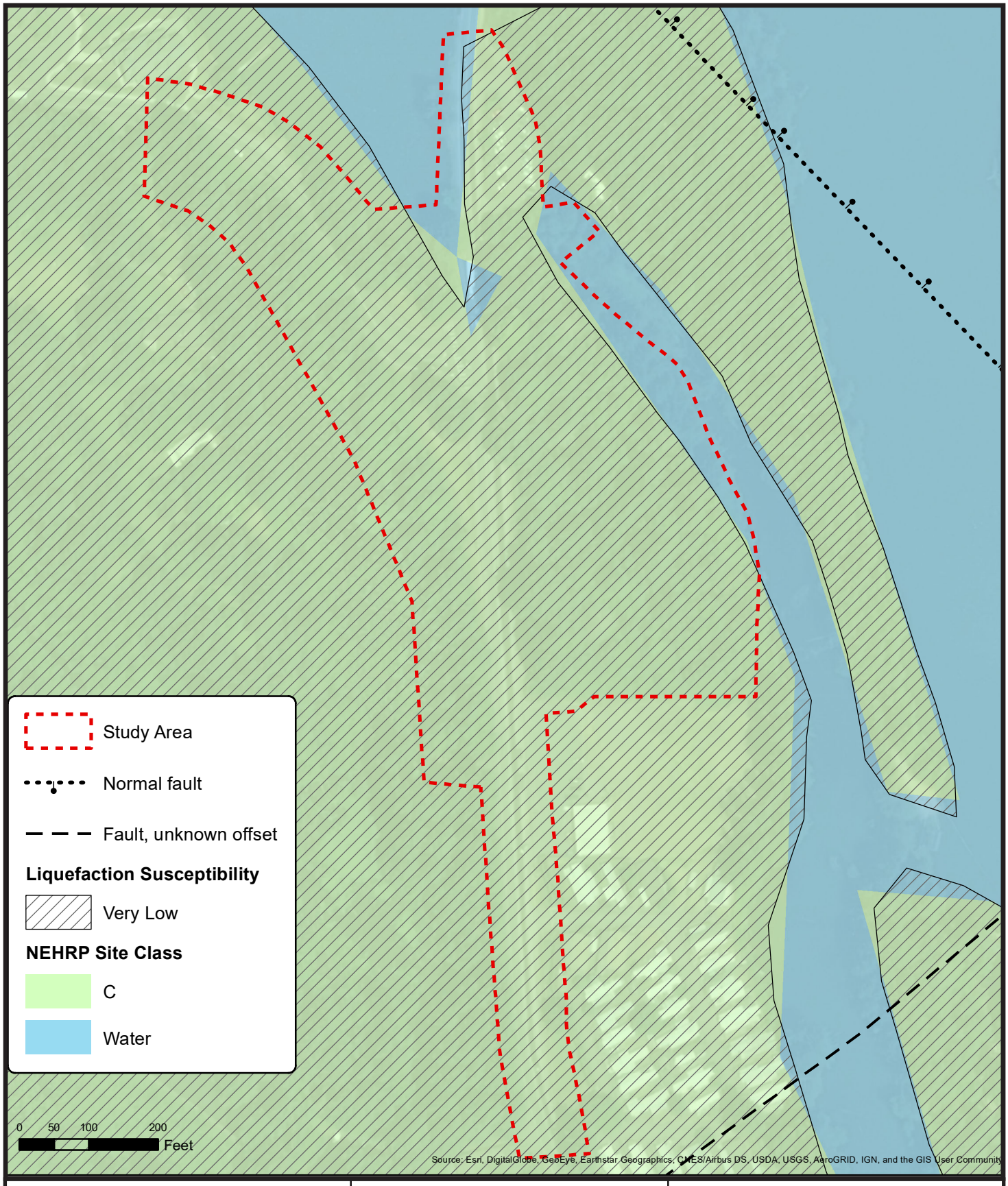
January 2020



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LONGITUDE: -122.407072°

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FIGURE 7: GEOLOGIC HAZARD AREAS

WATERSHED: Lacamas Lake
CITY: Camas, Washington
COUNTY: Clark
DATUM: NAD 1983

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January 2020

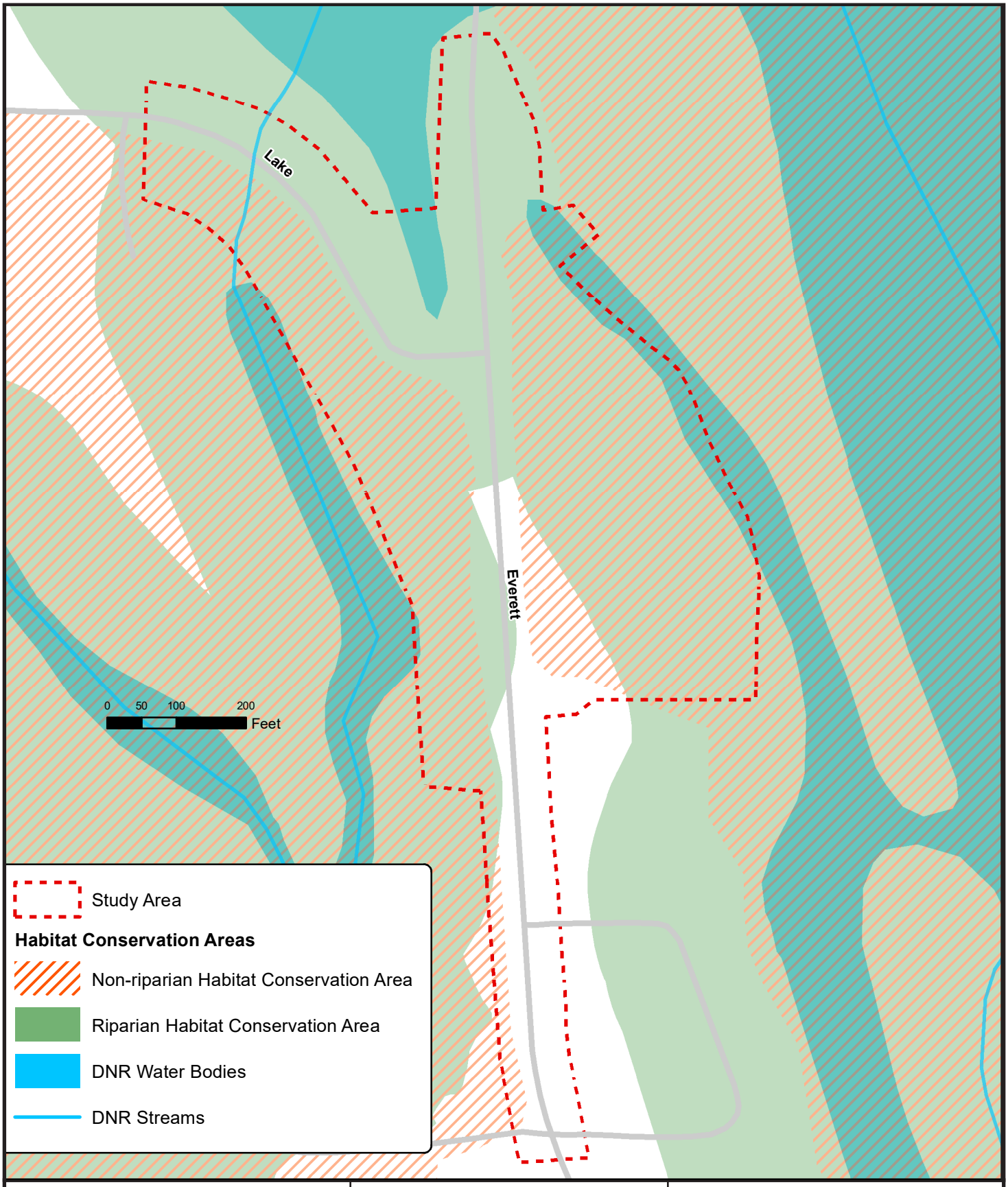

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FIGURE 8: FISH & WILDLIFE HABITAT CONSERVATION AREAS

WATERSHED: Lacamas Lake
CITY: Camas, Washington
COUNTY: Clark
DATUM: NAD 1983

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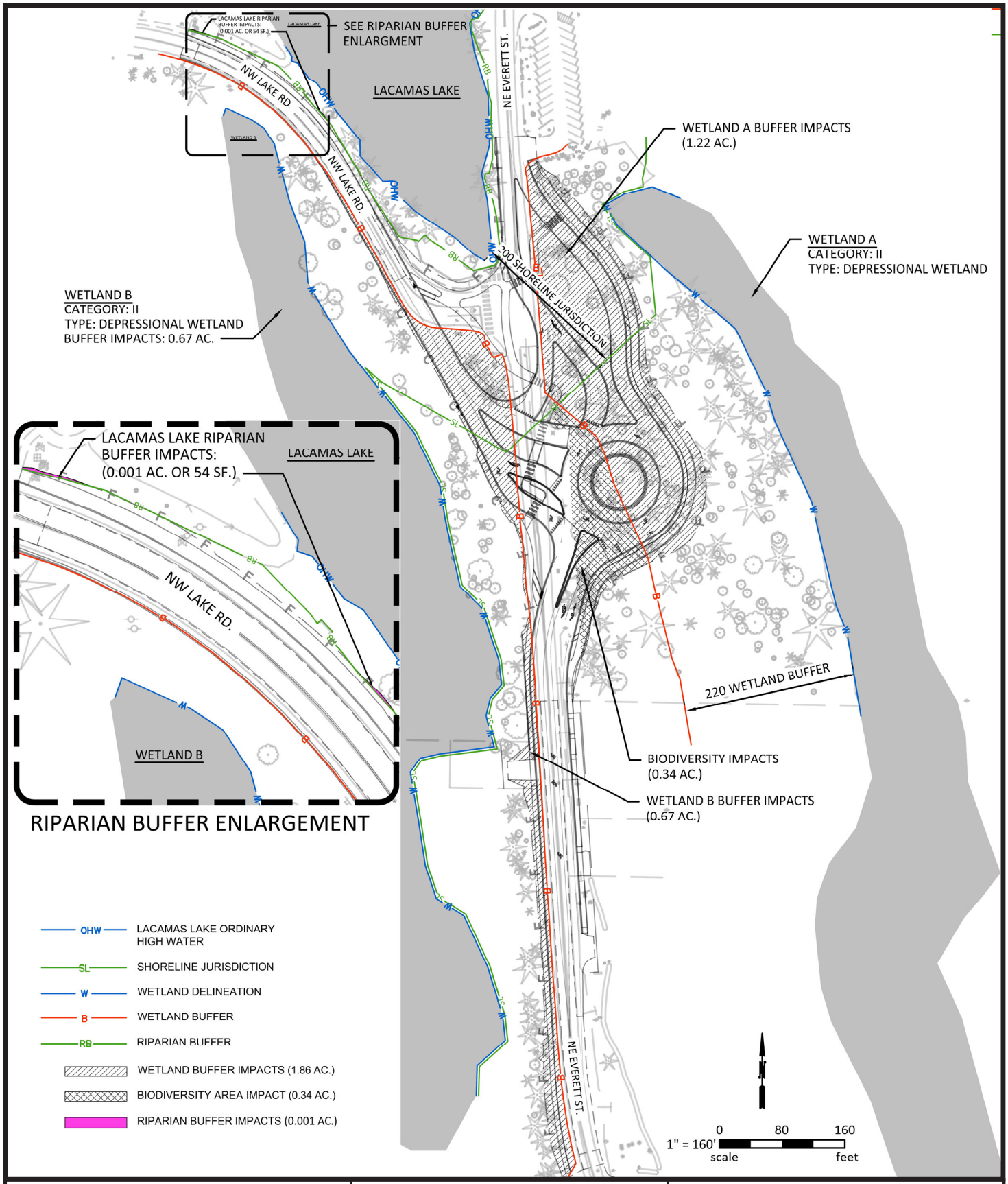
January 2020



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INTERSECTION IMPROVEMENTS

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FIGURE 9: PROPOSED IMPACTS

WATERSHED: Lacamas Lake
CITY: Camas, Washington
COUNTY: Clark
DATUM: NAD 1983

SHEET: 9 of 10

January 2020

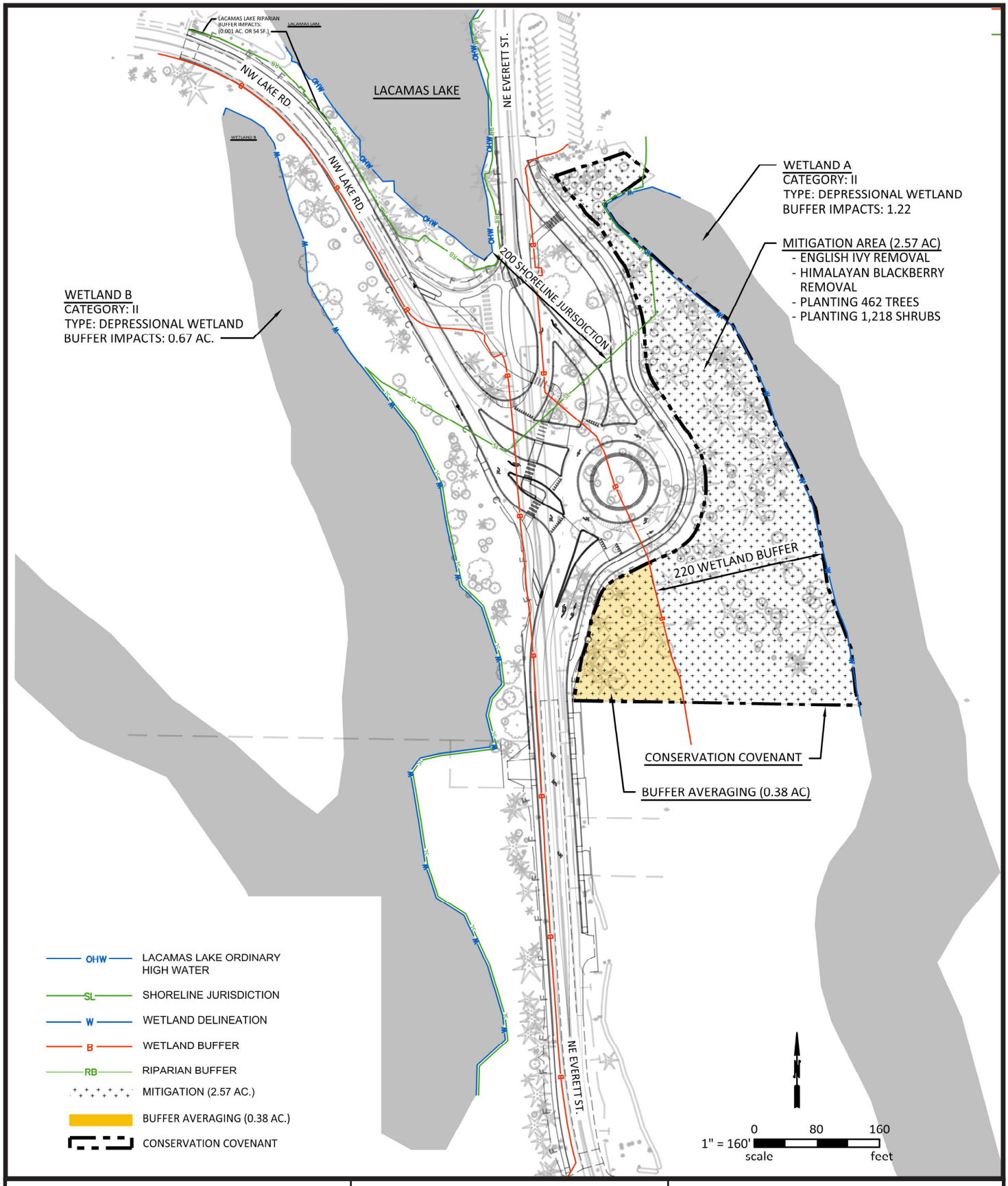

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FIGURE 10: PROPOSED MITIGATION & CONSERVATION COVENANT

WATERSHED: Lacamas Lake
CITY: Camas, Washington
COUNTY: Clark
DATUM: NAD 1983

SHEET: 10 of 10

January 2020