Habitat Management Plan &
Shoreline Impact Assessment

Make Beacon Hill Public Phase 2 Trailheads Project

Spokane County Parcel #s 35024.9036, 35024.0001,
35013.0201 and 35011.9002
Spokane, WA

FINAL
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Prepared by:

Vince Barthels, Biologist
1717 S. Rustle Street, Suite 201
Spokane, WA 99224
vbarthels@ardura.com
509-319-2580 [office]
509-951-9564 [cell]

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Preface

The attached Habitat Management Plan (HMP) and Shoreline Impact Assessment (SIA) was developed pursuant to the Spokane County Shoreline Master Program (SMP), City of Spokane SMP, and the Spokane County Critical Areas Ordinance (SCCAO). The HMP/SIA details the proposed construction activities based on the current (November 8, 2023) 30% design plans, listed sensitive species and habitats, and current habitat conditions that fall within the defined project study area. This HMP/SIA also outlines Best Management Practices (BMPs) that will be implemented as the project is constructed. Prior to final design, Ardurra suggests the impacts of the recommendations outlined in this report be analyzed by a licensed professional engineer regarding slope protection and stormwater management. Should engineering analysis show that changes to the proposed recommendations are required, such changes should be analyzed for habitat functionality by the project biologist.

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HMP/SIA for Make Beacon Hill Public Phase 2 Trailheads Project Spokane County Parcels # 35024.9036, 35024.0001, 35013.0201 & 35011.9002 Spokane, WA

Introduction

This comprehensive report is intended to provide a Habitat Management Plan (HMP) and Shoreline Impact Assessment (SIA) for the Make Beacon Hill Public Phase 2 Trailheads Project proposed jointly by the City of Spokane and Spokane County. The Beacon Hill Complex is a vast conservation and recreation area located northwest of Spokane, WA. The complex has two main access points on the southern edge: John H. Shields Park and Camp Sekani. Both access points are located off the northern side of East Upriver Drive. Each park has aging and underdeveloped trail access and amenities including but not limited to parking, restrooms, kiosks, and paths/trails. The proposed project intends to increase public access and usability to the Beacon Hill Complex and nearby shoreline / Centennial Trail in a more developed setting by providing paved parking (including ADA parking stalls), ADA paved pathways, kids play areas, picnic tables, and improved trailheads. Due to the nature and locations of the project action, this report will address shoreline and habitat considerations for each jurisdiction separately based on each jurisdiction's Shoreline Master Program (SMP) or shoreline regulations, and Critical Areas Ordinance (CAO), respectively.

The SIA components of this report will address Spokane County SMP Sections 4.1.2, 4.1.3, 5.2.5, 5.3.14, and 5.3.15, as well as Spokane Municipal Code (SMC) Chapter 17E.060. The proposed project occurs within an Urban Conservancy shoreline jurisdiction per the Spokane County SMP and Shoreline Residential jurisdiction per SMC. The Urban Conservancy shoreline designation is intended to protect and restore ecological functions of open space, flood plain, and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses (Spokane County 2013). The Shoreline Residential environment is designed to accommodate existing, small-lot residential and accessory structures. The Shoreline Residential environment may also provide appropriate public access and recreational uses (City of Spokane 2010).

This comprehensive report addresses the required biological parameters associated with the proposed shoreline restoration efforts, pursuant to Spokane County CAO, Chapter 11.20, and SMC 17E.020.090. The format of this report enables the applicable regulatory agencies [i.e., Washington Department of Fish & Wildlife (WDFW), Washington Department of Ecology (WDOE), City of Spokane Building and Planning Department, and Spokane County Building & Planning Department] to review one document.

The following elements related to the SMP, SMC, and SCCAO are presented in this report:

(1) Proposed construction activities based on 30% concept design plans (dated November 8, 2023) and details;

(2) Current site conditions that fall within the Project Action Area;

(3) An analysis of Endangered Species Act (ESA) listed species; and,

(4) An analysis of WDFW Priority Species and Habitat (PHS).

Planned Best Management Practices (BMPs) and mitigation measures aimed to minimize direct and indirect construction impacts are also provided. In summary, this HMP/SIA details the environmental permitting baseline information required for regulatory agencies and project stakeholders to make informed decisions about the Proposed Project Action.

General Background, Project Location and Project Goals/Objectives

The Proposed Project Action involves two distinct park trailheads, specifically John H. Shields Park and Camp Sekani. Both trailheads are located along East Upriver Drive at the southernmost edges of the Beacon Hill Complex. Both parks currently serve as the primary southern access points to the Beacon Hill Complex, with existing parking areas near the trailheads of various biking and hiking trails. The Washington State Recreation and Conservation Office (RCO) identified significant regional need for additional access to Beacon Hill for recreational purposes as a "priority improvement need."

John H. Shields Park is in the SE ¼ of Section 02, Township 25N, Range 43E. The eastern portion of the John H. Shields Park project location is contained within the City of Spokane limits and consists of Spokane County parcel numbers 35024.0001 and 35013.0201 (See **Appendix A, Sheet Inventory & Plans).** This combined report will address the eastern portion of John H. Shields Park in accordance with SMC Chapter 17E.060 and SMC 17E.020.090. The western portion of John H. Shields Park is located within Spokane County's jurisdiction and consists of Spokane County parcel number 35024.9036. This combined report will address the western portion of John H. Shields Park in accordance with SCCAO and the Spokane County SMP.

Camp Sekani is located within the NE ¼ of Section 01 Township 25N, Range 43E. The Camp Sekani project footprint is located within Spokane County jurisdiction and contained in Spokane County parcel number 35011.9002. The Camp Sekani trailhead improvements are in the southwestern corner of the subject parcel near Boulder Beach, along the Spokane River. This combined report will address the Camp Sekani improvements in accordance with SCCAO and the Spokane County SMP.

The objective of the proposed project is outlined in the following five goals:

1. Celebrate the park's role and history in the recreation community.
2. Enhance connections between the park, adjacent neighborhoods, and area park facilities/trails.
3. Create an inviting, functional interface between the park's "front country" and "backcountry."

4. Serve the park's current user groups while looking to serve a wider demographic spectrum (e.g., youth).
5. Reduce negative activity (e.g., vandalism, litter, etc...) at the park.

To achieve these goals, the Proposed Project Action would remove, replace, and enhance existing park infrastructure while adding additional infrastructure to serve the regional community needs. For ease of regulatory review, the Proposed Project Action is divided into individual project elements/components per applicable regulatory jurisdictional boundaries and itemized per park location.

Description of the Proposed Project Action

The Proposed Project Action encompasses all of planned park improvements at both John H. Shields Park and Camp Sekani. For a comparative perspective, Plan Sheets 2 and 4 illustrate the pre-construction conditions, whereas Plan Sheets 3 and 5 illustrate the planned park improvements (see **Appendix A**). Sheet 6 within **Appendix A** illustrates the 4 planned mitigation areas. The following sections describe the individual components at each park linked to the Proposed Project Action.

John H. Shields Park (Eastern Portion – within City of Spokane)

Improvements within Spokane County parcel numbers 35024.0001 and 35013.0201 are planned to include:

- Approximately, seven new parking stalls (including one additional ADA parking stall) along the eastern portion of the exiting parking lot. Stormwater and landscaping improvement along the southern portion of the existing parking lot. The existing parking lot entrance is captured in Photo # 4 (see **Appendix B**).
- A new children's play structure/area north of the existing parking lot.
- New split rail fence on the southern portion of the existing parking lot.
- Several placed boulders to act as bollards installed between the existing parking lot and the new paved pathway. The paved pathway will be installed along the existing footprint of a current primitive trail that spans the width of John H. Shields Park.
- Installation of electric (underground) utility lines.
- Native replanting areas (Mitigation Areas 1 and 4) to offset for new impacts within the shoreline jurisdiction.
- Concrete staircase leading from the terminus of the paved pathway up to a graveled adaptive trail. The gravel adaptive trail is an improvement leading to an "open book" climbing wall.

John H. Shields Park (Western Portion – within Spokane County)

Improvements within Spokane County parcel number 35024.9036 are planned to include:

- Paving of the current parking area to contain approximately 21 stalls (including one ADA parking stall) and adjoining stormwater features.
- New split rail fence on the southern portion of the new paved parking lot.
- A pedestrian crossing equipped with rapid flashing beacons would be installed across East Upriver Drive to connect the proposed new paved bike trail segment to the Centennial Trail.
- New bus shelter concrete pad.
- Installation of water and electric (underground) utility lines.
- A paved pathway will be installed along the same existing primitive trail footprint as on the east side of the park and connect the trail segments to an existing sidewalk that terminates at the southwestern most corner of the parcel.
- Note: the existing restroom is planned to be maintained in the current location.

Camp Sekani (within Spokane County)

Improvements within Spokane County parcel number 35011.9002 are planned to include:

- Expansion and paving of the existing gravel parking area to add approximately 100 parking stalls (including four (4) ADA parking stalls) and a turnaround to better facilitate traffic.
- ADA pedestrian paved pathway and a pedestrian crossing across East Upriver Drive are proposed to tie the paths to the Centennial Trail. A pedestrian level concrete box culvert is proposed as part of the trail connection to cross a seasonal drainage channel.
- Installation of electric (underground) utility lines.
- Native replanting areas (Mitigation Areas 2 and 3) to offset for new impacts within the shoreline jurisdiction.
- The project would also include improved trail connections, and the installation of picnic tables, stairs, and other landscaping improvements for better trail access.

Project components and their respective impacts within the 200' Shoreline Jurisdiction will be discussed in later sections of this report.

Defined Project Footprint and Action Area

The Project Action Area is defined as the extents of both the project footprint and the action area. The project footprint is defined as the immediate area where project improvements will take place. At both parks, the

project footprint is landward of East Upriver Drive and encompasses a total area of approximately 3.5 acres combined (including the 4 Mitigation Areas).

The project's action area includes all areas to be affected directly or indirectly by the project action. Therefore, the action area includes the project footprint and all areas surrounding the project footprint where construction activities (including staging areas) could affect the environment directly, indirectly, or through interrelated or interdependent actions.

The action area was defined by determining the overall area in which project-related impacts may occur. Because of the pre-disturbed condition of most of the project footprint, coupled with the improved stormwater management facilities that are planned, the action area is considered to be the project footprint. Stormwater is not planned to sheet flow beyond the north side of East Upriver Drive, which correlates to the southern project footprint.

The Endangered Species Act (ESA) and Priority Habitat and Species (PHS) considerations will take into account the ESA and PHS listed species that have potential to occur within the project footprint.

In later sections of this report that document the new project components within the 200' shoreline jurisdiction, compensatory mitigation measures will be focused on new impacts within the project footprints that exist within 200' (measured horizontally) from the Ordinary High-Water Mark (OHWM) of the Spokane River. Project components landward of the 200' shoreline jurisdiction are characterized as maintenance measures implemented to improve public access and the recreational experience. Outside or landward of the 200' shoreline jurisdiction, the Proposed Project Action is believed to be self-mitigating.

The following section of this report describes the general site conditions.

General Site Conditions

This section describes the typical topography, climate, vegetation, hydrology and soils conditions contained in the project footprint.

Topography

The project footprint at both park locations contains areas that range from generally flat to moderately steep slopes. Within John H. Shields Park, elevations range from approximately 1,920-1945 feet (NAVD 88) above sea level, while elevations in the Camp Sekani project footprint range from 1,925-1960 feet (NAVD 88) above sea level. Steeper slopes are a result of cliffs that are near, and partially within, the Project Action Area of John H. Shields Park. Overall, the topography of the study area slopes to the south, toward the Spokane River.

Climate

According to the National Oceanic and Atmospheric Administration (NOAA) Regional Climate Centers website, Felts Field Airport (SFF) weather station, the average annual temperature of the project vicinity is 49.8°F, with an average maximum annual temperature of 60.7°F and an average minimum annual

temperature of 38.9 degrees. The average annual precipitation is 17.36 inches. The growing season in this area of Spokane County falls between May 24 and September 18, 117 days (USDA 2023).

Vegetation

A site visit was conducted by Vince Barthels, qualified biologist, on November 9, 2023. During the site visit, the dominant plant communities and habitat present were observed and documented. **Table 1. Plant species encountered within the proposed project footprint,** illustrates the dominate species representative of the existing vegetative habitat encountered within the project footprint. The photo inventory documents the vegetative assemblages observed (see **Appendix B**, **Photo Inventory**). Given the close proximity of the two parks, no notable differences in vegetative structure were observed.

Table 1. Plant species encountered within the proposed project footprint.

Common Name	Scientific Name
Apple	*Malus pumila*
Balsamroot	*Balsamorhiza sagittata*
Big basin wildrye	*Leymus cinereus*
Biscuitroot	*Lomatium triternatum*
Buckwheat	*Fagopyrum esculentum*
Cascara	*Frangula purshiana*
Cheatgrass	*Bromus tectorum*
Chokecherry	*Prunus virginiana*
Common mullein	*Verbascum thapsus*
Cottonwood	*Populus trichocarpa*
Creeping dogbane	*Apocynum androsaemifolium*
Dogbane	*Apocynum cannabinum*
Dog rose	*Rosa canina*
Douglas fir	*Pseudotsuga menziesii*
Idaho fescue	*Festuca idahoensis*
Lamb's quarters	*Chenopodium album*
Lewis' mock-orange	*Philadelphus lewisii*
Lupine	*Lupinus perennis*
Miner's lettuce	*Claytonia perfoliata*
Nettles	*Urtica dioica*
Nootka rose	*Rosa nutkana*
Oregon grape	*Mahonia aquifolium*
Poison ivy	*Toxicodendron radicans*
Ponderosa pine	*Pinus ponderosa*
Serviceberry	*Amelanchier alnifolia*
Siberian elm	*Ulmus pumila*
Smooth brome	*Bromus inermis*
Snowberry	*Symphoricarpos albus*
Spotted knapweed	*Centaurea stoebe*
Toadflax	*Linaria vulgaris*
Western serviceberry	*Amelanchier alnifolia*
Wild buckwheat	*Polygonum convolvulus*

Common Name	Scientific Name
Wood's rose	*Rosa woodsii*
Yarrow	*Achillea millefolium*

Hydrology

Along both parks, the Department of Natural Resources (DNR) Water Type Map (see **Appendix C, DNR Water Type Map**) lists the Spokane River as a Type S (Shorelines of the State) waterbody. Similarly, the Spokane River is classified as a Lacustrine, Limnetic, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded Lake (L1UBHh) feature on the National Wetland Inventory (NWI) Map (see **Appendix D, NWI Map**).

John H. Shields Park and Camp Sekani do not contain any mapped wetlands or streams within the project footprints. East of the Camp Sekani project footprint, a Type X stream exists on the DNR Water Type Map that is also classified as a Riverine Intermittent Streambed Seasonally Flooded riverine (R4SBC) feature (see **Appendices C & D**).

Hydrology within the project footprint is limited to seasonal runoff from higher adjacent elevations.

Soils

John H. Shields Park:

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) web-based soil survey, the dominant soil types within the Project Action Area are Lenz-Rock outcrop complex, *15 to 30 percent slopes* (Map Unit 5073), Spens very gravelly ashy loam, *30 to 65 percent slopes* (Map Unit 3143), and Opportunity very gravelly ashy loam, *0 to 3 percent slopes* (Map Unit 3080) and Garrison very gravelly ashy loam, *0 to 3 percent slopes* (Map Unit 3085) (see **Appendix E, USDA NRCS Web Soil Survey**).

Camp Sekani:

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) web-based soil survey, the only soil type within the Project Action Area is Opportunity very gravelly ashy loam, *3 to 8 percent slopes* (Map Unit 3081) (see **Appendix E**).

The Geotechnical Engineering Report, completed by Budinger and Associates in August of 2023, explored subsurface conditions within a total of 8 borings across both parks. Their borings yielded highly variable soil structure, including but not limited to, existing fills, fine grained soils, gravel, and rock. Exposed granitic rock was most prevalent at John H. Shields Park.

Biological and Habitat Assessment

The biological and habitat assessment includes a review of both the USFWS threatened and endangered species list and the WDFW PHS list. To determine the species that may be impacted by the Proposed Project Action, a species list was obtained from the USFWS Information, Planning, and Consultation (IPaC) database (see **Appendix F, USFWS IPaC List**). To complement the IPaC report, the WDFW PHS database was consulted, and the information obtained from the report was used to further substantiate the documented presence of specific ESA-listed species. The PHS Report also identifies any state sensitive species that may occur within the Project Action Area (see **Appendix G, WDFW PHS Report**).

ESA Listed Species Analysis

This section of the report identifies species that are ESA-listed or proposed for listing that may occur within the defined Project Action Area. According to the IPaC report, two ESA-listed threatened and one ESA-listed candidate species may exist in the Project Action Area. The species list summarized in **Table 2** was derived from habitat conditions and potential species occurrence within the Project Action Area.

Table 2. ESA-listed species that may occur in the Project Action Area (dated: 10-6-23).

Common Name	Scientific Name	ESA Status	Effect Determination
Bull trout	*Salvelinus confluentus*	Threatened	No Effect
Monarch butterfly	*Danaus plexippus*	Candidate	No Effect
Yellow-billed cuckoo	*Coccyzus americanus*	Threatened	No Effect

The following subsections include species and habitat descriptions, as well as information regarding use of the Project Action Area by the federally listed species that warrant ESA consideration.

Bull Trout

Bull trout are considered "threatened" under the ESA. Bull trout are salmonids that are members of the char family. They have grayish to dark green sides with white to pinkish spots. The fish is recognized by the white margins on its pectoral, ventral, and anal fins (Eddy and Underhill 1978). The dorsal fin also lacks the spots that cover the back and sides of the body.

Bull trout spawn in the fall in streams with cold, unpolluted water, clean gravel and cobble substrate, and gentle stream slopes (USFWS 1998). Bull trout eggs require a long incubation period, hatching in late winter or early spring. Some may live near areas where they were hatched; however, others migrate from streams to lakes or reservoirs a few weeks after emerging from the gravel. Bull trout habitat consists mainly of oligotrophic lakes and deep pools of pristine cold fluvial habitats in mountainous regions, mainly 45 to 55 °F (Sternberg 1996).

There are no PHS-documented occurrences of bull trout in the Spokane River immediately south of the project footprint (see Appendix G). Suitable habitat for bull trout in the project area vicinity is lacking.

Monarch Butterfly

Monarch butterflies are an ESA candidate species. Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. The black border has a double row of white spots, present on the upper side of the wings. Adult monarchs are sexually dimorphic, with males having narrower wing venation and scent patches. The bright coloring of a monarch serves as a warning to predators that eating them can be toxic. During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily *Asclepias spp.*) and larvae emerge after two to five days. Larvae develop through five larval instars (intervals between molts) over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals (cardenolides) as a defense against predators. The larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly. There are multiple generations of Monarchs produced during the breeding season, with most adult butterflies living approximately two to five weeks; overwintering adults enter reproductive diapause (suspended reproduction) and live six to nine months (USFWS 2021).

No critical habitat has been designated for this species and the project footprint does not contain milkweed; therefore, it does not contain the necessary habitat for use by Monarch butterflies.

Yellow-Billed Cuckoo

The Yellow-billed cuckoo is considered "threatened" under the ESA. As the name suggests, this avian species has a yellow lower mandible. It has rufous wings that contrast against the gray-brown wing coverts and upperparts. The underparts are white, and they have large white spots on a long black undertail (Alsop 2001). It is a neotropical migrant, which winters in South America. Breeding often coincides with the appearance of massive numbers of cicadas, caterpillars, or other large insects (Ehrlich et al. 1992). Its incubation/nesting period is the shortest of any known bird, because it is one of the last neotropical migrants to arrive in North America and the chicks have very little rearing time before embarking on their transcontinental migration. Yellow-billed cuckoos arrive in the United States in late May or early June and breed in late June through July. Cuckoos typically start their southerly migration by late August or early September (Harrison 1979). Yellow-billed cuckoos are considered a riparian obligate and are usually found in large tracts of cottonwood/willow habitats with dense sub-canopies (below 33 feet).

The proposed project footprint does not contain potentially suitable habitat (namely, established cottonwood/willow canopy cover). According to the PHS Report, there are no documented occurrences of yellow-billed cuckoo in the Project Action Area (see **Appendix G).**

Analysis of Effects for ESA Species

Bull Trout

Bull trout would not be impacted by this proposed project and a **no effect determination** is warranted for this species.

Monarch Butterfly

Monarch butterfly would not be impacted by this proposed project and a **no effect determination** is warranted for this species.

Yellow-Billed Cuckoo

Yellow-billed cuckoo would not be impacted by this proposed project and a **no effect determination** is warranted for this species.

PHS-Listed Habitats and Species

This section of the report identifies species and habitats that are listed on the WDFW PHS database as a priority habitat or species, or a state sensitive species, which exists or has been observed within the defined Project Action Area. According to the PHS Report, two habitats and one species are listed for the Project Action Area; however, the habitats and species are not listed as having federal or state status. The habitats, species, and effects determination are summarized in **Table 3**.

Table 3. WDFW-Listed Priority Habitats and Species (Dated: October 6, 2023).

Common Name	Scientific Name	ESA and State Status	Effect Determination
Biodiversity Areas and Corridor	N/A	N/A	No Effect
Shrubsteppe	N/A	N/A	No Effect
Big Brown Bat	*Eptesicus fuscus*	N/A	No Effect

The following subsections include information regarding the current use of the Project Action Area by the PHS-listed habitats and species that warrant additional consideration.

Biodiversity Areas and Corridor

The Beacon Hill Biodiversity Area is a terrestrial habitat that includes habitat for the following species: White-tailed Deer, Moose, Elk, Red-Tailed Hawk, Cooper's hawk, Great Horned Owl, and Saw Whet Owl.

None of these species carry federal or state status. Given that the project footprint is pre-disturbed and the footprint covers such a small portion of the biodiversity corridor, it is unlikely that any of the listed species' habitat will be impacted by the project.

Shrub-steppe

Shrub-steppe habitat is characterized by rolling grassy plains with an overstory of sagebrush and other woody shrubs. The vegetative assemblage typically consists of shrubs, such as Wyoming big sagebrush, and grasses including Idaho fescue, bluebunch wheatgrass, and needle-and-thread. Notable plant groups include balsamroot, buckwheat, and lupines (WDFW 2021).

The site is dominated by ponderosa pine, and the current habitat conditions within the Project Action Area do not align with the definition of shrub-steppe habitat, primarily due to the lack of shrub features. The previous disturbances due to the existing parking areas and trailheads have resulted in an existing lack of continuous habitat of any kind within the Project Action Area. Based on the lack of viable shrub-steppe habitat contained within the Project Action Area, a no effect determination is warranted for shrub-steppe habitat associated with the proposed project footprint.

Big Brown Bat

The big brown bat receives its name due to its dark brown color and relative size compared to other bat species. Big brown bats can be found throughout much of North America and is a habitat generalist that occupies a variety of forest types, rangeland, and urban areas. Roosting occurs in a variety of settings, including building, trees, snags, caves, mines, crevices in cliffs, and bridges. Ponderosa pine and Douglas fir are among the main tree species used for roosting.

The project footprint includes potential roosting habitats (i.e., crevices in cliffs, trees, and snags) for the big brown bat. However, given the large amount of potential roosting habitat in the vicinity of the project footprint, it is unlikely to have a significant impact on roosting behaviors.

Analysis of Effects for PHS Species and Habitats

Biodiversity Areas and Corridor

The Beacon Hill Biodiversity Corridor is an area intended to preserve habitat for the species listed in the PHS report. Given the small overlap of the biodiversity area north of the project footprint, it is unlikely to have an impact on habitat for any of the species listed in the biodiversity corridor. A **no effect determination** is warranted for this habitat.

Shrub-steppe

Shrub-steppe habitat does not occur in the Project Action Area and would not be impacted by this proposed project. A **no effect determination** is warranted for this habitat.

Big Brown Bat

While potential roosting habitat is not present in the project footprint based on the current levels of human activity, there is the suitable habitat in the vicinity of the project footprint. The lack of viable habitat in the project footprint warrants a **no effect determination** for big brown bat.

Shoreline Impact Assessment

This section will address the area of impacts and loss of trees associated with the Project Action that fall within the 200' shoreline jurisdiction for the Spokane River and provide a review of each jurisdiction's respective SMP. An illustration of the 200' shoreline jurisdiction can be found in **Appendix A**. All components of the project will be located landward of East Upriver Drive and have been located as far landward as practicable based on the geographical constraints and the existing, pre-disturbed footprints. Given that each county/city jurisdiction carries a different shoreline designation per their respective SMP, each jurisdiction and impacts will be discussed individually. In turn, and in summary, **Table 4** depicts the anticipated 200' shoreline jurisdiction area of impacts at each park location.

John H. Shields Park (eastern portion):

The eastern parcel of John H. Shields Park is contained within City of Spokane jurisdiction. Per the City of Spokane SMP, the shoreline carries a Shoreline Residential designation. The Shoreline Residential designation is afforded a shoreline buffer of 200' from the OHWM, which emulates the 200' shoreline jurisdiction. Planned project components that would fall within the shoreline jurisdiction include approximately 4,170 square feet (SF) of paved pathways, 2,400 SF in addition parking spaces, 1,723 SF of stormwater infrastructure, 20 liner feet (LF) (or 566 SF) of landscaping and decorative boulders, 355 SF of 2-rail fencing, 2,050 SF of utility trenches, and a small portion of a new kids play area with climbing structures, equaling approximately 1,869 SF within the shoreline buffer (see **Sheets 2 and 3 within Appendix A**). Each project component would be constructed in a pre-disturbed area. Three small (less than 6" DBH) ponderosa pine saplings will need to be cleared to construct the paved pathway. These trees will be mitigated by installing native replantings in one of four prescribed Mitigation Areas elsewhere in the 200' Shoreline Jurisdiction (see **Appendix A, Sheet 6**).

John H. Shields Park (western portion):

The western parcel of John H. Shields Park is contained within Spokane County jurisdiction. Per the Spokane County SMP, the shoreline carries an Urban Conservancy environmental designation. The Urban Conservancy zone is afforded a shoreline buffer of 150' from the OHWM. Planned project components that would fall within the 200' shoreline jurisdiction would include approximately 5,706 SF of paved pathway, 6,774 SF of paved parking areas, 562 SF of new stormwater infrastructure cells, approximately 500 SF of utility trenches and 767 SF of 2-rail fencing. In addition, within the shoreline buffer would be an improved pedestrian crossing of East Upriver Drive and Centennial Trail tie in. This enhanced crossing extends across a paved portion of East Upriver Drive and is not considered a new impact.

Camp Sekani:

Camp Sekani is also contained within an Urban Conservancy shoreline designation per the County's SMP. Planned project components that would fall within the 200' shoreline jurisdiction at Camp Sekani would include approximately 4,039 SF of ADA paved pathways, 5,474 SF of paved parking area, 120 LF (or 3,400 SF) of boulder retaining wall, 1,867 SF of stormwater cells, 75 SF of utility trenches. In addition, within the shoreline buffer would be an improved pedestrian crossing of East Upriver Drive and Centennial Trail tie in. This enhanced crossing extends across a paved portion of East Upriver Drive and is not considered a new impact. Fifty-five (55) mature (greater than 6" DBH) ponderosa pines will need to be cleared to construct the paved pathway and improved parking area. These trees will be mitigated by installing native replantings in one of four prescribed Mitigation Areas elsewhere in the 200' Shoreline Jurisdiction (see **Appendix A, Sheet 6**).

Table 4. Summary of New Development Impacts within the 200' Shoreline Jurisdiction.

Summary of New Development Impacts within the Shoreline Jurisdiction (Within 200' of the OHWM)			
Project Components	John H. Shield Park		Camp Sekani [SF]
	City of Spokane (Eastern Portion) [SF]	Spokane County (Western Portion) [SF]	
Paved Pathways[1]	4,170	5,706	4,039
Paved Parking Areas and/or Travel Lanes [2]	2,400	6,774	5,474
Boulders/Retaining Walls[3]	566	N/A	3,400
2-Rail Fence[4]	354	767	N/A
Kids Climbing Structure(s)	1,869	N/A	N/A
Stormwater Infrastructure	1,724	562	1,867
Utilities[5]	2,050	500	75
Total Project Impacts	**13,133**	**14,309**	**14,855**
Total Project Impacts within Previously Disturbed Areas[6]	**9,850**	**11,447**	**5,942**
Total New Impacts	**3,283**	**2,862**	**8,913**

Notes:
[1]Ancillary to the Paved Pathways are kiosks, bike racks, bench seats, and picnic tables.
[2]The planned bus shelter and the rapid flashing beacons are deemed ancillary to the Paved Parking Areas and/or Travel Lanes.
[3]Boulder/Retaining wall impact calculations assumed an impact width of 20'. Boulders included in the eastern portion of John H. Shields Park will be landscaping and decorative boulders.

[4]Post spacing for 2-Rail Fencing was assumed to be 10' with 4" x 4" posts.
[5]Utility impacts were predicated on the assumption that utility lines would require a 5' trench with one utility per trench.
[6]Values are based on the estimation that 75%, 80%, and 40% of project footprints were pre-disturbed at John H. Shields (east), John H. Shields (west), and Camp Sekani, respectively.

A review of the Make Beacon Hill Public Phase 2 Trailheads Project considering the Spokane Municipal Code (SMC) Chapter 17E.060 and Spokane County SMP is provided below.

John H. Shields Park (Eastern Portion):

In accordance with SMC 17E.060, the John H. Shields shoreline carries an environmental designation of Shoreline Residential. The following evaluation analyzes the Make Beacon Hill Public Phase 2 Trailheads Project components alongside key SMC/SMP requirements.

Article III: Part I. General Development Requirements

Article III Part I of the SMP details general provisions for projects located within the shoreline jurisdiction. These provisions include the incorporation of the City of Spokane critical areas ordinance and development requirements that include mitigation sequencing to ensure a no net loss of ecological function within the shoreline. The Make Beacon Hill Public Phase 2 Trailheads Project includes stormwater infrastructure as part of the improved (paved) parking areas. Stormwater structures included in the project have been designed in accordance with Section 17E.060.200 to ensure that there is no net loss of shoreline ecological functions or a significant impact to aesthetic qualities or recreational opportunities. Low impact development techniques have also been implemented in design stages and will be implemented through BMPs during the construction of the project to ensure native vegetation is kept intact to the greatest extent practicable.

Article III: Part II. No Net Loss of Shoreline Ecological Function

Sections 17E.060.210 and 17E060.220 state that the City shall ensure projects within the shoreline jurisdiction result in no net loss of ecological function through proper mitigation sequencing. Projects are also to follow any shoreline or other applicable regulations, including the Washington State Environmental Policy Act (SEPA). Components of these sections will be addressed in the **Compensation and Mitigation Plan** section of this report.

Article III: Part III. Vegetation Conservation and Replacement

Article III Part III aims to conserve shoreline vegetation through achieving a no net loss of ecological functions within the shoreline. The project has been designed to minimize and avoid impacts to the shoreline buffers and jurisdiction to the greatest extent possible given the existing site conditions and geological elements of the site. Section 17E.060.260 lists vegetation replacement ratios of 1:1 for trees less than 6 inches in diameter, native shrubs, and native ground cover, and 2:1 for native trees greater than 6 inches in diameter. Any impacts that could not be avoided as part of the project will be properly mitigated as per the Section 17E.060.260 and are further detailed later in this report. Four Mitigation Areas, encompassing a total of 0.52 acres, have been prescribed to meet the mitigation offset for this project within the 200' Shoreline Jurisdiction.

Article III: Part IV. Physical and Visual Public Access

This section of the SMP recognizes the need for physical and visual public access to the shoreline. The project does not include any portions on the waterward side of East Upriver Drive and as such, will have no impact on visual public access to the Spokane River. The addition of the pedestrian crossings along East Upriver Drive will increase access to the Centennial Trail on the south side of East Upriver Drive.

John H. Shields Park (Western Portion) and Camp Sekani:

In accordance with the Spokane County SMP, the western portion of John H. Shields Park and the Camp Sekani shoreline carries an environmental designation of Urban Conservancy. The following evaluation analyzes the Make Beacon Hill Public Phase 2 Trailheads Project components alongside key SMP requirements.

Section 3, Shoreline Environment Designations and Management Policies

The SMP management policies encourage the implementation of public access and public recreation whenever feasible. The Make Beacon Hill Public Phase 2 Trailheads Project aims to protect ecological functions and conserve the existing natural environment within the park, while maintaining public recreational opportunities in a more developed setting. The improved parking and trailhead access will provide improved recreational opportunities for the public to access the park while avoiding, minimizing, and mitigating for impacts to the designated shoreline.

Section 4, Shoreline Protection and Restoration

Measures outlined in Section 4 of the SMP are intended to enhance and rehabilitate shorelines regarding hydrologic and biological processes and promote diverse ecological function. Most of the shoreline restoration project footprint is previously disturbed/developed and has experienced years of relatively high use by park visitors and users. The Project Action aims to replace and improve existing structures and previously disturbed areas. Total collective new impacts within the shoreline jurisdiction encompass 15,058 SF or 0.346 acres (see **Table 4**).

Section 4.1.3 of the SMP identifies a preferred 1.5:1 mitigation ratio; thus, a shoreline impact assessment with an on-site compensation and restoration plan is provided at a 1.5:1 shoreline restoration/enhancement to impact area ratio to ensure no net loss of shoreline functions within the subject parcel. This ratio is considered appropriate due to the scope and magnitude of this project.

Section 4.1.2, Mitigation Sequencing

Section 4.1.2 outlines the sequencing of mitigation measures related to project actions and emphasizes the need to avoid and minimize impacts on a project basis. The project does not include any actions that will cause adverse impacts within native functioning shoreline habitat. The project avoids unnecessary or excessive impact to existing native shoreline plant communities with appropriate BMPs to minimize the footprint of disturbance during construction activities. Any impacts within the shoreline will use appropriate technology and engineering to minimize primary and secondary project impacts. The project proposes to rectify any

potential adverse impacts by repairing the shoreline environment where disturbed and enhancing adjacent shoreline environments to further promote a functioning shoreline environment. Routine maintenance and monitoring of the completed project will further ensure the project's impacts are minimized to the greatest extent possible.

Section 5.2.5, Protecting Shoreline Ecology and Aesthetics

This section of the SMP outlines the need to maintain ecological function within the shoreline by ensuring that projects result in *no net loss* of ecological function. The project plan includes paved parking and improved trail connections, as well as a pedestrian/bike bridge to connect the proposed trails to the Centennial Trail. These improvements will have unavoidable impacts to some existing vegetative communities due to the locations of proposed improvements. These impacts have been designed to minimize total impacts. The project plans include several native planting areas to encourage and preserve increased species richness amongst native plant communities within the shoreline buffer and mitigate any vegetation loss within the shoreline jurisdiction. The project plans include no net loss of shoreline ecological functions and consider onsite mitigation measures as specified in Section 4 of the SMP.

Section 5.3.14, Recreation

Section 5.3.14 states that pedestrian and bicycle access shall be provided where appropriate. Trail components of the project are intended to provide shoreline access via a tie-in to the Centennial Trail. Unavoidable impacts to the shoreline will be mitigated as required in Section 4 of the SMP. The trails are consistent with Section 5.3.14 of the SMP, or otherwise will undergo additional administrative review and approval.

Section 5.3.15, Fill

Section 5.3.15 of the SMP specifies that fill within an Urban Conservancy environment may be permitted where justified by overriding public interest and that the fill will result in no net loss of ecological function. Justification for the project is as follows:

- Any fill is a design component of the park improvements and/or is justified by public interest. No fill will extend waterward of the OHWM.
- Fill will not result in a net loss of shoreline function.
- The fill will not alter or impact natural channel migration processes.

In summary, the Proposed Project Action is consistent with the pertinent sections of the SMC and SMP as presented above. Per **Table 4**, the total new project impacts within the 200' Shoreline Jurisdiction = 15,058 SF (0.346 acres).

Compensation and Mitigation Plan

Mitigation Sequencing

The Spokane County SMP, Section 4.1.2, and SMC Section 17E.060.220, require all shoreline projects to demonstrate sufficient mitigation to minimize significant adverse impacts from the activity. The Make Beacon Hill Public Phase 2 Trailheads Project does not include any actions that will cause adverse impacts within native functioning shoreline habitat and implements appropriate BMPs to minimize the footprint of disturbance during construction activities. The project proposes to rectify any potential adverse impacts by repairing the shoreline environment where disturbed and enhancing adjacent shoreline areas to further promote a functioning shoreline environment.

The County's SMP calls for a 1.5:1 mitigation ratio in terms of area for unavoidable impacts; whereas the City's SMC calls for a replacement ratio based on size of trees to be impacted. Given the total number of trees (i.e., 58; and notably only 3 trees within the City's jurisdiction) anticipated to be cleared because of the project action, the application of the County's 1.5:1 mitigation ratio in terms of area (including replantings) will far exceed the City's compensatory mitigation requirements. Therefore, structured in accordance with the County's SMP, this mitigation approach detailed herein will provide one combined mitigation plan, satisfying both the County's SMP and City's SMC.

Mitigation Plan

This mitigation plan yields an on-site compensation package aimed at offsetting 0.346 acres in new project impacts with a total of 4 prescribed Mitigation Areas that combined encompass 0.52 acres as illustrated on Sheet 6 within **Appendix A**. The 4 prescribed Mitigation Areas will receive native replantings and a seed mix designed to improve the existing habitat, provide an improved shoreline vegetative community, and establish a structured shoreline that will prevent erosion and protect water quality.

More specifically, Mitigation Area 1 will have a temporary exclusionary fence installed around its perimeter, which is envisioned to remain in place for up to 5 years to minimize wildlife browsing. The existing concrete ecology blocks along the southside of Mitigation Area 1 will be removed and replaced with boulders to prevent vehicle parking in this area and to provide added protection of the mitigation plantings. **Appendix H** contains the typical temporary fencing and boulder details.

Planting Details

All plant materials shall be native to Spokane County and from native stock or stock from a similar climate, and consistent with WSDOT 2023 Specification 9-14.7, Plant Materials. All plants should be kept saturated and shaded until the time of installation. Ideal installation windows correlate to the month of April or October.

Plants should be healthy, vigorous, and free from any signs of insect infestation, disease, mechanical injury, or signs of environmental or other stress. Actively growing plants should only be planted during the frost-free periods. Please refer to **Appendix H**, for typical planting installation details for nursery stock. Planting distribution should be random/scattered (i.e., not in rows), and can be densely clustered to form restoration

islands at the Landscape Contractor's discretion. Avoid planting where suitable soil is not available (e.g., rock out crops or dirt/primitive trails).

The prescribed plant schedule in **Table 5** is developed specific to the identified 4 Mitigation Areas totaling 0.52 acres. If plants species are not available for purchase at the time of planting, a qualified biologist or landscape architect can approve alternative native plant species.

Table 4. Summary of Native Replantings for the Prescribed 4 Mitigation Areas totaling 0.52 acres.

Common Name	Scientific Name	Size/Condition	Average Approx. Spacing	Total Quantities
Wood's rose	*Rosa woodsii*	1 or 2 gallon	1 per 144 SF	23
Snowberry	*Symphoricarpos albus*	2 gallon	1 per 144 SF	23
Black hawthorn	*Crataegus douglasii*	5 gallon	1 per 144 SF	22
Serviceberry	*Amelanchier alnifolia*	5 gallon	1 per 144 SF	22
Chokecherry	*Prunus virginiana*	5 gallon	1 per 144 SF	23
Blue elderberry	*Sambucus cerulea*	5 gallon	1 per 144 SF	22
Ponderosa pine	*Pinus ponderosa*	1 or 2 gallon	1 per 144 SF	23
			Total Prescribed Nursery Stock per Acre	**158**

Throughout the mitigation areas, the recommended seed mix (see **Table 6**) including upland bunch grasses and forbs, is prescribed to be hand broadcasted at a rate of 20 lbs. per acre. Broadcast seeding is recommended to restore a native grass and forb community. The broadcast seed shall be topped with hydro mulch.

Table 5. Recommended Seed Mix

#	Species Name	Common Name	Provenance	PLS (lb/ac)	% Mix (wt.)	PLSeeds/ft2	% Mix (seeds/ft2)
1	*Festuca idahoensis*	Idaho fescue	Native	3.5	18%	36.4	25%
2	*Poa secunda*	Sandberg bluegrass	Native	1.7	8%	34.6	24%
3	*Psuedoroegneria spicata*	Bluebunch wheatgrass	Native	9.0	45%	28.9	20%
4	*Koeleria macrantha*	Prairie junegrass	Native	0.5	3%	26.6	18%
5	*Elymus elymoides*	Bottlebrush squirreltail	Native	2.7	14%	11.9	8%
6	*Lupinus sericeus*	Silky lupine	Native	1.4	7%	0.8	1%
7	*Lomatium triternatum*	Nineleaf biscuitroot	Native	0.8	4%	0.8	1%
8	*Eriogonum heracloides*	Parsnip flowered buckwheat	Native	0.3	2%	1.6	1%
9	*Solidago canadensis*	Canada goldenrod	Native	0.03	0%	3.5	2%
			Sums	20.0	100%	144.9	
					% Native/ft2 =	100%	

Monitoring and Maintenance

The prescribed mitigation areas shall receive five years of monitoring and maintenance at the responsibility of the City. The goal is to establish an 80% survival rate for all native woody plantings, and a maximum tolerance of 20% for weedy species within the planting areas. Maintenance over the 5-year period includes the following:

1. If warranted, the installed plantings will be temporarily irrigated at the City's discretion to allow the shrubs and trees to mature and develop adequate root systems for the first two to three growing seasons post-planting.
2. Plantings that die within the first two years of monitoring shall be removed and replaced by the City with native species listed in **Table 5**.
3. Noxious weeds should be identified and treated with herbicide annually for the first two years of monitoring.
4. After the newly installed vegetation assemblages have been established and deemed 80% successful for the final three years of the monitoring period, no additional monitoring or maintenance efforts would be required.

Monitoring efforts would begin after the plantings are installed. No less than eight established photo points (2 photo points per Mitigation Area) shall be chosen. All planting areas must be monitored year-round at a minimum duration of twice during the growing season, for a period of no less than five continuous years, with an annual report submitted to the appropriate regulatory agencies, including the Washington State Recreation and Conservation Office, by December 1st of each year.

Based on monitoring results, adaptive management of the site will be utilized. If the site is not trending towards performance standards identified within this plan, additional management actions may be required, and may include:

1. Additional plantings;
2. Exclusionary fencing or browse control;
3. Re-grading;
4. Weed treatment and removal;
5. Re-seeding;
6. Extension of the monitoring period; and,
7. Adding additional monitoring points.

The Best Management Practices outlined in the following section will be implemented as part of the Proposed Project Action to ensure that additional impacts are avoided and minimized to the greatest extent practicable.

Planned Best Management Practices

BMPs would be in place to minimize direct and indirect, short-term construction impacts. Planned BMPs herein are intended to restore vegetative structure and minimize erosion. BMPs are mandatory and would become part of the project action. Planned BMPs include, but are not limited to, the following:

1. Staging areas, including all excavation and embankment placement areas, would occur only within the outlined limits of the defined project footprint. When practical, staging areas should be located greater than 200 feet from the OHWM of the Spokane River. Moreover, designed staging areas should be in existing gravel parking areas or per-disturbed areas.
2. Limit the removal of emergent and woody vegetation within the project footprint. Trees planned for clearing shall be clearly marked. Trees shall be pruned (vs. completely removed) where practical.
3. Contractors will always have emergency spill equipment onsite and must have a Spill Prevention Plan approved and in place prior to any construction activities. The Contractor should check equipment daily for leaks and shall fix any detected leaks prior to using the equipment near the Spokane River.
4. Temporary erosion controls (TECs) (i.e., silt fences, silt curtains, straw bales, or wattles) would be implemented according to the final construction designs. The project would include regular onsite observation of work and TECs. Any deficiencies in TECs shall be addressed immediately.
5. Seeding would be implemented to provide specific vegetative recruitment opportunities and adjacent to newly disturbed areas. The Contractor shall apply the prescribed seed mix (see **Appendix H**) at a rate of 20 pounds (lbs.) per acre (approximately 1.0 lb. per 2,200 square feet). The seed mix shall be hand broadcast or incorporated into a moderate term mulch consistent with the requirements of Washington State Department of Transportation (WSDOT) Standard Specifications within Section 9-14.4(2)B.
6. Noxious weed management shall be exercised in all areas where ground disturbing activities take place. Noxious weeds onsite will be identified and eliminated using the recommended herbicide protocol outlined in Aquamaster® herbicide or another City of Spokane approved herbicide. Herbicides must be purchased and applied by a Washington State Licensed Applicator. Treatment applications must be in accordance with the labeled directions. Areas where noxious weeds are eliminated in high densities (i.e., greater than 1,000 square feet) will be re-seeded with appropriate native grass seed mix at the end of the growing season, but before the first frost (late-September to mid-October).

Conclusion

The Proposed Project Action yields planned trailhead improvements at both John H. Shields Park and Camp Sekani, which provide public access to the greater Beacon Hill Complex (see **Appendix A**). Most of the project footprint is characterized as a pre-developed or pre-disturbed area. This report details the environmental permitting baseline information required for regulatory agencies and project stakeholders to make informed decisions about the Proposed Project Action.

The Make Beacon Hill Public Phase 2 Trailheads Project has been designed in accordance with the City's SMC and County's SMP and is anticipated to yield unavoidable project impacts that encompass 15,058 SF (0.346 acres) within the Spokane River's 200' Shoreline Jurisdiction (see **Table 4**). These calculated permanent impacts will require mitigation measures. In satisfying both the County's SMP and City's SMC, one consolidated mitigation plan was developed by applying a mitigation ratio of 1.5:1. The mitigation plan prescribes enhancements spanning over 4 Mitigation Areas totaling 0.52 acres. All the Mitigation Areas are situated on-site, within City or County owned property, and within the 200' Shoreline Jurisdiction. The prescribed planting schedule (see **Table 5**) calls for 158 nursery stock native plantings and approximately 10 pounds of recommended seed mix (see **Table 6**) to be evenly dispersed throughout the 4 Mitigation Areas. This plan requires 5-years of annual monitoring and maintenance efforts to ensure planting survivability at a minimum success threshold of 80%. If implemented, the mitigation plan will improve stratification and species richness and enhance/restore habitat value within the shoreline buffer.

Given the scope of the project and the lack of impact on significant habitat, a **no effect** determination is warranted for the ESA-listed species, including bull trout, monarch butterfly and yellow-billed cuckoo. Similarly, due to the lack of viable shrubsteppe and big brown bat habitat within the parcel, as well as the abundant Beacon Hill Biodiversity Corridor habitat in the vicinity, a **no effect** determination is warranted for the PHS-listed habitat.

Several BMPs and mitigation measures are presented to minimize direct, short-term construction impacts, including native replantings and moving design elements as far landward as practicable. Planned BMPs and enhancements should maintain the ecological character and functions and values that are inherent to the project footprint. This project should result in no net loss of shoreline functions.

Lastly, it should be noted that the final authority to adopt this plan, or the findings herein, rests with the appropriate regulatory agencies.

Respectfully submitted by:

Vincent Barthels

Digitally signed by Vincent Barthels
DN: C=US, E="vbarthels@ardurra.com ", O="Ardurra ", OU=NW Env. Group, CN=Vincent Barthels
Reason: I am approving this document
Contact Info: 509-951-9564
Date: 2024.02.29 09:46:16-08'00'

Vincent Barthels, Biologist

ARDURRA

References

Alsop, F.J. 2001. Birds of North America, Western Region. DK Publishing, Inc. New York, New York.

Budinger & Associates, Inc. (Budinger) 2023. Primary author Finnegan, John. Geotechnical Engineering Report - Make Beacon Hill Public.

City of Spokane. 2010. *Spokane Municipal Code Chapter17E.060 – Shoreline Regulations.* [Online] Accessed 11/10/23 at https://my.spokanecity.org/smc/

Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1992. Birds in Jeopardy: The Imperiled and Extinct Birds of the United States and Canada, including Hawaii and Puerto Rico. Stanford University Press, Stanford, California. 259 pp.

Harrison, H.H. 1979. A field guide to western birds' nests. Houghton Mifflin Company, Boston. 279 pp.

Spokane County. 2013. *Spokane County Shoreline Master Program.* [Online] Accessed 11/10/23 at https://www.spokanecounty.org/DocumentCenter/View/961/Spokane-County-Shoreline-Master-Program-PDF

USDA/NRCS. 2019. *Soil Survey,* obtained from Web Soil Survey. [Online] Accessed 11/10/23 at http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

USDA/NRCS. 2023. *AgACIS for Spokane County: Spokane Felts Field Station.* [Online] Accessed 11/10/23 at http://agacis.rcc-acis.org.

USFWS. 2021. Monarch Butterfly Facts (*Danaus plexippus*). [Online] Accessed 11/10/23 at https://ecos.fws.gov/ecp/species/9743.

USFWS. 2021. National Wetlands Inventory. Accessed 11/10/23 at https://www.fws.gov/wetlands/data/mapper.html.

WDFW. 2008. Priority Habitats and Species List. Olympia, Washington. 292 pp. [Online] Accessed 11/10/23 at https://wdfw.wa.gov/sites/default/files/publications/00165/wdfw00165.pdf.

WDFW. 2021. Ecosystems in Washington: Shrubsteppe. Accessed 11/10/23 at https://wdfw.wa.gov/species-habitats/ecosystems/shrubsteppe#conservation.

WDFW. 2021. *Priority Habitats and Species List (PHS).* [Online] Accessed 11/10/23 at https://geodataservices.wdfw.wa.gov/hp/phs/.

APPENDIX A - SHEET INVENTORY & PLANS

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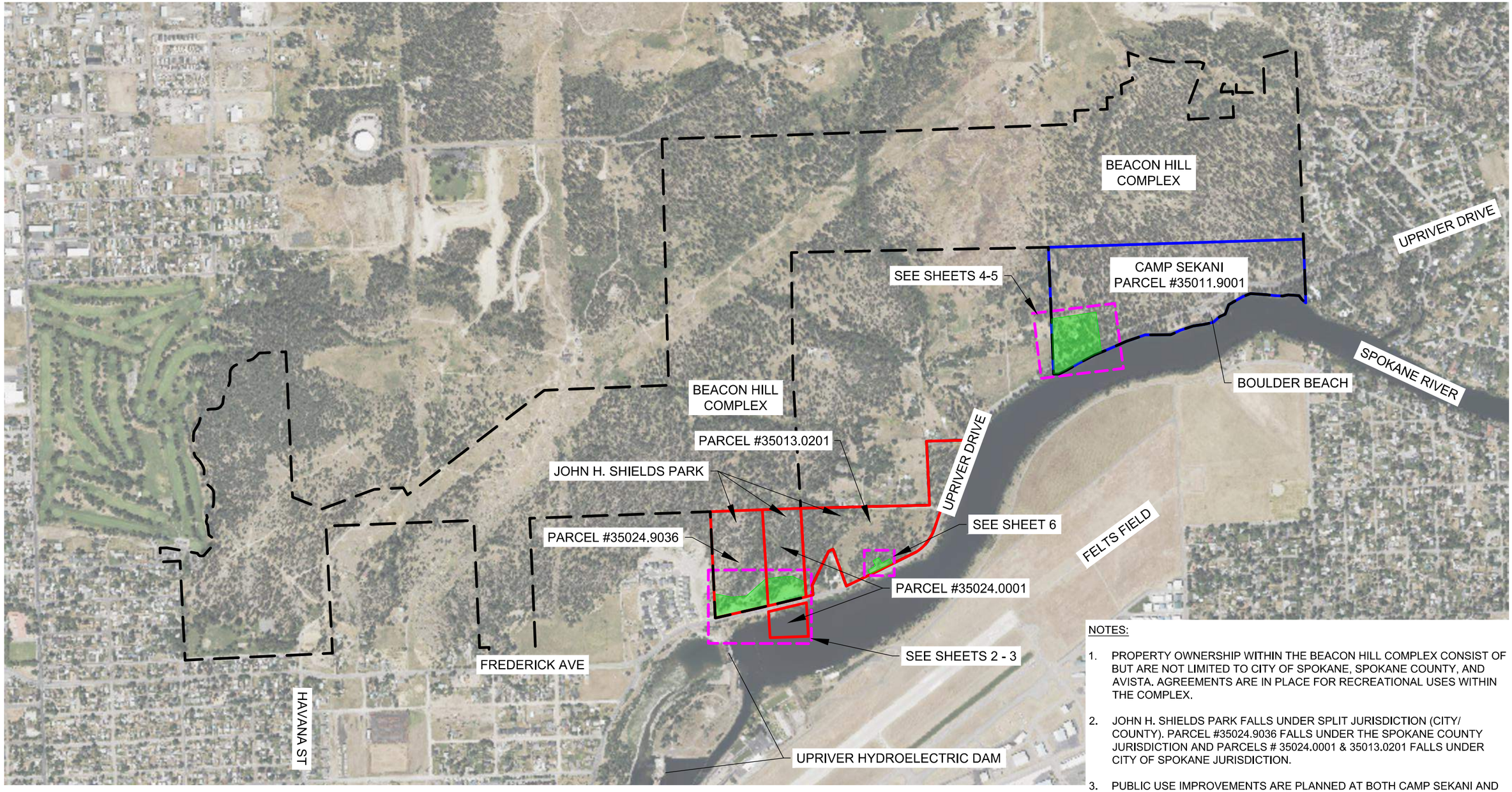

LEGEND

- JOHN H. SHIELDS PARCEL AND PARK BOUNDARIES
- CAMP SEKANI PARCEL AND PARK BOUNDARY
- BEACON HILL COMPLEX BOUNDARY
- PROPOSED PROJECT AREAS / FOOTPRINTS

MAKE BEACON HILL PUBLIC
PHASE 2 TRAILHEADS PROJECT
OVERVIEW AND SHEET INDEX EXHIBIT
SHEET 1

NOTES:

1. PROPERTY OWNERSHIP WITHIN THE BEACON HILL COMPLEX CONSIST OF BUT ARE NOT LIMITED TO CITY OF SPOKANE, SPOKANE COUNTY, AND AVISTA. AGREEMENTS ARE IN PLACE FOR RECREATIONAL USES WITHIN THE COMPLEX.
2. JOHN H. SHIELDS PARK FALLS UNDER SPLIT JURISDICTION (CITY/ COUNTY). PARCEL #35024.9036 FALLS UNDER THE SPOKANE COUNTY JURISDICTION AND PARCELS # 35024.0001 & 35013.0201 FALLS UNDER CITY OF SPOKANE JURISDICTION.
3. PUBLIC USE IMPROVEMENTS ARE PLANNED AT BOTH CAMP SEKANI AND JOHN H. SHIELDS PARKS TO IMPROVE PUBLIC ACCESS AND PARKING FOR THE BEACON HILL COMPLEX
4. SEE SHEET 6 FOR PRESCRIBED MITIGATION AREAS.

DATE: 11/27/23 JOB: 230144

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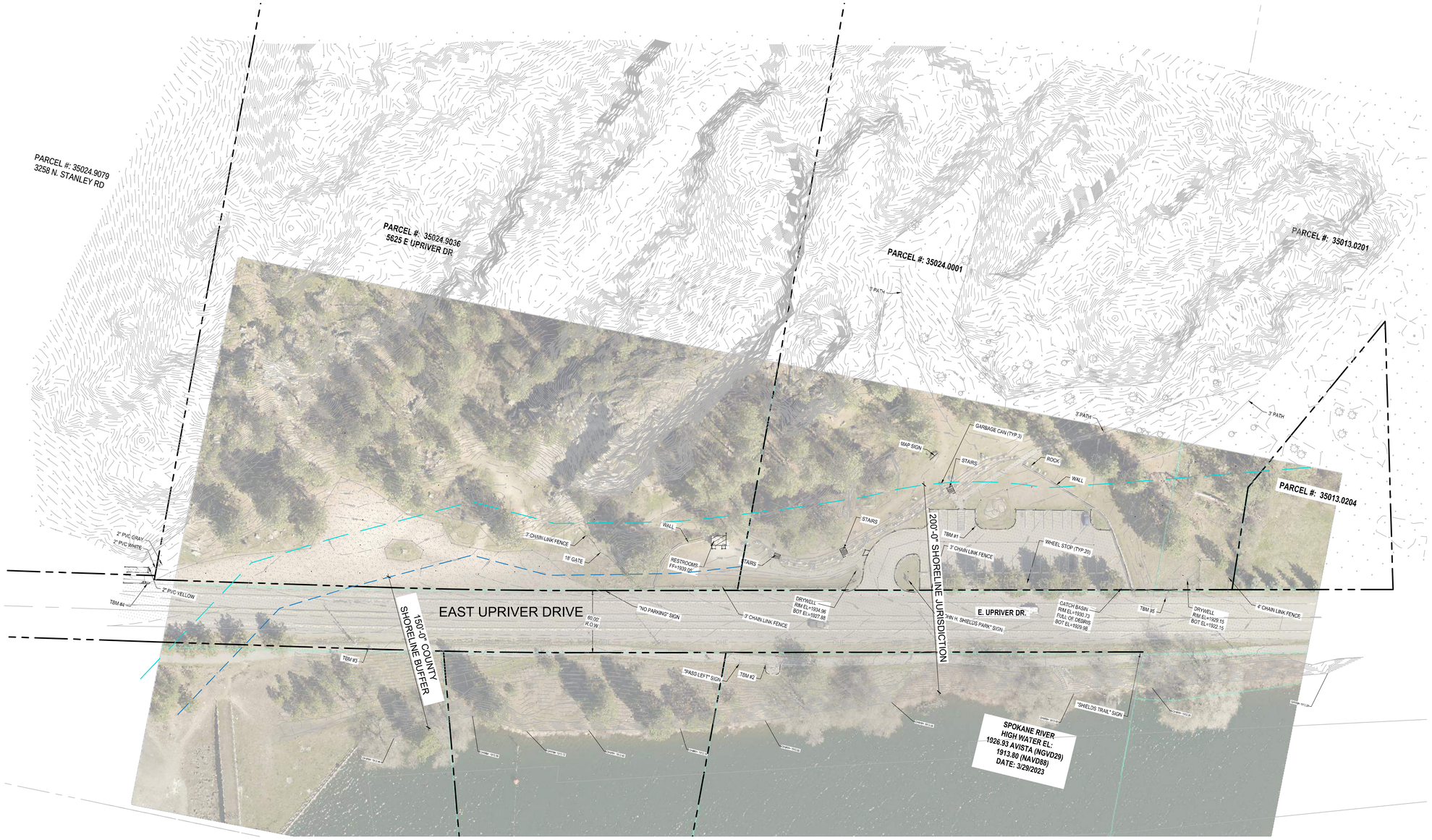

SYMBOL LEGEND

200' SHORELINE JURISDICTION

150' SHORELINE BUFFER

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HORIZONTAL SCALE

0 25 50 100

1" = 50 FEET

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601 West Main Avenue, Suite 305, Spokane, WA 99201
509.252.5019 TEL www.ahbl.com WEB

Project Title:

MAKE BEACON HILL PUBLIC - PHASE 2 TRAILHEADS

Client:

CITY OF SPOKANE
PARKS & RECREATION
808 WEST SPOKANE FALLS BOULEVARD
SPOKANE, WA 99201
CONTACT: NICK HAMAD
PHONE : 509-363-5452
EMAIL: nhamad@spokanecity.org

Project No.

2230263.40

Issue Set & Date:

SSDP EXHIBITS

NOVEMBER 8, 2023

Revisions:

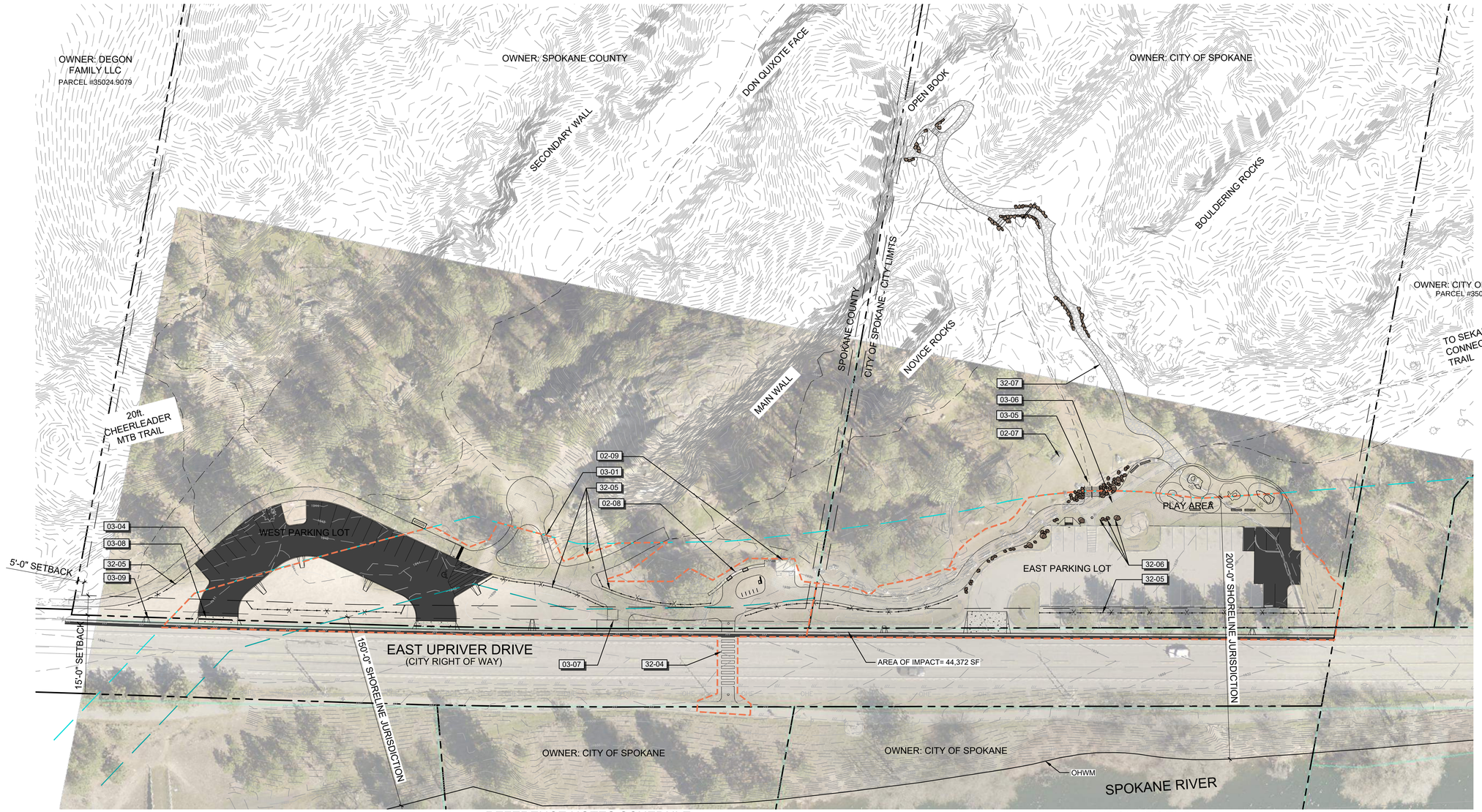
4
3
2
1

Sheet Title:

SURVEY PLAN

Designed by: HMS | Drawn by: HMS | Checked by: KKC/CDA

Sheet 2



REFERENCE NOTES SCHEDULE

SYMBOL	02 EXISTING CONDITIONS DESCRIPTION	QTY	DETAIL
02-07	KIOSK TO REMAIN		
02-08	RELOCATED JERSEY BARRIER		
02-09	EXISTING RESTROOM TO REMAIN		

SYMBOL	03 CONCRETE DESCRIPTION	QTY	DETAIL
03-01	CONCRETE STAIRS W/ HANDRAILS		
03-04	6" CONCRETE CURB		
03-05	MONUMENTAL CONCRETE STAIRS WITH HANDRAILS		
03-06	CONCRETE PAVEMENT		
03-07	BUS SHELTER PAD, 8'X8'		
03-08	DRIVEWAY APRON		
03-09	STORM DRAIN INLET		

SYMBOL	32 EXTERIOR IMPROVEMENTS DESCRIPTION	QTY	DETAIL
32-04	CROSSWALK STRIPING		
32-05	SPLIT RAIL FENCE		
32-06	BOULDER BOLLARDS		
32-07	COMPACTED GRAVEL TRAIL		

SYMBOL LEGEND

- PROPERTY LINE / R.O.W.
- SETBACK LINE
- 200' SHORELINE JURISDICTION
- 150' SHORELINE BUFFER
- AREA OF IMPACT
- DRAINAGE BUFFER
- ROADWAY CENTER LINE
- UNPAVED TRAIL
- CONCRETE RETAINING WALL
- BOULDER RETAINING WALL
- CONCRETE CURB
- DRAIN LINES, SEE CIVIL
- SPLIT RAIL FENCE
- REMOVABLE BOLLARD
- PICNIC TABLES
- BIKE RACKS
- BIKE REPAIR STAND
- RELOCATED KIOSK

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HORIZONTAL SCALE
0 20 40 80
1" = 40 FEET

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509.252.5019 TEL www.ahbl.com WEB

Project Title:

MAKE BEACON HILL PUBLIC - PHASE 2 TRAILHEADS

Client:

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PARKS & RECREATION
808 WEST SPOKANE FALLS BOULEVARD
SPOKANE, WA 99201
CONTACT: NICK HAMAD
PHONE : 509-363-5452
EMAIL: nhamad@spokanecity.org

Project No.

2230263.40

Issue Set & Date:

SSDP EXHIBITS

NOVEMBER 8, 2023

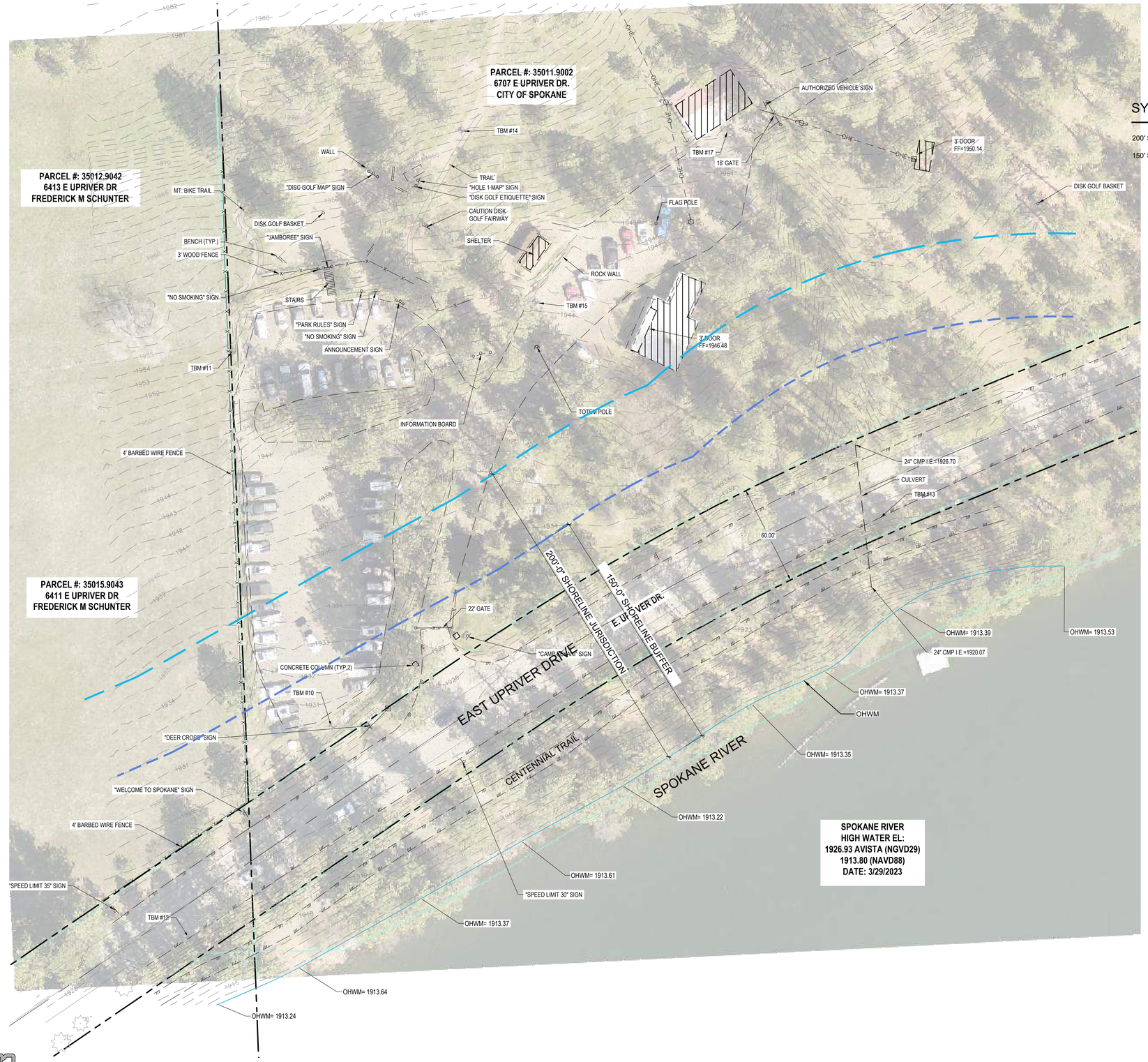
4
3
2
1
Revisions:

Sheet Title:

OVERALL SITE PLAN - JOHN H. SHIELDS PARK

Designed by:	Drawn by:	Checked by:
HMS	HMS	KKC/CDA

Sheet 3



SYMBOL LEGEND

200' SHORELINE JURISDICTION

150' SHORELINE BUFFER

N

HORIZONTAL SCALE

0 15 30 60

1" = 30 FEET

811 Know what's **below.** **Call** before you dig.

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509.252.5019 TEL www.ahbl.com WEB

Project Title:

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Client:

CITY OF SPOKANE
PARKS & RECREATION
808 WEST SPOKANE FALLS BOULEVARD
SPOKANE, WA 99201
CONTACT: NICK HAMAD
PHONE : 509-363-5452
EMAIL: nhamad@spokanecity.org

Project No.

2230263.40

Issue Set & Date:

SSDP EXHIBITS

NOVEMBER 1, 2023

4

3

2

1

Revisions:

Sheet Title:

SURVEY PLAN

Designed by:	Drawn by:	Checked by:
HMS	HMS	KKC/CDA

Sheet 4

REFERENCE NOTES SCHEDULE

SYMBOL	02 EXISTING CONDITIONS DESCRIPTION	QTY	DETAIL
02-01	EXISTING STORAGE BUILDING TO REMAIN		
02-02	EXISTING DISC GOLF TARGET / TEE BOX TO REMAIN		
02-03	RELOCATED "JAMBOREE" GATEWAY SIGN		
02-04	RELOCATED DRIVEWAY MONUMENTS		
02-05	RELOCATED EXISTING RESTROOM SHELTER		
02-06	RELOCATED KIOSK		

SYMBOL	03 CONCRETE DESCRIPTION	QTY	DETAIL
03-01	CONCRETE STAIRS W/ HANDRAILS		
03-02	CONCRETE PAD FOR RESTROOM ENCLOSURE		
03-03	PRECAST "REDI-ROCK" RETAINING WALL		
03-04	6" CONCRETE CURB		

SYMBOL	32 EXTERIOR IMPROVEMENTS DESCRIPTION	QTY	DETAIL
32-01	BASALT BOULDER RETAINING WALL		
32-02	NEW ACCESS GATE		
32-03	PRE-MANUFACTURED BRIDGE		
32-04	CROSSWALK STRIPING		

SYMBOL LEGEND

- PROPERTY LINE / R.O.W.
- SETBACK LINE
- 200' SHORELINE JURISDICTION
- 150' SHORELINE BUFFER
- AREA OF IMPACT
- DRAINAGE BUFFER
- ROADWAY CENTER LINE
- UNPAVED TRAIL
- CONCRETE RETAINING WALL
- BOULDER RETAINING WALL
- CONCRETE CURB
- DRAIN LINES, SEE CIVIL (D)
- REMOVABLE BOLLARD
- PICNIC TABLES
- BIKE RACKS
- BIKE REPAIR STAND
- RELOCATED KIOSK

N

HORIZONTAL SCALE
0 15 30 60
1" = 30 FEET

811 Know what's below. Call before you dig.

DATE: November 2, 2023 FILENAME: Q:\2023\2230263\40_LAN\CAD\SHEET\Camp Sekani\2230263_CS-L-SH-COVR.dwg

AHBL
TACOMA · SEATTLE · SPOKANE · TRI-CITIES
601 West Main Avenue, Suite 305, Spokane, WA 99201
509.252.5019 TEL www.ahbl.com WEB

Project Title:

MAKE BEACON PUBLIC - PHASE 2 TRAILHEADS

Client:

CITY OF SPOKANE
PARKS & RECREATION
808 WEST SPOKANE FALLS BOULEVARD
SPOKANE, WA 99201
CONTACT: NICK HAMAD
PHONE : 509-363-5452
EMAIL: nhamad@spokanecity.org

Project No.

2230263.40

Issue Set & Date:

SSDP EXHIBITS

NOVEMBER 1, 2023

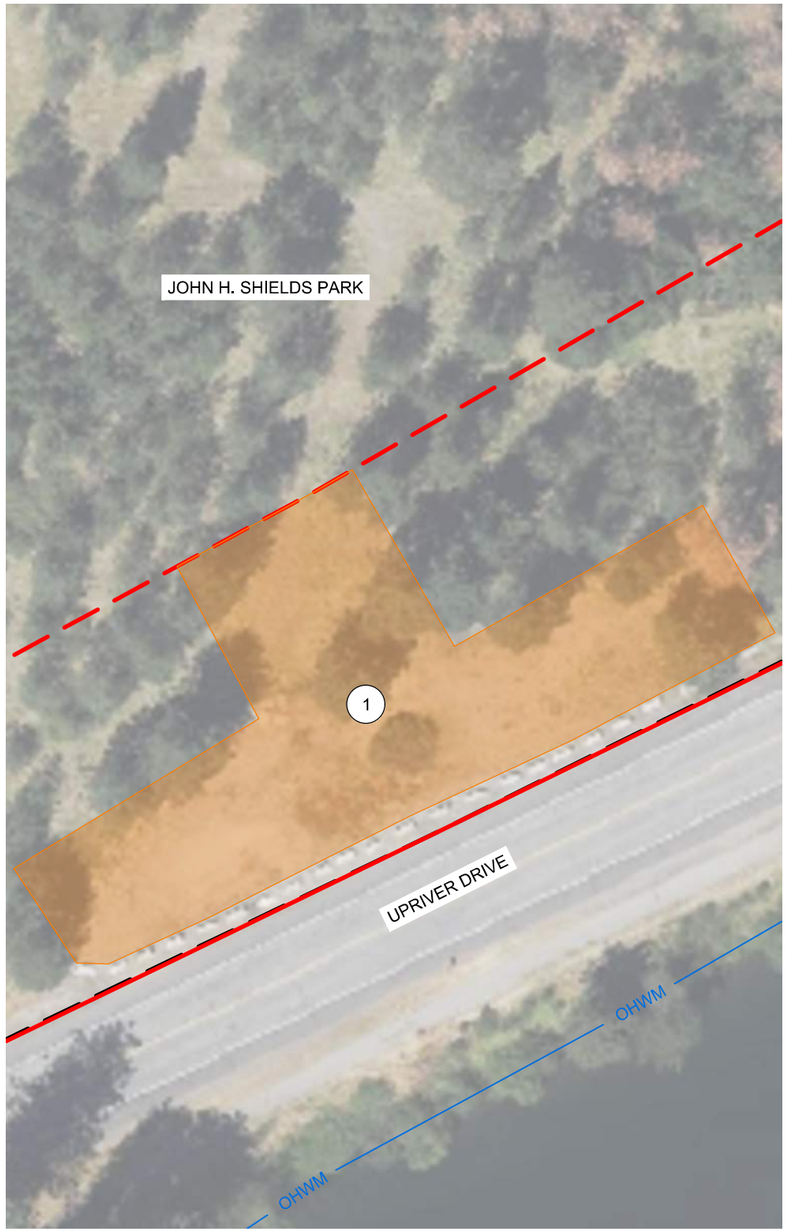
Revisions:

Sheet Title:

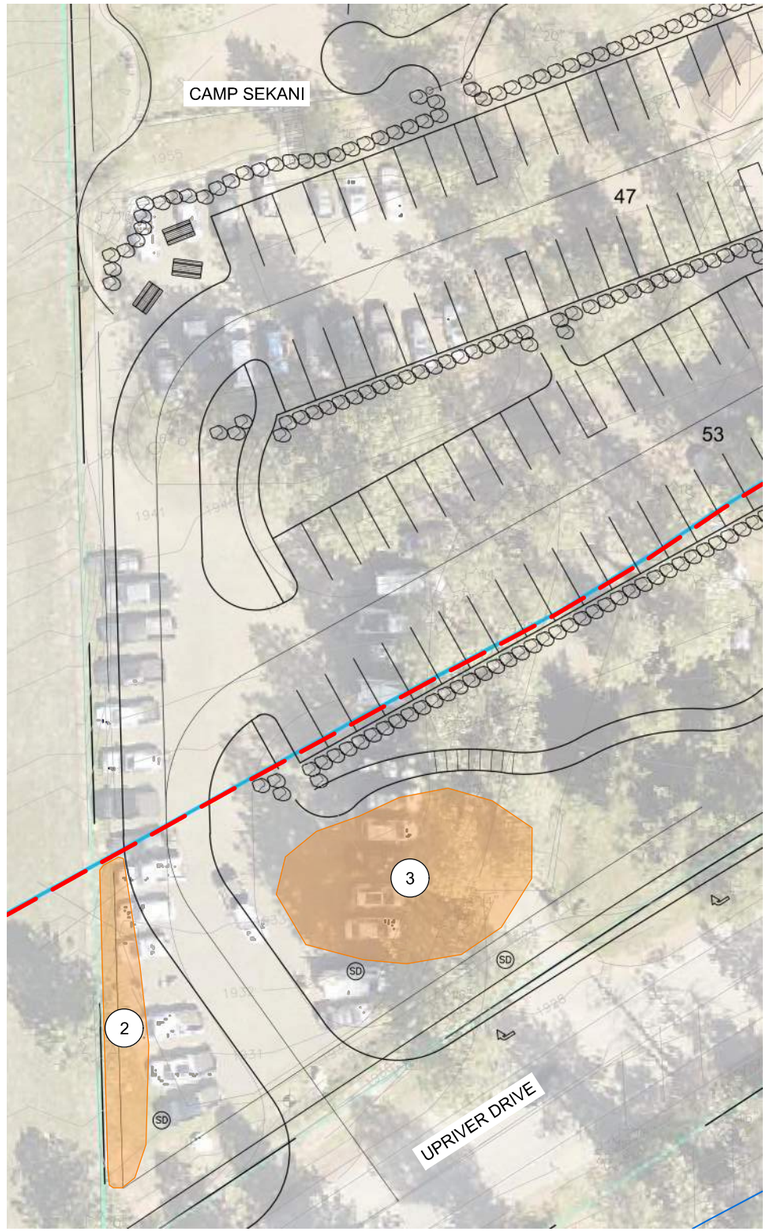
OVERALL SITE PLAN

Designed by: HMS | Drawn by: HMS | Checked by: KKC/CDA

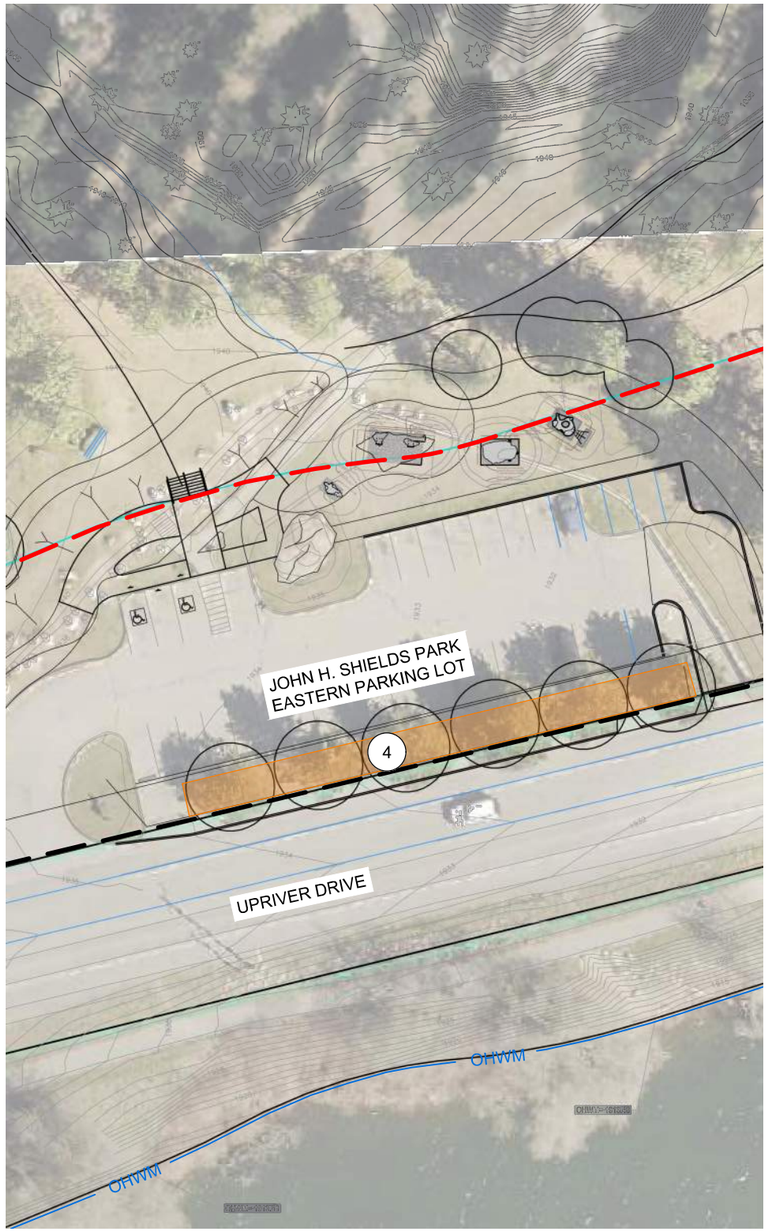
Sheet 5



MITIGATION AREA 1 (.37 ACRES)
WITHIN PARCEL #35013.0201



MITIGATION AREA 2 (.03 ACRES) & MITIGATION AREA 3 (.08 ACRES)
WITHIN PARCEL #35024.0001



MITIGATION AREA 4 (.04 ACRES)
WITHIN PARCEL #35011.9001

LEGEND

- 200' SHORELINE JURISDICTION
- OHWM — ORDINARY HIGH WATER MARK OF SPOKANE RIVER
- PRESCRIBED MITIGATION AREAS TOTALING (.52 ACRES)

MAKE BEACON HILL PUBLIC
PHASE 2 TRAILHEADS PROJECT
PRESCRIBED MITIGATION AREAS
SHEET 6

0 25 50 100 150

DATE: 11/27/23 JOB: 230144

ARDURRA
1717 S. RUSTLE STREET, SUITE 201
SPOKANE, WA 99224
509-319-2580 | WWW.ARDURRA.COM

APPENDIX B - PHOTO INVENTORY

Photo Inventory

Photos were taken on 10/1/2023.

Photo 1. Pictured is the western portion of John H. Shields Park, facing east. Areas currently used as gravel parking would be paved as part of the Proposed Project Action.

Photo 2. View of the existing trail on the eastern side of the western portion of John H. Shields Park, facing east.

Photo 3. Pictured is the existing bathrooms located on the eastern edge of the western portion of John H. Shields Park, facing north.

Photo 4. Pictured is the entrance to the current parking area in the eastern portion of John H. Shields Park, facing west.

Photo 5. Pictured is an example of current infrastructure within the western portion of John H. Shields Park, facing north.

Photo 6. View of the current parking lot in the eastern portion of John H. Shields Park, facing southeast.

Photo 7. Pictured is the approximate location of the proposed entrance to Camp Sekani, facing east. The current entrance can be seen just past the sign in the center of the frame.

Photo 8. View of the current parking conditions within Camp Sekani, facing north.

Photo 9. Pictured is the current entrance to Camp Sekani, facing northeast.

Photo 10. View of the existing structures within Camp Sekani. The building visible to the right will be demolished as part of the Proposed Project Action.

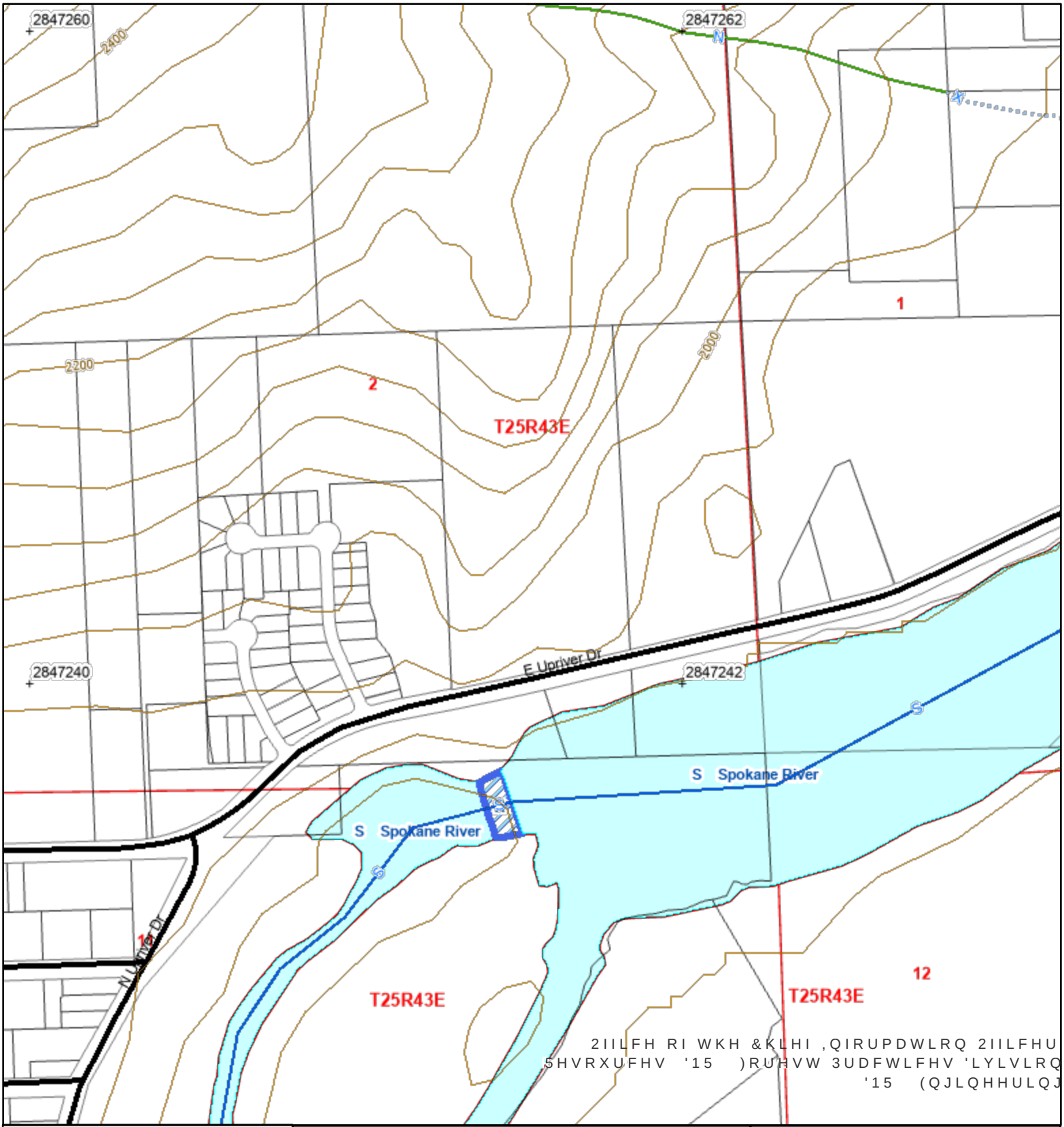
Photo 11. Pictured are the existing utilities on the western edge of John H. Shields Park, facing east. Utilities will tie into this existing infrastructure.

Photo 12. Looking easterly from the western side of the proposed Mitigation Area 1 (0.37 acres). Replanting efforts will be focused on restoring native vegetative assemblages in this area within the 200' shoreline jurisdiction.

APPENDIX C - DNR WATER TYPE MAP

John H. Shields Park

)RUHVW 3UDFWLFHV $FWLYLW\ 0DS $SSOLFDWLR



2IILFH RI WKH &KLHI ,QIRUPDWLRQ 2IILFHU 2
5HVRXUFHV '15)RUHVW 3UDFWLFHV 'LYLVLRQ '
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. 'DWH $UHD

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WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

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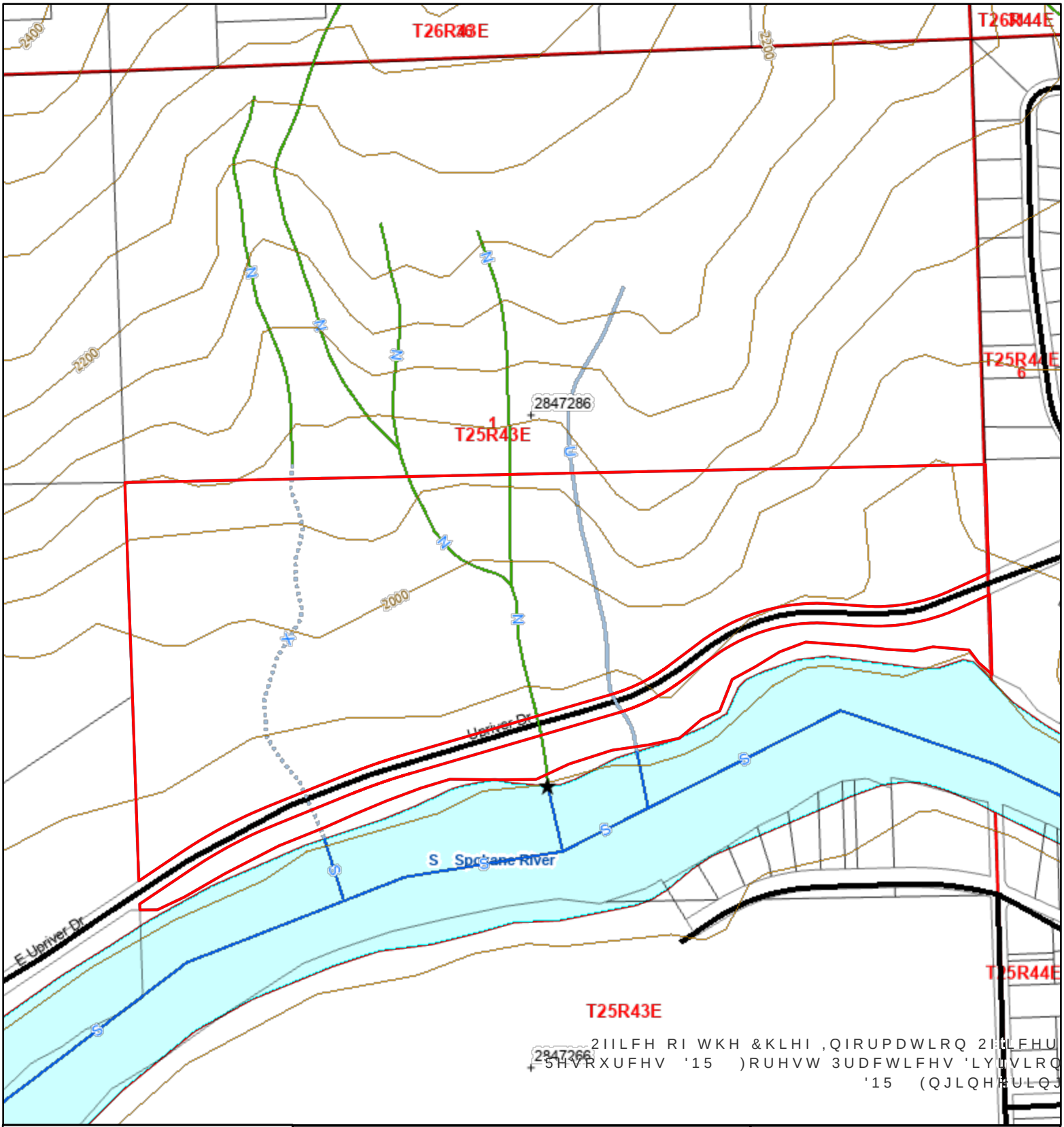
LWV DFFXUDF\ +RZHYHU GXH WR FKDQJHV LQ GDWD DQG WKH QHHG WR
UHO\ RQ RXWVLGH LQIRUPDWLRQ WKH 'HSD FDQQRW DFFHSW UHVSRQVLELOLW\ IRU HUURUV RU RPLVVLRQV DQG WKHUHI
WKHUH DUH QR ZDUUDQWLHV WKDW DFFRPSDQ\ WKLV PDWHULDO 30

Camp Sekani

)RUHVW 3UDFWLFHV $FWLYLW\ 0DS $SSOLFDWLF



2IILFH RI WKH &KLHI ,QIRUPDWLRQ 2IILFHU 2
5HVRXUFHV '15)RUHVW 3UDFWLFHV 'LYLVLRQ '
'15 (QJLQHHULQJ 'L

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LWV DFFXUDF\ +RZHYHU GXH WR FKDQJHV LQ GDWD DQG WKH QHHG WR
UHO\ RQ RXWVLGH LQIRUPDWLRQ WKH 'HSDUWPHQW RI 1DWXUDO 5HVRXUFHV
FDQQRW DFFHSW UHVSRQVLELOLW\ IRU HUURUV RU RPLVVLRQV DQG WKHUHIR
WKHUH DUH QR ZDUUDQWLHV WKDW DFFRPSDQ\ WKLV PDWHULDO. 30

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

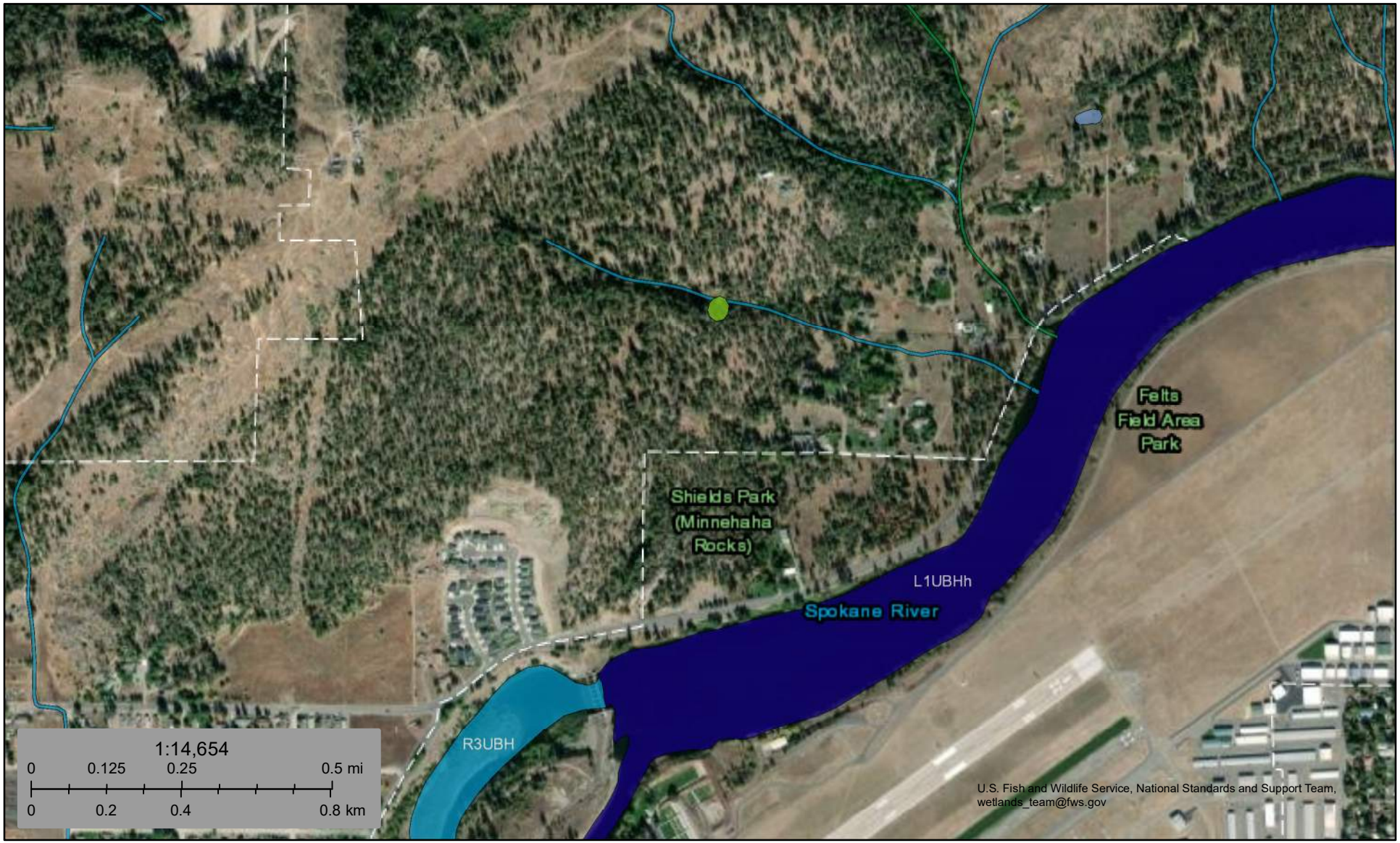
'DWH: 7/7/2021

APPENDIX D - NWI MAP

U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI Map

John H. Shields Park



August 28, 2023

Wetlands

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

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI Map

Camp Sekani

August 28, 2023

Wetlands

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

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

APPENDIX E - USDA/NRCS WEB SOIL SURVEY

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Spokane County, Washington

August 28, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

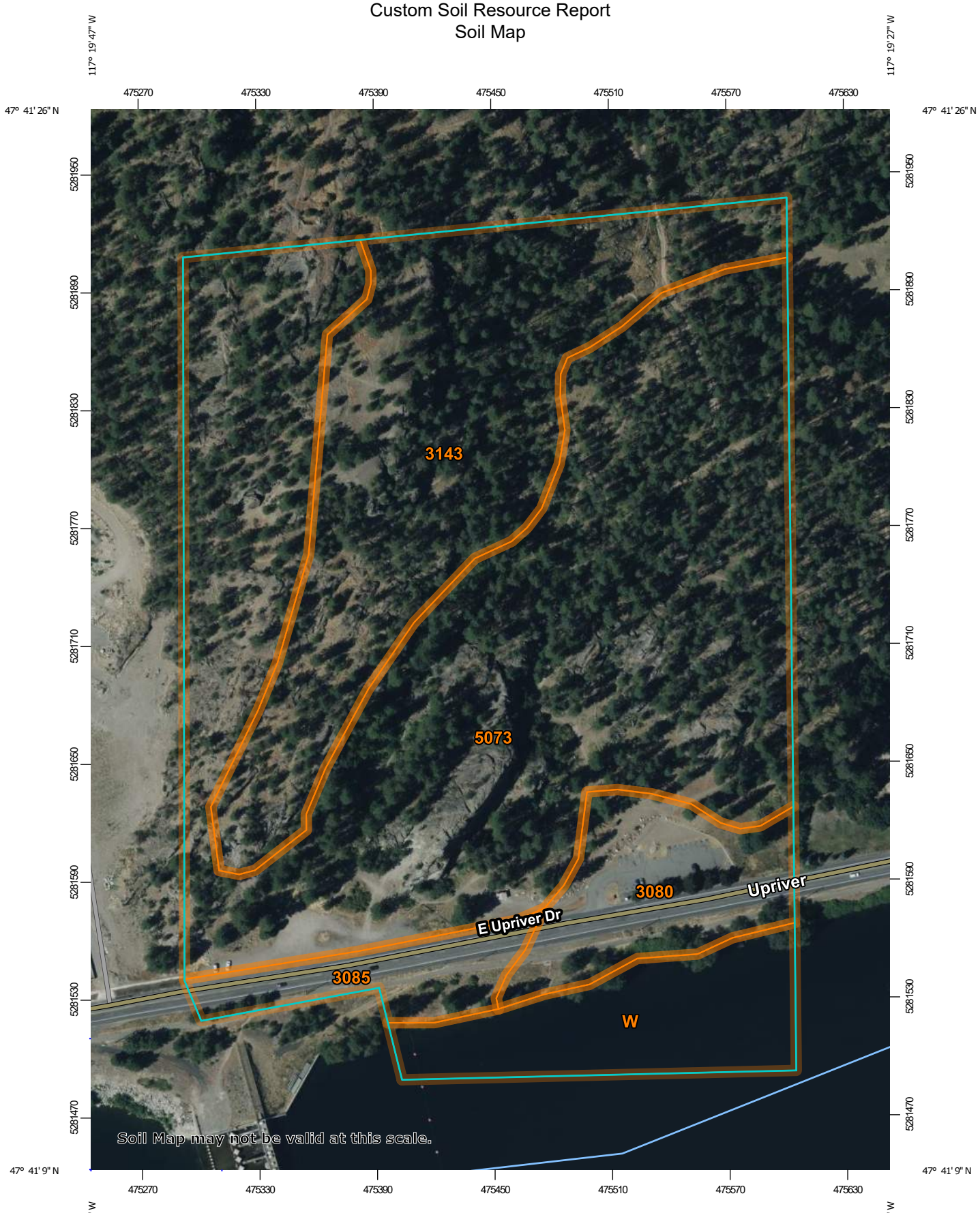
alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,630 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Spokane County, Washington
Survey Area Data: Version 14, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 7, 2022—Aug 8, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3080	Opportunity very gravelly ashy loam, 0 to 3 percent slopes	2.4	7.4%
3085	Garrison very gravelly ashy loam, 15 to 30 percent slopes	1.2	3.9%
3143	Spens very gravelly loamy coarse sand, 30 to 65 percent slopes	8.1	25.2%
5073	Lenz-Rock outcrop complex, 15 to 30 percent slopes	18.0	55.7%
W	Water	2.5	7.8%
Totals for Area of Interest		**32.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Spokane County, Washington

3080—Opportunity very gravelly ashy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wfn
Elevation: 1,800 to 2,200 feet
Mean annual precipitation: 18 to 25 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Opportunity and similar soils: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Opportunity

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and gravelly glaciofluvial deposits with minor amounts of volcanic ash and loess in the upper part

Typical profile

Ap - 0 to 7 inches: very gravelly ashy loam
A1 - 7 to 13 inches: extremely gravelly ashy loam
A2 - 13 to 19 inches: extremely gravelly ashy loam
Bw1 - 19 to 33 inches: extremely gravelly loam
Bw2 - 33 to 43 inches: extremely gravelly loam
Bq - 43 to 53 inches: extremely gravelly loamy coarse sand
BCk - 53 to 60 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.0 to 0.2 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: B

Ecological site: F043AY511WA - Warm, Xeric, Loamy Hillsides, Mixed ash surface (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata, Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)
Hydric soil rating: No

Minor Components

Battleplain, moist
Percent of map unit: 10 percent
Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY502WA - Warm Mesic Xeric Loamy Foothills, Terraces, mixed ash surface (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Garrison
Percent of map unit: 10 percent
Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY510WA - Warm, Xeric, Loamy Hillsides, Low Available Water Capacity (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata , Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/bluebunch wheatgrass (CN130)
Hydric soil rating: No

Hardesty
Percent of map unit: 5 percent
Landform: Drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY501WA - Warm Mesic Xeric Loamy Foothills, Terraces, High Water Table (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/ninebark (CN190)
Hydric soil rating: No

Springdale
Percent of map unit: 5 percent
Landform: Outwash terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F044AY502WA - Warm Mesic Xeric Sandy Hill slopes and Outwash terraces (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

3085—Garrison very gravelly ashy loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2wdb
Elevation: 1,870 to 2,050 feet
Mean annual precipitation: 18 to 19 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Garrison and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Garrison

Setting

Landform: Outwash plains
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and gravelly glaciofluvial deposits with minor amounts of volcanic ash and loess in the upper part

Typical profile

A1 - 0 to 4 inches: very gravelly ashy loam
A2 - 4 to 16 inches: very gravelly ashy loam
Bw - 16 to 24 inches: very gravelly loam
C - 24 to 60 inches: extremely gravelly loamy coarse sand

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F043AY510WA - Warm, Xeric, Loamy Hillsides, Low Available Water Capacity (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata , Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/bluebunch wheatgrass (CN130)

Hydric soil rating: No

Minor Components

Springdale

Percent of map unit: 4 percent
Landform: Outwash terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Opportunity

Percent of map unit: 4 percent
Landform: Outwash plains
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)
Hydric soil rating: No

Urban land

Percent of map unit: 2 percent
Hydric soil rating: No

3143—Spens very gravelly loamy coarse sand, 30 to 65 percent slopes

Map Unit Setting

National map unit symbol: 2wgc
Elevation: 1,530 to 2,400 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 42 to 50 degrees F
Frost-free period: 90 to 140 days
Farmland classification: Not prime farmland

Map Unit Composition

Spens and similar soils: 60 percent
Minor components: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Spens

Setting

Landform: Outwash terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits

Typical profile

A - 0 to 3 inches: very gravelly loamy coarse sand
C1 - 3 to 18 inches: very gravelly loamy coarse sand
C2 - 18 to 60 inches: very gravelly coarse sand

Properties and qualities

Slope: 30 to 65 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F043AY509WA - Warm, Xeric, Sandy, Outwash Terraces and Plains (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata , Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)
Hydric soil rating: No

Minor Components

Marble

Percent of map unit: 14 percent
Landform: Outwash plains
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY509WA - Warm, Xeric, Sandy, Outwash Terraces and Plains (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata , Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)
Hydric soil rating: No

Battleplain, moist

Percent of map unit: 14 percent
Landform: Outwash plains
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY502WA - Warm Mesic Xeric Loamy Foothills, Terraces, mixed ash surface (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Wapal

Percent of map unit: 6 percent
Landform: Outwash terraces
Landform position (three-dimensional): Riser

Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY519WA - Warm-Frigid, Xeric, Loamy Slopes, low AWC subsoils (Douglas-Fir/Warm Dry Shrub) Pseudotsuga menziesii / Physocarpus malvaceus - Symphoricarpos albus
Other vegetative classification: Douglas-fir/ninebark (CN260)
Hydric soil rating: No

Springdale

Percent of map unit: 6 percent
Landform: Outwash terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F044AY502WA - Warm Mesic Xeric Sandy Hill slopes and Outwash terraces (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

5073—Lenz-Rock outcrop complex, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2wbz
Elevation: 1,700 to 3,600 feet
Mean annual precipitation: 18 to 24 inches
Mean annual air temperature: 42 to 50 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Lenz and similar soils: 50 percent
Rock outcrop: 20 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lenz

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess mixed with minor amounts of volcanic ash over residuum and/or colluvium derived from granitic and metamorphic rocks

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 4 inches: very gravelly ashy sandy loam

A2 - 4 to 9 inches: very gravelly ashy sandy loam
Bw1 - 9 to 14 inches: very gravelly ashy sandy loam
Bw2 - 14 to 26 inches: very cobbly sandy loam
C - 26 to 38 inches: extremely stony sandy loam
R - 38 to 48 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 21 to 41 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F043AY537ID - Mesic, Xeric, Unglaciated Hills and Canyons, Low Available Water (Ponderosa pine/Shrub) Ponderosa pine/common snowberry-ninebark
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

R - 0 to 60 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Swakane

Percent of map unit: 14 percent
Landform: Hills, ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F043AY510WA - Warm, Xeric, Loamy Hillsides, Low Available Water Capacity (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata , Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)
Hydric soil rating: No

Spokane

Percent of map unit: 10 percent

Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F044AY501WA - Warm Mesic Xeric Loamy Foothills, Terraces, low AWC subsoils (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Micapeak

Percent of map unit: 6 percent
Landform: Hills, ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F043AY518WA - Warm-Frigid, Xeric, Loamy Slopes, mixed ash surface (Douglas-Fir/Warm Dry Shrub) Pseudotsuga menziesii / Physocarpus malvaceus - Symphoricarpos albus
Other vegetative classification: Douglas-fir/ninebark (CN260)
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

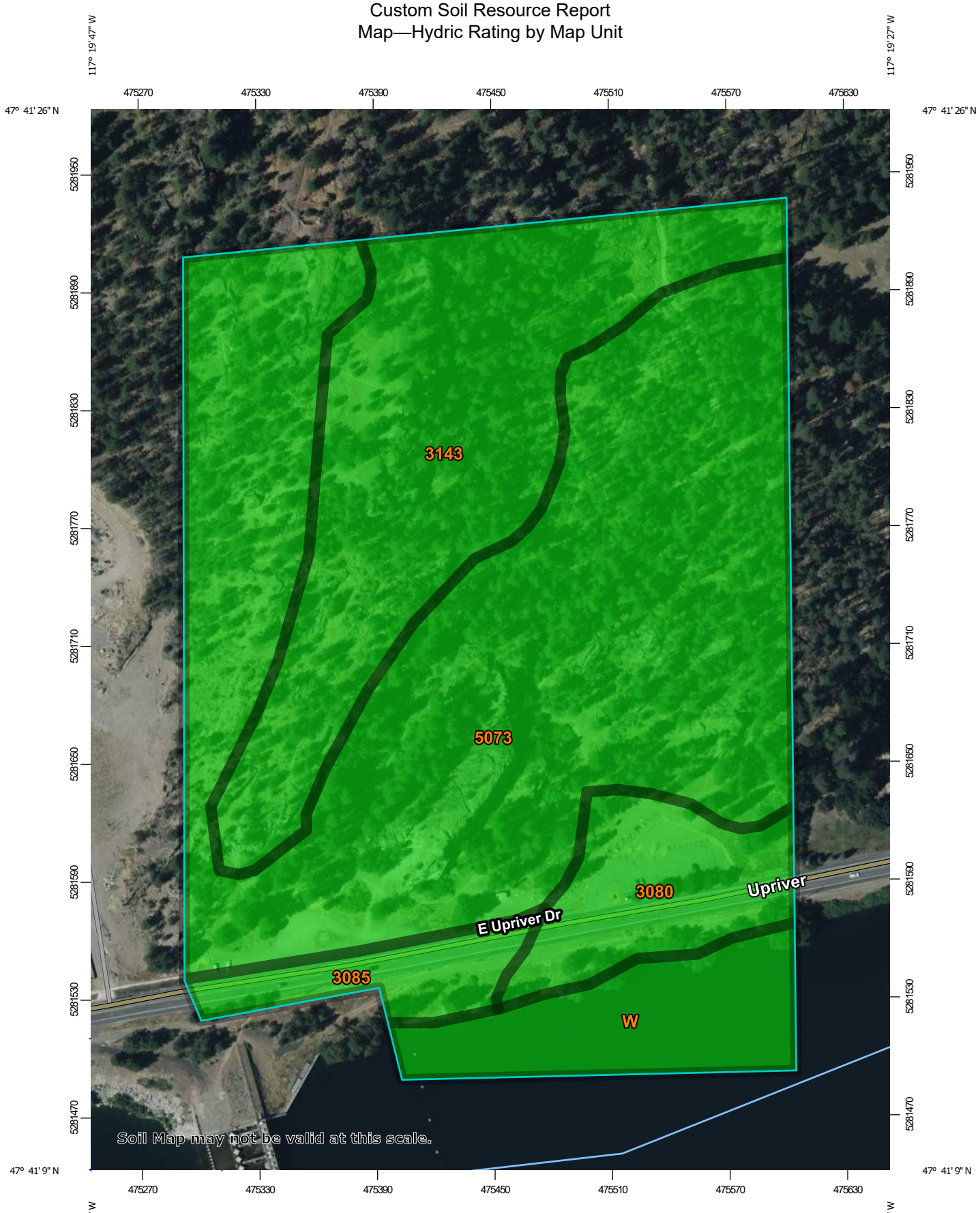
Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Custom Soil Resource Report
Map—Hydric Rating by Map Unit



Map Scale: 1:2,630 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Spokane County, Washington
Survey Area Data: Version 14, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 7, 2022—Aug 8, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3080	Opportunity very gravelly ashy loam, 0 to 3 percent slopes	0	2.4	7.4%
3085	Garrison very gravelly ashy loam, 15 to 30 percent slopes	0	1.2	3.9%
3143	Spens very gravelly loamy coarse sand, 30 to 65 percent slopes	0	8.1	25.2%
5073	Lenz-Rock outcrop complex, 15 to 30 percent slopes	0	18.0	55.7%
W	Water	0	2.5	7.8%
Totals for Area of Interest			**32.3**	**100.0%**

Rating Options—Hydric Rating by Map Unit

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Camp Sekani

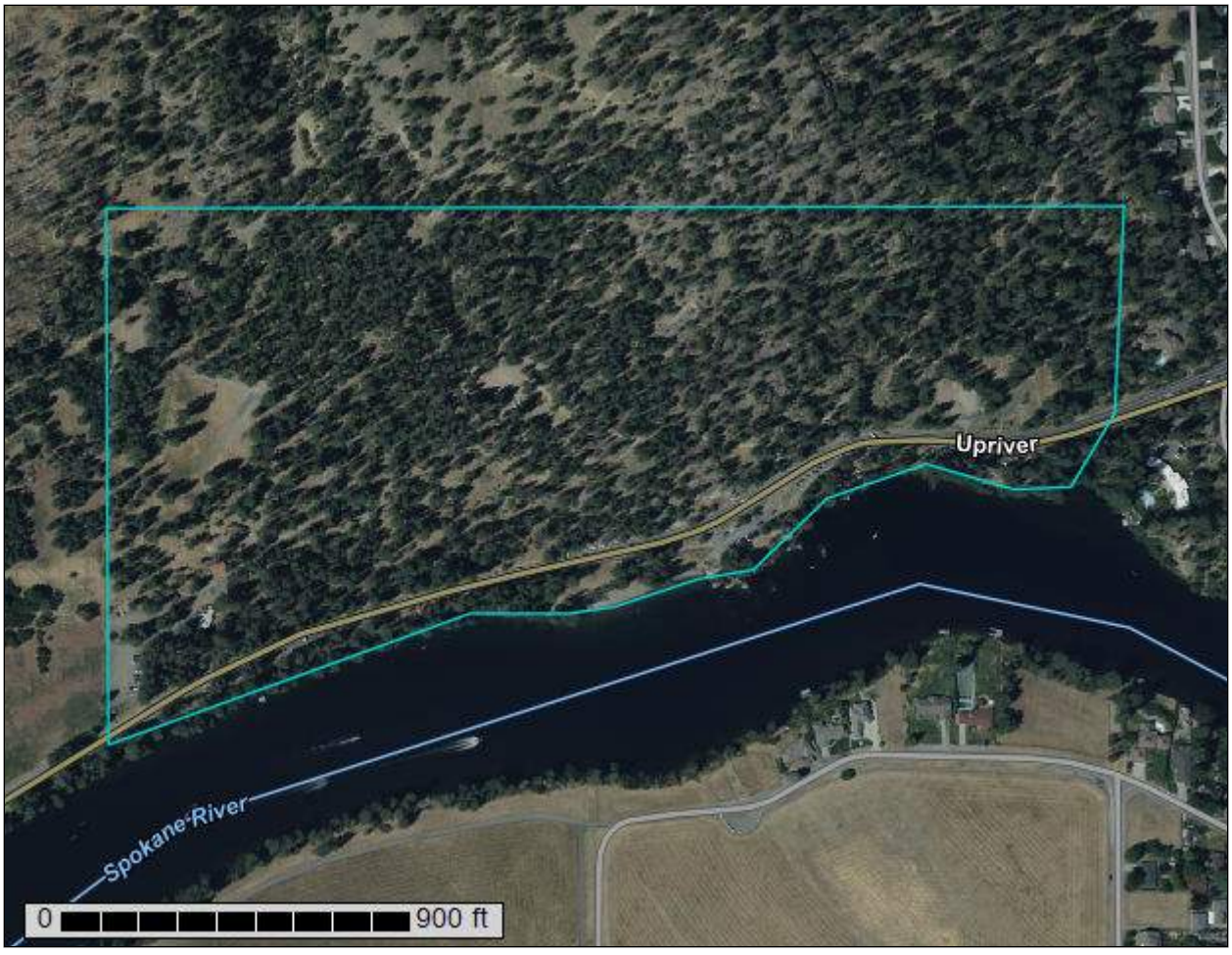
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Spokane County, Washington



August 28, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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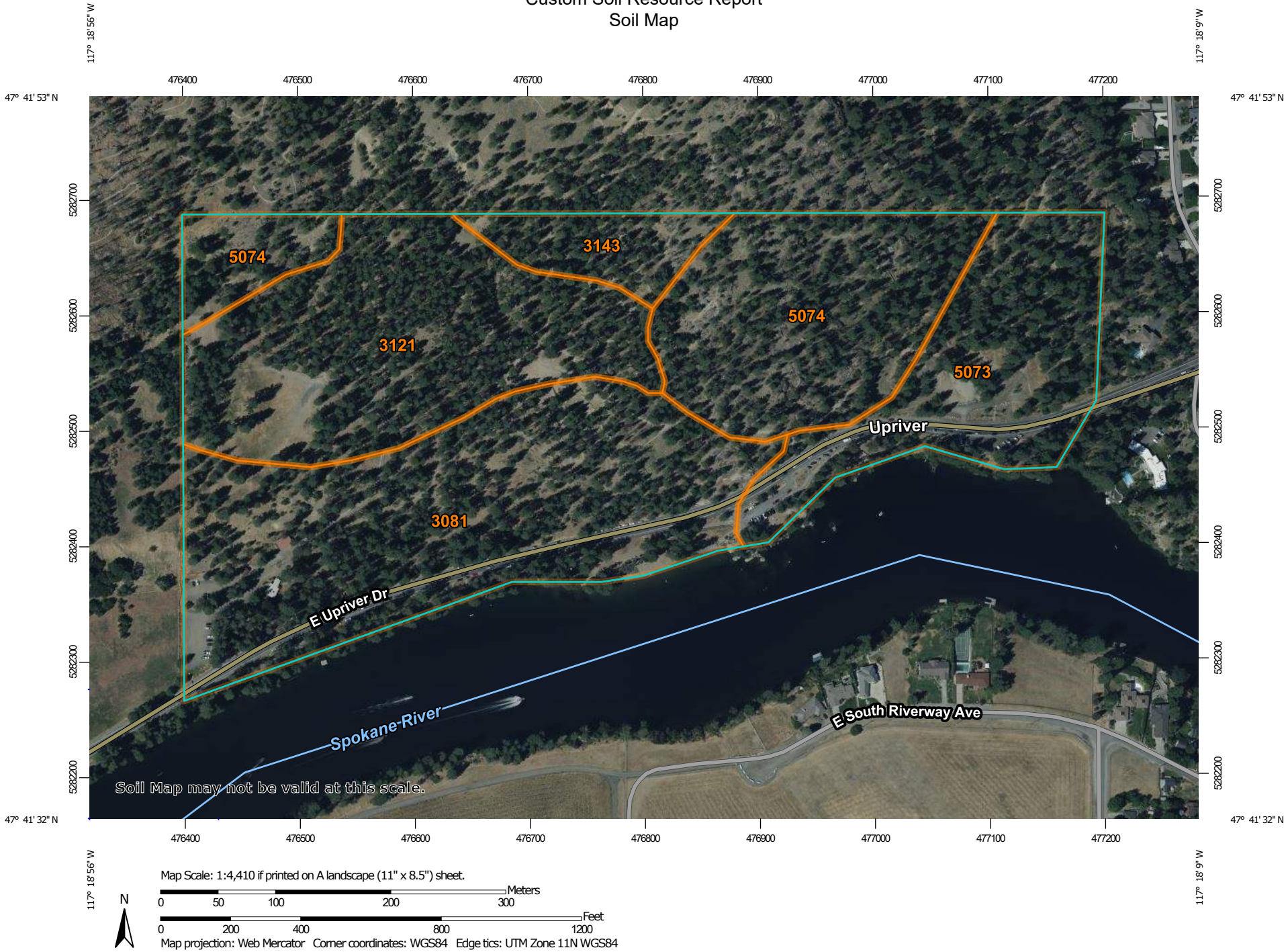
Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:4,410 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 50, 100, 200, 300

Feet: 0, 200, 400, 800, 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Spokane County, Washington
Survey Area Data: Version 14, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 7, 2022—Aug 8, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3081	Opportunity very gravelly ashy loam, 3 to 8 percent slopes	19.8	33.4%
3121	Marble loamy sand, 8 to 15 percent slopes	14.4	24.4%
3143	Spens very gravelly loamy coarse sand, 30 to 65 percent slopes	2.7	4.6%
5073	Lenz-Rock outcrop complex, 15 to 30 percent slopes	9.4	15.8%
5074	Lenz-Rock outcrop complex, 30 to 60 percent slopes	12.8	21.7%
Totals for Area of Interest		**59.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Spokane County, Washington

3081—Opportunity very gravelly ashy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2wd8
Elevation: 1,800 to 2,200 feet
Mean annual precipitation: 18 to 25 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Opportunity and similar soils: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Opportunity

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and gravelly glaciofluvial deposits with minor amounts of volcanic ash and loess in the upper part

Typical profile

Ap - 0 to 7 inches: very gravelly ashy loam
A1 - 7 to 13 inches: extremely gravelly ashy loam
A2 - 13 to 19 inches: extremely gravelly ashy loam
Bw1 - 19 to 33 inches: extremely gravelly loam
Bw2 - 33 to 43 inches: extremely gravelly loam
Bq - 43 to 53 inches: extremely gravelly loamy coarse sand
BCk - 53 to 60 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.0 to 0.2 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: B

Ecological site: F043AY511WA - Warm, Xeric, Loamy Hillsides, Mixed ash surface (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata, Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)
Hydric soil rating: No

Minor Components

Battleplain, moist
Percent of map unit: 10 percent
Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY502WA - Warm Mesic Xeric Loamy Foothills, Terraces, mixed ash surface (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Garrison
Percent of map unit: 10 percent
Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY510WA - Warm, Xeric, Loamy Hillsides, Low Available Water Capacity (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata , Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/bluebunch wheatgrass (CN130)
Hydric soil rating: No

Springdale
Percent of map unit: 5 percent
Landform: Outwash terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F044AY502WA - Warm Mesic Xeric Sandy Hill slopes and Outwash terraces (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Hardesty
Percent of map unit: 5 percent
Landform: Drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY501WA - Warm Mesic Xeric Loamy Foothills, Terraces, High Water Table (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/ninebark (CN190)
Hydric soil rating: No

3121—Marble loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2wdk
Elevation: 1,560 to 2,500 feet
Mean annual precipitation: 15 to 22 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 100 to 140 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Marble and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marble

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 4 inches: loamy sand
E - 4 to 8 inches: loamy sand
E and Bt1 - 8 to 27 inches: sand
E and Bt2 - 27 to 53 inches: sand
C - 53 to 60 inches: sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: F043AY509WA - Warm, Xeric, Sandy, Outwash Terraces and Plains (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata , Pinus ponderosa / Festuca idahoensis

Other vegetative classification: ponderosa pine/Idaho fescue (CN140)
Hydric soil rating: No

Minor Components

Marblespring
Percent of map unit: 10 percent
Landform: Outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: ponderosa pine/bluebunch wheatgrass (CN130)
Hydric soil rating: No

Hardesty
Percent of map unit: 5 percent
Landform: Drainageways, depressions
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Other vegetative classification: ponderosa pine/ninebark (CN190)
Hydric soil rating: No

Hagen
Percent of map unit: 5 percent
Landform: Outwash terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Battleplain
Percent of map unit: 5 percent
Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: ponderosa pine/bluebunch wheatgrass (CN130)
Hydric soil rating: No

3143—Spens very gravelly loamy coarse sand, 30 to 65 percent slopes

Map Unit Setting
National map unit symbol: 2wgc
Elevation: 1,530 to 2,400 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 42 to 50 degrees F
Frost-free period: 90 to 140 days
Farmland classification: Not prime farmland

Map Unit Composition

Spens and similar soils: 60 percent
Minor components: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Spens

Setting

Landform: Outwash terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits

Typical profile

A - 0 to 3 inches: very gravelly loamy coarse sand
C1 - 3 to 18 inches: very gravelly loamy coarse sand
C2 - 18 to 60 inches: very gravelly coarse sand

Properties and qualities

Slope: 30 to 65 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F043AY509WA - Warm, Xeric, Sandy, Outwash Terraces and Plains (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata , Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)
Hydric soil rating: No

Minor Components

Marble

Percent of map unit: 14 percent
Landform: Outwash plains
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY509WA - Warm, Xeric, Sandy, Outwash Terraces and Plains (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata , Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)
Hydric soil rating: No

Battleplain, moist

Percent of map unit: 14 percent

Landform: Outwash plains
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY502WA - Warm Mesic Xeric Loamy Foothills, Terraces, mixed ash surface (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Wapal

Percent of map unit: 6 percent
Landform: Outwash terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F043AY519WA - Warm-Frigid, Xeric, Loamy Slopes, low AWC subsoils (Douglas-Fir/Warm Dry Shrub) Pseudotsuga menziesii / Physocarpus malvaceus - Symphoricarpos albus
Other vegetative classification: Douglas-fir/ninebark (CN260)
Hydric soil rating: No

Springdale

Percent of map unit: 6 percent
Landform: Outwash terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F044AY502WA - Warm Mesic Xeric Sandy Hill slopes and Outwash terraces (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

5073—Lenz-Rock outcrop complex, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2wbz
Elevation: 1,700 to 3,600 feet
Mean annual precipitation: 18 to 24 inches
Mean annual air temperature: 42 to 50 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Lenz and similar soils: 50 percent
Rock outcrop: 20 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lenz

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess mixed with minor amounts of volcanic ash over residuum and/or colluvium derived from granitic and metamorphic rocks

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 4 inches: very gravelly ashy sandy loam
A2 - 4 to 9 inches: very gravelly ashy sandy loam
Bw1 - 9 to 14 inches: very gravelly ashy sandy loam
Bw2 - 14 to 26 inches: very cobbly sandy loam
C - 26 to 38 inches: extremely stony sandy loam
R - 38 to 48 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 21 to 41 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F043AY537ID - Mesic, Xeric, Unglaciated Hills and Canyons, Low Available Water (Ponderosa pine/Shrub) Ponderosa pine/common snowberry-ninebark
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

R - 0 to 60 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Swakane

Percent of map unit: 14 percent
Landform: Hills, ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F043AY510WA - Warm, Xeric, Loamy Hillsides, Low Available Water Capacity (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata , Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)
Hydric soil rating: No

Spokane

Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F044AY501WA - Warm Mesic Xeric Loamy Foothills, Terraces, low AWC subsoils (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Micapeak

Percent of map unit: 6 percent
Landform: Hills, ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F043AY518WA - Warm-Frigid, Xeric, Loamy Slopes, mixed ash surface (Douglas-Fir/Warm Dry Shrub) Pseudotsuga menziesii / Physocarpus malvaceus - Symphoricarpos albus
Other vegetative classification: Douglas-fir/ninebark (CN260)
Hydric soil rating: No

5074—Lenz-Rock outcrop complex, 30 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2wc0
Elevation: 1,700 to 4,800 feet
Mean annual precipitation: 18 to 24 inches
Mean annual air temperature: 42 to 50 degrees F

Frost-free period: 90 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Lenz and similar soils: 45 percent
Rock outcrop: 25 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lenz

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Minor amounts of volcanic ash mixed with loess over colluvium and residuum weathered from granite and/or metamorphic rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 4 inches: very gravelly ashy sandy loam
A2 - 4 to 9 inches: very gravelly ashy sandy loam
Bw1 - 9 to 14 inches: very gravelly ashy sandy loam
Bw2 - 14 to 26 inches: very cobbly sandy loam
C - 26 to 38 inches: extremely stony sandy loam
R - 38 to 48 inches: bedrock

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: 21 to 41 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F043AY537ID - Mesic, Xeric, Unglaciated Hills and Canyons, Low Available Water (Ponderosa pine/Shrub) Ponderosa pine/common snowberry-ninebark
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

R - 0 to 60 inches: bedrock

Properties and qualities

Slope: 30 to 60 percent

Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Spokane

Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F044AY501WA - Warm Mesic Xeric Loamy Foothills, Terraces, low AWC subsoils (Ponderosa Pine/Shrub) Pinus Ponderosa /Symphoricarpos albus, Pinus Ponderosa / Physocarpus malvaceus
Other vegetative classification: ponderosa pine/common snowberry (CN170)
Hydric soil rating: No

Swakane

Percent of map unit: 10 percent
Landform: Hills, ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F043AY510WA - Warm, Xeric, Loamy Hillsides, Low Available Water Capacity (Ponderosa Pine/Dry Grass) Pinus ponderosa / Pseudoroegneria spicata , Pinus ponderosa / Festuca idahoensis
Other vegetative classification: ponderosa pine/Idaho fescue (CN140)
Hydric soil rating: No

Brevco

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F043AY519WA - Warm-Frigid, Xeric, Loamy Slopes, low AWC subsoils (Douglas-Fir/Warm Dry Shrub) Pseudotsuga menziesii / Physocarpus malvaceus - Symphoricarpos albus
Other vegetative classification: Douglas-fir/ninebark (CN260)
Hydric soil rating: No

Micapeak

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex

Ecological site: F043AY518WA - Warm-Frigid, Xeric, Loamy Slopes, mixed ash surface (Douglas-Fir/Warm Dry Shrub) Pseudotsuga menziesii / Physocarpus malvaceus - Symphoricarpos albus
Other vegetative classification: Douglas-fir/ninebark (CN260)
Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

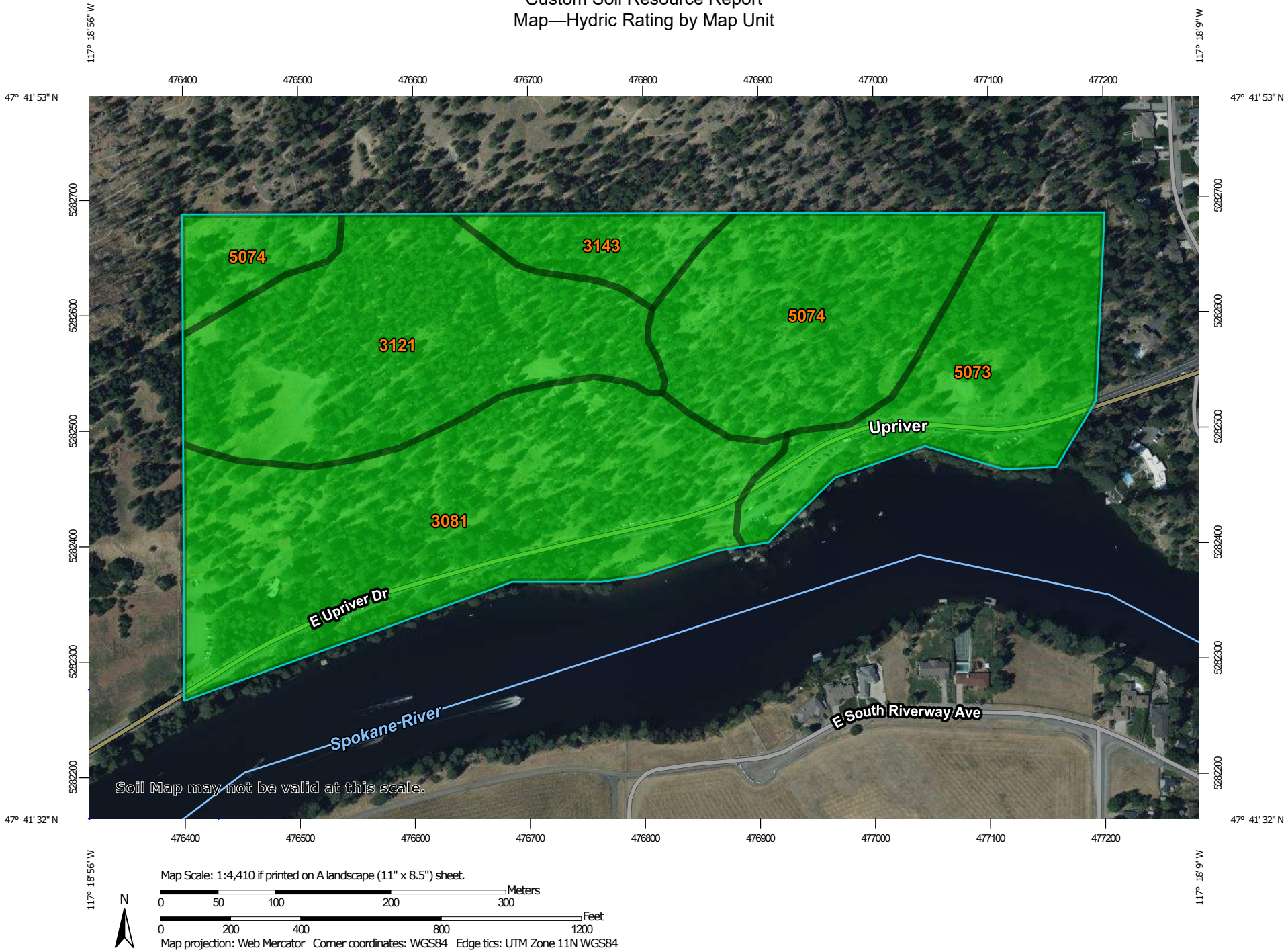
Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Map—Hydric Rating by Map Unit



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Spokane County, Washington
Survey Area Data: Version 14, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 7, 2022—Aug 8, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3081	Opportunity very gravelly ashy loam, 3 to 8 percent slopes	0	19.8	33.4%
3121	Marble loamy sand, 8 to 15 percent slopes	0	14.4	24.4%
3143	Spens very gravelly loamy coarse sand, 30 to 65 percent slopes	0	2.7	4.6%
5073	Lenz-Rock outcrop complex, 15 to 30 percent slopes	0	9.4	15.8%
5074	Lenz-Rock outcrop complex, 30 to 60 percent slopes	0	12.8	21.7%
Totals for Area of Interest			**59.1**	**100.0%**

Rating Options—Hydric Rating by Map Unit

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX F - USFWS IPaC LIST

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.

Project information

NAME

Beacon Hill (Minnehaha)

LOCATION

Spokane County, Washington

DESCRIPTION

None

Local office

Washington Fish And Wildlife Office

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

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

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. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. 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.

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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. IPaC only shows species that are regulated by USFWS (see FAQ).
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:

Birds

NAME	STATUS
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout Salvelinus confluentus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8212	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

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

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

There are bald and/or golden eagles in your project area.

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
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.	Breeds Jan 1 to Aug 31

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.

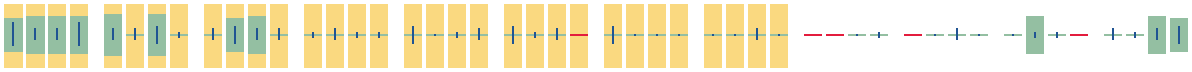
No Data (–)
A week is marked as having no data if there were no survey events for that week.

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.

■ probability of presence ■ breeding season | survey effort – no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Bald Eagle
Non-BCC
Vulnerable



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence 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). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles 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 Rapid Avian Information Locator (RAIL) Tool.

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. Please contact your local Fish and Wildlife Service Field Office if you have questions.

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 https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.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
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.	Breeds Jan 1 to Aug 31
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10

Rufous Hummingbird selasphorus rufus — Breeds Apr 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

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 (■)

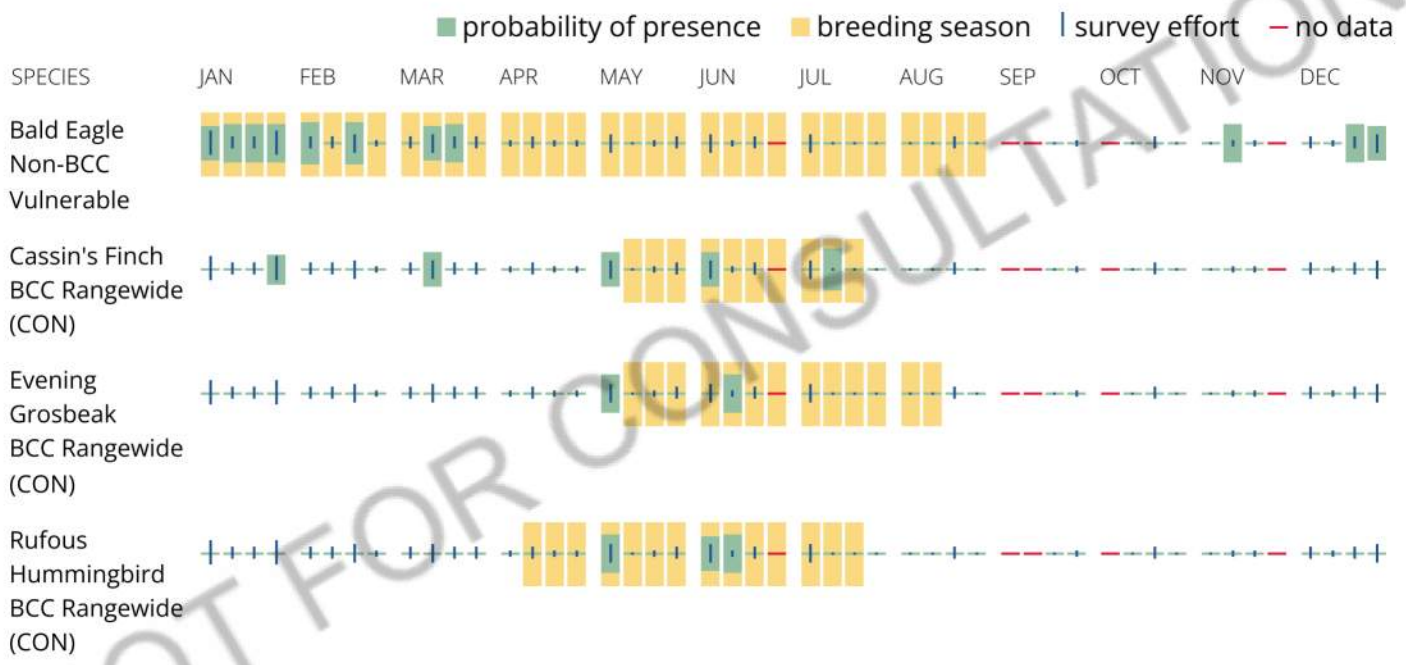
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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.



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 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 list of migratory birds that potentially occur 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 Rapid Avian Information Locator (RAIL) 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 or migrating in my 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 query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. 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 (NWI)

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:

LAKE

L1UBHh

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

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

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.

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

Spokane 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

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.

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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. IPaC only shows species that are regulated by USFWS (see FAQ).

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:

Birds

NAME	STATUS
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout Salvelinus confluentus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8212	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

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

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

There are bald and/or golden eagles in your project area.

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
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.	Breeds Jan 1 to Aug 31

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.

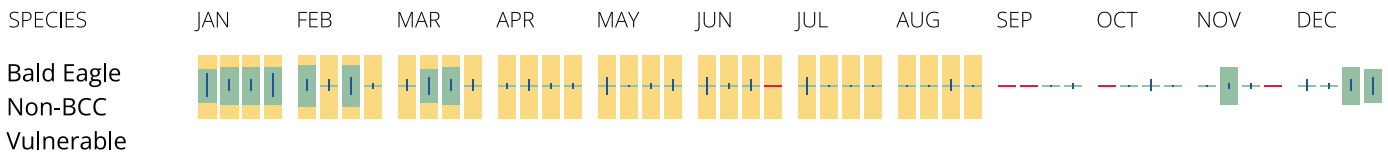
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

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.

■ probability of presence ■ breeding season | survey effort – no data



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence 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). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles 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 Rapid Avian Information Locator (RAIL) Tool.

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. Please contact your local Fish and Wildlife Service Field Office if you have questions.

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 https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.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
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.	Breeds Jan 1 to Aug 31
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15

Evening Grosbeak Coccothraustes vespertinus — Breeds May 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Rufous Hummingbird selasphorus rufus — Breeds Apr 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

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 (■)

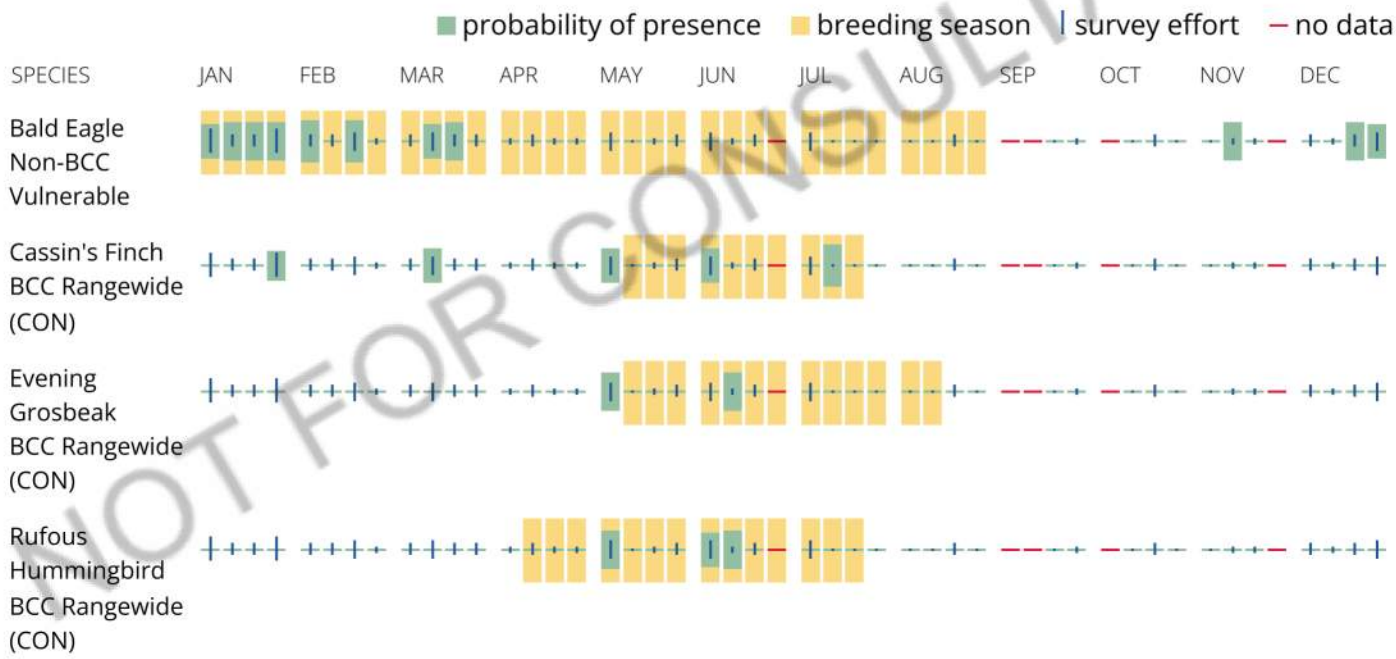
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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.



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 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 list of migratory birds that potentially occur 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 Rapid Avian Information Locator (RAIL) 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 or migrating in my 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 query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. 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 (NWI)

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:

LAKE

L1UBHh

RIVERINE

R4SBC

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

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

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

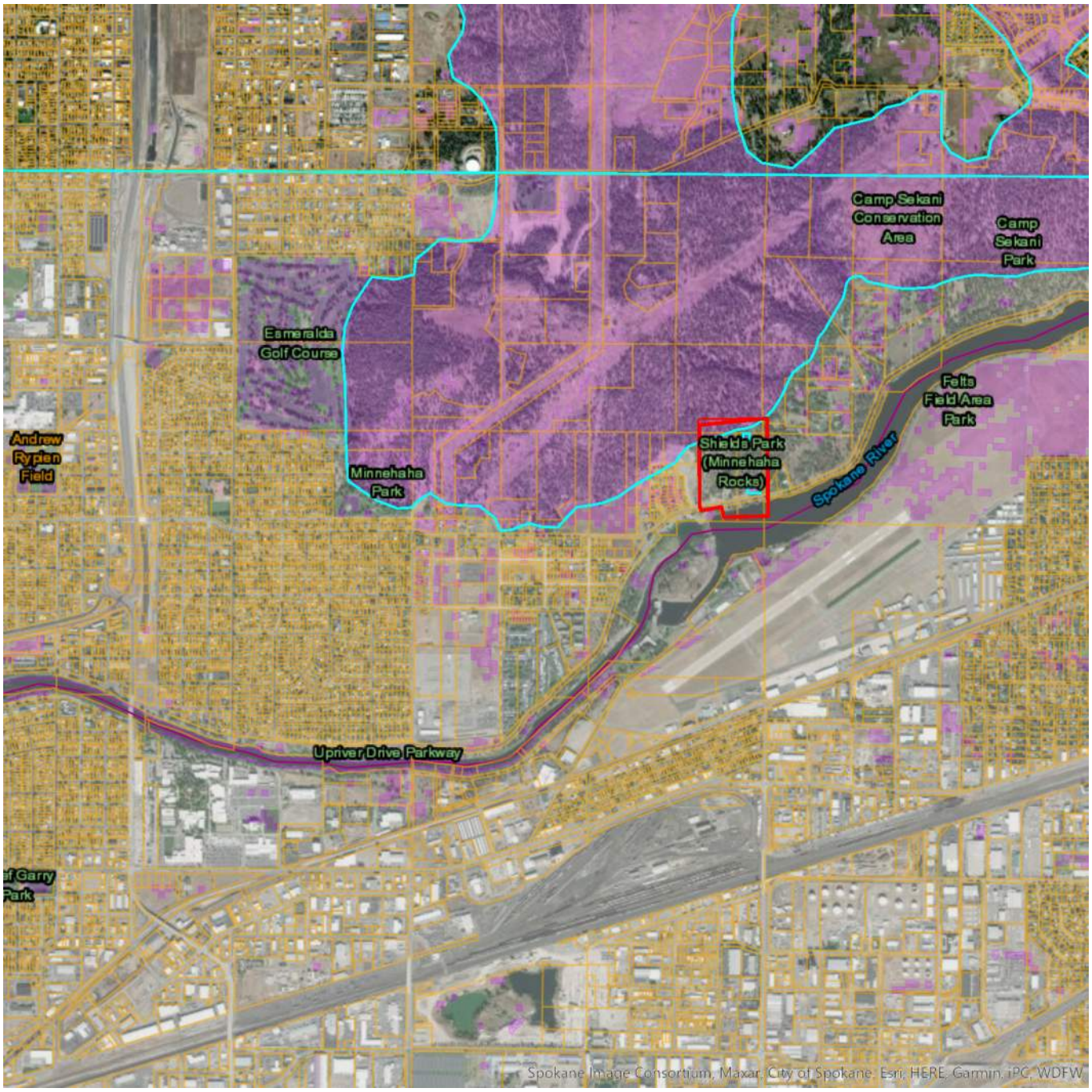
Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and 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.

APPENDIX G - WDFW PHS REPORT

Priority Habitats and Species on the Web



Report Date: 08/28/2023

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Sensitive Location
Biodiversity Areas And Corridor	N/A	N/A	No
Shrubsteppe	N/A	N/A	No
Big brown bat	N/A	N/A	Yes

PHS Species/Habitats Details:

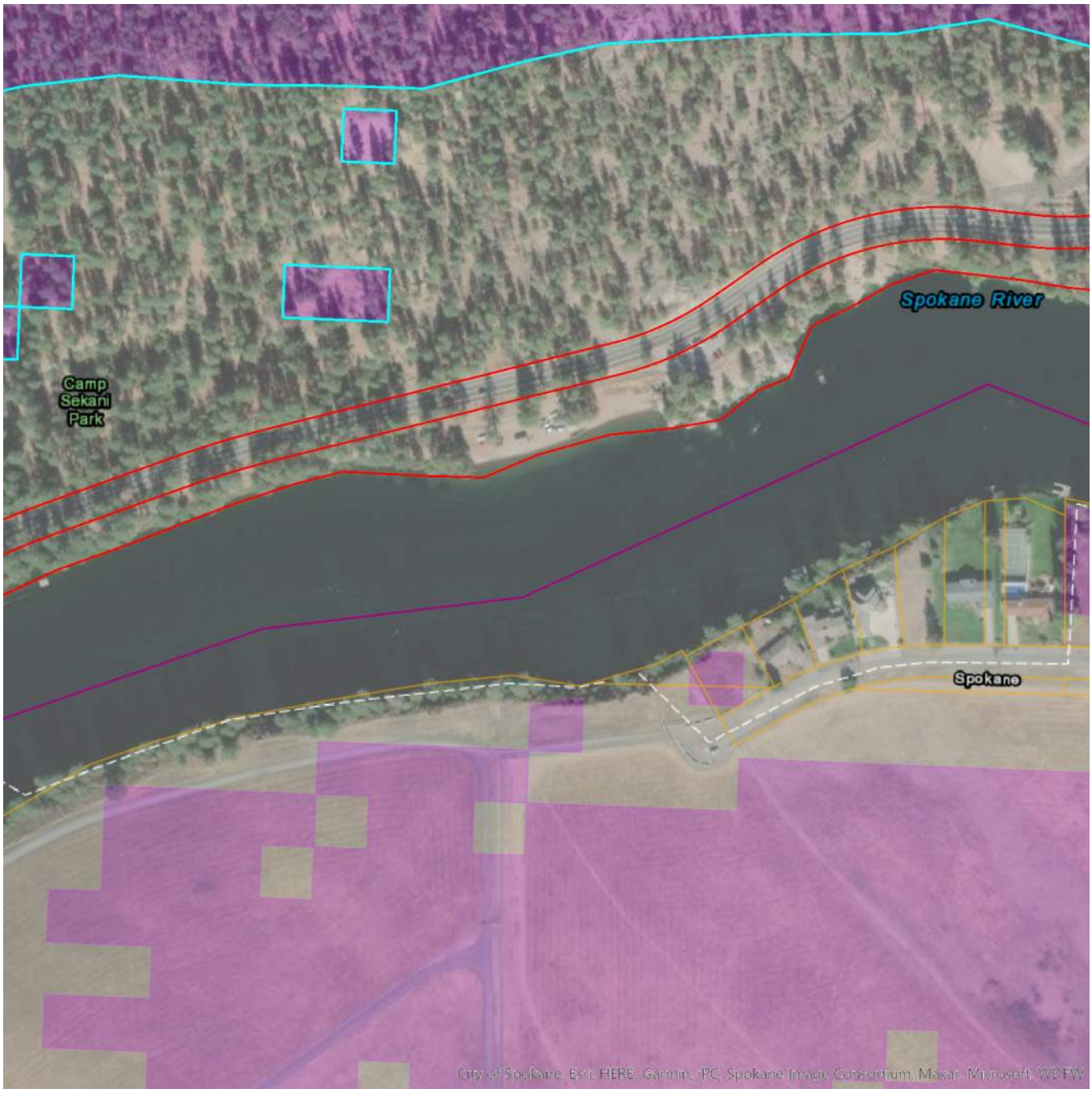
Biodiversity Areas And Corridor	
Priority Area	Terrestrial Habitat
Site Name	BEACON HILL BIODIVERSITY AREA
Accuracy	1/4 mile (Quarter Section)
Notes	BIODIVERSITY AREA WITH WHITE-TAILED DEER WINTER RANGE, MOOSE, ELK HABITAT, CORRIDOR FUNCTION. NESTING RED-TAILED HAWK, NESTING COOPERS HAWK, GREAT HORNED OWL, SAW WHET OWL. REMNANT PONDEROSA PINE SURROUNDED BY URBAN DEVELOPMENT.
Source Record	918612
Source Dataset	PHSREGION
Source Name	ROBINETTE KEVIN WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00023
Geometry Type	Polygons

Shrubsteppe	
Priority Area	Habitat Feature
Site Name	Spokane County Presumptive Shrubsteppe
Accuracy	NA
Notes	General location of Shrubsteppe. Confirm or refute with site-scale info. WDFW recommends using site-scale info to inform site-scale land use decisions. Expect that on-the-ground conditions (e.g., boundaries) will vary from the map.
Source Record	920846
Source Name	Keith Folkerts, WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
Geometry Type	Polygons

Shrubsteppe	
Priority Area	Habitat Feature
Site Name	Spokane County Presumptive Shrubsteppe
Accuracy	NA
Notes	General location of Shrubsteppe. Confirm or refute with site-scale info. WDFW recommends using site-scale info to inform site-scale land use decisions. Expect that on-the-ground conditions (e.g., boundaries) will vary from the map.
Source Record	920846
Source Name	Keith Folkerts, WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
Geometry Type	Polygons

Big brown bat	
Scientific Name	*Eptesicus fuscus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

Priority Habitats and Species on the Web



Report Date: 08/28/2023, Parcel ID: 35011.9002

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Sensitive Location
Biodiversity Areas And Corridor	N/A	N/A	No
Shrubsteppe	N/A	N/A	No
Big brown bat	N/A	N/A	Yes

PHS Species/Habitats Details:

Biodiversity Areas And Corridor	
Priority Area	Terrestrial Habitat
Site Name	BEACON HILL BIODIVERSITY AREA
Accuracy	1/4 mile (Quarter Section)
Notes	BIODIVERSITY AREA WITH WHITE-TAILED DEER WINTER RANGE, MOOSE, ELK HABITAT, CORRIDOR FUNCTION. NESTING RED-TAILED HAWK, NESTING COOPERS HAWK, GREAT HORNED OWL, SAW WHET OWL. REMNANT PONDEROSA PINE SURROUNDED BY URBAN DEVELOPMENT.
Source Record	918612
Source Dataset	PHSREGION
Source Name	ROBINETTE KEVIN WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00023
Geometry Type	Polygons

Shrubsteppe	
Priority Area	Habitat Feature
Site Name	Spokane County Presumptive Shrubsteppe
Accuracy	NA
Notes	General location of Shrubsteppe. Confirm or refute with site-scale info. WDFW recommends using site-scale info to inform site-scale land use decisions. Expect that on-the-ground conditions (e.g., boundaries) will vary from the map.
Source Record	920846
Source Name	Keith Folkerts, WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
Geometry Type	Polygons

Shrubsteppe	
Priority Area	Habitat Feature
Site Name	Spokane County Presumptive Shrubsteppe
Accuracy	NA
Notes	General location of Shrubsteppe. Confirm or refute with site-scale info. WDFW recommends using site-scale info to inform site-scale land use decisions. Expect that on-the-ground conditions (e.g., boundaries) will vary from the map.
Source Record	920846
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PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
Geometry Type	Polygons

Shrubsteppe	
Priority Area	Habitat Feature
Site Name	Spokane County Presumptive Shrubsteppe
Accuracy	NA
Notes	General location of Shrubsteppe. Confirm or refute with site-scale info. WDFW recommends using site-scale info to inform site-scale land use decisions. Expect that on-the-ground conditions (e.g., boundaries) will vary from the map.
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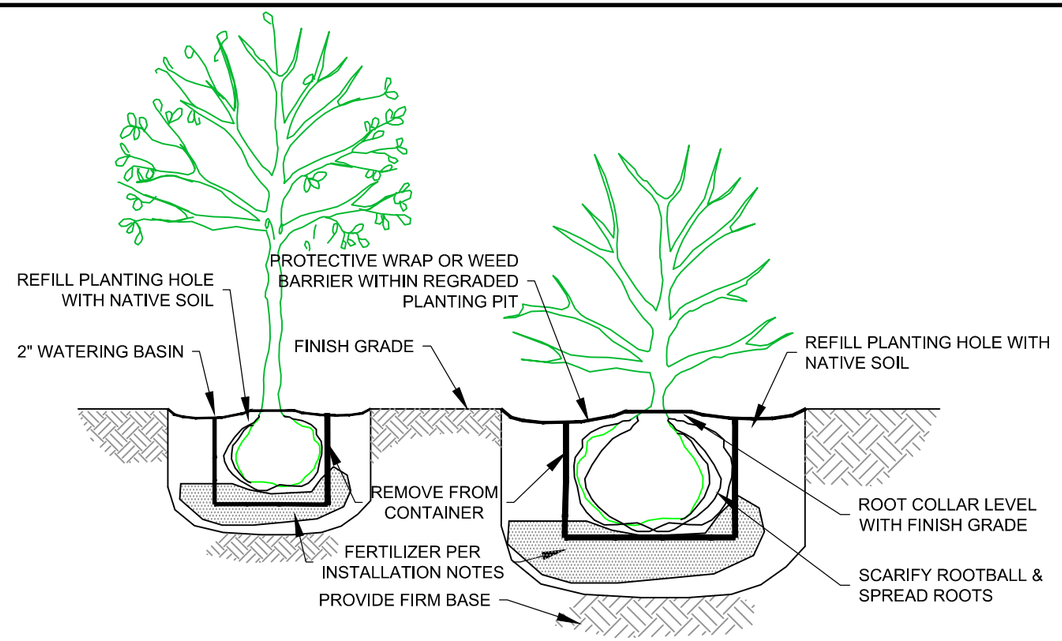
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
Geometry Type	Polygons

Shrubsteppe	
Priority Area	Habitat Feature
Site Name	Spokane County Presumptive Shrubsteppe
Accuracy	NA
Notes	General location of Shrubsteppe. Confirm or refute with site-scale info. WDFW recommends using site-scale info to inform site-scale land use decisions. Expect that on-the-ground conditions (e.g., boundaries) will vary from the map.
Source Record	920846
Source Name	Keith Folkerts, WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
Geometry Type	Polygons

Shrubsteppe	
Priority Area	Habitat Feature
Site Name	Spokane County Presumptive Shrubsteppe
Accuracy	NA
Notes	General location of Shrubsteppe. Confirm or refute with site-scale info. WDFW recommends using site-scale info to inform site-scale land use decisions. Expect that on-the-ground conditions (e.g., boundaries) will vary from the map.
Source Record	920846
Source Name	Keith Folkerts, WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
Geometry Type	Polygons

Big brown bat	
Scientific Name	*Eptesicus fuscus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

APPENDIX H - BEACON HILL PLANTING PLAN & DETAILS



INSTALLATION NOTES:

1. ALL PLANTING AND SITE PREPARATION OPERATIONS SHALL BE CONDUCTED ACCORDING TO AMERICAN NURSERYMAN'S ASSOCIATION GUIDELINES.
2. ALL PLANT MATERIALS SHALL BE NATIVE TO THE SPOKANE COUNTY. PLANT MATERIAL SHALL BE FROM NATIVE STOCK, NO CULTIVARS OR HORTICULTURAL VARIETIES WILL BE ALLOWED.
3. ALL PLANT MATERIAL SCHEDULED FOR INSTALLATION WILL BE IDENTIFIED IN THE PLANTING SCHEDULE. PROPOSALS FOR SUBSTITUTIONS REQUIRE THE APPROVAL OF THE PROJECT BIOLOGIST OR SCCD.
4. ALL PLANTS SHALL BE GROWN IN CONTAINERS. ONLY SOUND, HEALTHY, VIGOROUS PLANTS, FREE OF DEFECTS, DISEASE, AND ALL FORMS OF INFESTATIONS WILL BE ACCEPTED.
5. PACK, TRANSPORT, AND HANDLE ALL PLANTS WITH CARE TO ENSURE PROTECTION FROM INJURY. STORE PLANTS IN THE MANNER NECESSARY TO ACCOMMODATE THEIR HORTICULTURAL REQUIREMENTS.
6. SHRUBS AND TREES SHALL BE KEPT SATURATED AND SHADED UNTIL THE ACTUAL TIME OF INSTALLATION. DO NOT ALLOW PLANTINGS TO DRY OUT OR SIT IN THE SUN PRIOR TO OR DURING INSTALLATION. IMMEDIATELY SATURATE SHRUBS AND TREES AFTER PLANTING TO AVOID CAPILLARY STRESS.
7. EXCAVATE MINIMAL PLANTING PITS.
8. INSTALL TRANSPLANTER TYPE FERTILIZER, SUCH AS OSMOCOTE SLOW RELEASE FERTILIZER (16 - 16 - 16 ANALYSIS) OR EQUAL, TO SHRUB AND TREE PITS. APPLICATION RATE SHALL BE AS SPECIFIED BY THE MANUFACTURER. FERTILIZER WILL BE ALLOWED IN PLANTING PITS ONLY.
9. REMOVE PLANTS FROM CONTAINER AND PLACE IN PLANTING PIT SO THAT THE ROOT COLLAR IS LEVEL WITH THE FINISHED GRADE.
10. BACKFILL EXCAVATED PITS WITH NATIVE SOIL. HEEL-IN PLANTS IF NECESSARY TO KEEP THEM FROM DRYING OUT.

TYPICAL CONTAINER GROWN TREES AND SHRUBS	N.T.S.	1

PRESCRIBED NATIVE SEED MIX

COMMON NAME	SCIENTIFIC NAME	PROVENANCE	PLS (LBS/AC)	% MIX (WT.)	PLSEEDS/FT²	% MIX (SEEDS/FT²)
IDAHO FESCUE	*Festuca idahoensis*	NATIVE	3.5	18%	36.4	25%
SANDBERG BLUEGRASS	*Poa secunda*	NATIVE	1.7	8%	34.6	24%
BLUEBUNCH WHEATGRASS	*Psuedoroegneria spicato*	NATIVE	9.0	45%	28.9	20%
PRAIRIE JUNEGRASS	*Koeleria macrantha*	NATIVE	0.5	3%	26.6	18%
BOTTLEBRUSH SQUIRRELTAIL	*Elymus elymoides*	NATIVE	2.7	13%	11.9	8%
SILKY LUPINE	*Lupinus sericeus*	NATIVE	1.4	7%	0.8	1%
NINELEAF BISCUITROOT	*Lomatium triternatum*	NATIVE	0.8	4%	0.8	1%
PARSNIP FLOWERED BUCKWHEAT	*Eriogonum Heracloides*	NATIVE	0.3	2%	1.6	1%
CANADA GOLDENROD	*Solidago canadensis*	NATIVE	0.03	0%	3.5	2%
TOTALS			20	100%	144.9	100%

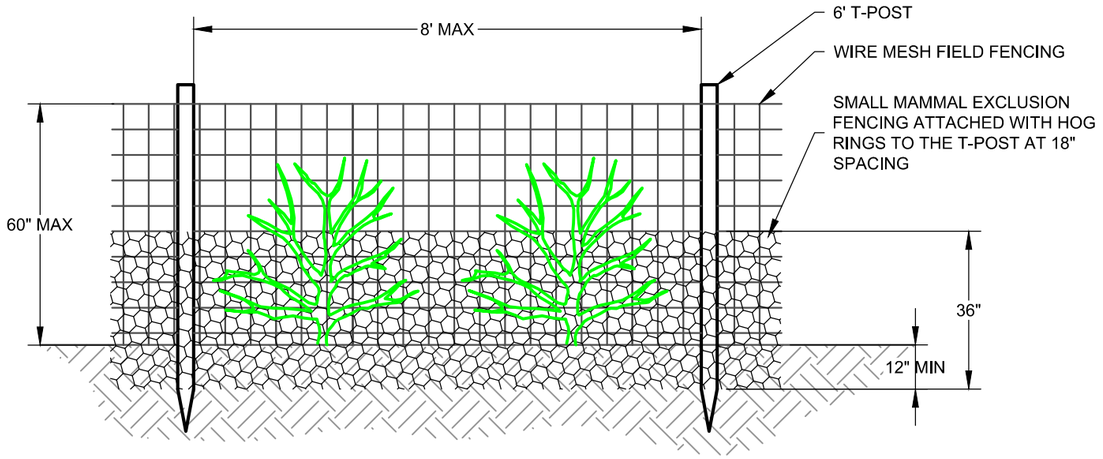
INSTALLATION NOTES:

1. FIRST BROADCAST SEED MIX AT A RATE OF 45 LBS PER ACRE OR 1 LB PER 1,000 SF.
2. SECOND, INSTALL HYDRO MULCH OVER SEED.
3. SEEDING WINDOW IS BETWEEN APRIL 1 THROUGH MAY 15 AND/OR SEPTEMBER 15 THROUGH OCTOBER 15.

MAKE BEACON HILL PUBLIC
PHASE 2 TRAILHEADS PROJECT
STANDARD PLANTING DETAIL & SEED MIX

DATE: 11/27/23 JOB: 230144

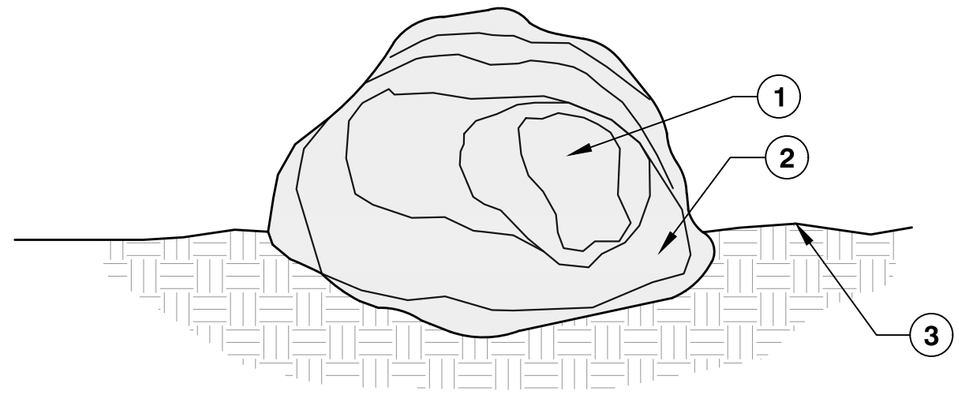
ARDURRA
1717 S. RUSTLE STREET, SUITE 201
SPOKANE, WA 99224
509-319-2580 | WWW.ARDURRA.COM



NOTES:

1. TYPICAL EXCLUSIONARY FENCE DESIGN CONSISTS CATTLE PANELS WITH 4 GA WIRE IN 4" - 6" X 4" - 8" MESH AND A 3' SMALL MAMMAL EXCLUSION (I.E. CHICKEN WIRE) BURIED 12 INCHES BELOW GRADE.
2. INSTALL (2) 10' WIDE LOCKING GATES WITHIN THE EXCLUSIONARY FENCING FOR WATERING TRUCK ACCESS ALONG E UPRIVER DR.

TYPICAL EXCLUSIONARY FENCE AREA (EFA) | N.T.S. | 1



NOTES:

1. PLACE BOULDER(S) PER FINAL CONSTRUCTION PLANS.
2. BOULDERS SHALL BE PLACED SO THAT NO GAP BETWEEN THE BOULDERS EXCEED 48".
3. SCARRED OR BROKEN BOULDER(S) SHALL NOT BE PERMITTED.

1. BASALT BOULDER, SIZE 30"- 54" AVG. DIA.
2. BURY 1/3 BOULDER BELOW FINISH GRADE.
3. FINISH GRADE PER PLANS.

TYPICAL BOULDER INSTALLATION | N.T.S. | 2

MAKE BEACON HILL PUBLIC
PHASE 2 TRAILHEADS PROJECT
STANDARD DETAILS

DATE: 2/27/24 JOB: 230144

ARDURRA
1717 S. RUSTLE STREET, SUITE 201
SPOKANE, WA 99224
509-319-2580 | WWW.ARDURRA.COM

APPENDIX I - WDFW EMAIL CORRESPONDENCE

Steven Hutchinson

From: Westerman, Kile W (DFW) <Kile.Westerman@dfw.wa.gov>
Sent: Tuesday, February 27, 2024 8:42 AM
To: Vince Barthels
Cc: Smith, Corey T.; Light, Michael; nhamad@spokanecity.org; Brast, Ali; candersen@ahbl.com; Kevin Cash
Subject: RE: Review Request of HMP/SIA for Make Beacon Hill Public Phase 2 Trailheads Project

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Vince,

I have reviewed the attached Habitat Management Plan (HMP) for the Make Beacon Hill Public project. After several discussions and a site visit with Vince to discuss the impacts to the shoreline buffer and mitigation options. The development area (minus the Centennial Trail connections) is taking place on the landward side of East Upriver Drive and done in a way to minimize additional impacts. As shown in the HMP there are quantified impacts that span two different Shoreline Master Program jurisdictions (city and county) from this development proposal. On our site visit and discussions we were able to identify mitigation areas, in particular an area that showed sign of being a vehicle pull off area in the past, which has negatively impacted the area. Ecology blocks have been placed to prevent people for using the pull off and per the HMP for this proposed project will restore that area as part of the mitigation plan. As Vince and I have discussed and will be shown in the construction plans the ecology blocks will be replaced with a more natural bolder to be more aesthetically pleasing and to continue to prevent people from pulling off the road there and will allow the mitigation plantings to be successful. With that and the other identified mitigation areas, the HMP appears to adequately protect and enhance the shoreline buffer area while enhancing the parks functionality. Thank you for the opportunity to review and comment.

Thanks,

Kile Westerman
Habitat Biologist, WDFW Habitat Division

2315 N Discovery Place
Spokane Valley, WA 99216
Office: 509-892-1001 ext.323
Cell: 509-742-0529

From: Vince Barthels <vbarthels@ardurra.com>
Sent: Wednesday, February 21, 2024 2:14 PM
To: Westerman, Kile W (DFW) <Kile.Westerman@dfw.wa.gov>
Cc: Smith, Corey T. <CTSMITH@spokanecounty.org>; Light, Michael <mlight@spokanecity.org>; nhamad@spokanecity.org; Brast, Ali <abrast@spokanecity.org>; candersen@ahbl.com; Kevin Cash <KCash@AHBL.com>
Subject: Review Request of HMP/SIA for Make Beacon Hill Public Phase 2 Trailheads Project

External Email

Hi Kile,

Yesterday, I submitted the Draft Habitat Management Plan / Shoreline Impact Assessment (HMP/SIA), dated Feb 15th, for the Make Beacon Hill Public Phase 2 Trailheads Project to Corey Smith @ County Planning.

The Draft HMP/SIA is item # 2 in the linked provided below:
Make Beacon Hill Public Phase 2 Trailhead Improvements - 2.20.24 Submittal

I am happy to mail you a hard copy of the Draft HMP/SIA per your request.

At your convenience, could you please offer your review and comment on the draft HMP/SIA within an email correspondence. I plan to integrate your comments & email correspondence into the Final HMP/SIA. We appreciate your review and feedback.

Thanks again,

ARDURRA

Vince Barthels
Environmental Services Manager
M: (509) 951-9564
1717 S. Rustle, Suite 201, Spokane, WA 99224
vbarthels@ardurra.com | www.ardurra.com