Mitigation Plan

Rocky Coulee Tent Camping Facility
Improvement Project
Kittitas County, Washington

for
Project Groundwork, LLC/Coast & Harbor Engineering, Inc. - Joint Venture

February 28, 2013

GeoEngineers
Earth Science + Technology

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File No. 2164-045-02

February 28, 2013

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LIST OF ACRONYMS

ADA	Americans with Disabilities Act
BMPs	Best Management Practices
Ecology	Washington State Department of Ecology
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
ft.	foot or feet (units)
Grant PUD	Public Utility District No. 2 of Grant County
JARPA	Joint Aquatic Resources Permit Application
NAVD 88	North American Vertical Datum of 1988
OHWM	Ordinary High Water Mark
PHS	Priority Habitats and Species
RRMP	Recreation Resource Management Plan
SEPA	State Environmental Policy Act
SF	square feet
SWPPP	Stormwater Pollution Prevention Plan
TESC	Temporary Erosion and Sediment Control
USACE	United States Army Corps of Engineers
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WRIA	Water Resource Inventory Area

1.0 INTRODUCTION

GeoEngineers, Inc. (GeoEngineers) was contracted by Project Groundwork, LLC/Coast & Harbor Engineering, Inc. (Project Groundwork/Coast & Harbor) to develop a mitigation plan to compensate for unavoidable impacts to critical areas during construction of planned improvements at the Rocky Coulee Tent Camping Facility. The Project Area is located at the end of Recreation Drive on the west bank of the Columbia River approximately 5½ miles north of Wanapum Dam and a ½ mile north of Vantage, Washington (Figure 1 – Vicinity Map). The site is currently used as an unimproved picnic, tent camping, and small boat launching site. The Project Area encompasses the existing access road and adjacent sagebrush and riparian areas (Appendix A – JARPA Drawings, Sheets 2 and 3 of 19).

Proposed improvements at the Rocky Coulee Tent Camping Facility include new site amenities such as ten new walk-in camping sites, five new picnic sites, a kiosk/interpretive sign, and a double-vault toilet and single-vault toilet (Appendix A – JARPA Drawings, Sheets 8, 9 and 10 of 19). The project would also include trails connecting the drop-off location with the walk-in camp sites and project area trail linkage (Grant PUD 2003, Appendix A – JARPA Drawings, Sheets 3 and 10 of 19).

The Project Area is owned by Public Utility District No. 2 of Grant County (Grant PUD) and operated by the Grant PUD Lands and Recreation Department. Grant PUD is required to provide and maintain public access and recreational facilities as part of Federal Energy Regulatory Commission (FERC) relicensing. The Rocky Coulee Tent Camping Facility Improvements Project is being performed as required to support FERC relicensing.

The purpose of this mitigation plan is to present the proposed development plans, document measures taken by Grant PUD during development of the project to avoid and minimize impacts to critical areas (e.g., wetlands, river and riparian/wetland buffer areas), and to present proposed mitigation measures to compensate for the unavoidable impacts to critical areas associated with the proposed improvements.

2.0 PROJECT BACKGROUND

2.1. Project Location and Description

The site is located on the west bank of the Columbia River (Wanapum Reservoir) approximately 5½ miles upstream of Wanapum Dam near the town of Vantage, Washington in Kittitas County (Figure 1). It is located on parcel number 820933 in Sections 18 and 19 of Township 17 North, Range 23 East of the Willamette Meridian, and within Water Resources Inventory Area (WRIA) 40 (Alkali/Squilchuck). The parcel is zoned Rural/Flooded and surrounding parcels are zoned Forest and Range, Residential (Vantage), General Commercial (Vantage), and Flooded (Columbia River/ Wanapum Reservoir). The primary land uses in the project area are recreation, rural and commercial agriculture. Elevations at the site range from approximately 573 to 592 feet (NAVD 88).

The Project Area was undeveloped prior to 1963. In 1963, the former waterline for the Columbia River was located several thousand feet east of the existing shoreline prior to the rise in elevation of the Columbia River due to the development of the Wanapum Dam. The site was developed after 1963 with improvements including construction of the jetty and placement of boulder barriers at the end of Recreation Drive.

The 5.6 acre site has approximately 1,400 feet of shoreline. There are no NWI wetlands at the site; however, three lake-fringe wetlands were identified at the site in March 2012 (Grant PUD 2012a and Figure 2).

There is sparse scrub vegetation in the uplands and an approximate 50- to 100-foot strip of forested riparian vegetation adjacent to the Columbia River. Existing developments at the site consist of a degraded entry road (Recreation Drive), an informal parking area, and a network of user defined surface trails running for approximately 550 feet south along the edge of the riparian vegetation. In several locations the user defined trails extend into the riparian areas to informal campsites and fire rings. The paved access to the site, Recreation Drive, ends where the former highway extends into the river.

The site is currently used as a day use area and informal camping. During the summer recreation season Grant PUD places picnic tables, portable toilets, and garbage receptacles at the site.

2.2. Project Background

This Conceptual Mitigation Plan has been prepared to support permitting and construction of the Rocky Coulee Tent Camping Facility Improvements Project. The design drawings prepared for the project by Coast & Harbor Engineering for Grant PUD are provided in Appendix A (JARPA Drawings). The plans for the Rocky Coulee Tent Camping Facility Improvements Project include the following:

- Demolition of Existing: roadbed (portions of Recreation Drive), site fencing, and concrete bases for portable toilets;
- Paved Americans with Disabilities Act (ADA) parking stalls;
- Gravel parking stalls delineated by wheel stops;
- Single concrete vault toilet;
- Double concrete vault toilet;
- Benches;
- Stabilized gravel trails of various widths, including accessible routes;
- Paved ADA and maintenance access road with ADA parking at the terminus;
- Picnic areas, including ADA accessible tables;
- Tent campsites, including two ADA accessible sites;
- Stormwater handling improvements;
- Barrier rock and fencing;
- Site access gate; and

- Regulatory, way-finding and interpretive signage.

The site is currently in a degraded condition due to soil erosion and the development of a network of user-defined trails. The proposed improvements will provide defined vehicular and pedestrian routes to designated camping and picnic facilities, reducing user impacts to the site.

The purpose for all of the upland improvements is to provide improved recreation access to the Columbia River as mandated by the FERC in the operating license for the Priest Rapids Hydroelectric Project.

2.3. Project Purpose and Need

Under the terms and conditions of its license agreement with the FERC to operate the Priest Rapids Hydroelectric Project, Grant PUD is obligated to make provisions for reasonable public access to Priest Rapids Hydroelectric Project recreation facilities and waters (FERC, 2008). As part of the application for relicensing the Priest Rapids Hydroelectric Project, Grant PUD prepared and submitted a Recreation Resource Management Plan (RRMP) (Grant PUD 2003). The RRMP defines proposed recreation enhancement measures at more than 30 sites based on recreation related technical studies and on consultation with a broad array of stakeholders. Proposed conceptual improvements at the Rocky Coulee Tent Camping Facility were included in the RRMP as a part of that consultation (Grant PUD 2003).

3.0 PROJECT DESCRIPTION

The Project Area encompasses a degraded entry road (Recreation Drive), an informal parking area, and a network of user defined surface trails and informal camping sites in the riparian vegetation and sagebrush areas.

The primary components of the Rocky Coulee Tent Camping Facility Improvement Project include modifications to the existing access road (Recreation Drive), formalizing an existing vehicle turn-around at the terminus of Recreation Drive, and development of regular and ADA parking, ten regular campsites and two ADA campsites, two picnic areas, a single and double vault toilets, and connector trails. A full description of existing and proposed features at the site is provided in the Technical Project Description (Grant PUD 2013) and project drawings are provided in Appendix A.

3.1. Upland Improvements

The improvements to the upland facilities will generally occur more than 15 feet horizontally landward from the OHWM (+575 feet, NAVD 88) with the exception of a shoreline access trail and two benches. A summary of all of upland site improvements is provided below.

3.1.1. Demolition

Demolition related to upland improvements includes removal of pavement along the former highway alignment (Recreation Drive), removal of a portion of site fencing, removal of portable toilet concrete bases, and relocation of existing signage.

3.1.2. Access Road

The renovated site access road (Recreation Drive) will follow the existing alignment, but will be narrower. The pavement will be cut and removed along the north and south edges of the existing road. A gravel and planted filter strip will be installed on both sides of the roadbed to increase infiltration and improve water quality of stormwater runoff. A majority of the existing pavement along the entrance road will be rubilized (fractured into small pieces) and mixed into the base of the proposed Hot Mix Asphalt (HMA) pavement section. No improvements to the access road are proposed outside of the Priest Rapids Project Boundary.

3.1.3. Vehicle Turn-Around

The formalized paved vehicle turn-around will be located at the terminus of Recreation Drive. The existing degraded asphalt and gravel area at the terminus of Recreation Drive will be removed and replaced with the new asphalt surfacing.

3.1.4. Auto Parking

The proposed auto parking areas will be gravel and asphalt pavement. Proposed parking stalls will be located a minimum of 120 feet from the OHWM. The 14 passenger vehicle stalls adjacent to Recreation Drive will be gravel; in addition the two ADA accessible stalls adjacent to Recreation Drive will be asphalt; and the parking accessed from the south spur road will be asphalt. Gravel parking spaces will be delineated with concrete wheel stops. ADA parking spaces will be delineated with signage, striping, and concrete wheel stops. Stormwater runoff will be directed, to the extent possible, to gravel and/or vegetated filtration strips.

3.1.5. Tent Camp Sites

Ten formalized tent camp sites will be developed at the site. The ten proposed campsites will include designated gravel surface areas for tents and picnic tables intended to minimize user impacts to the site. An 8-inch wide concrete border will define the gravel tent pads. A tent site, picnic table, and barbeque grill will be installed at each campsite. Two ADA accessible campsites with ADA picnic tables are included in the improvements. The tent sites will be accessed via stabilized gravel or natural surface trails. When practical the stabilized gravel trails will be constructed on the same alignment as the existing user defined trails to minimize further impacts to the site. All user-defined trails not improved as a part of the project along with other user defined impacts will be restored with native vegetation.

3.1.6. Picnic Areas and Vault Toilets

A proposed centrally located picnic area will include two ADA accessible picnic tables. An additional picnic area is planned along the northeastern trail spur and will include 3 tables. Picnic tables will also be located at each of the ten campsites. Additional trash receptacles may be added at the picnic area. The two picnic sites have been designed to accommodate picnic shelters as part of future site improvements.

A single vault toilet will be placed along the north edge of the Recreation Drive approximately 111 feet from the OHWM. The below grade storage vault for the restroom facility will be installed in an approximately 8-foot deep excavation and backfilled with suitable native material or import

backfill. An additional double vault toilet will be placed near the proposed accessible tent sites approximately 225 feet from the OHWM.

3.1.7. ADA Access Road over Rocky Coulee – Rocky Coulee Culvert

In order to provide ADA vehicle access to the camping sites an access road will be constructed across Rocky Coulee from Recreation Drive to the ADA parking and turnaround by the kiosk and double vault toilet. The proposed culvert is a bottomless aluminum low profile arch culvert 22 feet in length with a span of 25 feet 2 inches and a rise of 6 feet 2 inches. Construction of the culvert will require temporary excavation for the foundation. Overall, the channel bottom will be lower than existing conditions. No fill of the channel is proposed.

3.1.8. Culvert Crossing Under Recreation Drive

To convey runoff from the swale on the north side of Recreation Drive an 18-inch LCPE culvert will be installed under Recreation Drive immediately west of the proposed gravel parking.

3.1.9. Trails

Proposed trail improvements at the site will formalize acceptable routes to designated picnic areas, campsites, and vault toilets. Approximately 1,800 linear feet of trails of various widths (3-foot, 5-foot, and 8-foot) will connect the campsites, vault toilets, picnic areas, and parking. A stabilized gravel trail will provide access to the near shore area on the existing gravel jetty where two benches will be installed and an interpretive sign panel.

The portions of the 5-foot and 8-foot wide sections of trail that access the regular campsites will be constructed of stabilized gravel. The portions of the 5-foot and 8-foot wide sections of trail that access the ADA campsites will be constructed of concrete and will meet ADA accessibility guidelines. The 3-foot wide section of trail will be constructed of stabilized site soils and will meet ADA Accessibility guidelines.

Two benches will be installed along the northeast trail spur on the existing jetty.

4.0 REGULATORY REQUIREMENTS

The proposed project will require authorization from local and state agencies. Authorizations include, but may not be limited to the following permits:

- Kittitas County
  - Critical Area Review
  - Shoreline Conditional Use and Shoreline Substantial Development Permit
  - State Environmental Policy Act (SEPA) review
  - Floodplain Review/FEMA Compliance
- Washington State Department of Ecology
  - Section 401 Water Quality Certification

- Construction Stormwater General Permit

- Washington Department of Fish and Wildlife
  - Hydraulic Project Approval

5.0 EXISTING CONDITIONS

The Rocky Coulee Tent Camping Facility is located in WRIA 40 (Alkali/Squilchuck), a sub-watershed of the Columbia River that extends along the western shore of the Columbia River north and south of I-90. WRIA 40 encompasses all tributary streams to the Columbia River in Kittitas County, seven tributary streams in southeast Chelan County and eight tributary streams in northeast Yakima County. The Project Site is located at the mouth of Rocky Coulee immediately adjacent to the Columbia River/Wanapum Reservoir on gently sloping terrain (Appendix A, Sheet 2 of 19).

Photograph 1. Photograph of the southern boat ramp (low reservoir level) looking northeast to the Columbia River.

Since the early 20th century the Columbia River has been altered from its natural flowing riverine state into a series of slackwater reservoirs between dams. In the project vicinity, where historically the Columbia River meandered through the gorge between the tall basalt cliffs, the Wanapum Reservoir now fills the bottom of that gorge. Aquatic habitats have been modified from a flowing river with cobble and gravel substrates to a still lake-like environment with more fine sediment substrates.

5.1. Critical Areas / Fish and Wildlife Habitats

A Critical Areas Assessment Report was produced by GeoEngineers Inc., in 2012 (Grant PUD 2012a). The OHWM of the Wanapum Reservoir (Columbia River) was determined to be at an elevation of approximately +575 feet (NAVD 88). One seasonal stream, one shoreline stream/reservoir, three wetland areas and a forested riparian habitat area were identified within the project area (Figure 2). Tables 5-1 and 5-2 below present a summary of the streams and wetlands at the Project Site.

5.1.1. Wetlands

Three lake-fringe wetlands were identified at the site (Grant PUD 2012a, Figure 5). Table 5-1 below presents summary information for Wetlands A-C. Wetlands A and C occur immediately below the OHWM of the Columbia River/Wanapum Reservoir, while Wetland B is located immediately landward of the OHWM. Soils in all three wetlands are silty loams that meet the criteria for a depleted matrix hydric soil indicator (GeoEngineers 2012a). Water levels in the three wetlands are influenced by fluctuating water levels in the Wanapum Reservoir and may be influenced by seasonal high groundwater during snow melt/ spring freshet. Buffers for all three wetlands consists of mixed deciduous forest of primarily invasive trees and shrubs. Approximately 100 feet

west of Wetland C, the buffer transitions from riparian forest to sagebrush prairie. The buffer is located within the Grant PUD recreation area that experiences daily human use, especially during the camping season. The sagebrush prairie and riparian forest areas are crisscrossed with trails. Some human debris and garbage was observed scattered throughout the buffer and along the shoreline.

TABLE 5-1. WETLAND AREAS IDENTIFED AT ROCKY COULEE TENT CAMPING FACILITY

Wetland Areas – Summary Information from GeoEngineers (2012a)			
Feature Name	**Wetland A**	**Wetland B**	**Wetland C**
Location	Above OHWM	Below OHMW	Below OHWM
Hydrogeomorphic Class	Lake-fringe	Lake-fringe	Lake-fringe
Category (Wetland Rating)[1]	III	III	III
Size	0.03 acres 1,385 SF	0.02 acres 775 SF	0.6 acres 26,175 SF
Kittitas County Buffer[2]	0-20 ft	0-20 ft	60 ft

Notes:

[1]Wetland rating based on the *Critical Areas Assessment, Rocky Coulee Recreation Area* Report (GeoEngineers 2012a) in accordance with Washington State Wetland Rating System for Eastern Washington (Hruby 2004) and KCC 17A.03.025.

[2]Buffer size is based on KCC 17A.04.020 (Buffer Width Requirements). Kittitas County does not stipulate buffers for Category III wetlands 10,000 square feet (SF) or less (KCC 17A.04.020), however because Wetlands A and B are contiguous with Wetland C (a large Category III wetland) a small buffer was assumed for Wetlands A and B. The 20-foot buffers for Wetlands A and B completely overlap with the 60-ft. buffer for Wetland C.

Photograph 2. Wetland A looking east across the Columbia River.

Wetland A is a small (1,385 SF) Category III palustrine scrub shrub wetland located immediately waterward of the OHWM approximately 300 feet south of the jetty (Figure 5). The landward (western) boundary of this wetland coincides with the OHWM. Wetland A is contiguous with Wetland C, a large lake-fringe wetland below the OHWM. Wetland A is a scrub-shrub wetland with the following dominant vegetation: reed canarygrass (*Phalaris arundinacea*, FACW), Indianhemp (*Apocynum cannabinum*, FAC+), common mullein (*Verbascum thapsus*, NI, sweetbriar rose (*Rosa eglanteria*, FACW), smooth sumac (*Rhus glabra*, NI), and black locust (*Robinia pseudoacacia*, FACU).

Wetland B is a small (775 SF) Category III palustrine emergent wetland located immediately landward of the OHWM at the southern end of the site (Figure 5). The waterward (eastern) boundary of this wetland coincides with the OHWM. Wetland B is contiguous with Wetland C, a large lake-fringe wetland below the OHWM. Vegetation in Wetland B consists of reed canarygrass

(FACW) and sweetbriar rose (FACW) with one Siberian elm (*Ulmus pumila,* NI) rooted at the edge of the wetland.

Wetland C is a large (0.6 acres) Category III palustrine emergent mosaic wetland located south of the jetty below (waterward of) the OHWM of the Columbia River/Wanapum Lake (Figure 2). The landward boundary of this wetland coincides with the OHWM. Vegetation in Wetland C consists of slender rush (*Juncus tenuis*, FACW) and reed canarygrass (FACW).

Photograph 3. Wetland B looking southeast across Columbia River.

At high reservoir levels, willows, roses and trees growing along the edge of the Columbia River/Wanapum Reservoir (within the wetlands and the riparian zone) provide some cover and shade along the shoreline.

5.1.2. Rivers, Streams and Riparian Areas

The Project Area is situated on the Columbia River/Wanapum Reservoir with one seasonal stream (Rocky Coulee) extending through the Project Area. The riparian area consists of a 25 to 150 feet wide stretch of deciduous forest, composed of non-native trees and shrubs. Table 5-2 below provides summary information for rivers/streams at the site.

TABLE 5-2. RIVERS/STREAMS IDENTIFED AT ROCKY COULEE TENT CAMP AND DAY USE AREA

Critical Areas – Summary Information from GeoEngineers (2012a)		
Feature Name	**Columbia River/Wanapum Reservoir**	**Rocky Coulee**
DNR1 Stream Type	Shoreline (S)	Unknown
Kittitas County Stream Type[1]	Type I (Shoreline)	Type 5 (Seasonal)
Kittitas County Buffer Width[2]	40-200 ft	None, buffering provided by the buffer for the Columbia River
Structural Setback[3]	100 ft	15 ft

Notes:

[1]Washington State Department of Natural Resources (DNR) Forest Practices Application Review System (FPARS) (DNR 2008), WAC 222-16-031, and WAC 173-18-080.

[2]Stream Type and buffer size are based on KCC 17A.02.300 (Waters/water typing system) and KCC 17A.07 (Habitat). KCC 17A.07 (Habitat) specifies a range of buffers (10 to 200 ft.) for Type 1 to Type 4 waters, established to reflect the impact of certain intense land uses on riparian habitat functions and values, however for Type 5 waters, Kittitas County does not require a buffer (buffering will be provided by the Type 1, 2 or 3 waters' buffers). Note: Building setbacks from a Type 5 water will be 15 ft. unless a buffer greater than or equal to the 15-ft. setback is in place. Type 5 waters shall be designated a critical area where it is located within the buffers for Types 1, 2 or 3 waters, as determined by the planning manager.

[3]Within the Urban Environment, the SMP shoreline structural setback is 100 feet. All structures and parking facilities shall be set back a minimum of 100 feet from the OHWM.

5.1.2.1. COLUMBIA RIVER/WANAPUM RESERVOIR SPECIES USE AND AQUATIC HABITAT

The following species of fish have been documented using Wanapum Reservoir in the project vicinity: Spring Chinook salmon (*Oncorhynchus tshawytscha* - Endangered), summer and fall Chinook salmon (*O. tshawytscha*), summer steelhead (*O. mykiss* - Threatened), coho (*O. kisutch*), sockeye salmon (*O. nerka*), Dolly Varden/Bull trout (*Salvelinus confluentus* - Threatened), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolmieu*), mountain whitefish (*Prosopium williamsoni*), kokanee (*O. nerka*), rainbow trout (*O. mykiss*), walleye (*Sander vitreus*) and white sturgeon (*Acipenser transmontanus*) (WDFW 2012a and 2012b, WDFW 2011).

Photograph 4. Columbia River shoreline at hand boat launch.

The open water portions of the reservoir in the vicinity of the site are used by waterfowl. WDFW Priority Species and Habitat data identify a Waterfowl Concentration Area and a Common Loon (*Gavia immer*) Use Area within the Wanapum Reservoir in the project vicinity (WDFW 2011, WDFW 2012b). Common species of waterfowl in the Project Area include redhead (*Aythya americana*), canvasback (*Aythya valisineria*) and mallard ducks (*Anas platyrhynchos*). In general, waterfowl using the area eat plants, insects, crustaceans, mollusks and fish. The common loon eats aquatic invertebrates and fish. WDFW Priority Species and Habitat data also identify an occurrence of a western floater (*Anodonta kennerlyi*) north of the Project Site.

Within the project area, the aquatic habitat of Wanapum Reservoir has been altered by past human development and disturbed by human use for recreation. Past development at the site includes construction of the old highway (Recreation Drive - which runs into the Columbia River), and construction of the jetty (riprap and quarry spalls) to protect the hand boat launch area.

Undisturbed shorelines along this reach of the Columbia River/Wanapum Reservoir typically consist of forested and shrub communities (cottonwood and willow) with silty sand soils or basalt outcroppings. Riparian vegetation at the edge of a reservoir provides over-hanging cover and a source of organic matter/debris for juvenile fish and aquatic life. Organic matter/debris serves as a food source for the detrital food chain and as cover for juvenile fish and other aquatic life. Mouths of drainages (e.g., Rocky Coulee) can offer a diverse array of habitats. As sand and silt deposit at the mouth of drainages, deltas develop which are colonized by vegetation that then offers food and cover for juvenile fish and other aquatic life.

Ongoing recreational use of Wanapum Reservoir at the site includes boating (hand boat launch only), swimming, and beach play. Boat use within the Wanapum Reservoir has been a large contributor to the spread of Eurasian watermilfoil. Deeper than approximately 573 feet, Eurasian watermilfoil is the dominant aquatic bed plant at the site. Human use of beaches for swimming and playing causes disturbance and/or compaction of beach sediments. Any use of these beach

sediments by aquatic life (e.g., shelter, egg deposition, rooting of vegetation, and habitat for meiofauna) will be disturbed by the current and ongoing recreational uses.

No developments are proposed below the OHWM of the Wanapum Reservoir. Any indirect impacts to the Wanapum pool winter waterfowl or loon habitat will be assessed through local permitting.

5.1.2.2. STREAMS

According to DNR's FPARS mapping application (DNR 2008) and WDFW's SalmonScape mapping application (WDFW 2012a), a seasonal (intermittently flowing) stream, Rocky Coulee, is mapped extending along the southern edge of Recreation Drive and draining into the Columbia River (Figure 2). Rocky Coulee runs along the southern side of Recreation Drive, the road that accesses the site. DNR has inadequate information about the fish use of the stream to designate a Stream Type for it and therefore DNR maps the stream as unknown (labeled as a "U" on Figure 4) (DNR 2008). WDFW's SalmonScape (WDFW 2012a) does not report documented use of the stream by salmonids (Figure 4). During a site visit on March 22, 2012 by GeoEngineers, there were no flows in Rocky Coulee and the drainage channel bed was dry with sagebrush and various grasses growing along the banks. In addition, Grant PUD staff who have been servicing the Rocky Coulee site for many years have indicated that they have not observed water flowing in Rocky Coulee.

5.1.2.3. RIPARIAN AREAS

The northern portion of the site (north of Recreation Drive) has a 25- to 50-foot strip of forested riparian buffer. Vegetation within this forested buffer consists primarily of black locust (*Robinia pseudoacacia*) with some Siberian elm (*Ulmus pumila*) and Russian olive (*Elaeagnus angustifolia*), all non-native trees. South of the jetty, the forested riparian buffer is wider (50 to 150 feet) with vegetation consisting of the same tree species (black locust, Siberian elm and Russian olive) and shrubs species such as sweetbriar rose (*Rosa eglanteria*) and smooth sumac (*Rhus glabra*) predominating. Upland of the forested riparian buffer and throughout the rest of the site sagebrush habitat dominates with vegetation consisting of big sagebrush (*Artemesia tridentata*), rabbit-brush (*Chrysothamnus nauseosus*), antelope-bush (*Purshia tridentata*), and various upland grasses. The sagebrush and forested buffer areas are crisscrossed with user-defined trails. Small amounts of human debris and garbage are scattered throughout the buffer and along the shoreline.

5.1.3. Terrestrial Priority Habitats and Species

GeoEngineers received digital data in GIS format from Grant PUD containing site-specific information from the WDFW PHS Program (WDFW 2011). In addition, GeoEngineers reviewed WDFW Priority Habitat and Species data available on the internet for more up to date information (WDFW 2012b).

There are no records of species occurrence points at the site. There is a record of a biotic detection, from August 2000, of a racer (*Coluber constrictor*), a non-venomous Colubrid snake in

the vicinity of the site in Gingko State Park. This racer is a state monitored species[1] and is not a listed priority species.

One terrestrial priority habitat is mapped at the site (WDFW 2011):

- Ginkgo cliff habitat is present in the northern portion of the parcel. This habitat has the potential to support numerous species of birds, mammals, and reptiles year-round for resting, hibernation, breeding, and rearing young.

No developments are proposed within the cliff habitat. Any indirect impacts to the cliff habitat from adjacent developments will be assessed through local permitting.

Three priority habitats areas are mapped adjacent to the site (WDFW 2011):

- The Quilomene Deer Winter Range habitat area is considered a mule deer (*Odocoileus hemionus hemionus*) winter range use area, providing over-winter habitat for 700 to 800 deer.
- The Quilomene Elk Winter Range habitat area is considered an elk (*Cervus elaphus*) winter range use area, providing over-winter habitat for 1,500 to 2,000 elk.
- The Ginkgo Park Deer Concentration Area is considered a mule deer winter range area in Ginkgo State Park, providing over-winter habitat for 75 to 100 deer.

No developments are proposed within the priority habitats mapped adjacent to the site or within Ginkgo State Park (location of racer biotic detection). Any potential indirect impacts of the project on these habitats and species will be assessed through local permitting.

5.2. Uplands

Landward of the forested riparian area the Project Site is dominated by sagebrush habitat with vegetation consisting of big sagebrush (*Artemesia tridentata*), rabbit-brush (*Chrysothamnus nauseosus*), antelope-bush (*Purshia tridentata*), and various upland grasses. The sagebrush and forested buffer areas are crisscrossed with user-defined trails. This area is where the majority of the site improvements will be occurring.

Photograph 5. Disturbed sagebrush habitat immediately south of the Rocky Coulee channel.

5.3. Adjacent Properties

Land use adjacent to the Project Site is Forest and Range. The site is situated north and east of the Ginkgo Petrified Forest State Park (owned by Washington State Parks), west of the Wanapum Reservoir (owned by Grant PUD), and south of a parcel of land owned by Stockdale, Inc. (owners of

[1] State Monitor species are not considered Species of Concern, but are monitored for status and distribution. They are managed by WDFW, as needed, to prevent them from becoming endangered, threatened, or sensitive.

the Riverstone Resort in Vantage, Washington). The Ginkgo Petrified Forest State Park interpretive center is located approximately 250 feet south of the Project Site. Residences along the northern edge of the town of Vantage are within half a mile south of the Project Site. North and west of the Project Site there are no buildings or structures for at least 5 miles.

5.4. Geologic Conditions

A preliminary geologic/geotechnical investigation of the Project Area was performed by GeoEngineers in June 2012 (Grant PUD 2012b). The Project Area is located where the Columbia River meets a shallow valley (Rocky Coulee Valley) that is oriented east to west. The site is bordered to the north and south by basalt hills/cliffs, to the east by the Columbia River and to the west by the Rocky Coulee Valley. The ground surface at the site generally slopes downward to the east, toward the Columbia River, at shallow angles. Vegetation over most of the site comprises scattered sagebrush and some grasses. Thicker vegetation (trees and brush) is present close to the shoreline. Bare portions of the ground surface are generally covered in sand material. The roadway on the north side of the site is higher in elevation than the rest of the site to the south. The Rocky Coulee channel just south of the roadway was dry at the time of the geologic/geotechnical site visit (June 2012).

Interpretation of geologic/hydrogeologic conditions in the site vicinity were based on review of "Digital 1:100,000-scale Geology of Washington State, Version 1.0," Washington State Department of Natural Resources, December 2005. The map indicates that surface geologic materials at the site consists of glacial outburst flood deposits (map unit Qfg) and basalt bedrock of the Grande Ronde Formation (map unit Mv(gN2). The outburst flood material typically comprises very coarse gravel, boulders and cobbles with sand. We did not observe materials of this type at the site. Unweathered Grande Ronde basalt can be very strong and difficult to remove/excavate.

6.0 IMPACTS AND PROPOSED MITIGATION FOR THE ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

6.1. Proposed Actions, Impacts and Enhancements Above the OHWM of the Columbia River/Wanapum Reservoir

Proposed improvements in the uplands of the Rocky Coulee Tent Camping Facility site include renovation of the existing access road and vehicle turnaround and creation of auto parking, tent camp sites, picnic areas, vault toilets, and gravel trails. A summary of project impacts and enhancements above the OHWM is provided in Table 6-1 below.

TABLE 6-1. SUMMARY OF PROPOSED RENOVATIONS, ENHANCEMENTS AND IMPACTS ABOVE THE OHWM[1] OF THE COLUMBIA RIVER/WANAPUM RESERVOIR AT ROCKY COULEE TENT CAMPING FACILITY

Project Element/Impact/Enhancement	Area / Riparian Forest (SF)	Area / Sagebrush (SF)	Description
Changes in Impervious Surfaces			
Existing Impervious Surfaces	0 SF	18,354	Existing asphalt at the site (Recreation Drive). Some of these surfaces will be permanently removed while others will be reconditioned for re-use.
Total Impervious Surface Areas Permanently Demolished[2]	N/A	838 SF	Total area of existing asphalt pavement removal (at the end of Recreation Drive)
Total areas of new impervious surface[2]	3,486 SF	8,177 SF	Total area of disturbance from new impervious surfaces (concrete, asphalt and gravel.
Total net increase in impervious surface (asphalt, concrete, gravel & stabilized soil)	3,486 SF	7,339 SF	Proposed new concrete, asphalt, gravel and stabilized soil minus proposed demolition of a section of the access road.
Project Actions that Enhance Water Quality			
Total new stormwater handling areas[3]	N/A	2,400 SF	New stormwater handling areas will be developed adjacent to Recreation Drive (north and south sides).
Forested Riparian and Sagebrush Planting and Seeding Areas			
Area of Forested Riparian Mitigation Plantings[4]	3,486 SF	NA	Total proposed area of mitigation plantings to compensate for new impervious surfaces within the riparian forest. 3,174 SF will be within 10 ft. of the OHWM.
Area of Forested Riparian Restoration Plantings[4]	6,309 SF	NA	Total proposed area of restoration plantings to enhance riparian conditions. Plantings will occur south of the jetty along the shoreline. 5,904 SF will be within 10 ft. of the OHWM.
Existing disturbance areas to be stabilized and seeded[5]	7,238 SF	10,557 SF	Areas of user-defined trails and informal campsites that will be stabilized and seeded (riparian and sagebrush areas).
Temporary disturbance areas to be stabilized and seeded[5]	2,100 SF	56,496 SF	Proposed area of stabilization and seeding within 200 ft. of the OHWM.

Notes:
[1] Quantities listed for "above the OHWM" are for areas 200ft. landward of the OHWM of the Columbia River/Wanapum Reservoir.
[2] Totals include areas of overlapping disturbance. Net change in impervious surface is shown in summary information.
[3] Vegetated filter strips on either side of the access road (Recreation Drive) and east of vault toilet access road.
[4] Mitigation plantings are to compensate for new impervious surfaces within the forested riparian area while restoration plantings are to enhance habitat but are not anticipated to be a regulatory requirement. See JARPA Drawings Sheets 16 and 18 for locations of Mitigation and Riparian Restoration Planting Areas.
[5] Non-irrigated native upland and riparian seed areas post project construction.

6.1.1. Permanent Impacts to Uplands/Sagebrush

As discussed in Section 3.1 proposed improvements above the OHWM at the Project Site include demolition of sections of the existing access road, removal of site fencing and toilet concrete bases, and renovation of the existing access road and vehicle turnaround and creation of auto parking, tent camp sites, picnic areas, vault toilets, and gravel trails.

Within the sagebrush areas of the site demolition of portions of the existing access road and the concrete toilet bases will reclaim a total of 838 SF of upland/sagebrush non-impervious surface. A new concrete turnaround, vault toilets (single and double vault), two ADA concrete parking stalls, and concrete borders for six new tent camp sites will result in new concrete surfaces at the site within the sagebrush habitat.

Construction of a new access road over Rocky Coulee to the ADA parking near the double vault toilet and two ADA asphalt parking stalls will create new asphalt surfaces at the site. Development of 14 gravel parking stalls, eight new tent camp sites (six regular and two ADA, with picnic tables) and a new picnic area between the ADA and regular campsites will result in new compacted gravel surfaces at the site within the sagebrush areas. Development of trails connecting the campsites, picnic areas, toilets and parking will result in new concrete, compacted gravel and compacted native dirt trails. These new trails will replace the user-defined dirt trails currently at the site. The ground surface along the existing user-defined trails will be stabilized and seeded. Overall these improvements will result in 8,177 SF of new impervious surface and a net increase in impervious surface of 7,339 SF within sagebrush areas.

6.1.2. Permanent Impacts to Riparian Habitats[2]

New concrete borders for five regular tent camp sites will result in additional concrete surfaces at the site within forested riparian habitat. Development of five regular tent camp sites (with picnic tables) and a new picnic area will result in 2,890 SF of new compacted gravel surfaces (and concrete campsite borders) within the forested riparian habitat at the site. Development of trails connecting the campsites, picnic areas, toilets and parking will result in 596 SF of stabilized soil trails. The new gravel and dirt trails will replace the user-defined dirt trails currently at the site. The ground surface along the existing user-defined trails will be stabilized, seeded and enhanced through installation of trees and shrubs. Overall these improvements will result in a net increase in impervious surface of 3,486 SF.

6.1.3. Improvements In Stormwater Handling

Adjacent to the renovated access road (north and south of Recreation Drive) vegetated filter strips will be developed (2,400 SF). These new stormwater features are within 200 feet of the OHWM of the Columbia River/Wanapum Reservoir, inside the Shoreline Management area. Currently stormwater sheet flows across the road and enters Wanapum Reservoir via sheet flow or via informal swales. The proposed improvements in stormwater handling will result in collection and

[2] Impacts to riparian habitats were calculated east of the "Edge of Riparian Forest" (JARPA Drawings, Appendix A – Sheet 3 of 19). The 60-foot buffer for the mosaic wetland below the OHMW is contained within this riparian habitat.

infiltration of stormwater from the road before it enters the reservoir with resulting improvements in water quality.

6.1.4. Restoration of Temporary Disturbance Areas

Overall the proposed improvements at the Project Site will result in approximately 56,496 SF of temporary disturbance within sagebrush habitats and 2,100 SF of temporary disturbance within forested riparian habitats. All upland soil disturbed areas will be protected in accordance with standard BMPs as outlined in the Washington Department of Ecology (Ecology) Stormwater Management Manual for Eastern Washington (Ecology 2004). A detailed Upland Erosion and Sediment Control Plan will be developed by the Contractor and submitted to the project engineer for review and approval prior to the start of construction. The Plan will include descriptions of Project Site specific work equipment, activities and approaches, and the corresponding BMPs and Water Quality Protection measures that will be implemented for conformance with the permit requirements and conservation measures outlined herein. Silt fences will be installed as necessary to control wind borne erosion. Debris on the construction sites will be placed in such a manner that it cannot enter the water. Should debris accidentally enter the water, immediate and appropriate action(s) will be taken to remove the material to an upland site.

Within the sagebrush and forested riparian habitats areas of disturbance that are not redeveloped as concrete, asphalt or gravel (temporary disturbance areas) will be stabilized and seeded (Appendix A, Sheets 16-19 of 19).

6.1.5. Forested Riparian Mitigation and Restoration Plantings

To compensate for the proposed 3,486 SF of new impervious surfaces within the forested riparian habitat 3,486 SF of forested riparian habitat will be enhanced through installation of trees and shrubs (Appendix A, Sheets 16 to 19 of 19 – Mitigation Planting areas). 3,174 SF of these mitigation planting areas will be within 10 feet of the OHWM of the Columbia River/Wanapum Reservoir and so will provide shade, overhanging cover and a source of organic matter for the reservoir. In addition, to improve habitat conditions within the disturbed forested riparian habitat, 6,309 SF of riparian forest area will be restored through installation of trees and shrubs (Appendix A, Sheets 16-19 of 19 – Riparian Restoration Planting areas). 5,904 SF of these riparian restoration planting areas will be within 10 feet of the OHWM of the Columbia River/Wanapum Reservoir and so will provide shade, overhanging cover and a source of organic matter for the reservoir.

It is estimated that within the forested riparian habitat two trees, all of which are non-native, will be removed. Eighteen cottonwoods will be planted at the site adjacent to the OHWM, which is greater than a 1:1 replacement ratio. Species lists are provided in Appendix A (Sheet 19 of 19).

6.2. Mitigation Summary and Goals

The goal of the proposed mitigation is to compensate for permanent and temporary impacts to forested riparian habitats and temporary impacts to sagebrush habitats at the site by enhancing impaired riparian habitat for beneficial fish and wildlife use and stabilizing and seeding temporary and existing disturbance areas within sagebrush and forested riparian habitats. The following enhancements are proposed:

1. Compensate for the proposed 3,486 SF of new impervious surfaces within the forested riparian habitat by enhancing 3,486 SF of forested riparian habitat through installation of trees and shrubs (Appendix A, Sheets 16 to 19 of 19 – Mitigation Planting areas). 3,174 SF of these mitigation planting areas will be within 10 feet of the OHWM of the Columbia River/Wanapum Reservoir.
2. Improve habitat conditions within the disturbed forested riparian habitat by restoring 6,309 SF of riparian forest area through installation of trees and shrubs (Appendix A, Sheets 16 to 19 of 19 – Riparian Restoration Planting areas). 5,904 SF of these riparian restoration planting areas will be within 10 feet of the OHWM of the Columbia River/Wanapum Reservoir.
3. Install 18 cottonwood trees along the shoreline of Wanapum Reservoir (within the forested riparian habitat). These 18 cottonwoods will be replacing the estimated two trees that will be removed during construction (greater than a 1:1 replacement ratio for trees).
4. Improve water quality and stormwater handling at the site by creating 2,400 SF of new stormwater handling areas adjacent to Recreation Drive (Appendix A, Sheet 6 of 19).
5. Restore temporary disturbance areas above the OHWM within sagebrush (56,496 SF) and forested riparian (2,100 SF) habitats by stabilizing and seeding (Appendix A, Sheets 16 to 19 of 19).
6. Restore existing disturbance areas above the OHWM within sagebrush (10,557 SF) and forested riparian (7,238 SF) habitats by stabilizing and seeding (Appendix A, Sheets 16 to 19 of 19).

6.3. Mitigation Construction Sequence

This mitigation work will be implemented in conjunction with the construction of the improvements at the Project Site. Grant PUD has developed a TESC plan (Appendix A) which will be refined into a SWPPP that outline measures for minimizing the migration of sediment or other pollutants from the Site during construction. All earthwork related to improvements of the Rocky Coulee Tent Camping Facility site will be conducted in accordance with the site SWPPP which will be developed and implemented in accordance with Ecology's Construction Stormwater Permit (Ecology 2011). Construction of the project, including mitigation features is currently anticipated to occur in late 2013 and early 2014. If the earthwork is completed outside of the dry season, necessary additional erosion and sediment control measures would need to be implemented and maintained as outlined in the SWPPP.

6.4. Construction Activities and Sequencing

Currently, it is understood that the project will be constructed in its entirety during one construction season. Construction sequencing will generally follow a single construction approach (one year effort). Below is a general outline of the approach anticipated for the proposed project. Construction sequencing may change based on final designs and proposed mitigation.

- Site Preparation
  - Mobilize to site;
  - Establish site survey control and project layout staking;

- Perform pre-construction survey;
- Establish clearing limits;
- Install Erosion Control Best Management Practices (BMPs) in accordance with the site Stormwater Prevention and Protection Plan (SWPPP), to be developed in accordance with Ecology's Eastern Washington Stormwater Manual (Ecology 2004);
- Clear and grub;
- Remove barrier boulders and stockpile;
- Remove top soil from Project Site and stockpile; and
- Install temporary settling pond, if required.

- Demolition
  - Remove all structures and surfaces slated for removal; and
  - Properly dispose of items to be removed.
- Upland Improvements
  - Install site access control gate;
  - Install concrete surfaces;
  - Reclaim existing asphalt to remain;
  - Install picnic tables;
  - Install project signage;
  - Install final asphalt surfacing;
  - Set vault toilets;
  - Install miscellaneous site furnishings (trash receptacle, wheel stops, picnic tables, benches, etc.); and
  - Install interpretive signage.
- Remove erosion control BMPs around site.
- Perform post-construction survey.
- Mitigation planting and upland restoration
  - Install native plants within riparian and upland enhancement areas.

6.5. Construction Materials and Equipment

The project will require some fill material and native plant species for revegetation of disturbed areas and enhancement plantings. Fill, structural fill and bedding materials will consist of clean granular material imported from off-site. Native plant species will be imported from off-site, and will meet size, species, and planting densities specified in the planting plan and supporting materials.

The following types of typical and specialized equipment are likely to be employed during construction of the facility:

- Construction trucks

- Employee vehicles
- Ground compactor
- Earthmoving equipment
  - bulldozer
  - scraper
  - rubber tired back hoe
  - tracked hoe, etc.
- Concrete mixing truck
- Pumps

7.0 POST CONSTRUCTION MAINTENANCE AND MONITORING PLAN

7.1. Mitigation Site Maintenance

Maintenance of installed mitigation features at the Project Site will be conducted throughout the designated monitoring years. Maintenance of installed plants within the Mitigation Planting areas may include control of undesirable plant species. Control of undesirable terrestrial plant species will be achieved through periodic mulching, weeding, cutting and /or herbicide application of the enhancement planting areas. Only desirable volunteer species in addition to those planned for the Project Site will be encouraged to grow. Some of the other maintenance responsibilities such as trash removal, beaver control and vandalism repair will be performed on an as-needed basis.

7.2. Mitigation Site Monitoring

As a condition of the permit authorizations, it is anticipated that Mitigation Planting Areas at the Project Site will be monitored over a 3-year period, following construction, to ensure that these compensatory mitigation areas function as designed. A site inspection shall be conducted and included in an "as-built" report upon completion of construction of mitigation features to document that the Site meets the construction plans and to establish baseline conditions. Thereafter, the annual monitoring protocol outlined below shall be followed for a period of three years. Monitoring surveys will be conducted once a year during the growing season.

The purpose of monitoring is to establish whether or not mitigation plan goals and performance criteria are met, and therefore the following standards are proposed for the mitigation:

7.2.1. Performance Standards

During annual monitoring events, all areas within the Site that have been enhanced thorough the installation of native plants (Appendix A, Sheets 16-19 of 19) will achieve:

- Year-1: 100 percent survival of installed native plants,
- Year-2 and Year-3: 80 percent survival of installed native plants, and
- Control of invasive, exotic and undesirable plant species so that native plants can successfully grow and become established at the Project Site.

7.2.2. Monitoring Methods

To objectively gauge the performance of the mitigation with regard to project performance standards, the following monitoring methodology is recommended:

- Restoration plant communities will be sampled along permanent vegetation transects. A minimum of two transects shall be established within the Mitigation Planting areas. Transects shall be between 40 and 80 feet long.
- During the "as-built" monitoring event, transects shall be established and a baseline inventory of installed plants shall be completed.
- Annual monitoring events (Years 1, 2, and 3) shall include a survey of the transects. Along each transect, plants that intersect with the transect shall be counted and visually evaluated to determine survival rate, health, and vigor. Plants will be recorded as live, stressed, or dead/dying.
- Plant survival will be calculated in Years 1 to 3 for each transect by dividing the number of live plants observed during the monitoring event by the number of plants initially installed (from the As-built Report).
- Throughout the Mitigation Planting areas undesirable non-native species will be identified and percentage areal coverage for all the enhancement planting areas will be estimated.
- Any observations of wildlife will be added to the general notes by the monitoring biologist during the monitoring events. Observations may include sighting of individual species, nests, burrows, droppings or other indicators.
- Maintenance requirements such as trash removal and vandalism repair will also be noted. These observations will be included in the monitoring report.
- Any observations of possible problems that may have occurred since the last monitoring event such as flooding, destructive human activities at or adjacent to the Project Site, improperly implemented maintenance practices and/or disease will be noted. These observations will be included in the monitoring report.
- During each monitoring event, photographs will be taken of each transect and from a vantage point that clearly documents the vegetation progression of the Project Site over the 3-year monitoring period.

7.2.3. Reporting Schedule

Site visits will be performed once a year by a qualified biologist, or other technician under the direction of a qualified biologist. During each monitoring event observations and data regarding mitigation performance will be documented. It is anticipated that the monitoring biologist will visit the Project Site during the late summer of each monitoring year to assess mitigation conditions, collect mitigation performance data and identify potential management issues that may affect mitigation performance. Data collected during annual monitoring events will be documented in an annual monitoring report. Annual monitoring reports will be submitted to the appropriate regulatory agencies, according to permit conditions.

7.3. Contingency Plan

If the project fails to meet the performance standards discussed above, a contingency plan will be prepared for review by Grant PUD and the applicable regulatory agencies. The proposed mitigation plan can fail if certain unfavorable factors occur. For example, flooding, destructive human activities at or adjacent to the Project Site, improperly implemented maintenance practices and/or disease may have a negative effect on newly planted vegetation. Monitoring notes should include observations regarding these and other possible problems that may have occurred over the monitoring period. As problems are recorded, suggestions and possible solutions should be forwarded to the Grant PUD and the agencies as a component of the monitoring reports.

If, in the judgment of the monitoring biologist, alternative plant species are needed to improve survival, the selection of alternative species will be made and submitted to the Grant PUD and the agencies for approval prior to implementation.

8.0 CONCLUSION

Under the terms and conditions of its license agreement with the FERC to operate the Priest Rapids Hydroelectric Project, Grant PUD is obligated to make provisions for reasonable public access to Priest Rapids Hydroelectric Project recreation facilities and waters. The overall project purpose is to provide increased water-based recreation opportunities on the Wanapum Reservoir of the Columbia River and to comply with the Priest Rapids Project's FERC license.

This mitigation plan illustrates that part of the proposed improvements at the Rocky Coulee Tent Camping Facility are enhancement of forested riparian habitats. With the proposed mitigation plan, existing conditions within disturbed or degraded portions of both sagebrush and forested riparian habitats will be enhanced.

Although existing conditions at the Project Site include degraded forested riparian and sagebrush habitats, the Project Site could presently, and in the future, be used by valued fish and wildlife species. Implementation of this mitigation plan will increase interspersion and juxtaposition of existing and enhanced habitats (e.g., forested riparian, sagebrush, beach and aquatic/open water) enriching the ecological function of this portion of the Wanapum Reservoir and it's adjacent uplands, consistent with recommendations of subbasin and salmon recovery plans (Andonaegui et al. 2008, NWPCC 2004, and UCSRB 2007).

Construction of the improved and modified features at the Rocky Coulee Tent Camping Facility will have unavoidable impacts within Shoreline Jurisdiction and within regulated forested riparian habitats. Above the OHWM, the project will result in a net enhancement of forested riparian habitats and improvements in stormwater handling and water quality. Grant PUD proposes to implement this Mitigation Plan to compensate for increases in impervious surfaces within the forested riparian habitats.

Key features of the Mitigation Plan include:

1. Compensate for the proposed 3,486 SF of new impervious surfaces within the forested riparian habitat by enhancing 3,486 SF of forested riparian habitat through installation of trees

and shrubs (Appendix A, Sheets 16 to 19 of 19 – Mitigation Planting areas). 3,174 SF of these mitigation planting areas will be within 10 feet of the OHWM of the Columbia River/Wanapum Reservoir.

2. Improve habitat conditions within the disturbed forested riparian habitat by restoring 6,309 SF of riparian forest area through installation of trees and shrubs (Appendix A, Sheets 16 to 19 of 19 – Riparian Restoration Planting areas). 5,904 SF of these riparian restoration planting areas will be within 10 feet of the OHWM of the Columbia River/Wanapum Reservoir.
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6. Restore existing disturbance areas above the OHWM within sagebrush (10,557 SF) and forested riparian (7,238 SF) habitats by stabilizing and seeding (Appendix A, Sheets 16 to 19 of 19).

9.0 LIMITATIONS

GeoEngineers has prepared this Compensatory Mitigation Plan in general accordance with the scope and limitations of our proposal. Within the limitations of scope, schedule and budget, our services have been executed in accordance with the generally accepted practices for compensatory mitigation plans in this area at the time this report was prepared. No warranty or other conditions expressed or implied should be understood.

This report has been prepared for the exclusive use of Grant PUD, authorized agents and regulatory agencies following the described methods and information available at the time of the work. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. The information contained herein should not be applied for any purpose or project except the one originally contemplated.

The applicant is advised to contact all appropriate regulatory agencies (local, state and federal) prior to design or construction of any development to obtain necessary permits and approvals.

10.0 REFERENCES

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FIGURES

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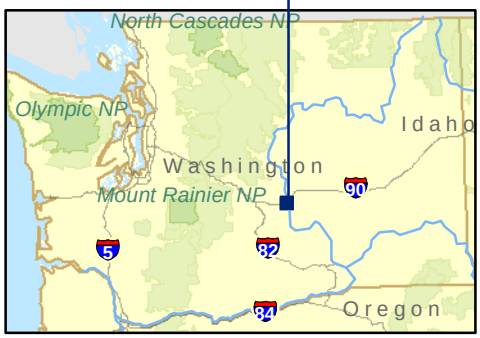

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Feet

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Notes:
1. The locations of all features shown are approximate. 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication. 3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.
Data Sources: Hillshade - ESRI online services. Parks and Water - ESRI.
State Plane Washington South FIPS 4601 (Feet),
North American Datum 1983. North arrow oriented to grid north.

Vicinity Map

Rocky Coulee
Grant County P.U.D. No. 2
Kittitas County, WA

GeoEngineers

Figure 1

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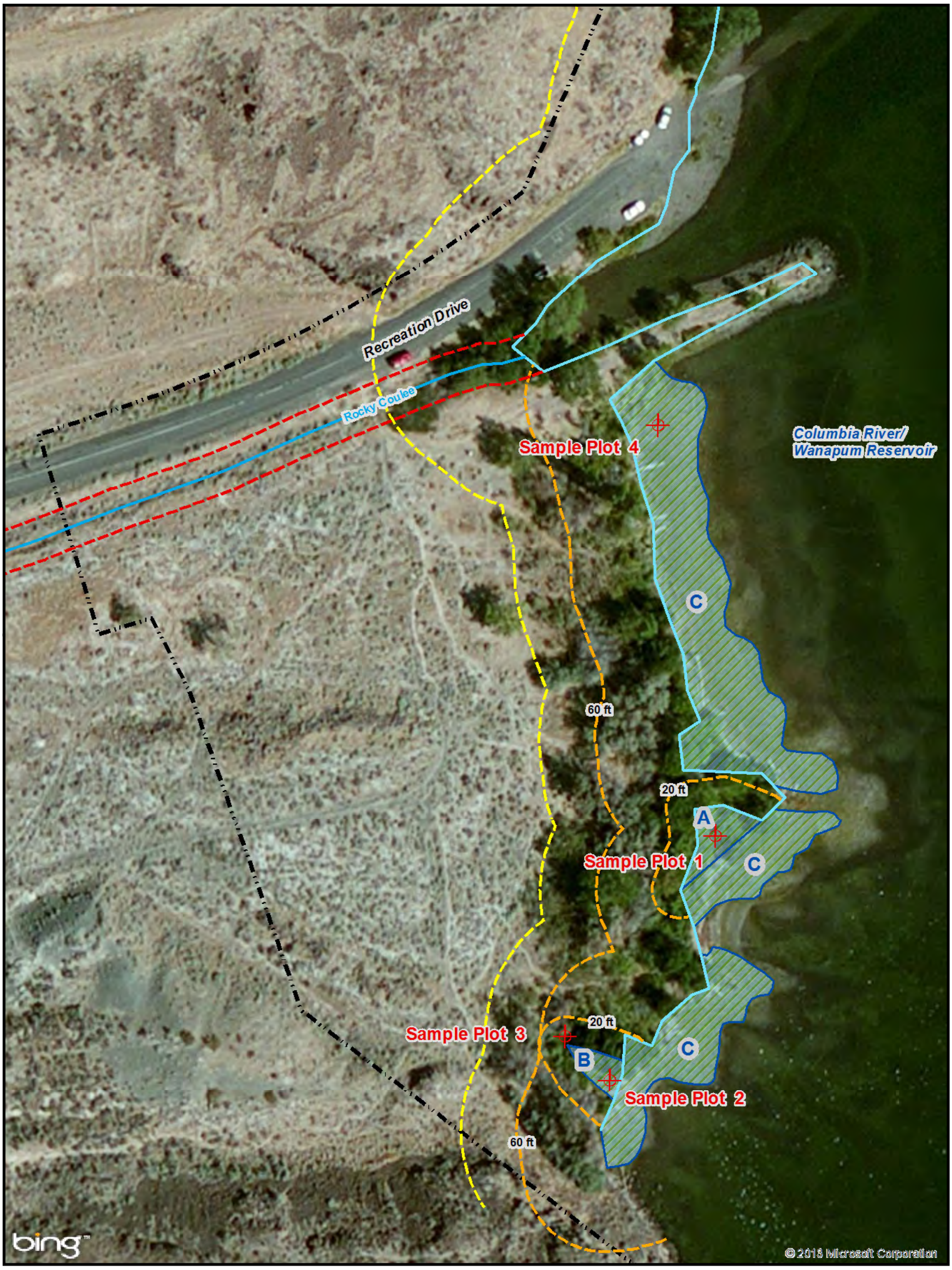

Project Boundary

Centerline of Drainage

Ordinary High Water (Columbia River)

Sample Plot

Wetlands

Buffers

Wetland Buffer

15 ft Structural Setback

100 ft Shoreline Structural Setback

75 0 75

Feet

N W E S

Aquatic Critical Areas and Buffers

Rocky Coulee
Grant County P.U.D. No. 2
Kittitas County, WA

GeoEngineers

Figure 2

Notes:
1. The locations of all features shown are approximate. 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication. 3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.
Data Sources: Aerial Image - Bing Maps.
State Plane Washington South FIPS 4601 (Feet), North American Datum 1983.
North arrow oriented to grid north.

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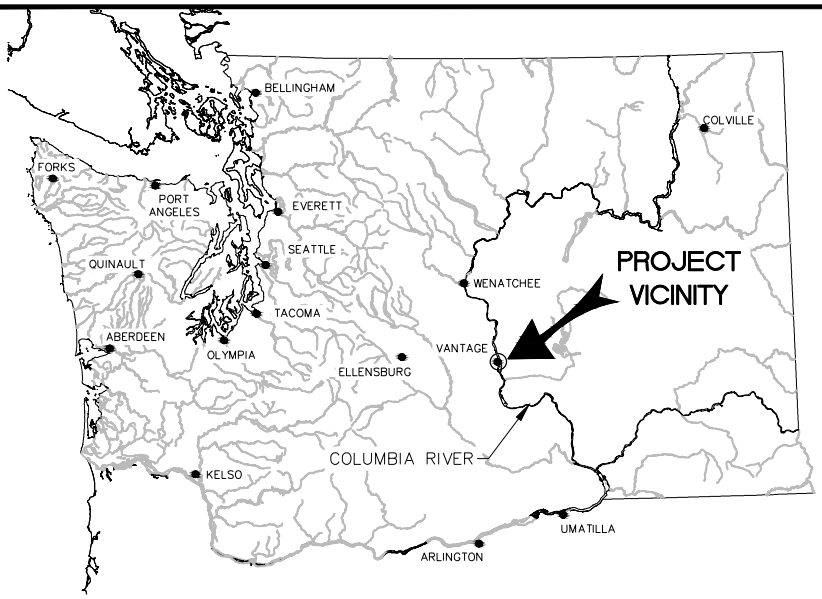
APPENDICES

GeoEngineers

APPENDIX A
JARPA Drawings



WASHINGTON KEY MAP

DRAWING INDEX

LOCATION MAP

0 300 600

SCALE IN FEET

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

ADJACENT PROPERTY OWNERS: DATUM: NAVD88

1. STOCKDALE INC.
2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

VICINITY MAP

PRELIMINARY

APPLICATION BY: GRANT COUNTY PUD

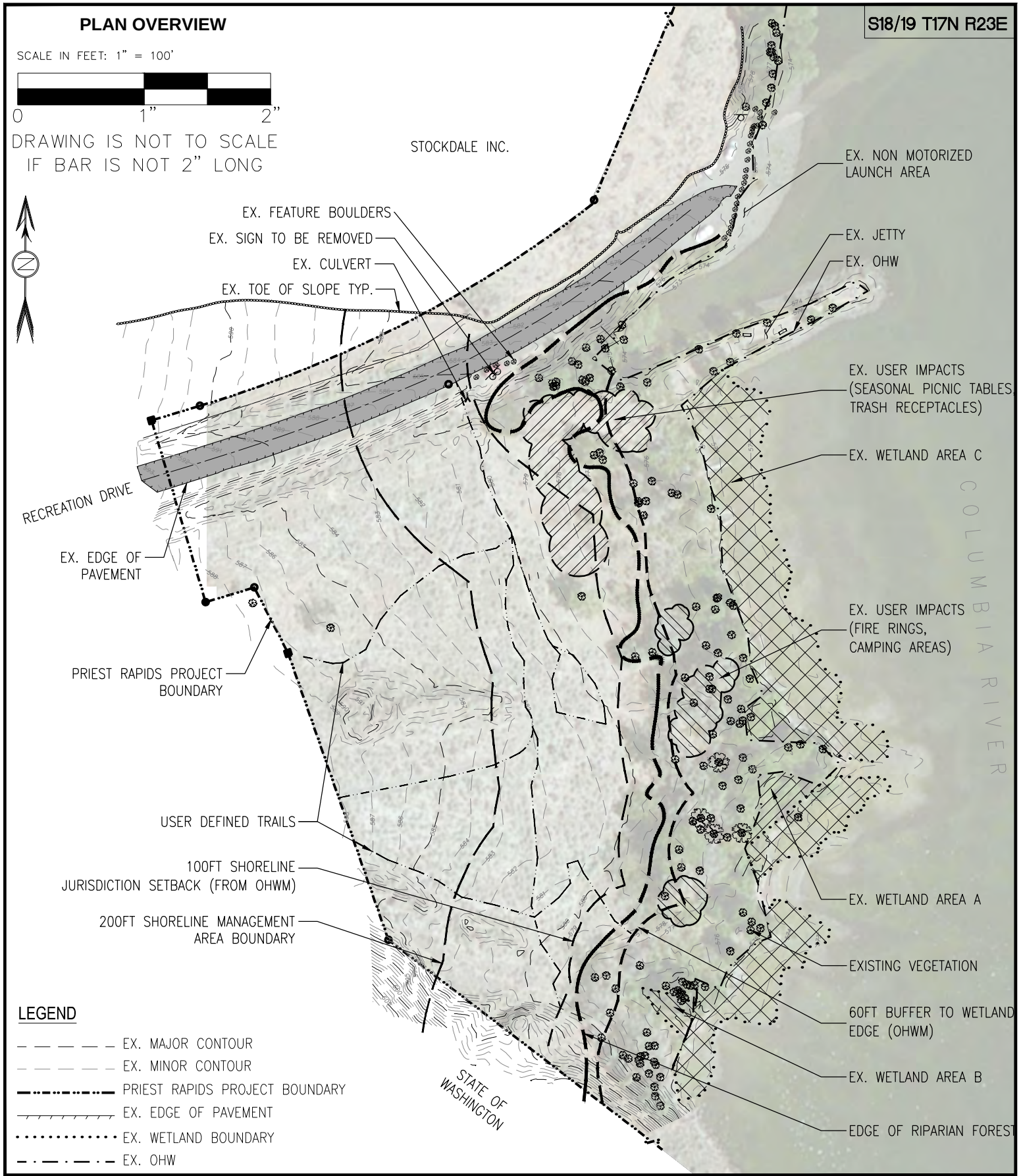
PROPOSED: SHORELINE IMPROVEMENTS, MITIGATION, CAMPSITE DEVELOPMENT

IN: COLUMBIA RIVER STATE: WASHINGTON

AT: VANTAGE, WA DATE: 01/28/13

COUNTY: KITTITAS REVISED: 02/13/2013 02/22/2013 02/28/2013

SHEET 1 OF 19



PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:

1. STOCKDALE INC.
2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

EXISTING PROJECT AREA SITE PLAN

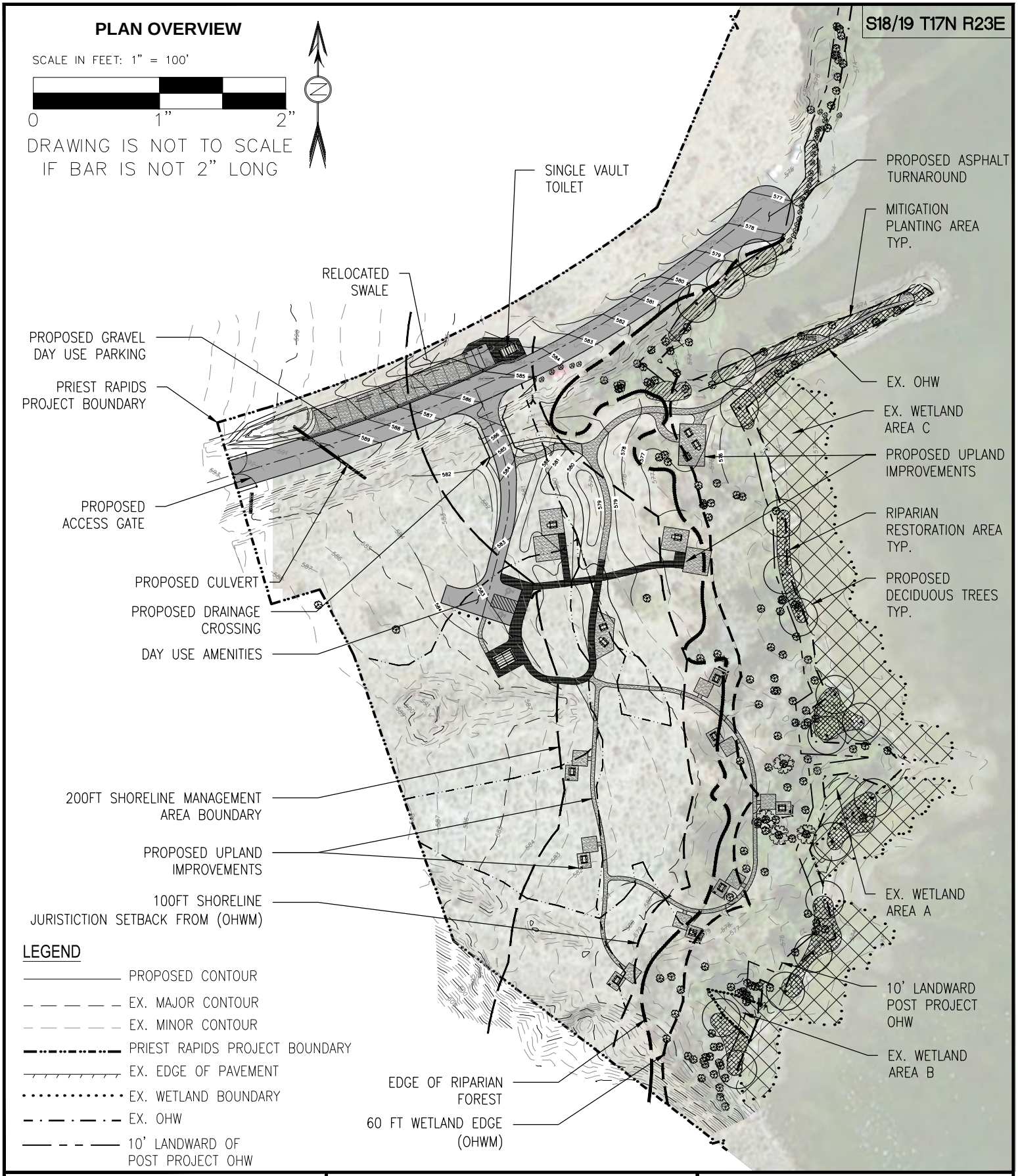
APPLICATION BY: GRANT COUNTY PUD

PRELIMINARY

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

IN: COLUMBIA RIVER
AT: VANTAGE, WA
COUNTY: KITTITAS
STATE: WASHINGTON
DATE: 01/28/2013
REVISED: 02/13/2013
02/22/2013
02/28/2013

SHEET 2 OF 19



PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:

1. STOCKDALE INC.
2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

OVERALL PROJECT IMPROVEMENTS SITE PLAN

APPLICATION BY: GRANT COUNTY PUD

PRELIMINARY

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

IN: COLUMBIA RIVER
AT: VANTAGE, WA
COUNTY: KITTITAS
SHEET 3 OF 19

STATE: WASHINGTON
DATE: 01/28/2013
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02/22/2013
02/28/2013

12 ELEMENTS AND PREFERRED BMP'S

ELEMENT #1 – MARK CLEARING LIMITS
PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES,
MARK ALL CLEARING LIMITS.
MARK TREES TO BE PRESERVED.
MARK SENSITIVE AREAS.
BMP: C101 – PRESERVE NATURAL VEGETATION
BMP: C102 – VEGETATED BUFFER ZONE
BMP: C103 – HIGH VISIBILITY PLASTIC OR METAL FENCE.

ELEMENT #2 – ESTABLISH CONSTRUCTION ACCESS
CONSTRUCTION AND MATERIAL DELIVERY VEHICLE INGRESS AND EGRESS SHALL BE LIMITED TO THE CONSTRUCTION ENTRANCES.
CONSTRUCTION PERSONNEL SHALL USE ON-SITE PARKING.
APPROACH ROADS SHALL BE KEPT CLEAN.
BMP: C105 – STABILIZED CONSTRUCTION ENTRANCE
BMP: C107 – STABILIZED CONSTRUCTION ROAD/PARKING AREA

ELEMENT #3 – CONTROL FLOW RATES
FLOW RATES ON-SITE SHALL BE CONTROLLED THROUGH STABILIZATION AND VELOCITY CHECKS, WHERE APPLICABLE.
CONVEYANCE FOR OFF-SITE RUNOFF TRIBUTARY TO/THROUGH THE SITE SHALL BE ADDRESSED AS ENCOUNTERED; GIVEN ADJACENT TOPOGRAPHY AND ROADWAYS IT IS NOT ANTICIPATED.
BMP: C200 – INTERCEPTOR DIKES AND SWALES
BMP: C207 – CHECK DAMS
BMP: C203 – WATER BARS

ELEMENT #4 – INSTALL SEDIMENT CONTROLS
PERIMETER SEDIMENT CONTROLS SHALL BE INSTALLED AS ONE OF THE FIRST ACTIVITIES DURING MOBILIZATION AND GRADING AND SHALL BE FUNCTIONAL BEFORE MASS EXCAVATION TAKES PLACE.
BMP: C102 – VEGETATED BUFFER ZONE
BMP: C200 – INTERCEPTOR DIKES AND SWALES
BMP: C232 – GRAVEL FILTER BERM
BMP: C233 – SILT FENCE
BMP: C235 – STRAW WATTLES

ELEMENT #5 – STABILIZE SOILS
NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN THE TIME PERIODS SET FORTH BELOW TO PREVENT WIND AND WATER EROSION.
DURING THE REGIONAL DRY SEASON (JULY 1 TO SEPT 30) : 30 DAYS
DURING THE REGIONAL WET SEASON (OCT 1 TO JUNE 30) : 15 DAYS
EXPOSED AND UNWORKED SOILS SHALL BE STABILIZED BY APPLICATION OF A BMP THAT WILL PROTECT THE SOIL FROM THE EROSIVE FORCES OF RAIN DROP IMPACT, FLOWING WATER, AND WIND.
BMP: C120 – TEMPORARY & PERMANENT SEEDING.
BMP: C125 – TOP SOILING
BMP: C130 – SURFACE ROUGHENING
BMP: C140 – DUST CONTROL.
BMP: C126 – APPLICATION OF PAM
BMP: C107 – APPLICATION OF GRAVEL BASE (ROADBED STABILIZATION)

ELEMENT #6 – PROTECT SLOPES
SLOPES HAVE BEEN DESIGNED TO LIMIT THE CONTINUOUS LENGTH OF SLOPE.
CONSTRUCT CUT AND FILL SLOPES IN A MANNER THAT WILL MINIMIZE EROSION (BMPS IDENTIFIED BELOW).
OFF-SITE STORMWATER SHALL BE DIVERTED AWAY FROM DISTURBED AREAS (SEE ELEMENTS #3 AND #4)
BMP: C120 – TEMPORARY & PERMANENT SEEDING
BMP: C130 – SURFACE ROUGHENING
BMP: C235 – STRAW WATTLES
BMP: C122 – NETS AND BLANKETS

ELEMENT #7 – PROTECT DRAIN INLETS
EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES WHERE CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS.

ELEMENT #8 – STABILIZE CHANNELS & OUTLETS
TEMPORARY CONVEYANCE CHANNELS SHALL BE DESIGNED FOR APPROPRIATE CONVEYANCE CAPACITY.
OUTLETS SHALL BE ARMORED.
BMP: C202 – CHANNEL LINING
BMP: C209 – OUTLET PROTECTION

ELEMENT #9 – CONTROL POLLUTANTS
ALL POLLUTANTS INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS THAT OCCUR ONSITE SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER.
COVER CONTAINMENT AND PROTECTION FROM VANDALISM SHALL BE PROVIDED FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND NON-INERT WASTES PRESENT ON THE SITE.
ON SITE FUELING TANKS SHALL INCLUDE SECONDARY CONTAINMENT.
CONCRETE CHUTES SHALL BE WASHED INTO FORMED AREAS AWAITING INSTALLATION OF CONCRETE OR ASPHALT SURFACES OR OTHER DESIGNATED CONCRETE WASTE AREA.
ALL EQUIPMENT, TRUCKS, BACKHOES, ETC. USED WITHIN OR NEAR WATER AS PART OF THIS PROJECT WILL BE CHECKED FOR LEAKS PRIOR TO MOBILIZATION AND DAILY DURING THE WORK PERIOD TO MINIMIZE THE POTENTIAL OF FUELS, OILS, ETC. LEAKING ONTO THE GROUND AND MAKING IT TO THE WATER. ANY LEAKS/SPILLS ON-SITE MUST BE CONTAINED/CLEANED IMMEDIATELY WITH APPROPRIATE MATERIALS THAT ARE KEPT ON-SITE (E.G. ABSORBENT PADS, BOOMS, ETC) AND REPORTED TO GRANT PUD NATURAL RESOURCES STAFF.
ANY REGULATED OR HAZARDOUS MATERIALS THAT SPILL INTO WATERS OF THE STATE MUST ALSO BE REPORTED TO WDOE'S EMERGENCY MANAGEMENT DIVISION AND CENTRAL REGIONAL OFFICE. THE TABLE BELOW PROVIDES THE CONTACT LIST IN THE EVENT OF AN OIL/FUEL SPILL.
BMP: C151 – CONCRETE HANDLING

PERSON/AGENCY	PHONE #	COMMENTS
ROSS HENDRICK – GRANT PUD	509-754-5006, EXT. 2468 OR 509-431-2681	MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF SPILL
WANAPUM CONTROL ROOM GRANT COUNTY PUD	509-754-5007	MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF SPILL
WASHINGTON STATE DEPARTMENT OF ECOLOGY	800-258-5990 OR 509-329-3400	MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF SPILL INTO WATERS OF THE STATE
NATIONAL RESPONSE CENTER	800-424-8802	MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF SPILL INTO WATERS OF THE STATE
LOCAL EMERGENCIES SERVICES	911 OR 79-911 IF CALLING FROM GRANT PUD PHONE	AS NEEDED IN EVENT OF EMERGENCY

ELEMENT #10 – CONTROL DEWATERING
GEOLOGIC INVESTIGATIONS HAVE NOT BEEN PERFORMED FOR THIS SITE YET. APPROPRIATE DEWATERING BMPS WILL BE PRESCRIBED AND UTILIZED IF GROUNDWATER IS ENCOUNTERED DURING FUTURE GEOLOGIC INVESTIGATIONS OR DURING CONSTRUCTION ACTIVITIES.

ELEMENT #11 – MAINTAIN BMPS
TEMPORARY AND PERMANENT EROSION CONTROL BMPS SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ENSURE PERFORMANCE.
INSPECT ALL BMPS WEEKLY DURING THE DRY SEASON AND DAILY DURING WET WEATHER.
REMOVE ALL BMPS WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THEY ARE NO LONGER NEEDED.

ELEMENT #12 – MANAGE THE PROJECT
THE PROJECT WILL BE PHASED AND SCHEDULED TO ADDRESS A NUMBER OF CONSTRAINTS AND CONSIDERATIONS, INCLUDING STORMWATER HANDLING AND SEASONAL LIMITATIONS.
A CESCL SHALL BE RESPONSIBLE FOR MANAGING, UPDATING, AND IMPLEMENTING THE SWPPP AND DUST CONTROL PLANS.
BMPS SHALL BE INSPECTED JUST PRIOR TO EACH WEEKEND AND THE FORECAST CONSULTED.
THE CONTRACTOR SHALL BE COMPENSATED FOR EROSION CONTROL WORK AS SPECIFIED IN THE CONTRACT DOCUMENTS.
BMP: C150 – MATERIALS ON HAND
BMP: C160 – DESIGNATED CESCLS
BMP: C161 – PAYMENT OF EROSION CONTROL WORK
BMP: C162 – SCHEDULING

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

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1. STOCKDALE INC.
2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

SWPPP NOTES

APPLICATION BY: GRANT COUNTY PUD

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

IN: COLUMBIA RIVER
AT: VANTAGE, WA
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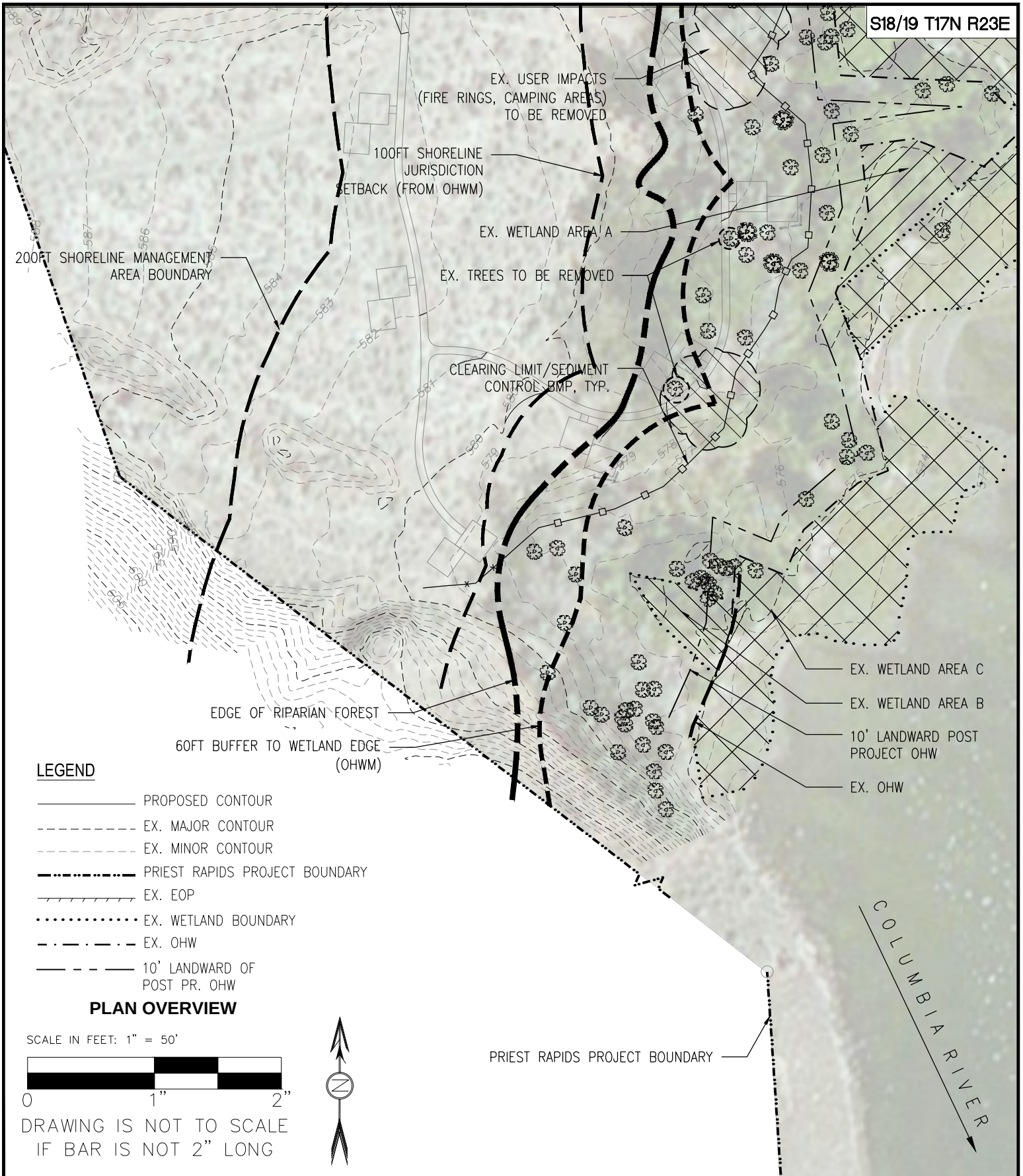

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

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1. STOCKDALE INC.
2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

DEMOLITION/EROSION AND SEDIMENT CONTROL PLAN 1

APPLICATION BY: GRANT COUNTY PUD

PRELIMINARY

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

IN: COLUMBIA RIVER

AT: VANTAGE, WA

COUNTY: KITTITAS

STATE: WASHINGTON

DATE: 01/28/2013

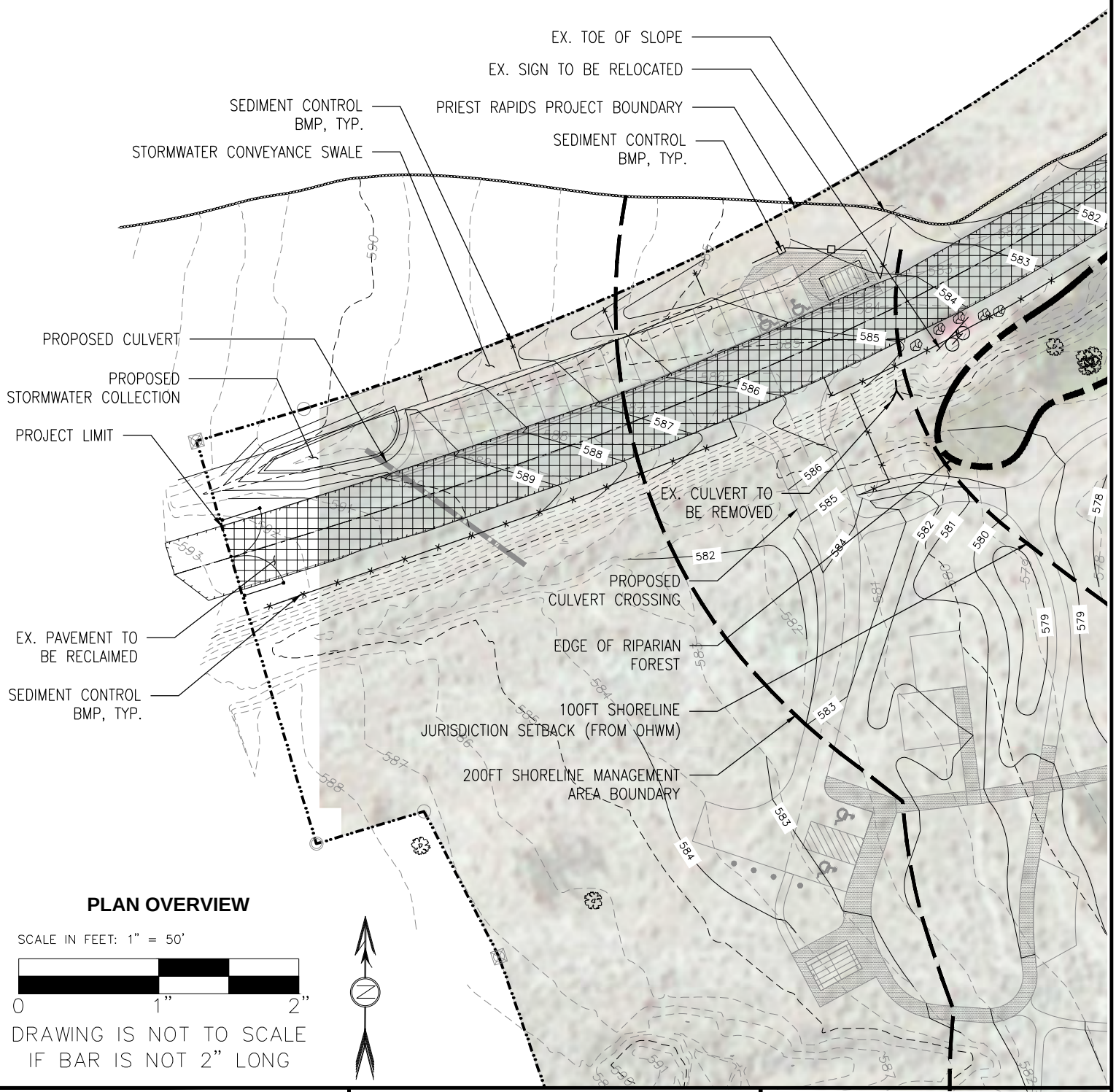
REVISED: 02/13/2013
02/22/2013
02/28/2013

SHEET 5 OF 19

S18/19 T17N R23E

LEGEND

PROPOSED CONTOUR
EX. MAJOR CONTOUR
EX. MINOR CONTOUR
PRIEST RAPIDS PROJECT BOUNDARY
EX. EOP



PLAN OVERVIEW

SCALE IN FEET: 1" = 50'

0 1" 2"

DRAWING IS NOT TO SCALE IF BAR IS NOT 2" LONG

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

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2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

DEMOLITION/EROSION AND SEDIMENT CONTROL PLAN 2

APPLICATION BY: GRANT COUNTY PUD

PRELIMINARY

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

IN: COLUMBIA RIVER
AT: VANTAGE, WA
COUNTY: KITTITAS
SHEET 6 OF 19

STATE: WASHINGTON
DATE: 01/28/2013
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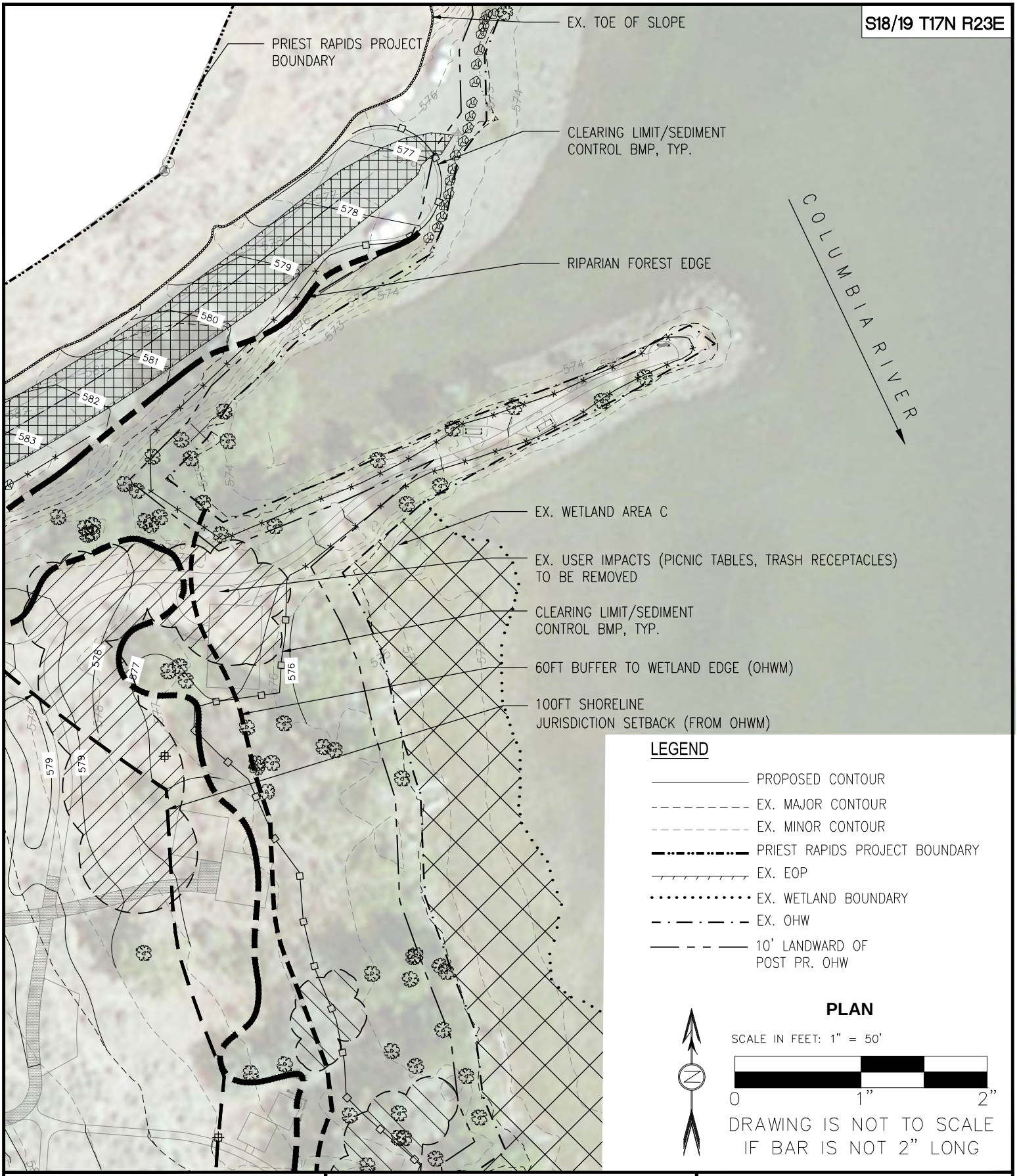
S18/19 T17N R23E



PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

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1. STOCKDALE INC.
2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

DEMOLITION/EROSION AND SEDIMENT CONTROL PLAN 3

APPLICATION BY: GRANT COUNTY PUD

PRELIMINARY

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

IN: COLUMBIA RIVER
AT: VANTAGE, WA
COUNTY: KITTITAS
SHEET 7 OF 19

STATE: WASHINGTON
DATE: 01/28/2013
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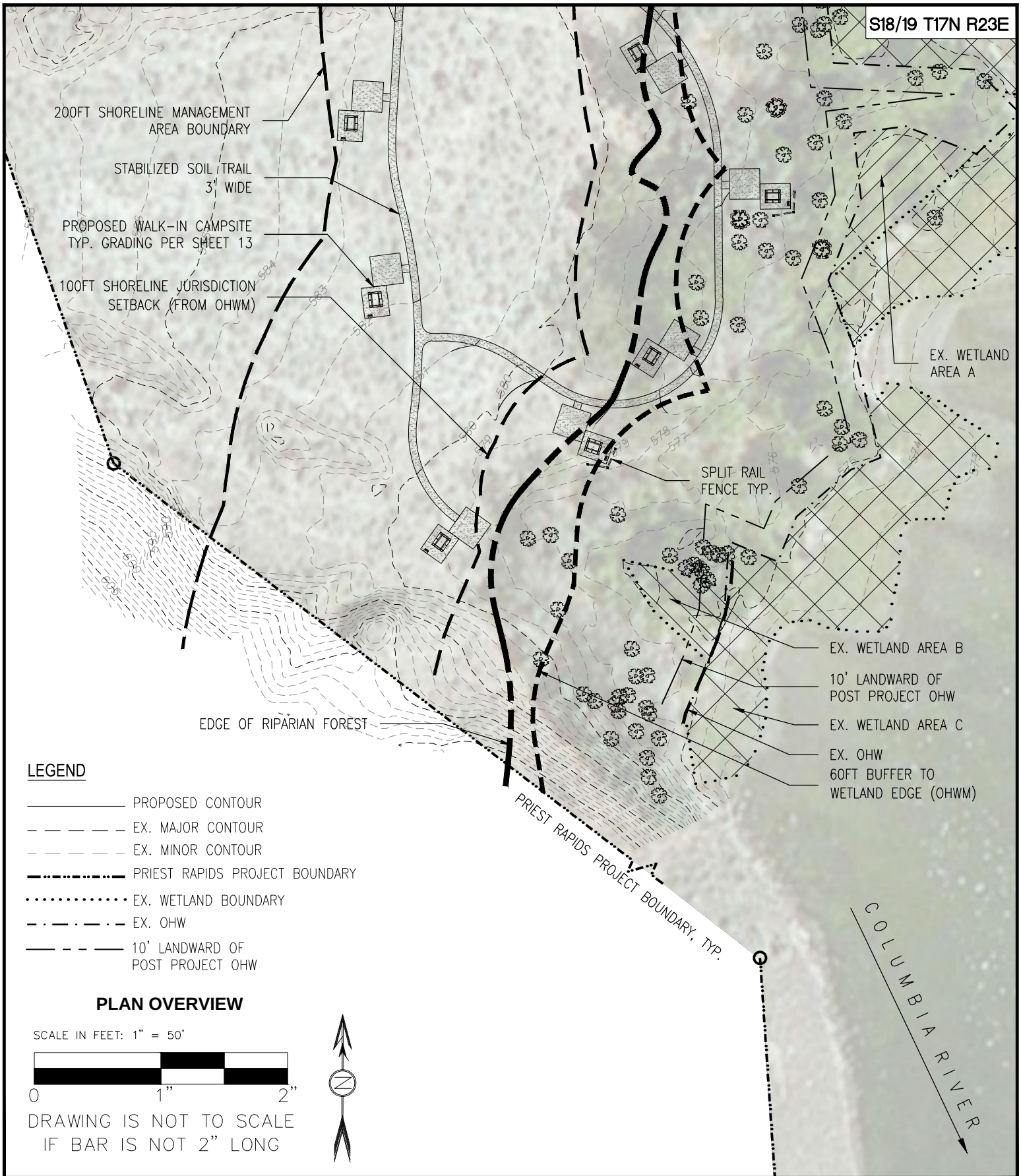

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

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2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

SITE AND GRADING PLAN 1

PRELIMINARY

APPLICATION BY: GRANT COUNTY PUD

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

IN: COLUMBIA RIVER
AT: VANTAGE, WA
COUNTY: KITTITAS
SHEET 8 OF 19

STATE: WASHINGTON
DATE: 01/28/2013
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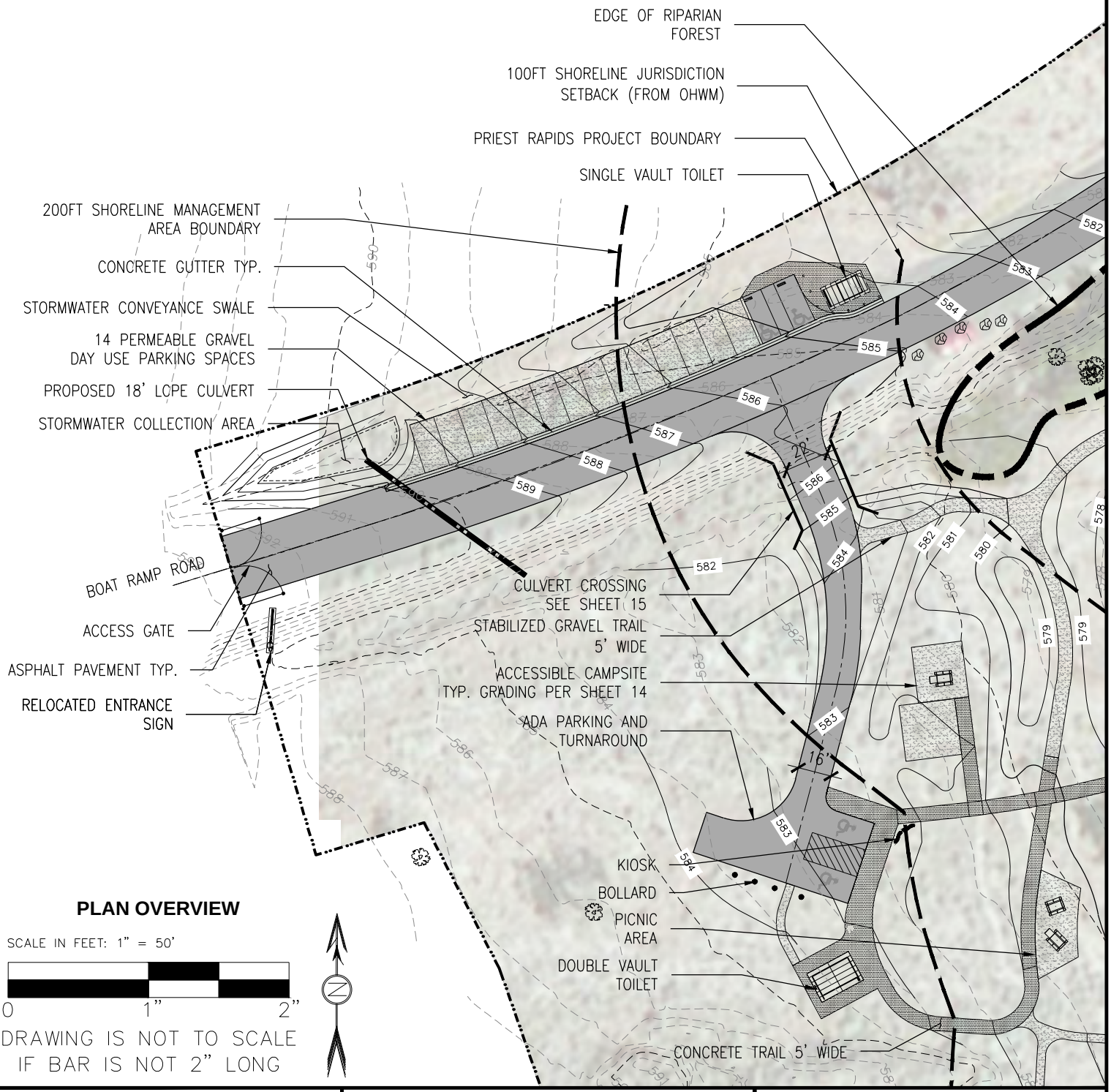
02/22/2013
02/28/2013

S18/19 T17N R23E

LEGEND

PROPOSED CONTOUR
EX. MAJOR CONTOUR
EX. MINOR CONTOUR
PRIEST RAPIDS PROJECT BOUNDARY



PLAN OVERVIEW

SCALE IN FEET: 1" = 50'

0 1" 2"

DRAWING IS NOT TO SCALE IF BAR IS NOT 2" LONG

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

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2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

SITE AND GRADING PLAN 2

PRELIMINARY

APPLICATION BY: GRANT COUNTY PUD

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

IN: COLUMBIA RIVER
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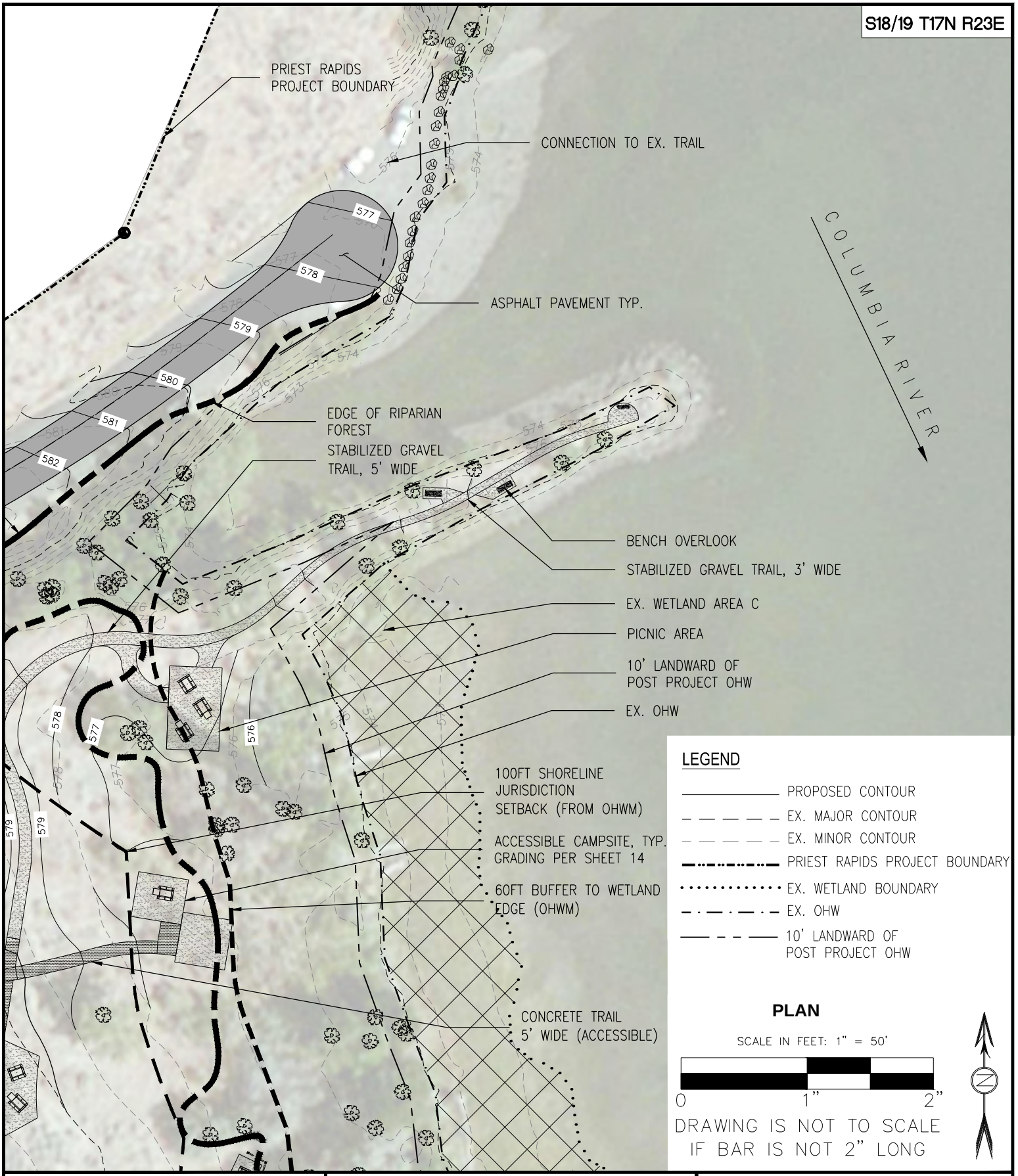
SHEET 9 OF 19

S18/19 T17N R23E



LEGEND

- PROPOSED CONTOUR
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- PRIEST RAPIDS PROJECT BOUNDARY
- EX. WETLAND BOUNDARY
- EX. OHW
- 10' LANDWARD OF POST PROJECT OHW

PLAN

SCALE IN FEET: 1" = 50'

0 1" 2"

DRAWING IS NOT TO SCALE IF BAR IS NOT 2" LONG

N

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

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1. STOCKDALE INC.
2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

SITE AND GRADING PLAN 3

APPLICATION BY: GRANT COUNTY PUD

PRELIMINARY

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

IN: COLUMBIA RIVER
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COUNTY: KITTITAS
STATE: WASHINGTON
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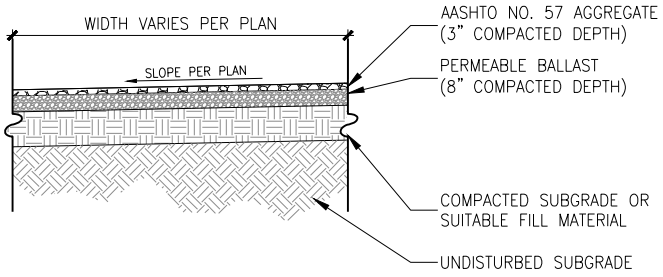
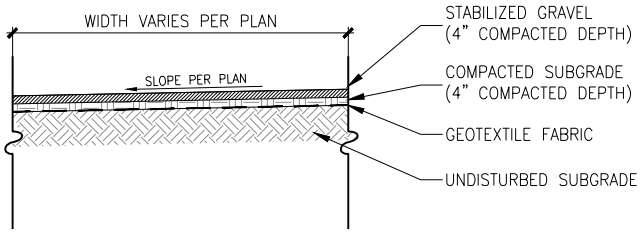
02/22/2013
02/28/2013

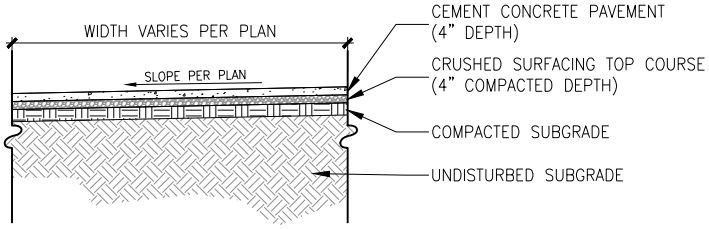
SHEET 10 OF 19



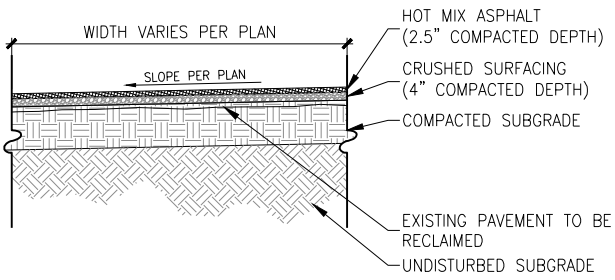
1 PERMEABLE GRAVEL PAVEMENT
SCALE: 1/8"=1'-0" RCTC-C-PDT-TRAL-ASPHT-PPVMNT



2 STABILIZED GRAVEL SURFACING
SCALE: 1/8"=1'-0" RCTC-C-PDT-TRAL-ASPHT-GRAVL



3 CONCRETE PAVEMENT
SCALE: 1/8"=1'-0" RCTC-C-PDT-CONC-PVMNT



4 ASPHALT PAVEMENT
SCALE: 1/8"=1'-0" RCTC-C-PDT-TRAL-ASPHT-PVMNT

PAVEMENT THICKNESS AND FINAL SECTION THICKNESS ARE APPROXIMATE AND SUBJECT TO CHANGE DURING FINAL DESIGN.

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:

1. STOCKDALE INC.
2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

SITE DETAILS 1

APPLICATION BY: GRANT COUNTY PUD

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

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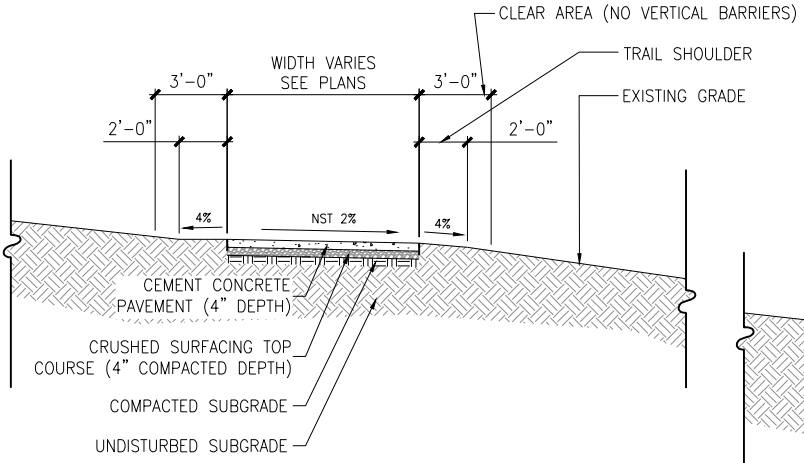
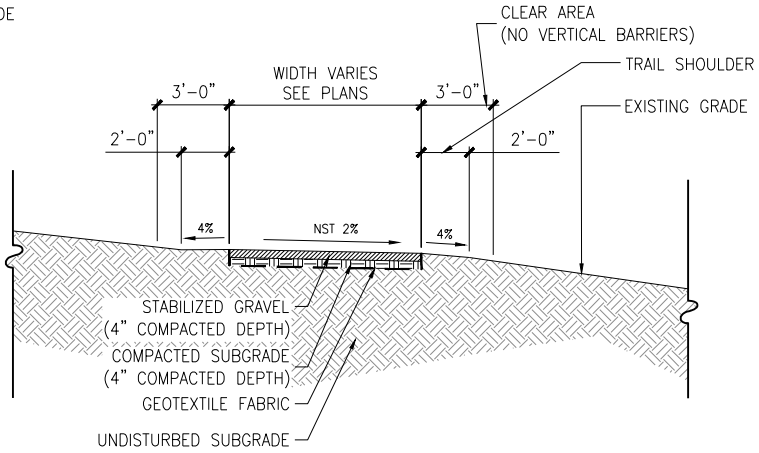


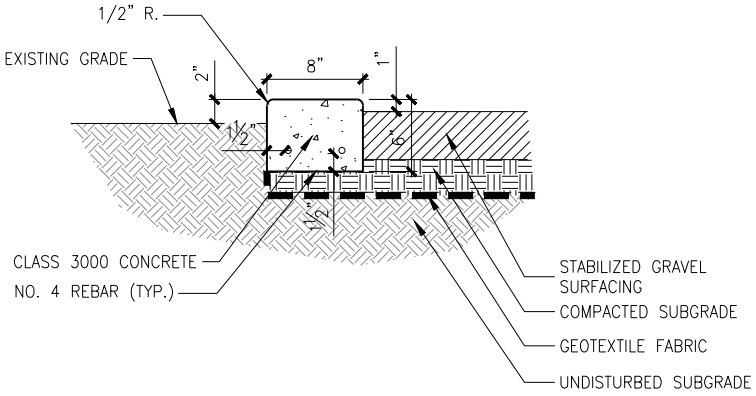
1 CONCRETE TRAIL – 4"

SCALE: 1/8"=1'-0" RCTC-DT-TRAL-CONC



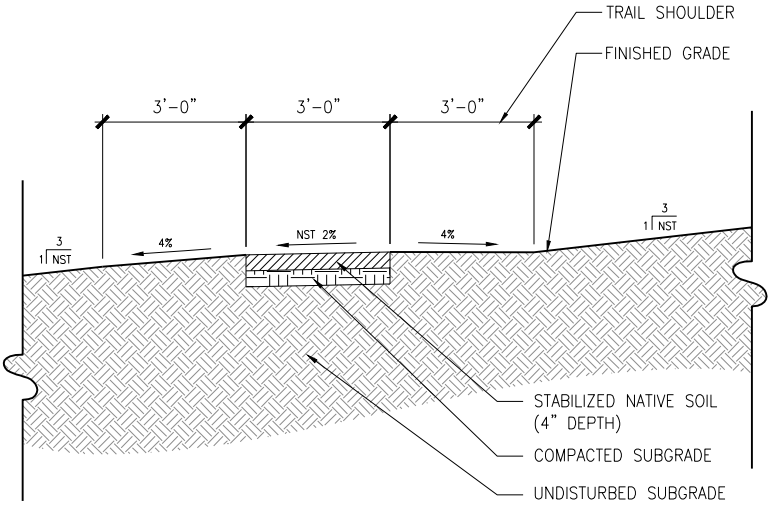
2 STABILIZED GRAVEL TRAIL – 4"

SCALE: 1/8"=1'-0" RCTC-DT-TRAL-GRAV



3 CONCRETE BORDER

SCALE: NTS RCTC-C-PDT-BRDR



4 STABILIZED SOIL TRAIL

SCALE: 1/4"=1'-0" RCTC-C-PDT-TRAL-NAT4

PAVEMENT THICKNESS AND FINAL SECTION THICKNESS ARE APPROXIMATE AND SUBJECT TO CHANGE DURING FINAL DESIGN.

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LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

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2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

SITE DETAILS 2

APPLICATION BY: GRANT COUNTY PUD

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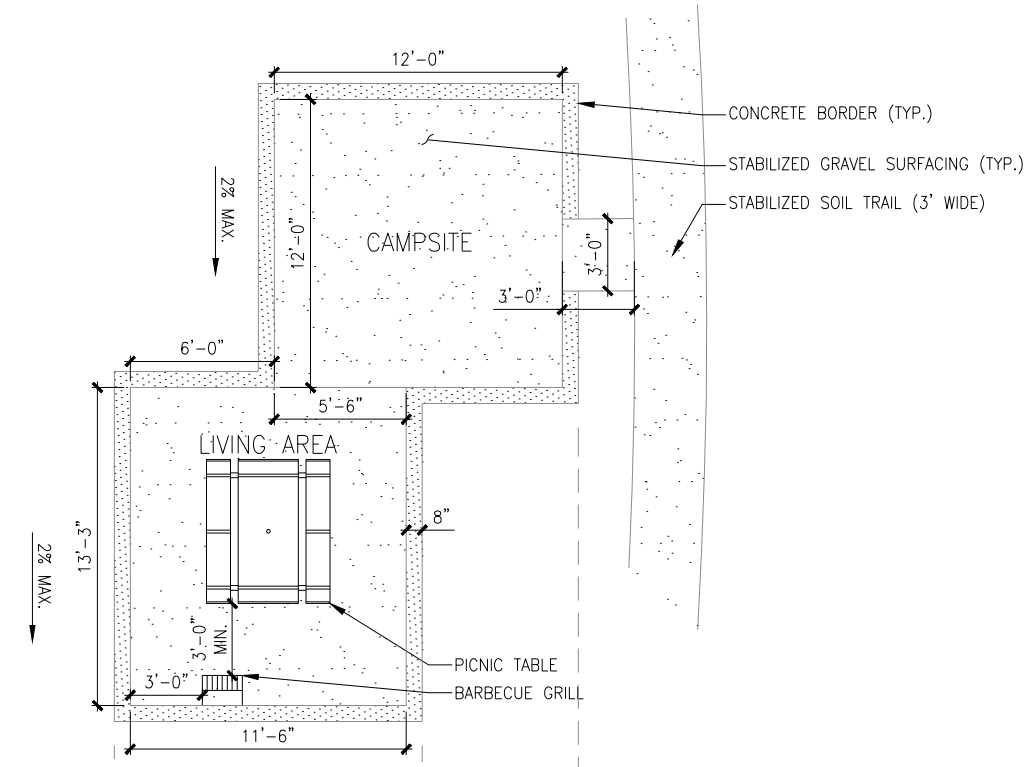
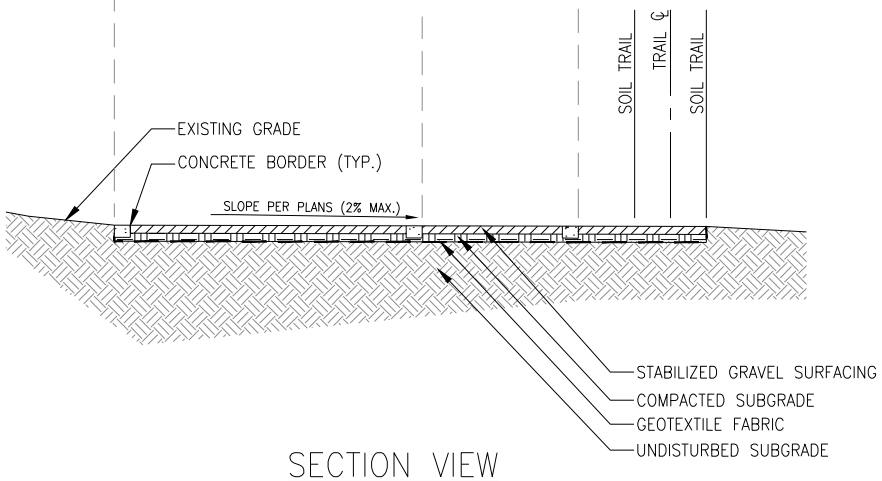


PLAN VIEW



SECTION VIEW

1 WALK-IN CAMP SITE

SCALE: 1/8"=1'-0" RCTC-C-PDT-CAMP-WALK

PAVEMENT THICKNESS AND FINAL SECTION THICKNESS ARE APPROXIMATE AND SUBJECT TO CHANGE DURING FINAL DESIGN.

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

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DATUM: NAVD88

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2. STATE OF WASHINGTON

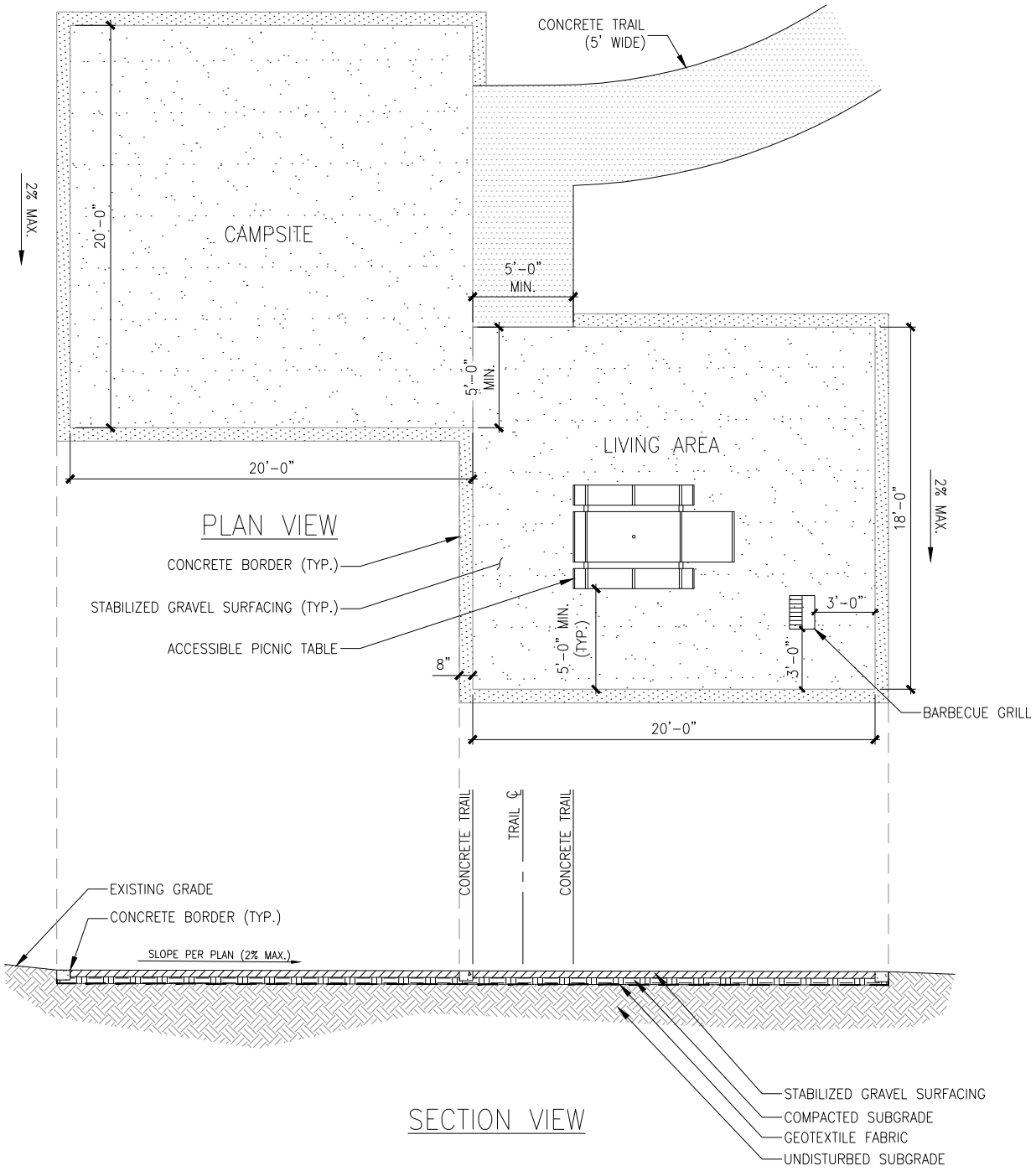
ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

SITE DETAILS 3

APPLICATION BY: GRANT COUNTY PUD

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

IN: COLUMBIA RIVER
AT: VANTAGE, WA
COUNTY: KITTITAS
STATE: WASHINGTON
DATE: 01/28/2013
REVISED: 02/13/2013
02/22/2013
02/28/2013



1 ACCESSIBLE CAMP SITE

SCALE: 1/8"=1'-0" RCTC-C-PDT-CAMP-ADA

PAVEMENT THICKNESS AND FINAL SECTION THICKNESS ARE APPROXIMATE AND SUBJECT TO CHANGE DURING FINAL DESIGN.

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

LOCATION: 46° 57' 24.52"N 119° 59' 16.12"W

DATUM: NAVD88

ADJACENT PROPERTY OWNERS:

1. STOCKDALE INC.
2. STATE OF WASHINGTON

ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

SITE DETAILS 4

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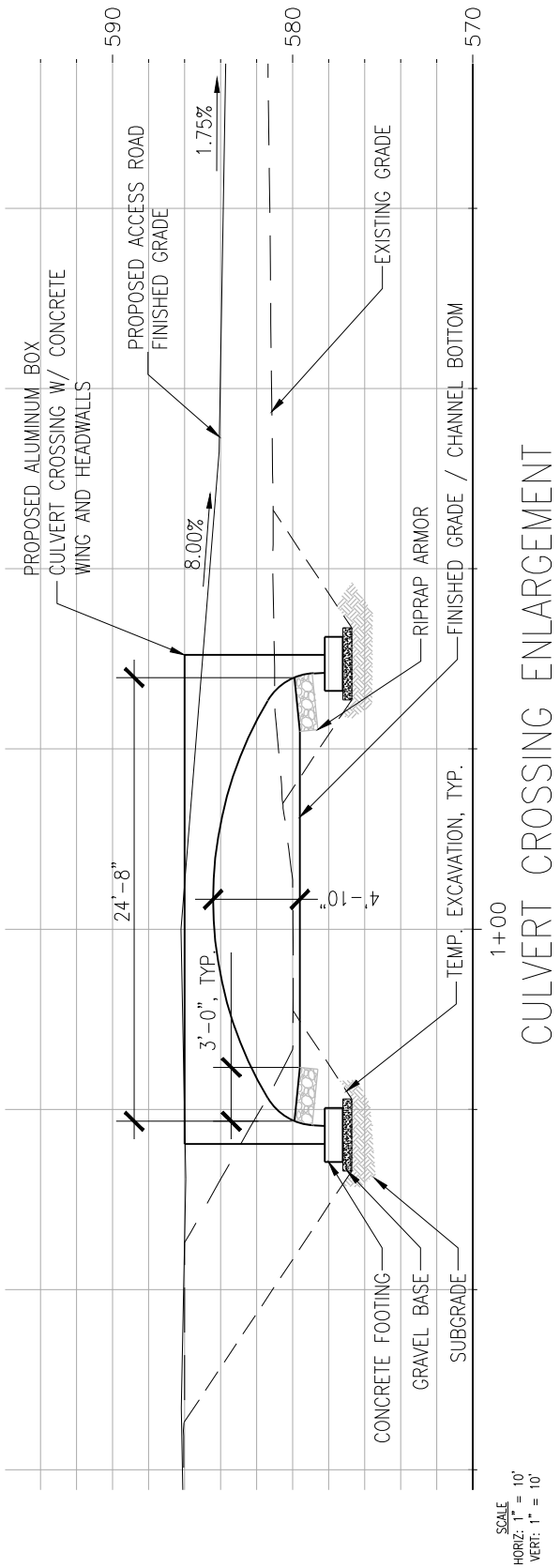
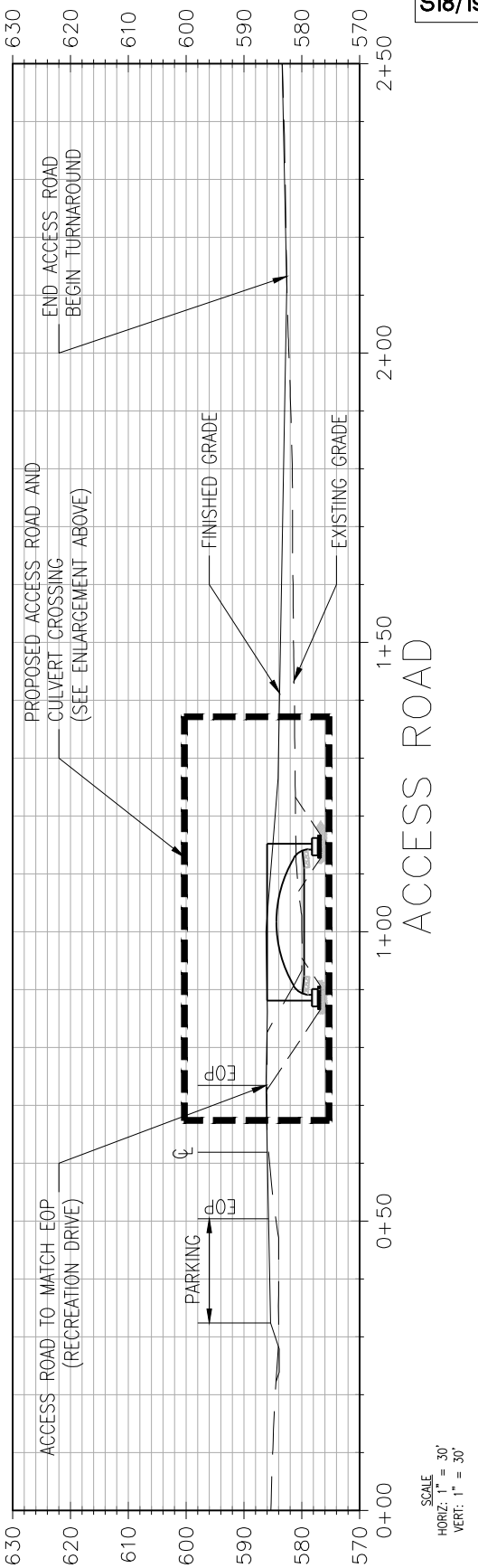
S18/19 T17N R23E



CULVERT CROSSING ENLARGEMENT



ACCESS ROAD

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

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ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

PRELIMINARY

SITE SECTIONS

APPLICATION BY: GRANT COUNTY PUD

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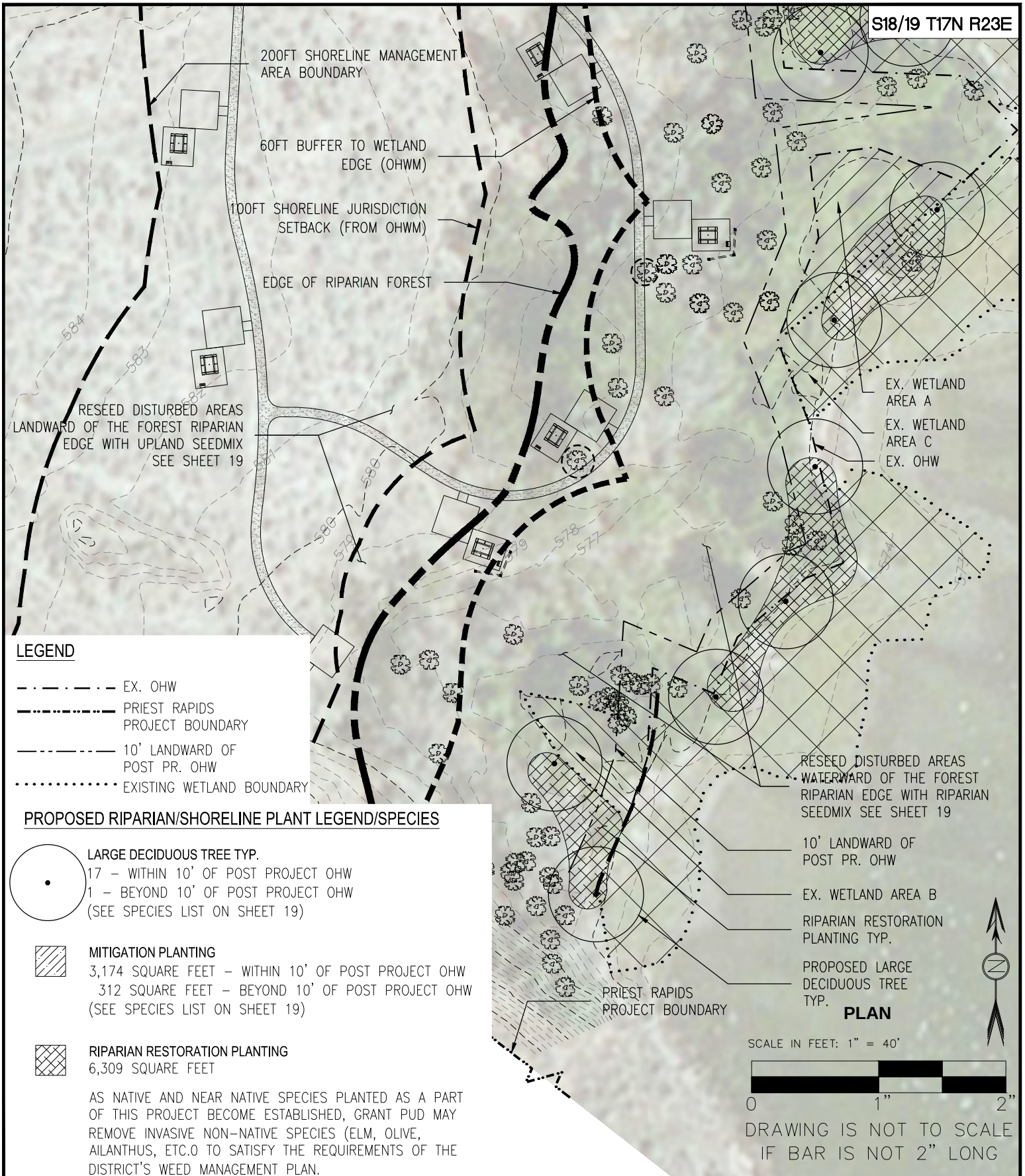

LEGEND

- EX. OHW
- PRIEST RAPIDS PROJECT BOUNDARY
- 10' LANDWARD OF POST PR. OHW
- EXISTING WETLAND BOUNDARY

PROPOSED RIPARIAN/SHORELINE PLANT LEGEND/SPECIES

LARGE DECIDUOUS TREE TYP.
17 – WITHIN 10' OF POST PROJECT OHW
1 – BEYOND 10' OF POST PROJECT OHW
(SEE SPECIES LIST ON SHEET 19)

MITIGATION PLANTING
3,174 SQUARE FEET – WITHIN 10' OF POST PROJECT OHW
312 SQUARE FEET – BEYOND 10' OF POST PROJECT OHW
(SEE SPECIES LIST ON SHEET 19)

RIPARIAN RESTORATION PLANTING
6,309 SQUARE FEET

AS NATIVE AND NEAR NATIVE SPECIES PLANTED AS A PART OF THIS PROJECT BECOME ESTABLISHED, GRANT PUD MAY REMOVE INVASIVE NON–NATIVE SPECIES (ELM, OLIVE, AILANTHUS, ETC.0 TO SATISFY THE REQUIREMENTS OF THE DISTRICT'S WEED MANAGEMENT PLAN.

PLAN

SCALE IN FEET: 1" = 40'

0 1" 2"

DRAWING IS NOT TO SCALE IF BAR IS NOT 2" LONG

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

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ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

MITIGATION PLANTING PLAN ENLARGEMENT 1

PRELIMINARY

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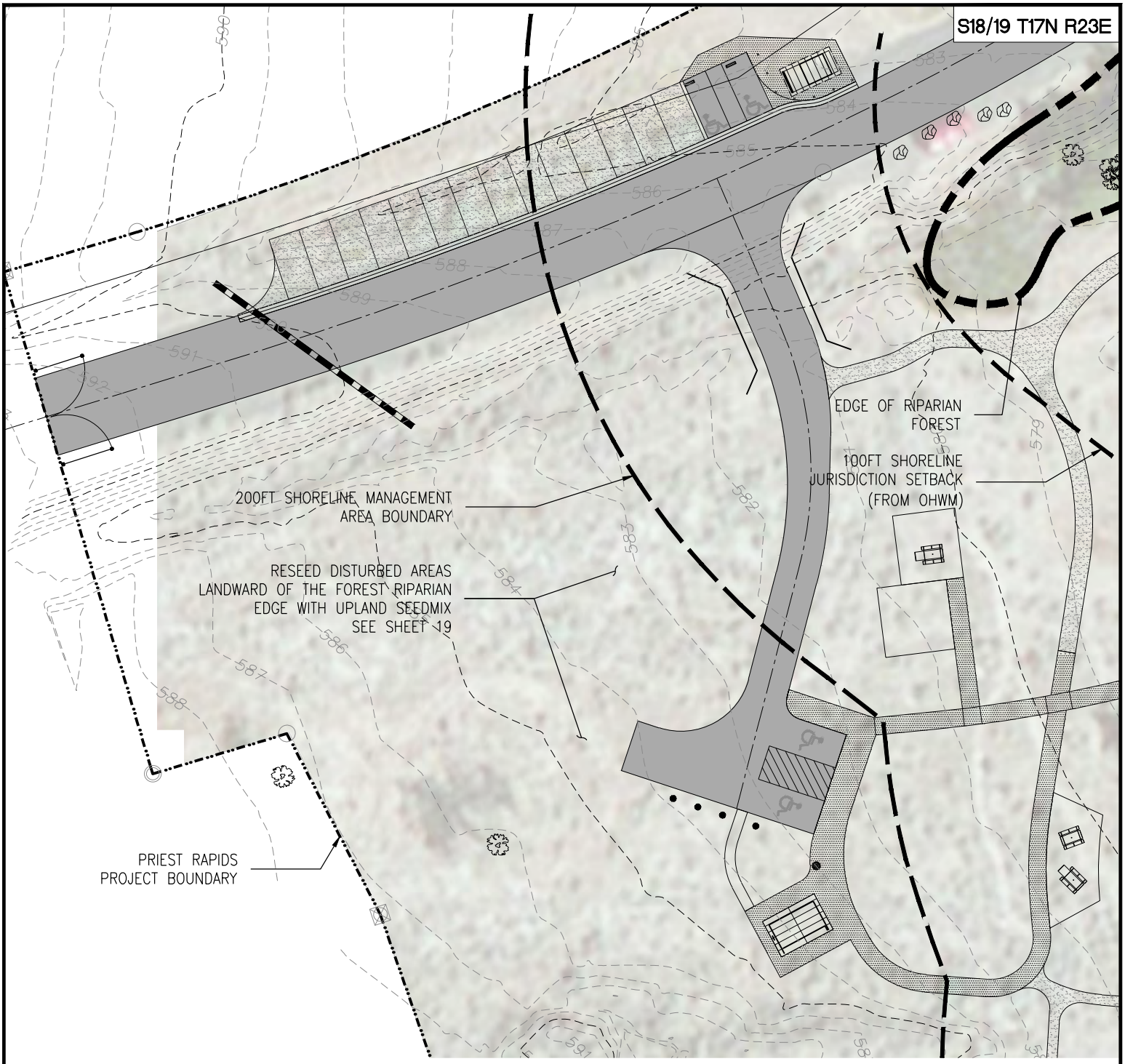
SHEET 16 OF 19



PLAN

SCALE IN FEET: 1" = 40'

0 1" 2"

DRAWING IS NOT TO SCALE IF BAR IS NOT 2" LONG

LEGEND

- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- PRIEST RAPIDS PROJECT BOUNDARY

PURPOSE: PROVIDE PUBLIC ACCESSIBLE RECREATIONAL FACILITIES: CAMPING, PARKING, AND TRAIL

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ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

MITIGATION PLANTING PLAN ENLARGEMENT 2

PRELIMINARY

APPLICATION BY: GRANT COUNTY PUD

PROPOSED: SHORE IMPROVEMENTS, MITIGATION, AND CAMPSITE DEVELOPMENT

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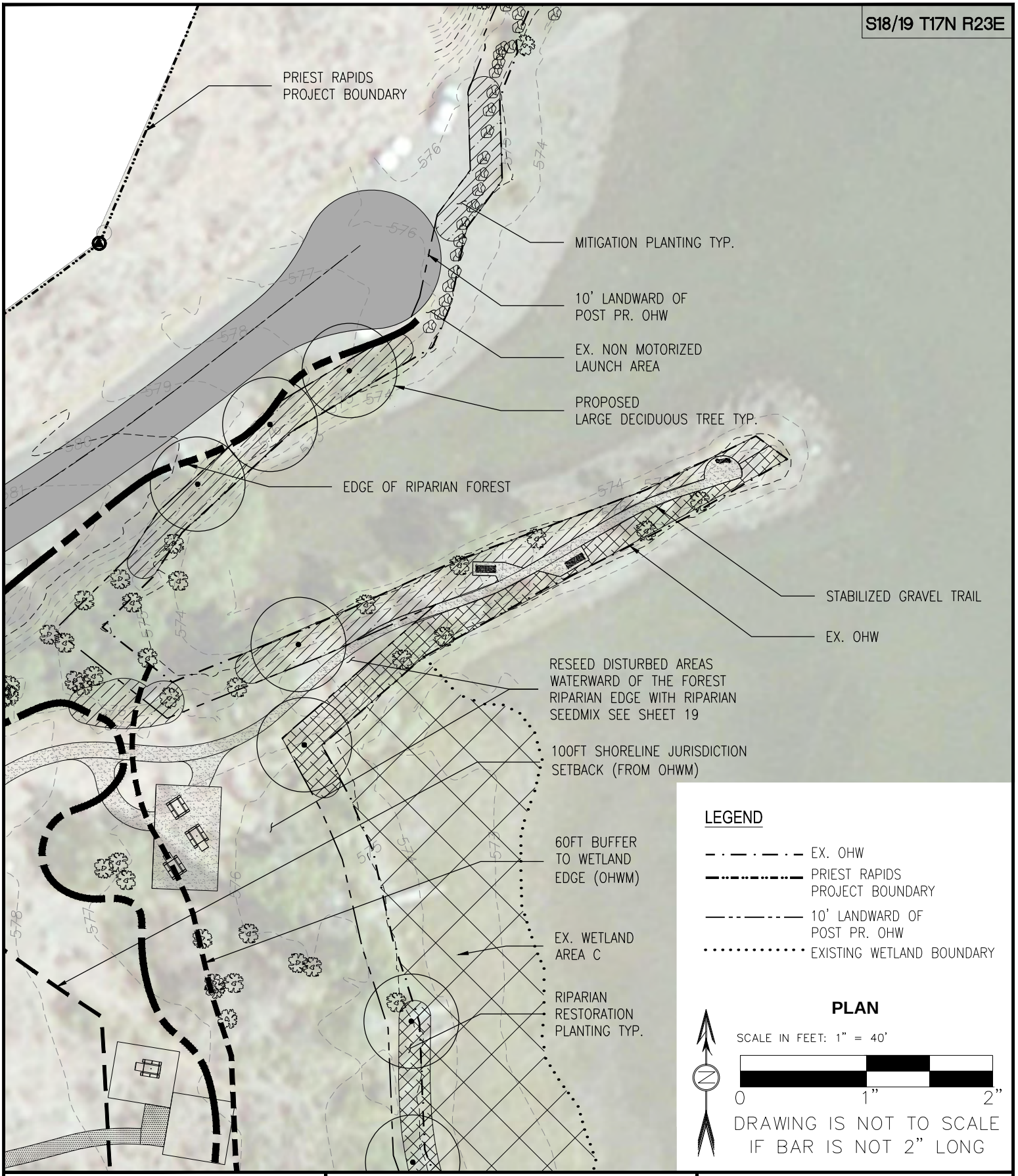
SHEET 17 OF 19

S18/19 T17N R23E



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ROCKY COULEE TENT CAMPING FACILITY IMPROVEMENT PROJECT

MITIGATION PLANTING PLAN ENLARGEMENT 3

APPLICATION BY: GRANT COUNTY PUD

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SHEET 18 OF 19

S18/19 T17N R23E

RIPARIAN SPECIES LIST

ABBREVIATIONS	SYMBOL	SCIENTIFIC NAME	COMMON NAME	SPACING
LARGE DECIDUOUS TREES				
POTR		Populus trichocarpa	BLACK COTTONWOOD	PER PLAN
PORO		Populus deltoides 'Robusta'	ROBUSTA POPLAR	PER PLAN
POSI		Populus deltoides 'Siouxland'	SIOUXLAND POPLAR	PER PLAN
SMALL DECIDUOUS TREES				
SALA		Salix lasiandra	PACIFIC WILLOW	PER PLAN
PRAM		Prunus americana	NATIVE PLUM	PER PLAN
BEOC		Betula occidentalis	WATER BIRCH	PER PLAN
PRVI		Prunus virginiana	CHOKECHERRY	PER PLAN
DECIDUOUS SHRUBS				
SAEX		Salix exigua	SANDBAR WILLOW	PER PLAN
SASC		Salix scouleriana	SCOULER'S WILLOW	PER PLAN
SACA		Sambucus caerulea	ELDERBERRY	PER PLAN
AMAL		Amalanchier alnifolia	SERVICEBERRY	PER PLAN
ROWO		Rosa woodsii	WOOD'S ROSE	PER PLAN
RONU		Rosa nutkana	NOOTKA RORSE	PER PLAN
SPDO		Spiraea douglasii	DOUGLAS SPIRAEA	PER PLAN

PLANTING/SEEDING AREAS

 MITIGATION PLANTING AREA

 RIPARIAN RESTORATION AREA

DISTURBED UPLAND AREA SEED MIX	15%	BOTTLEBRUSH SQUIRRELTAIL
	30%	STREAMBANK WHEATGRASS
	10%	INDIAN RICEGRASS
	15%	SANDBERG BLUEGRASS
	25%	BLUEBUNCH WHEATGRASS
	5%	SAND DROPSEED
DISTURBED RIPARIAN AREA SEED MIX	20%	INDIAN RICEGRASS
	12%	TUFTED HAIRGRASS
	20%	STREAMBANK WHEATGRASS
	10%	WESTERN MANNAGRASS
	22%	BASIN WILDRYE
	16%	SANDBERG BLUEGRASS

NOTE:

FORBES FOR SECOND SEEDING IN UPLAND AREAS COMBINED WITH UPLAND GRASS SEED MIX	TBD	ARTIMISIA TRIDENTATE SSP. TRIDENTATA
	TBD	BALSAMORHIZA SAGITTATA
	TBD	CHRYSOTHAMNUS VISCIDIFLORUS
	TBD	PURSHIA TRIDENTATA
	TBD	LUPINUS SERICEUS COLUMBIA BASIN

MITIGATION PLANTING PLAN NOTES

SPECIES: NATIVE SPECIES ARE PROPOSED FOR RIPARIAN AND ADJACENT UPLAND/SHRUB STEPPE AREAS. SPECIES LISTS HAVE BEEN DEVELOPED BASED ON A COMBINATION OF WDFW AND GCPUD SPECIES LISTS FOR THESE AREAS. ADDITIONALLY, COMMERCIAL PLANT MATERIAL SOURCES HAVE BEEN CHECKED FOR AVAILABILITY.

SPACING AND QUANTITIES: PROPOSED QUANTITIES ARE BASED ON THE WDFW AND USACE GUIDANCE FOR SPACING AND CONSIDER PROPOSED STOCK SIZE AND MATURE SIZE. THE SPACINGS/LOCATIONS SHOWN ON THE PLAN ARE DESIGNED TO CREATE A NATURAL LOOKING PLANTING VERSUS A UNIFORM, STREETSCAPE STYLE PLANTING (USING EQUAL, ON-CENTER SPACINGS).

WEED CONTROL: FOR UPLAND/SHRUB STEPPE SEEDING AREAS: THE SEEDING WILL BE ACCOMPLISHED IN TWO APPLICATIONS. THE FIRST APPLICATION WILL BE GRASSES ONLY. THE FIRST APPLICATION WILL BE FOLLOWED BY WEED CONTROL UTILIZING A BROADLEAF HERBICIDE. THE SECOND APPLICATION OF SEED WILL CONSIST OF GRASSES AND FORBS.

TIMING: RIPARIAN PLANTING AREAS: THE SPRING FOLLOWING COMPLETION OF IN WATER WORK. UPLAND/SHRUB STEPPE PLANTING AREAS: SPRING OR FALL FOLLOWING CONSTRUCTION ACTIVITIES.

SURVIVAL PERFORMANCE STANDARD:

YEAR 1: 100% SURVIVAL RATE GUARANTEE
YEARS 2 THROUGH 3: 80% SURVIVAL RATE GUARANTEE

MONITORING: SEE SECTION 7.0 OF THE MITIGATION PLAN TITLED, POST CONSTRUCTION MAINTENANCE AND MONITORING PLAN FOR MITIGATION MONITORING

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MITIGATION AND PLANTING PLAN SPECIES AND SEED LIST

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APPENDIX B
Site Photographs

1. Rocky Coulee Recreation Area and Columbia River, looking northeast from Ginkgo Petrified Forest Interpretive Center.

2. Northern portion of Rocky Coulee Recreation Area, looking north from the end of Recreation Drive. Notice basalt cliffs on the left and forested buffer on the right.

3. Hand boat launch area, looking south from the end of Recreation Drive. Notice jetty in the left and center of the photograph.

4. Jetty and basalt cliffs in northern portion of the Rocky Coulee site, looking west from the end of the jetty.

5. Harvester ant colony (conical nest mound), in riparian forest habitat.

6. Wetland A, looking east from Sample Plot 1.

7. Beaver damage.

8. Downy woodpecker in black locust tree.

9. Wetland B, looking southwest from Sample Plot 2.

10. Wetland B, soils and high water table in soil pit.

11. Wetland C – mosaic wetland below the OHWM (Bing Map image).

12. Wetland C (mosaic wetland) vegetation.

13. Typical vegetation in riparian forest.

14. Sagebrush habitat, looking south to the cliffs by Ginkgo Petrified Forest Interpretive Center.

15. Sagebrush habitat, looking east from the center of the site to the forested riparian habitat.

16. Deer scat, found in the sagebrush habitat.

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