BUREAU OF RECLAMATION

Final Environmental Assessment

Royal Slope Transmission Project, Washington
Columbia-Pacific Northwest Region

CPN-EA-2024-01

U.S. Department of the Interior June 2026

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Reclamation certifies that it has considered the factors mandated by the National Environmental Policy Act (NEPA); that the environmental assessment represents Reclamation's good-faith effort to prioritize documentation of the most important considerations required by the statute within the congressionally mandated page limits; that this prioritization reflects Reclamation's expert judgment; and that any considerations addressed briefly or left unaddressed were, in Reclamation's judgment, comparatively not of a substantive nature that meaningfully informed the consideration of environmental effects and the resulting decision on how to proceed.

Reclamation certifies that this environmental assessment represents Reclamation's good-faith effort to fulfill NEPA's requirements within the congressional timeline; that such effort is substantially complete; that, in Reclamation's expert opinion, it has thoroughly considered the factors mandated by NEPA; and that, in Reclamation's judgment, the analysis contained therein is adequate to inform and reasonably explain Reclamation's decision regarding the proposed federal action.

Responsible Official: CANDACE CARMACK

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Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Acronyms and Abbreviations

Acronym or Abbreviation	Description
AC	alternating current
ACSR	aluminum-conductor steel reinforced
AF	acre-feet
ags	above ground surface
AI	Agricultural irrigation
APE	Area of Potential Effects
BESS	battery energy storage system
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
BRMP	Biological Resources Management Plan
CAA	Clean Air Act
CBP	Columbia Basin Project
CBR	California Bearing Ratio
CFR	Code of Federal Regulations
CO	carbon monoxide
CO2	carbon dioxide
CSWGP	Construction Stormwater General Permit
CTCR	Confederated Tribes of the Colville Reservation
CUP	Conditional Use Permit
CWA	Clean Water Act
DAHP	Department of Archaeology and Historic Preservation
DC	direct current
DM	Departmental Manual
DOI	Department of the Interior
DR	Decision Record
DF	Design Features
EA	Environmental Assessment
EHS	Extra High Strength
EIS	Environmental Impact Statement
EMS	Emergency Medical Services

Acronym or Abbreviation	Description
EO	Executive Order
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
GCC	Grant County Code
HCA	Habitat Conservation Area
HMP	Habitat Mitigation Plan
HPRCSIT	Historic Properties of Religious and Cultural Significance to Indian Tribes
HVAC	heating, ventilation, and air conditioning
IPaC	Information for Planning and Consultation
ITA	Indian Trust Asset
ITP	Incidental Take Permit
KOP	Key Observation Points
kV	kilovolt
kW	kilowatt
LLC	Limited Liability Company
LOE	level of effort
MBTA	Migratory Bird Treaty Act
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWP	Nationwide Permit
O&M	operations and maintenance
OHV	off-highway vehicle
OPGW	optical ground wire
PHA	Priority Habitat Area
PHS	Priority Habitats and Species
PM	particulate matter

Acronym or Abbreviation	Description
POD	plan of development
PUD	Public Utility District
PV	photovoltaic
QCBID	Quincy-Columbia Basin Irrigation District
R	Range
RCW	Revised Code of Washington
REC	recognized environmental conditions
RMP	Resource Management Plan
ROW	right-of-way
RRes	Rural Resources
RRem	Rural Remote
SEPA	State Environmental Policy Act
SF-299	Standard Form 299
SF6	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SO	Secretarial Order
SOI	Secretary of the Interior
SPCC	Spill Prevention, Control, and Countermeasures
SPT	Standard Penetration Tests
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
T	Township
TCP	Traditional Cultural Place
UL	Underwriters Laboratories
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
VMP	Vegetation Management Plan
VRM	Visual Resources Management
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WMA	Wildlife Management Area

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Chapter 1 Purpose and Need

1.1 Introduction

The U.S. Department of the Interior, Bureau of Reclamation prepared this Environmental Assessment (EA) consistent with the National Environmental Policy Act (NEPA) statute (42 United States Code [USC] § 4321 et seq.) and the Department of the Interior (DOI) NEPA regulations (43 Code of Federal Regulations [CFR] Part 46). This EA analyzes the potential environmental effects that could result from Reclamation's approval of a land use authorization license for Royal Slopes Solar LLC to construct, operate, maintain, and decommission transportation and utility systems and facilities on Reclamation lands in western Grant County, Washington.

Reclamation may authorize occupancy of federal land, pursuant to 43 CFR § 429.5, under a 25-year term land use authorization with options for renewal. If approved, all systems and facilities would be removed upon expiration of the license and Reclamation lands would be restored. If Reclamation determines that granting a land use authorization license would not result in significant environmental effects, it would prepare a Finding of No Significant Impact (FONSI) and a Decision Record (DR) to document the determination and the rationale for the selected alternative. If significant impacts are identified, Reclamation would either select the No Action Alternative or issue a notice of intent to prepare an Environmental Impact Statement (EIS).

1.2 Background, Location, and Action Area

Royal Slope Solar, LLC (the Applicant or Royal Slope Solar) is a subsidiary of Clearway Energy Group. The Applicant's overall project proposes a new 230-kilovolt (kV) electrical transmission line and a new solar power generation facility (Royal Slope Solar Facility). The transmission line would connect the Royal Slope Solar Facility to the Vantage Substation, owned and operated by Bonneville Power Administration (BPA). The transmission line, the Royal Slope Solar Facility, and the mitigation areas are hereafter referred to as the Project. The Project Area is located east of Wanapum Dam in Grant County, Washington (Figure 1-1). The Project Area is a mix of agriculture and shrub lands.

As part of the Project, the Applicant requests a land use authorization license from Reclamation to construct, operate, maintain, and decommission a transmission line and associated access roads, and to conduct related geotechnical testing (collectively the Land Use Proposal). The Royal Slope Solar Facility would be constructed on private lands and is not part of the federal action. The transmission line would bring to market up to 260 megawatts (MW) of renewable electricity generated at the Royal Slope Solar Facility. The Royal Slope Solar Facility is described

alongside the federal action in this EA to aid the analysis (Appendix E). Appendix A includes all figures referenced in this EA.

1.3 Agency Roles and Responsibilities

Reclamation received a Standard Form 299[1] (SF-299) from the Applicant for the Land Use Proposal. Reclamation prepared this EA as the lead federal agency for the NEPA review. The Applicant also applied to Grant County (County) for a Conditional Use Permit (CUP) to construct and operate the Royal Slope Solar Facility. The County is preparing a supplemental environmental checklist as the lead agency responsible for environmental review of the Solar Project in compliance with the State Environmental Policy Act (SEPA), Revised Code of Washington (RCW) Chapter 43.21C et seq. for the Royal Slope Solar Facility. The County will evaluate potential impacts from the Royal Slope Solar Facility in an environmental checklist and identify any necessary mitigation measures to reduce those impacts on the environment.

1.4 Purpose and Need

The purpose of the Applicant's Land Use Proposal is to connect an electric transmission line from the Royal Slope Solar Facility to BPA's Vantage Substation. The need for the Royal Slope Transmission Project is to deliver electricity to BPA's Vantage Substation to help meet the growing demand for energy in the State of Washington and address capacity concerns.. The Applicant needs to know if, when, and under what conditions Reclamation would issue a license for occupancy of Reclamation land for the transmission line.

Reclamation's purpose is to consider the Applicant's SF-299 for utility and transportation facilities on federal lands. Reclamation needs to respond to the Applicant's completed application and, pursuant to 43 CFR § 429.14, will consider the following criteria during evaluation:

1. Compatibility with the Columbia Basin Project's purposes, operations, safety, and security.
2. Compliance with applicable environmental laws and regulations.
3. Compatibility with public interests.
4. Conflicts with federal policies and initiatives.
5. Public health and safety.
6. Availability of other reasonable alternatives.
7. Best interests of the United States.

[1] Application for Transportation, Utility Systems, Telecommunications and Facilities on Federal Lands and Property

1.5 Decision to Be Made

Reclamation's Responsible Official will decide whether to approve, approve with conditions, or deny the Applicant's SF-299 application for the transmission line, access roads, and any related decommissioning. Formal approval would result in issuance of a Reclamation land use authorization license. If issued, Reclamation's license would provide only the least estate, right, or possessory interest needed to accommodate the approved use and would explain the conditions under which it may be renewed, terminated, amended, assigned, or transferred, and/or the use fee adjusted, pursuant to 43 CFR § 429.27(c). The license would identify an expiration date and the option to renew.

1.6 Authorities

Reclamation's authority to administer the subject lands comes from the Reclamation Act of June 17, 1902, and Columbia Basin Project Act (57 Stat. 14, Public Law 78-8). Reclamation authority for issuing land use authorizations on Reclamation land is detailed in 43 CFR §§ 429.3 and 429.5. Reclamation land use authorizations convey no ownership or other interest in the federal real property, are neither permanent nor indefinite, provide no automatic right of renewal, and are fully revocable at Reclamation's discretion.

1.7 Conformance with Reclamation Land Use Plan

Reclamation's resource management policy is to provide for Columbia Basin Project purposes and to provide a broad level of stewardship to ensure and encourage resource protection and conservation. The Land Use Proposal is subject to management direction provided in the Scattered Tracts Resource Management Plan (RMP) (Reclamation 1998). The RMP identifies the Land Use Proposal area for retention by Reclamation to continue implementing the Columbia Basin Project (CBP). The Land Use Proposal conforms to the RMP because Reclamation would retain all subject lands and continue implementing the CBP under all alternatives. The RMP recommends secondary goals and objectives for biological, cultural, and recreational values on the subject lands. The RMP notes the area generally supports critical wildlife and habitat resource values. No further fragmentation or conversion of native shrub steppe or wetland habitats should occur on any of these parcels and consolidation with existing shrub steppe habitats in the general area should be considered wherever feasible. The Land Use Proposal would not inhibit Reclamation from continuing to manage the subject lands for values identified in the RMP.

1.8 Scoping Summary

The scoping process provided opportunities for the public, government agencies, and Tribes to identify their concerns related to the Reclamation Land Use Proposal. Reclamation: (1) conducted internal scoping; (2) posted a scoping package online (Reclamation 2022); (3) notified the public that the scoping package was available for viewing through local media, emails, and website postings; (4) conducted outreach with potentially affected Tribes; and (5) conferred with and solicited written comments from the public and local, state, and federal agencies.

Reclamation received comments from regional Tribes, Grant County Commissioner (District 1), Washington Department of Fish and Wildlife (WDFW), the Washington State Department of Ecology (Ecology), the Environmental Protection Agency (EPA), the National Park Service, the U.S. Army Yakima Training Center, and U.S. Fish and Wildlife Service (USFWS). Comments raised concerns about the disposal of materials after decommissioning, traditional use areas by Tribes, landscape appearance, and biological resources. This EA addresses those issues in Chapter 3. The effects of Solar Facility glare are discussed generally in this EA. The effects of Solar Facility glare on military operations are outside of the scope of this EA and will be addressed as part of a glare study to inform the SEPA review because the Solar Facility would be permitted on private land by Grant County, pursuant to the RCW Chapter 43.21C, if authorized.

Chapter 2 Description of Alternatives

This chapter presents alternatives based on the purpose and need for the Land Use Proposal and issues raised during scoping and review. The EA analyzes three alternatives: the No Action Alternative, and two action alternatives – Action Alternative 1 and Action Alternative 2. The No Action Alternative provides the basis to compare effects of the two action alternatives. The two action alternatives are designed to meet the Applicant's Project purpose and need to connect the Royal Slope Solar Facility to BPA's Vantage Substation, allowing electricity generated by the facility to be delivered to the region. The chapter also describes alternatives considered but eliminated from detailed study.

The proposed utility-scale Royal Slope Solar Facility is not part of either proposed federal action because it would be located on private land. The Royal Slope Solar Facility is a reasonably foreseeable action related to both action alternatives because it would rely on the transmission line to deliver electricity to the Vantage Substation. Appendix E describes the Royal Slope Solar Facility to aid the assessment of effects. Figure 1-1 shows the approximate locations of the proposed transmission line action alternatives, the Vantage Substation, and the Royal Slope Solar Facility.

2.1 No Action Alternative

The No Action Alternative represents continuation of existing conditions. Under this alternative, Reclamation would not approve the construction, operation, maintenance, and decommissioning of transportation and utility systems and facilities on federal land. The transmission line and the associated access roads would not be built on Reclamation lands. The Solar Facility would not be built in its current configuration (Appendix E).

2.2 Action Alternative 1

Reclamation would issue a land use authorization license to the Applicant for a 25-year term with options for renewal. The Applicant would conduct initial geotechnical investigations, and construct, operate, and maintain the transmission line and access roads on Reclamation land (Figure 2-1). Upon expiration of the license, the Applicant would remove the transmission line and access roads and restore Reclamation lands to pre-construction conditions to the extent possible.

2.2.1 Above-Ground 230 kV Transmission Line

A corridor of Reclamation land measuring approximately 1.75 miles long and 150 feet wide (approximately 31 acres), hereafter referred to as the Alternative 1 Transmission Line Corridor, would be used for the operation and maintenance (O&M) of an overhead 230 kV electric

transmission line. A temporary work area up to approximately 600 feet wide around the center-line of the transmission line route and around proposed access routes (approximately 324 acres) would be authorized for construction and decommissioning. The transmission line would connect the Royal Slope Solar Facility with the existing BPA Vantage Substation. The proposed transmission line would cross under the existing Avista-Walla 230 kV, Grant County Public Utility District (PUD) Wanapum-Priest 230 kV, and BPA Midway-Vantage No.1 230 kV transmission lines approximately 0.15 mile east of the existing BPA Vantage Substation. The legal description of the proposed Transmission Line Corridor is Township 16 North (N), Range 23 East (E), Sections 10, and 15., and an access route is proposed in Township 16N, Range 23E, Section 11 (Figure 2-1).

The transmission line would include approximately 9,500 feet of high-voltage, 230 kV conductor cable installed on 12 to 16 steel or wood structures. Two circuit configuration options are proposed, each requiring different transmission structures (Figure 2-2 and Figure 2-3).

- *Double-circuit Transmission Line Option*: A double-circuit transmission line would be constructed using tubular steel mono-pole tangent structures, holding six phases (conductor cables) per structure. In addition to the six conductor wires, each structure would contain one steel shield wire and one optical ground wire (OPGW), which is a shield wire containing fiber optic cables at its core for communication purposes. Where the transmission route changes direction, steel six-pole angle transmission structures or steel two-pole angle transmission structures would be installed (Figure 2-2 and Figure 2-4). Each individual pole in the six-pole angle transmission structure would support one electrical conductor cable. The six-pole angle structure would also support one OPGW and one or more steel shield wires supported by the two outside poles and two center poles. Each individual two-pole angle structure would support three electrical conductor cables, one OPGW, and one steel shield wire.
- *Single-circuit Transmission Line Option*: A single-circuit transmission line would be constructed using wood H-frame transmission structures holding three phases (conductor cables) per structure. In addition to the three conductor cables, each structure would support one steel shield wire and one OPGW wire. Where the transmission route changes direction, three-pole angle transmission structures would be installed (Figure 2-5). Each individual pole in the three-pole angle transmission structure would support one electrical conductor cable. The three-pole angle structure would also support one OPGW wire and one steel shield wire, supported by the two outside poles.

Preliminary transmission line structure locations are illustrated in Figure 2-6; however, the precise locations of the transmission structures are not currently available. The current design includes 12 transmission structures on Reclamation land; however, shorter conductor cable spans with up to 16 structures may be needed as the design is adjusted based on future geotechnical testing (see Section 2.2.3) and avoidance of sensitive resources. The Transmission Line Corridor length would not change with additional structures and the maximum of 16 structures are considered in the effects analysis.

As currently designed, structures 11 and 12 (Figure 2-6) would be located on either side of a canal under Reclamation's jurisdiction. These structures would be located over 375 feet from the canal and oriented to cross perpendicular (70–90 degrees) to the canal. These structure locations are not likely to shift significantly during final design.

The structures would range in height from 55 to 120 feet above ground surface (ags), depending on terrain. The diameter of wood or steel tangent poles would be 1.5 to 3 feet. Transmission structures would be anchored directly in the ground to a depth of approximately 10.5 to 17 feet. Pole angle structures would require the installation of structure bases up to 7 feet in diameter with concrete foundations embedded approximately 13.5 to 15 feet deep. The concrete foundations for pole angle configurations would be a total of 14.5 to 16 feet deep (both above ground and belowground portions). Table 2-1 summarizes the design characteristics of the transmission line for Alternative 1.

Table 2-1 Design Characteristics of the 230 kV Transmission Line Components for Alternative 1

Feature	Design Characteristic
Transmission Line length	Approximately 1.75 miles on Reclamation land
Circuit configuration	Double-circuit with six phases per structure; or Single-circuit with three phases per structure
Transmission structures	12 to 16 structures Double-circuit: Tubular steel mono-pole tangent structures Steel two-pole angle structures Steel six-pole angle structures; or Single-circuit: Wood H-frame structures Steel three-pole angle structures
Structure height	Double-circuit: Tubular steel mono-pole tangent – 75 to 120 feet Two-pole angle structures – 75 feet Six-pole angle structures – 50 to 75 feet; or Single-circuit: H-frame structures – 55 to 100 feet Three-pole angle structures – 65 to 75 feet
Average span length	Double-circuit: Tubular steel mono-pole tangent – Up to 1,000 feet Two-pole angle structures – Up to 800 feet Six-pole angle structures – Up to 800 feet; or Single-circuit: H-frame structures – Up to 1,000 feet Three-pole angle structures – Up to 800 feet
Structure base	Double-circuit: Tubular steel mono-pole tangent – N/A, direct buried Two-pole angle structures – 7-foot diameter each pole Six-pole angle structures – 7-foot diameter each pole; or Single-circuit: H-frame structures – N/A, direct buried Three-pole angle structures – 5-foot diameter each pole
Voltage	230,000 volts (230 kV) alternating current (AC)

Feature	Design Characteristic
Overhead conductor	Stranded aluminum-conductor steel reinforced (ACSR)
Shield wires	34 fiber minimum fiber-optic cable (0.55-inch diameter) 0.5-inch Extra High Strength (EHS) where more than one shield wire is required
Ground clearance of conductor	25 feet minimum (40 feet minimum over Reclamation canal ROW)
Operational Land use authorization Transmission Line Corridor size	Width: 150 feet Area: 31 acres

2.2.2 Access Roads

Vehicles would access the Land Use Proposal area from Interstate 90 (I-90), Highway 26, Highway 243, and Beverly Burke Road. Reclamation lands would be accessed via Road 13 SW, Road R-Southwest, unnamed roads on the south side of SR 26 off Beverly Burke Road, and an unnamed road that intersects Highway 243 approximately 1.25 miles south of the intersection of Highway 26 and Highway 243, as well as the Vantage Substation access road from Highway 243 (Figure 2-7). No improvements would be required for most of the access routes, except for the access from Highway 243 south of Highway 26, which would be widened and resurfaced with gravel.

The Applicant would use approximately 3.3 miles of existing roads on Reclamation land currently suitable for construction access. Approximately two miles of unimproved routes on Reclamation lands would be widened to facilitate transmission line construction (Figure 2-1). Unimproved routes would be widened to 24 feet for the duration of construction. The Applicant would also construct approximately 1.7 miles of new roads, 24 feet in width (Figure 2-1 and Figure 2-6). New roads would include a road within the Transmission Line Corridor connecting proposed structure locations and connecting with existing routes, and approximately five short spur roads, connecting the Transmission Line Corridor with existing routes. New and widened roads would be rehabilitated to a width of approximately 12 feet or to pre-construction widths after construction is complete and would be used for maintenance access during operation.

Transmission structure locations seven through eleven would likely be accessed from a new access road within the Transmission Line Corridor but may also be accessed from existing unimproved roads (Figure 2-6). Access road alignments may be adjusted based on the final transmission structure locations and/or to avoid potentially sensitive resources.

The Applicant would also place gravel within the footprint of the existing access road from Highway 243 on, along 0.34 miles of Reclamation lands at the boundary of Section 4, T.16N, R.23E, and Section 33, T.17N, R23E to improve access for vehicles and equipment (Figure 21).

Table 2-2 summarizes the design characteristics of the access roads associated with the Transmission Line Corridor for Alternative 1.

Table 2-2 Alternative 1 Design Characteristics of the Access Roads on Reclamation Land

Access Road Category	Road Length (miles)	Proposed Change
Existing routes	3.3	No modification
Existing routes	2.0	Widen to 24 feet for construction. After construction is complete, route would be rehabilitated to a width of approximately 12 feet or to pre-construction widths.
Existing route	0.34	Widen to 24 feet and resurface with gravel
New roads	1.7	Construction of new 24-foot-wide access roads including: • Five spur roads connecting the Transmission Line Corridor to roads outside the corridor. • Road segments within the Transmission Line Corridor between proposed structure locations. After construction is completed, rehabilitate routes to approximately 12 feet wide.

2.2.3 Geotechnical Testing

The Applicant would conduct geotechnical testing to characterize the subsurface conditions on Reclamation land to inform construction design and location of the transmission line structures. The Applicant would dig approximately eight auger holes on Reclamation land within the Transmission Line Corridor (Figure 2-8). Each hole would be drilled to a depth of 25 feet, or until very hard soil or bedrock refuses drill advancement and would be consistent with American Society for Testing and Materials (ASTM) D1452 standards. Standard Penetration Tests (SPTs) would be conducted in every boring within a depth of 0 to 5 feet, and every 5 feet thereafter per ASTM D1586 standards. Approximately three borings would include rock coring, per ASTM D2113 standards.

The water use for the core samples is estimated at 50 gallons per 10-foot core. Boreholes would be injected with water and a bentonite slurry. No water overflow onto the ground would be expected, as the drillers seal to the surface and around the borehole to recirculate water in a mud tub. No borehole casings or seismic studies are proposed. At the conclusion of geotechnical testing, all borings would be backfilled with cuttings and compacted native soil. Additionally, as part of geotechnical investigations along proposed new access roads, California Bearing Ratio (CBR) tests would be conducted on samples taken from the top 2 feet of the ground surface.

Equipment required for geotechnical testing would include one 9-foot-wide track-drill rig, one drill rig support truck, and one employee truck. Personnel and equipment operators would use the access roads described previously and shown in Figure 2-6 and Figure 2-7. Three personnel

would be on-site during geotechnical testing, including two to operate the drill rig and one to log soil samples. Excluding mobilization time, approximately 1.5 to 2 hours of testing time per boring location is expected, for up to 2 days. The drill rig would remain on-site to complete the remaining borings the next day. A total of four support and employee truck trips would occur, one trip to and from the site, per day.

2.2.4 Construction

Schedule and Workforce

Construction access and staging area construction, transmission line installation, and post-construction road rehabilitation would be completed within a consecutive 5-month period. Construction would occur primarily Monday through Friday during daylight hours. Construction may occur during nighttime and weekends as needed for material and equipment delivery and/or to accommodate schedule delays due to weather or other events, which would be coordinated with the local jurisdiction, Grant County. If nighttime construction is necessary, it would be performed using temporary lighting that is directed downward.

Approximately 25 workers would build the access roads and transmission line on Reclamation lands. Workers would commute from nearby towns (e.g., Beverly, Vantage, Royal City, Wanapum, Moses Lake). The Applicant would encourage workers to carpool to minimize vehicle trips. Construction sites would be closed to public access.

Construction Access, Equipment, and Staging Areas

As described above in Section 2.2, construction equipment and personnel would access Reclamation land using existing roads, widened existing routes, and new roads (Table 2-2). The locations of access roads are shown in Figures 2-1 and 2-7. Construction would require approximately 3,000 total truck trips. Construction vehicles would access the site from I-90, Highway 26, Highway 243, and Beverly Burke Road.

On Reclamation land, the Applicant would widen approximately 2.3 miles of unimproved routes to a width of 24 feet to provide access during transmission line construction. Roads would be graded, as necessary. Following completion of construction, widened roads would be rehabilitated to their original width or approximately 12 feet and maintained for operational access. The Applicant would conduct a road inventory immediately prior to construction to document existing road widths so that roads would be returned to existing conditions to the extent possible.

The Applicant would also construct 1.7 miles of new 24-foot-wide access roads within and outside the Transmission Line Corridor. The road surface for both widened and new roads would be native substrate. No culverts, crowns, or ditches would be required. Following construction, new roads would be reduced to a width of approximately 12 feet and maintained. In total, approximately 12 acres of Reclamation Land would be disturbed to facilitate access route widening and construction.

Tracked machines would create the initial access road route by crawling over vegetation or vegetation would be bladed. A series of mats or logs would be installed temporarily along sandy portions of the route to enable rubber-wheeled and tracked equipment to navigate in and out of work areas. The Applicant would place gravel on an existing 0.34-mile dirt access road to the north of the Transmission Line Corridor from Highway 243 along the boundary of Section 4, T.16N, R.23E and Section 33, T.17N, R23E to improve access for vehicles and equipment.

Typical construction equipment would include scrapers, dozers, tractors, backhoes, excavators, pile drivers, cranes, forklifts, and other common types of construction equipment. Track out devices would be used to remove rocks, dirt, and other debris from construction vehicle tires and be placed at construction roadway entrances/exits to prevent debris from construction vehicles being deposited onto roadways. Temporary equipment and material staging areas within active construction areas may be located on Reclamation land during transmission line construction as described below.

Above-Ground 230 kV Transmission Line Installation

For construction of the transmission line, a temporary work area up to approximately 600 feet wide around the transmission line route and around proposed access routes is required. This temporary work area corridor includes the 150-foot-wide Transmission Line Corridor and extends approximately 225 feet on either side of the Transmission Line Corridor, for a total of approximately 324 acres (Figure 2-9). The 600-foot-wide temporary work area includes the areas that were surveyed for Alternative 1 to offer flexibility during construction. Vegetation would be removed at each transmission structure site and each conductor stringing and pulling site. Large shrubs that require removal will be saved and placed strategically in bare areas being replanted after construction. Other temporary work areas would not require vegetation removal. No blasting or associated use of explosives is proposed for construction of transmission lines under Alternative 1; if this is determined necessary, additional NEPA review would be necessary.

Temporary construction staging areas would be established along the transmission line route to support structure installation and conductor stringing. During active construction at each structure location, a staging area of up to approximately 100 feet by 100 feet would be used for temporary equipment and material staging. The total acreage of temporary work areas requiring vegetation clearance is approximately 7.8 acres. These areas would remain in place for the duration of work at each structure and then be relocated as construction progresses. To prevent public access to active construction areas, staging areas would be enclosed with temporary chain-link fencing. Additional security measures may include temporary signage and surveillance equipment, such as security cameras, to monitor the site and deter unauthorized access. On Reclamation land, staging areas and fencing would be limited to active construction zones within the temporary work area along the transmission line route and would avoid known sensitive resources to the extent possible. Temporary fencing would be removed from Reclamation land once construction at the associated structure location is complete.

The location of each new structure along the 230 kV transmission line would be surveyed and staked. Temporary work areas, approximately 100 feet by 100 feet (0.23 acre), would be cleared of vegetation at each of the 12 to 16 structure locations. Temporary work areas, up to approximately 300 feet by 100 feet (0.69 acre) will be cleared of vegetation at up to six stringing and pulling operation sites with the long side parallel to the span being pulled. No grading or resurfacing would be required for temporary work areas. Vegetation and soil removed from these areas would be stockpiled and moved to overburden pile areas located on private land immediately north of the Transmission Line Corridor or immediately hauled off to an off-site disposal facility, except for large shrubs which would be removed to rehabilitation areas not otherwise required for operation and maintenance. Each stringing and pulling operation would consist of a puller setup positioned at one end and a tensioner setup with wire reel stand truck positioned at the other end (Figure 2-10).

Temporary laydown areas would be used during construction to lay down the poles and frame them to the full length (approximately 55 to 100 feet). As each pole is installed, equipment and materials would be laid on the ground adjacent to the installation location. Table 2-3 summarizes the temporary work areas associated with transmission line construction.

Table 2-3 Transmission Line Temporary Work Areas for Alternative 1

Work Area Type	Number of Work Areas	Work Area Size Area	Activities Proposed	Total Area of Vegetation Removal
Temporary work area	As described below	600-foot-wide corridor includes Transmission Line Corridor plus approximately 225 feet on either side and access roads (324 acres)	Structure installation, stringing, and pulling sites, and laydown areas.	7.8 acres, as described below
Structure Locations & Staging Areas	Up to 16	100 feet by 100 feet (0.23 acre)	Vegetation removed in work area.	3.7 acres
Stringing and Pulling Sites	Up to 6	300 feet by 100 feet (0.69 acre)	Vegetation removed in work area.	4.1 acres
Laydown Areas	Up to 16	55–100 feet by 40 feet (0.05 to 0.09 acre)	No vegetation removal. Poles would be assembled on the ground.	—

The Applicant would construct foundations for each six-pole angle or three-pole angle transmission structure, erect the transmission structures, and install the transmission structure arms and insulators. Tubular steel mono-pole tangent or H-frame transmission structures would be embedded directly into the ground and backfilled with crushed rock. Drilled pier concrete foundations would be necessary to provide stability where transmission structures support greater line tension, such as at six-pole or three-pole angle structures.

After installation of the transmission structures, the conductor would be connected to the structures. A fiber-optic ground shield wire would be strung overhead on the transmission structures between the Royal Slope Solar Facility substation and the Vantage Substation. An approximately 0.5-inch EHS would be strung overhead on the transmission structures where more than one shield wire is required.

Alternatively, stringing may be conducted by a light- or medium-duty helicopter. The helicopter would be used during daylight hours, and flight paths would be limited to the Transmission Line Corridor, except for ingress and egress from a helicopter landing staging area at a local airport. No incidental landing areas would be established. Helicopter activities would require up to approximately 16 hours of total operation throughout construction.

Upon completion of conductor installation, the temporary work areas and temporary laydown areas would be restored to approximate pre-construction conditions. Compacted soil would be uncompacted, and vegetation would be recovered using a combination of seeding and targeted planting techniques in areas not needed for transmission line operation and maintenance where vegetation removal was necessary for construction. Planting materials will include sagebrush plugs in targeted areas to expedite recovery of rehabilitation areas toward pre-construction conditions. The type and density of vegetation replanting would be designed to approximate pre-construction conditions.

Areas within 8 feet of the transmission structures would not be seeded or replanted and would be maintained free of vegetation for ongoing maintenance during the term of the license. Vegetation management methods and strategies may include but are not limited to mechanical methods using machines, manual control methods employing workers with hand tools, or tree growth regulators and herbicide control methods. Appendix B contains the proposed vegetation management plan (VMP) for the Land Use Proposal. Construction activities would comply with all applicable safety standards for construction, including Washington Administrative Code § 296-155, and § 296-45.[2]

Water and Wastewater

During construction, approximately 22 acre-feet (af) of water would be required for dust suppression and other purposes.[3] Water would be provided from municipal water, a water cistern, or an existing well located on private land associated with the Royal Slope Solar Facility using water trucks as necessary to deliver water to work areas. Domestic water for employees would be provided by municipal water or delivered to the site. Portable restroom facilities would be provided for construction workers. Nominal wastewater would be generated during construction; sanitary waste would average up to 38 gallons per day.

[2] Washington Administrative Code 296-45 https://lni.wa.gov/safety-health/safety-rules/chapter-pdfs/WAC296-45.pdf.

[3] An acre-foot of water equals 325,851 gallons—approximately the amount needed to cover an acre (roughly a football field) of ground to a depth of 1 foot.

Stormwater

Site drainage would be designed to follow the natural drainage patterns of the site. No permanent on-site water retention basins are planned. Site preparation and construction activities would be performed in accordance with a Stormwater Pollution Prevention Plan (SWPPP), incorporating stormwater design features (DFs) to reduce the adverse effects of erosion and sedimentation (Appendix C). Such practices would include riparian area construction buffers, silt fencing, straw bales, temporary catch basins, and inlet filters to control stormwater. The Applicant would be responsible for obtaining a Construction Stormwater General Permit from Washington State Department of Ecology, including monthly inspections and reporting by certified inspectors, or in accordance with the terms and conditions of the Ecology permit.

Solid Waste and Hazardous Waste

Most of the solid waste generated during construction would be non-hazardous and would consist primarily of cardboard, wood pallets, copper wire, scrap metal, common trash, vegetation from cleared areas, and wood wire spools. Construction activities would generate approximately 400 cubic yards of solid waste. Waste materials would be recycled whenever feasible. Non-recyclable construction waste would be hauled to an approved, local landfill.

Construction activities may involve the transportation, use, or temporary storage of a variety of hazardous materials, such as batteries, hydraulic fluid, diesel fuel, grease, lubricants, paints, solvents, and adhesives. During construction, diesel fuel and gasoline may be stored on Reclamation land in above ground tanks or within a fuel truck for refueling equipment and vehicles located within the Transmission Line Corridor. A Spill Prevention, Control, and Countermeasures Plan (SPCC Plan) would be implemented during construction. The SPCC Plan would outline preventive measures and practices to reduce the likelihood of an accidental release of a hazardous or regulated liquid and, in the event such a release occurs, to expedite the response to and remediation of the release (Appendix C). All hazardous materials would be used, stored, and disposed of in accordance with the manufacturers' specifications and consistent with applicable regulatory requirements. Workers would be trained to engage in safe work practices and to properly identify and handle any hazardous materials on-site. Standard construction practices identified in the SPCC Plan would be observed such that secondary containment would be used as necessary and any incidental releases would be appropriately contained and remediated, per statutory requirements in Washington Administrative Code (WAC) Chapter 173-303, WAC 173-180-320.

Construction Access Road Rehabilitation

After the completion of construction, approximately two miles of routes widened to 24 feet for construction access would be rehabilitated to a width of approximately 12 feet (or pre-construction width) and returned to approximate pre-construction conditions. Approximately 1.7 miles of new roads would similarly be reduced from a width of 24 feet to approximately 12 feet. Roadbed restoration methods would include loosening of the soil surface, native plant

reseeding, native shrub planting, installing erosion controls (such as cross drains and water bars), removal of gravel, and placement of topsoil in rutted areas. Planting materials would include sagebrush plugs in targeted areas to expedite recovery of rehabilitation areas toward pre-construction conditions. Roads remaining after rehabilitation would be used as needed during O&M, as described below in Section 2.2.5.

2.2.5 Operations and Maintenance

The Applicant would operate and maintain the transmission line and access roads for a 25-year term. The land use easement for the transmission line during operation would total approximately 31.9 acres of Reclamation Land, including the 150-foot-wide transmission line corridor and access road locations. No permanent on-site operations staff are expected. No lights would be required on top of transmission line structures. The expected maintenance would generate light traffic during operations, with light-duty vehicle use anticipated monthly or less frequently. The Applicant would conduct facility inspections at a minimum of once per calendar year, with no more than 18 months between inspections. Maintenance would occur as needed to address potential outages or other facility issues. The Applicant estimates maintenance would occur once per year, or less frequently. Heavy equipment would not be used during normal operation. Large or heavy equipment may be brought to the facility infrequently for equipment repair or replacement or vegetation control. Access roads would be used for periodic access (e.g., yearly or less frequently). O&M of the transmission line would not use water or generate wastewater or solid/hazardous waste.

Long-Term Vegetation Management

The Applicant would implement a long-term Vegetation Management Plan (VMP) to (1) prevent encroachments of vegetation that interferes with transmission line O&M; (2) control the establishment spread of invasive vegetation; and (3) restore native species to areas of suitable habitat disturbed during construction. Actions would be applied as part of an integrated pest management approach (IPM) and the Department of Interior's Integrated Pest Management Policy (517 DM 1). Vegetation management methods and strategies may include but are not limited to mechanical, manual, or herbicide control methods. Refer to Appendix B for the vegetation management plan for the Land Use Proposal.

2.2.6 Decommissioning and Site Reclamation

The useful life of the transmission line could be extended if Reclamation renews the 25-year-term land use authorization licenses. The Applicant would provide Reclamation with a Decommission Plan for the transmission line. If operations at the site are terminated, the Applicant would implement the plan and decommission all associated equipment. The minimum timeframe for project construction, operation, and decommissioning is assumed to be 30 years for the purpose of this assessment because five years would be needed beyond the life of the license for rehabilitation to diminish most of the decommissioning.

The transmission line facilities, including structures, structure bases, conductor, and markers and warning ribbons, would be removed and recycled or disposed of. Access roads would also be decommissioned. Removal of facilities would require access roads of similar width and condition as those used during initial construction. Therefore, approximately 3.4 miles of access roads would be widened to 24 feet during decommissioning activities. These would be the same access roads shown in Figure 2-7, *Site Access*, as "Existing Road – widening proposed" and "New Road." Following completion of decommissioning, two miles of existing road (pre-authorization) would be reduced in width to approximately 12 feet or pre-decommissioning width. The new roads would be removed, and the area would be restored to pre-authorization conditions to the extent possible.

Decommissioning would require approximately the same number and acreage of temporary work areas and temporary laydown areas as are needed for construction (Table 2-3). Similar to construction, these temporary areas would be restored to approximate pre-authorization conditions. Decommissioning activities would require approximately the same number of construction personnel, equipment, and duration described in Section 2.2.4 for initial construction.

Reclamation lands within the authorized Transmission Line Corridor would be returned to approximate pre-construction conditions in accordance with the land use authorization license and applicable land use regulations in effect at that time via the implementation of a Decommissioning and Reclamation Plan. The final plan would provide for environmental protection, management of hazardous wastes and excess materials, equipment dismantling and removal, and site restoration.

Water and Wastewater

Decommissioning and site reclamation would require 22 af of water for dust suppression and 38 gallons per day for sanitary wastewater and other purposes.

Solid Waste and Hazardous Waste

Solid waste generated during decommissioning and site reclamation would be similar to waste generated during construction: primarily non-hazardous and recycled whenever feasible. The conductor would be recyclable. Non-recyclable waste would be disposed of in an approved landfill. Wood poles would be considered hazardous waste due to the chemicals used to treat the wood for longevity. Decommissioned wood poles would be disposed of in an approved hazardous waste landfill. Tubular steel mono-pole tangent and steel angle structures would be considered non-hazardous and recycled where feasible.

Decommissioning activities may involve the transport, use, or temporary storage of a variety of hazardous materials, such as batteries, hydraulic fluid, diesel fuel, grease, lubricants, paints, solvents, and adhesives. Similar to construction, an SPCC and SWPPP Plan would be implemented during decommissioning activities. The SPCC Plan would outline preventive measures and practices to reduce the likelihood of an accidental release of a hazardous or

regulated liquid and, in the event such a release occurs, to expedite the response to and remediation of the release. All hazardous materials would be used, stored, and disposed of in accordance with the manufacturers' specifications and consistent with applicable regulatory requirements. Workers would be trained to engage in safe work practices and to properly identify and handle any hazardous materials on site. Standard practices identified in the SPCC Plan would be observed such that any incidental releases would be appropriately contained and remediated.

2.3 Action Alternative 2

Action Alternative 2 (Alternative 2) would connect the Royal Slope Solar Facility to the BPA Vantage Substation following a different transmission line and access road alignment than Alternative 1. Under Alternative 2, Reclamation would issue a land use authorization license to the Applicant for a 25-year term with options for renewal. The Applicant would conduct initial geotechnical investigations and construct, operate, and maintain the transmission line and access roads on Reclamation land (Figure 2-11). Upon expiration of the license, the Applicant would remove the Alternative 2 transmission line and access roads and restore the Reclamation lands toward pre-construction conditions.

2.3.1 Above-Ground 230 kV Transmission Line

Under Alternative 2, Reclamation would authorize the Applicant to use a corridor of Reclamation land for the construction, O&M of an approximately 5.08-mile overhead 230 kV electric transmission line, hereafter referred to as the Alternative 2 Transmission Line Corridor. The Alternative 2 Transmission Line Corridor would measure 3.38 miles long and 150 feet wide (approximately 61 acres) on Reclamation land and 1.70 miles long and 150 feet wide (approximately 31 acres) on private land. Reclamation would authorize a 250-foot-wide temporary work area on Reclamation land for construction. The temporary work area would be located north of Beverly Burke Road around the transmission line alignment (approximately 102 acres including the transmission line Corridor) (Figure 2-11).

The transmission line would connect the Royal Slope Solar Facility to the existing BPA Vantage Substation at the same connection point as described for Alternative 1. The Alternative 2 Transmission Line Corridor would be located in Sections 12, 13, 14 and 15, T.16N, R.23E (Figure 2-11 and Figure 2-12). The transmission line would begin at the Royal Slope Solar Facility Substation on private land located in Section 12, T.16N, R.23E and cross Reclamation land south toward Beverly Burke Road, where the line would corner to the west and run parallel to the north of Beverly Burke Road, pass through a section of private land located in Section 14, T.16N, R.23E, and then corner northwest through Reclamation land to the existing BPA Vantage Substation (Figure 2-12).

The transmission line would include approximately 28,000 feet of 230 kV conductor installed on 40 to 50 steel or wood structures, approximately 25 to 35 of which would be located on

Reclamation land. Two circuit configuration options are proposed under Alternative 2, a double-circuit option and single-circuit option, with identical materials as described for Alternative 1. Preliminary structure locations for Alternative 2 are illustrated in Figure 2-12; however, the precise locations of the transmission structures are not currently available and may be adjusted to avoid sensitive resources. Structure locations would be identified during the final design phase following land use authorization approval by Reclamation.

Structures 45 and 46 (Figure 2-12) would be located on either side of a canal under Reclamation jurisdiction. These structures would be located over 50 feet from the canal edge and oriented such that the line crossing would be perpendicular (70–90 degrees) to the canal. These structure locations are not likely to shift significantly during final design but would be located outside of Reclamation's canal ROW. The transmission structures would range in height from 40 to 110 feet ags, depending on terrain. The diameter of wood or steel tangent poles would generally be 4 to 4.5 feet. Transmission structures would be anchored directly in the ground to a depth of approximately 11.5 to 16 feet. Pole angle structures would require the installation of structure bases up to 8 feet in diameter with concrete foundations embedded approximately 13 to 18 feet deep. The concrete foundations for pole angle configurations would be a total of 14 to 19 feet deep (both above ground and belowground portions). Table 2-4 summarizes the design characteristics of the transmission line for Alternative 2.

Table 2-4 Design Characteristics of the 230 kV Transmission Line Components for Alternative 2

Feature	Design Characteristic
Transmission Line length	Approximately 5.08 miles total 3.38 miles on Reclamation land 1.70 miles on private land
Transmission structures	40 to 50 structure locations (25 to 35 on Reclamation land) Double-circuit: Tubular steel mono-pole tangent structures Steel two-pole angle structures Steel six-pole angle structures; or Single-circuit: Wood H-frame structures Steel three-pole angle structures
Structure height	Double-circuit: Tubular steel mono-pole tangent – 85 to 110 feet Two-pole angle structures – 70 to 90 feet Six-pole angle structures – 40 to 80 feet; or Single-circuit: H-frame structures – 55 to 100 feet Three-pole angle structures – 65 to 75 feet
Average span length	Double-circuit: Tubular steel mono-pole tangent – Up to 1,000 feet Two-pole angle structures – Up to 800 feet Six-pole angle structures – Up to 800 feet; or

Feature	Design Characteristic
	Single-circuit: H-frame structures – Up to 1,000 feet Three-pole angle structures – Up to 800 feet
Structure base	Double-circuit: Tubular steel mono-pole tangent – N/A, direct buried Two-pole angle structures – 8-foot diameter each pole Six-pole angle structures – 8-foot diameter each pole; or Single-circuit: H-frame structures – N/A, direct buried Three-pole angle structures – 5-foot diameter each pole
Voltage	230,000 volts (230 kV) alternating current (AC)
Overhead conductor	Stranded aluminum-conductor steel reinforced (ACSR)
Shield wires	34 fiber minimum fiber-optic cable (0.55-inch diameter)
Ground clearance of conductor	25 feet minimum (40 feet minimum over Reclamation canal ROW)
Operational Reclamation land use authorization Alternative 2 Transmission Line Corridor size	Length: 3.38 miles Width: 150 feet Area: 61 acres
Private land Alternative 2 Transmission Line Corridor size	Length: 1.70 miles Width: 150 feet Area: 31 acres

2.3.2 Access Roads

Vehicles would access the Land Use Proposal area from I-90, Highway 26, Highway 243, and Beverly Burke Road. Reclamation land would be accessed via Road 13 SW and Road R-Southwest, unnamed roads on the south side of Highway 26 off Beverly Burke Road, Beverly Burke Road, and an unnamed road that intersects Highway 243 approximately 1.25 miles south of its intersection with Highway 26, as well as the Vantage Substation access road from Highway 243. No improvements would be required for most of these access routes, except for the access from Highway 243 south of Highway 26, which would be widened and resurfaced with gravel (Figure 2-7 and Figure 2-13).

The Applicant would build approximately 3.38 miles of new, 24-foot-wide roads on Reclamation land, within the 150-foot-wide Transmission Line Corridor for construction access to preliminary structure locations (Figure 2-12). The Applicant would use 0.5 miles of existing roads on Reclamation land for construction access to preliminary structure locations one and two, in the vicinity of the Vantage Substation (Figure 2-12). Access road alignments may be adjusted based on the final transmission structure locations and/or to avoid potentially sensitive resources. After construction is completed, the Applicant would rehabilitate new and widened roads to a

width of approximately 12 feet, or to preconstruction widths for maintenance access. Table 2-5 summarizes the design characteristics of the access roads associated with the Alternative 2 Transmission Line Corridor.

Access roads on private lands would be similar to those described for Alternative 1 and included as part of the Royal Slope Facility described in Appendix E.

Table 2-5 Alternative 2 Design Characteristics of the Access Roads on Reclamation Land

Access Road Category	Road Length (miles)	Proposed feature changes
Existing routes	0.5	No modification
Existing routes	0.34	Widen to 24 feet and resurface with gravel
New roads	3.38	Build new 24-foot-wide gravel access road within the Transmission Line Corridor. After construction is completed, rehabilitate route to approximately 12 feet wide.

2.3.3 Geotechnical Testing

The Applicant would conduct geotechnical testing to characterize the subsurface conditions on Reclamation land to inform construction design and location of the transmission line structures. The Applicant would dig approximately 25 auger borings at proposed structure locations on Reclamation land within the Alternative 2 Transmission Line Corridor (Figure 212). All geotechnical testing methods, water usage and disposal, construction equipment, and construction workforce would be similar to those described under Alternative 1. The work would take longer than durations described for Alternative 1 because more samples would be collected. California Bearing Ratio testing would be done at Alternative 2. Personnel and equipment operators would use the access roads described in Section 2.3.2 and shown in Figure 2-11. Excluding mobilization time, approximately 1.5 to 2 hours of testing time per boring location is expected for up to 6.5 days.

2.3.4 Construction

Construction access and staging area construction, transmission line installation, and post-construction road rehabilitation would be completed within either a consecutive 10-month period or a phased up to 12-month period, using the same construction hours as described for Alternative 1. If a phased construction approach is used, it would consist of two construction phases. The first circuit would be installed during Phase 1 over an up to 8-month construction period, and the second circuit would be installed during Phase 2 over an up to 4-month construction period.

Approximately 35 workers would build the access roads and transmission line on Reclamation and private lands. Workers would commute from nearby towns (e.g., Beverly, Vantage, Royal City, Wanapum, Moses Lake). The Applicant would encourage workers to carpool to minimize vehicle trips.

As described above in Section 2.4.2, construction equipment and personnel would access Reclamation land using existing roads, widened existing routes and new roads. Construction would require approximately 8,000 total truck trips with a consecutive construction period or approximately 9,500 total truck trips with a phased construction period. Construction vehicles would access the site from I-90, Highway 26, Highway 243, and Beverly Burke Road. Construction access methods and typical construction equipment would be identical as described for Alternative 1.

With a phased construction period, the first circuit would be installed during Phase 1, and the second circuit would be installed during Phase 2. Approximately 16 structures would be dedicated solely to the second circuit, and installation of these structures could occur during Phase 2. In addition to installing new structures, Phase 2 would include installation of structure arms, insulators, conductor, and fiber optic cable on a combination of existing (Phase 1) structures and newly installed structures. All structures could also be installed during Phase 1 to avoid remobilization of drill rigs, concrete trucks (for foundations), and large cranes (for structure installation).

Reclamation would establish a 250-foot-wide temporary work area around the transmission line alignment, including the 150-foot-wide Alternative 2 Transmission Line Corridor, occurring north of Beverly Burke Road, for a total of approximately 154 acres, 102.4 acres on Reclamation land and 51.5 acres on private land (Figure 2-13). The 250-foot-wide temporary work area offers flexibility during construction. Vegetation removal would be required surrounding each transmission structure site as well as conductor stringing and pulling sites. Other temporary work areas would not require vegetation removal.

With a phased construction period, the same temporary work area (250-foot-wide corridor) would likely be required during Phase 2 as during initial construction Phase 1, particularly if Phase 2 structures are not installed during Phase 1. Up to eight temporary stringing and pulling sites on Reclamation land would be required and re-established during Phase 2 construction. Up to 16 temporary structure location work areas would be required if the structures were installed during Phase 2.

Temporary work area dimensions around structure locations and stringing and pulling operation sites as well as methods would be similar to Alternative 1. Large shrubs that require removal will be saved and placed strategically in bare areas being replanted after construction. The total acreage of temporary work areas requiring vegetation clearance on Reclamation land is up to 22.7 acres, depending on construction phasing approach. Temporary laydown areas not requiring vegetation removal within the temporary work area would also be used during construction to lay down the poles and frame them to the full length (approximately 55 to

120 feet). As each pole is installed, equipment and materials would be laid on the ground adjacent to the installation location. Table 2-6 summarizes the temporary work areas associated with Alternative 2 transmission line construction on Reclamation land. The lower range reflects a consecutive construction period, and the upper range reflects a phased construction period.

Table 2-6 Transmission Line Temporary Work Areas on Reclamation Land for Alternative 2

Work Area Type	Number of Work Areas	Work Area Size Area	Activities Proposed	Total Area of Vegetation Removal
Temporary work area on Reclamation land	As described below	250-foot-wide corridor includes Alternative 2 Transmission Line Corridor (102.4 acres)	Structure installation, stringing and pulling sites, and laydown areas.	Up to 22.7 acres, as described below
Structure Locations & Staging Areas on Reclamation land	Up 51	100 feet by 100 feet (0.23 acre)	Vegetation removed in work area.	Up to 11.7 acres
Stringing and Pulling Sites on Reclamation land	Up to 16	300 feet by 100 feet (0.69 acre)	Vegetation removed in work area.	Up to 11.0 acres
Laydown Areas on Reclamation land	Up to 35	50–120 feet by 40 feet (0.05 to 0.11 acre)	No vegetation removal. Poles would be assembled on the ground.	—

An additional approximately 6.3 to 9.0 acres of vegetation would be removed on private land for construction of the transmission line, for up to 15 structure locations (3.5 acres) and up to 4 to 8 stringing and pulling sites (2.8 to 5.5 acres), within a total private land temporary work area of approximately 51.5 acres.

With a consecutive construction period, proposed structure foundation construction methods and conductor installation methods would be identical as described for Alternative 1. Construction temporary work area restoration methods, construction access road rehabilitation methods, and vegetation management methods and strategies would also be identical to Alternative 1. With a phased construction period, restoration and revegetation would occur after Phase 1. Any access roads and temporary work areas that would be disturbed during Phase 2 would be restored and revegetated after the second circuit is installed.

During Alternative 2 construction, approximately 115 AF of water would be required for dust suppression and other purposes with a consecutive construction period or approximately 161 AF of water would be required with a phased construction period. Water sources would be identical to Alternative 1. Nominal wastewater would be generated during construction; sanitary waste would average up to 42 gallons per day. Stormwater management methods would be identical to Alternative 1. Construction activities would generate approximately 1,600 cubic yards of solid waste. Solid waste and hazardous materials would be managed in the same manner as

with Alternative 1. Construction activities would comply with all applicable occupational safety and health standards, including WAC § 296-45.[4] No blasting or use of explosives is proposed for construction; if this is determined necessary, additional NEPA review would be necessary.

2.3.5 Operations and Maintenance

The O&M activities would be similar to those described for Alternative 1, except that the land use easement for the Transmission Line during operation would total approximately 61.5 acres of Reclamation land, including the 150-foot-wide Transmission Line Corridor and access roads.

2.3.6 Decommissioning and Site Reclamation

Decommissioning and site reclamation activities would be similar to those described for Alternative 1. Removal of facilities would require access roads of similar width and condition as those used during initial construction. Approximately 0.34 miles of existing access roads and 3.38 miles of new access roads would be widened to 24 feet during decommissioning activities. Following completion of decommissioning, the roads installed for the sole purpose of transmission line O&M would be removed, and the area would be restored to pre-authorization conditions to the extent possible.

2.4 Design Features – Common to All Action Alternatives

Appendix C outlines the design features that would be employed for the Land Use Proposal, if authorized.

2.5 Alternatives Considered but Eliminated from Further Study

The following alternatives were considered but not analyzed in detail because they did not meet the purpose and need:

- **Lower Voltage Interconnection:** An interconnection study completed with BPA has confirmed interconnection feasibility at the Vantage Substation at the identified voltage of 230 kV. A request to interconnect at anything less than 230 kV will not lead to a required Interconnection Agreement with BPA and is not considered.
- **Other Routing Alternatives:**
  - Paralleling existing transmission line: Paralleling existing transmission lines west of the Alternative 1 transmission line was considered. Due to potential resource concerns with

[4] Washington Administrative Code 296-45 https://lni.wa.gov/safety-health/safety-rules/chapter-pdfs/WAC296-45.pdf.

wetlands, sensitive biological resources, and cultural resources, this option was eliminated from further consideration. The route is also closer to the Columbia River and may increase effects on cultural and biological resources associated with this feature. The Applicant also does not control any land in this area and would not likely be able to come to an access agreement.

- Private land alternative that minimizes Reclamation land use and maximizes private land use: Routing options were considered that would use more private land and less Reclamation land. This option would add length to the transmission line and additional effects. The route is also closer to the Columbia River and has overlap with the resources identified in the "paralleling existing transmission line" discussion. Therefore, this option was eliminated from further consideration.
- Underground transmission line: An underground interconnection is not reasonable or feasible from an economic perspective. The disturbance footprint for underground versions of either alternative alignment would be much larger than the overhead versions. The presence of basalt bedrock at fairly shallow depths in the Project Area would require intensive construction techniques and removal of a substantial amount of material to accommodate trenching for an underground transmission line. The ground disturbance would be continuous on Reclamation land along an underground transmission line, as opposed to isolated ground disturbance at each transmission structure location with an overhead design. This approach also precludes the possibility to span any sensitive biological or cultural resources on the surface and was therefore eliminated from consideration.

- **Other Interconnection Sites:** Other interconnection sites were considered. The Vantage Substation has a unique electrical configuration that allows for a sizable injection of power onto the existing grid. Other interconnection sites would require a much longer transmission line (more than triple the length) and would result in a much larger disturbance footprint. Therefore, this option was eliminated from further consideration.

Chapter 3 Affected Environment and Environmental Consequences

3.1 Introduction

3.1.1 Approach to Analysis

This chapter describes existing physical, biological, social, and cultural resources that could be affected by the alternatives and identifies potential environmental consequences, beneficial or adverse, to those resources that could result from implementing each of the alternatives. The Royal Slope Solar Facility is a reasonably foreseeable future action because it would rely on the transmission line to transmit electricity. This assessment considers the consequences of building and operating the Royal Slope Solar Facility to aid in the assessment of effects. Appendix E describes the Royal Slope Solar Facility common to either federal action alternative.

The Affected Environment section describes the existing environment upon which the alternatives could have an effect, and the Environmental Consequences section describes the potential effects of those alternatives, if implemented, on the resources evaluated. The No Action Alternative describes the conditions of a specific resource if Reclamation takes no action and provides the basis to compare the action alternatives.

The level and depth of the environmental analyses correspond to the degree of effects expected for each environmental component. The affected environment (analysis area) addressed in this EA includes the proposed footprint of the Alternative 1 and Alternative 2 Land Use Proposal areas, including associated access roads, geotechnical testing areas, and the Royal Slope Solar Facility boundary, unless otherwise specified in the following sub-sections. The locations of the Land Use Proposal and the Royal Slope Solar Facility together are generally referred to collectively as the Project Area. The Alternative 1 Transmission Line Corridor or Alternative 2 Transmission Line Corridor within the Land Use Proposal are referred to distinctly where necessary to distinguish between the affected areas (Figure 1-1).

The effects of the alternatives may include temporary effects, short-term and long-term effects, and beneficial and adverse effects. Unless otherwise noted in this analysis, the duration of effects is defined as:

- Temporary: effects occur over a matter of weeks or days.
- Short-term: effects that would be equal to or less than 3 years in duration.
- Long-term: effects that would be greater than 3 years in duration.

For the purposes of this analysis, intensity or severity of the impact is defined as follows:

- Negligible: changes would not be detectable and/or measurable; the resource would be essentially unchanged or unaltered.
- Minor: changes would be detectable, localized, and/or measurable and would have a slight change or alteration to the resource/use.
- Moderate: changes would be clearly detectable, measurable, and/or have an appreciable effect on the resource/use. The resource/use would be notably changed or altered, and the effect is apparent. Project activities could change the indicator[5] over a small area.
- Major: changes would be readily detectable, and/or have a severe effect on the resource. The resource/use would be substantially changed or altered over a large area or to a large degree.

The descriptions of consequences to resources affected by each of the Land Use Proposals are followed by discussions of effects from the Royal Slope Solar Facility. Each resource section concludes by summarizing the consequences of the Land Use Proposal and the Royal Slope Solar Facility. The analysis considers the effects of the action alternatives and reasonably foreseeable future actions that may contribute to incremental effects over time, regardless of the agency (federal or non-federal), organization, or person undertaking them. Table 3.1-1 lists the reasonably foreseeable future actions considered during the effects analysis. Figure 3.1-1 shows the locations of these projects related to the Project Area.

Resources evaluated in this EA are based on Reclamation requirements; compliance with laws, statutes, executive orders, and scoping; and their potential to be affected by the Land Use Proposals. The NEPA requires a streamlined and focused approach toward resource issue/effect inclusion and analysis. A preliminary determination of the level of analysis focuses the assessment on issues that may result in significant or potentially significant effects. Table 3.1-2 lists the level of analysis for resources/issues evaluated in this EA.

[5] Indicators are used to characterize conditions and track effects because they have a clear cause-effect relationship between the proposed activity and the resource.

Table 3.1-1 Reasonably Foreseeable Future Projects Considered in the Analysis Area

Project Name	Brief Description
Royal Slope Solar Facility	Refer to Appendix E for a description.
Wanapum-Mountain View 230 kV Transmission Line Project	The Grant County Public Utility District (PUD) is proposing to build a new approximately 31-mile 230-kilovolt (kV) transmission line from the Wanapum switchyard to the Mountain View substation in Quincy. Under the preliminary route, the transmission line would primarily be aligned along existing roadways and utility corridors. South of I-90, the transmission line would primarily follow Beverly Burke Road with portions crossing undeveloped land. The proposed transmission line would begin at the existing Vantage Substation and follow a similar alignment to the Alternative 1 transmission line north (but to the west of the Alternative 1 transmission line) and then continue east within the proposed Royal Slope Solar Facility boundary until turning north. Construction of the new transmission line would include placing 100- to 115-foot-tall steel poles roughly every 500 feet along the entire alignment. Smaller distribution poles, which carry distribution and fiber optic lines, would be placed halfway between each transmission pole along the corridor. Construction is anticipated to start in 2028.
I-90 Vantage Bridge Repairs	Replacement of the existing bridge deck on the I-90 Vantage Bridge to maintain the structural integrity, ensure the safety of the highway, and extend the life of the bridge. Work to replace the Interstate 90 Vantage Bridge deck is underway for a third construction season. Traffic is reduced to a single lane in each direction around-the-clock, seven days a week with reduced speeds and a 9-foot-width restriction. Construction pauses each winter, with work expected to continue through 2028.

Table 3.1-2 Resources Considered and Dismissed from Further Analysis

Resource/Issue	Analysis Determination and Rationale
Air Quality and Climate	The Project Area attains the National Ambient Air Quality Standards (NAAQS). The nearest groups of sensitive receptors are in the communities of Wanapum Village and Beverly, WA, approximately 1.5 and 2.5 miles south of the Project Area, respectively. The primary criteria pollutants of concern are particulate matter (PM) and carbon monoxide (CO). Most long-term PM and CO in the area are associated with agricultural practices and transportation (roads and traffic) (Ecology 2023). Regional wildfire smoke contributes to temporary air quality impairments in some years during the summer and autumn. Air quality trends in eastern Grant County, WA, are good most days. These conditions would continue under the No Action Alternative. Construction activities under the action alternatives would generate fugitive dust during land clearing and from vehicle travel on unpaved routes for approximately 1 year. Dust emissions would be localized and minimized using standard dust abatement measures (Appendix C). Dust emissions would subside after construction is completed and land clearings are revegetated. Construction activities under the action alternatives would also cause short-term increase in criteria air pollutant emissions within Grant County of approximately 0.03%, relative to 2023 baseline conditions (Ecology 2023). Emissions from vehicles,

Resource/Issue	Analysis Determination and Rationale
	construction equipment, pumps, and generators would not prevent Eastern Grant County from continuing to achieve NAAQS. Construction emissions would subside after the 1-year construction period because motor vehicle use and fuel combustion would decrease. Dust and chemical emissions associated with long-term operations and maintenance (O&M) of the Project would be less than those under current conditions because land clearing areas and motorized vehicle use in the Project Area would decrease over the long term as the solar facility operation replaces agricultural land use practices such as clearing vegetation, disking, and fertilizing. The decommissioning phase would cause short-term emissions like the amounts and durations emitted during the construction phase. Emissions would not prevent ongoing attainment of the NAAQS. No additional analysis is required.
Geology & Soil	Project engineering will design the Project in non-susceptible areas to the extent practicable. Areas of low liquefaction susceptibility would be avoided and/or engineering design would account for these factors based on geotechnical studies. Implementation of Design Features (DFs) to manage stormwater and air quality during construction would mitigate potential effects of erosion during construction or operation (Appendix C). Long-term rehabilitation of most areas cleared during construction will keep the erosion hazard to negligible loss of surface soils.
Hydrology	The RB5J1 wasteway is an unlined surface drain for agricultural irrigation (AI) that passes through the Project Area. The wasteway flows fluctuate around 5 cfs during the irrigation season. A portion of that flow is diverted into an adjacent pond that serves as a stilling basin to pump AI water. Water from that basin is pumped back uphill for reuse. The pond is less than 1 acre and provides no effective storage. The Quincy-Columbia Basin Irrigation District (QCBID) permits approximately 2,502 AF of water per year to be pumped from the RB5J1 wasteway for AI reuse (Pers Comm., Mele J, QCBID 2024). Changing the land use in the project area from agriculture to a solar facility may reduce the demand for secondary AI use withdraws from the RB5J1 wasteway. The alternatives would not measurably change the amount of water flowing through the wasteway because the RB5J1 wasteway would continue to drain approximately 7,755 acres of Columbia Basin Project farm units, regardless of the alternative Reclamation selects, and the RB5J1 wasteway would continue to convey approximately 5 cfs during the irrigation season. The configuration, alignment, annual flow, or lining of the RB5J1 Wasteway would not change under any alternative. No additional analysis is warranted.
Mineral Resources	A sand and gravel source pit is located approximately 0.5 miles north and east of the Land Use Proposal areas. Neither action alternative would reduce the amounts of material available at that pit because the applicant would not obtain materials from the pit, nor would access to the quarry be inhibited by selection of any alternative. None of the remaining areas near the Land Use Proposal areas are currently used for mineral resource extraction. Neither action alternative would preclude future mineral resource extraction in the area, if proposed. No additional analysis is warranted.
Noise	The Project Area is proposed in a rural area south of I-90. The nearest sensitive receptors are residences at Wanapum Village, approximately 1.5 miles south of the Project Area. Helicopter use would generate approximately 90-100 A-weighted decibels (dBA) in the localized operational area intermittently during daylight hours for up to five days. Helicopter noise would be localized and drop off rapidly with

Resource/Issue	Analysis Determination and Rationale
	distance. The nearest sensitive receptors 1.5 miles away would experience helicopter noise of less than 60 dBA, intermittently over the 5-day period (US DoD 1978, at pg. 2-11). For comparison, 65 dBA is the standard threshold used by the FAA for determining land use compatibility in residential areas (USDOT FAA 2021). Noise would be generated by equipment and vehicles during construction, O&M, and decommissioning. Noise generated by construction and decommissioning of the photovoltaic (PV) solar array would result in short-term, negligible, adverse effects due to the distance of sensitive receptors from the Project Area. Noise generated during operations and maintenance would result in long-term, negligible, adverse effects over the life of the PV solar array. No additional analysis is warranted.
Outdoor Recreation	Neither of the action alternatives would interfere with long-term access to the Project Area, nor would they affect the types of recreational activities available. Recreation activities on Reclamation land would be temporarily restricted within active construction zones during the construction period; however, following construction, access would be restored, and new roads would result in a slight increase in access routes available for dispersed recreation activities on Reclamation land. A portion of the proposed project would be visible from The Ice Age Floods National Geologic Trail. Congress designated the Trail across portions of Montana, Idaho, Washington, and Oregon in 2009 to commemorate and interpret the extraordinary landscape created by the cataclysmic Ice Age floods (P.L. 111–11, Sec. 5203). The appearance of new structures within sight of the Trail in the Lower Crab Creek drainage, near the Land Use Proposal could impair visitors' abilities to fully appreciate the geologic features at that location. The overall quality of the recreational experiences currently offered would remain intact and magnitude of effect would be minor as it relates interpretation of geologic features. Neither action alternative would substantially diminish opportunities for outdoor recreation in the area. No additional analysis is warranted.
Paleontological Resources	The Project Area is not considered to be locally or regionally important for paleontological resources. Implementation of DFs, including environmental training for construction crews (Appendix C), would mitigate potential effects to paleontological resources from inadvertent discoveries during construction. No additional analysis is warranted.
Prime & Unique Farmlands	None of the alternatives would prohibit future agricultural development of the Land Use Proposal areas because transmission lines do not preclude agricultural development. The proposed Royal Slope Solar Facility is not part of a CBP Farm Unit. Site inspections determined that portions of the proposed Royal Slope Solar Facility currently in agricultural production are not agricultural lands of commercial significance due to the lack of prime farmland soils, the significant land management required, and other property constraints, including water erosion hazard, blowing soil, shallow bedrock, soil tillage limitations, basalt, and others (Grant County 2021). No additional analysis is warranted.
Socioeconomics	Reclamation considered the socioeconomic effects of the action in terms of employment, taxes, and property values. Construction and decommissioning of the Land Use Proposal would employ up to 25 construction workers over the short term. The labor pool in Grant County and, neighboring, Kittitas Counties totals over 3,900 construction workers (US Census Bureau 2022). Therefore, either action alternative could create short-term job opportunities for fewer than 1% of the construction

Resource/Issue	Analysis Determination and Rationale
	workers in Grant and Kittitas Counties. Operation of the transmission line would require no permanent on-site staff. The long-term employment increase for utility workers would be negligible at the county scale. Project employment would have no impact on local or regional housing availability. The Land Use Proposal would have no impact on employment or housing during operations and maintenance (ESA 2025b). No further analysis on labor and housing is required. Alternative 1 would have no impact on property taxes because federal lands are not subject to property taxes. Alternative 2 includes a portion on private agricultural land, but the construction of transmission lines would not be expected to materially affect property taxes of those parcels. The action would likely promote an increase in tax revenue for Grant County over the long term, either through property or excise tax imposed on qualified renewable energy generating systems as an electric power source, in accordance with Washington House Bill 1756. The purchase of construction materials and the purchases made by construction workers would have a minor beneficial impact on sales tax revenues in the counties in which these purchases are made (ESA 2025b). No further analysis on property taxes is required. A summary of research on the effects of transmission lines on property values suggests little conclusive quantitative evidence of a link between transmission lines and lowered property values, but there is a qualitatively expressed link (e.g., in surveys and opinion-based studies) based primarily on opinions about adverse aesthetic effects (Headwaters Economics 2012). The long-term presence of the transmission lines would not substantially change the existing visual setting, particularly from any residential properties, which either would not have views of the transmission lines due to intervening topography and distance or because the Land Use Proposal would not add a new constructed visual feature that does not already exist. Finally, the Land Use Proposal would not induce population growth in a way that would affect property values by driving up demand for housing because the local labor pool is adequate for all phases of the Land Use Proposal (ESA 2025b). No further analysis of property values is required.
Water Resources and Water Quality	The Project Area is proposed in the Lower Crab Water Resource Inventory Area 41, outside of the 100-year floodplain (FEMA 2018). Water resources within the boundary of the Land Use Proposal are limited to wasteway RB5J1 and an associated secondary water re-use pond. The RB5J1 wasteway conveys agricultural return flow away from CBP farm units east of the Project Area. Surface flows through the RB5J1 wasteway fluctuate around 5 cubic feet per second and are supplied by irrigation returns. The wasteway is earthen lined and conveys no water in the winter. The Quincy Columbia Basin Irrigation District authorizes approximately 2,502 AF of surface water to be pumped out of the RB5J1 wasteway annually from a pond located adjacent to the RB5J1 wasteway and within the boundary of the Land Use Proposal. The Project would not alter the configuration or capacity of the RB5J1 wasteway. The features would continue to provide drainage for approximately 7,755 acres of CBP farm units to the east. The Royal Slope Solar Facility includes a series of privately owned groundwater supply wells associated with irrigated agricultural use. Groundwater wells may supply a maximum volume of 10,123 acre-feet, annually over 2,080 acres for agricultural irrigation water (Ecology 2024). The Royal Slope Solar Facility construction activities would use a maximum of 798 AF of water over the approximately 25 -month

Resource/Issue	Analysis Determination and Rationale
	construction period. Water would be needed in the O&M building for employee use and initial irrigation in active restoration areas in the mitigation area. Project operations water will require, approximately 25 gallons per day per employee, for up to 11 employees (a total of approximately 0.31 AF annually). Decommissioning activities would use water at rates similar to construction activities. The water for Royal Slope Solar Facility construction, O&M, and decommissioning would be supplied by a privately owned well in the Project Area, municipal water source, or water transported in from legally permitted water sources near the Project and stored in on-site water storage tanks. Implementation, O&M, and decommissioning of the Land Use Proposal and the Royal Slope Solar Facility would use substantially less water than current agricultural uses within the Project Area. Effects on surface and groundwater resources would be negligible and no further analysis is warranted. Implementation of DFs (see Appendix C) during construction would mitigate potential impacts of erosion during construction or operation. With proper short-term erosion and sediment control DFs, the erosion hazard can be managed without adverse water quality impacts.
Water Rights	Any water potentially provided from an existing onsite, privately-owned well would be subject to the existing water rights of the property. Domestic water for employees would be delivered to the site, purchased from a provider with existing water rights. Neither action alternative would affect water storage. Water rights associated with agriculture in the areas proposed for Royal Slope Solar Facility would not be inherently harmed by the Reclamation Land Use Authorization License. The Applicant or their partners may request the Washington Department of Ecology take administrative actions to certificates and licenses tied to agriculture, if the Royal Slope Solar Facility is approved. No additional detailed analysis in the EA is warranted because the wells are not located on federal land.
Wetlands & Floodplains	No floodplains occur in the Land Use Proposal areas. The Project Area is proposed in the Lower Crab Water Resource Inventory Area 41, outside of the 100-year floodplain (FEMA 2018). The Land Use Proposal has been designed and would be constructed to avoid effects to all waters and wetlands, including jurisdictional waters of the United States (ESA 2024b; 2024c). The Land Use Proposal would not alter the configuration or hydrology associated with the RB5J1 wasteway or the pond. Therefore, Reclamation's issuance of a land use license would not affect wetlands and no further analysis is warranted. The Royal Slope Solar Facility proposed project area includes nine wetland areas totaling approximately 48 acres (ESA 2024b; 2024c). All wetlands are created by irrigation water controls, application of irrigation water, or irrigation drainage. The Royal Slope Solar Facility is currently designed and would be constructed to avoid effects on all waters and wetlands, including both federal and state regulated wetlands and waters. For these reasons, there would be no net loss of wetlands from the Royal Slope Solar Facility. No additional detailed analysis in the EA is warranted. However, as the Royal Slope Solar Facility design is finalized, if effects to federally regulated wetlands would occur, the Applicant would obtain any necessary permits from the US Army Corps of Engineers (i.e., Nationwide Permit (NWP) 51 for Land-Based Renewable Energy or NWP 57 for Electric Utility Line and Telecommunications Activities) and implement any terms and conditions for compliance with the Clean Water Act. If effects to state regulated wetlands would occur, the Applicant would

Resource/Issue	Analysis Determination and Rationale
	obtain any necessary permits from the Washington State Department of Ecology. The Applicant would apply mitigation for residual effects to waters of the state that could not be avoided. Additionally, the Project would implement DFs for stormwater and erosion control as part of the Project SWPPP to prevent runoff and sedimentation into the washes in the Project Area during construction (see Appendix C). No additional analysis would be required by Reclamation since any impacted wetlands are outside of the Land Use Proposal.
Wild and Scenic Rivers	There are no congressionally designated wild and scenic rivers within or immediately adjacent to the Project Area, so no impact to this resource would result from the Land Use Proposal or the Royal Slope Solar Facility. No additional analysis in the EA is warranted.
Wilderness	There are no Wilderness Areas or Wilderness Study Areas within or immediately adjacent to the Project Area, so no impact to this resource would result from the Land Use Proposal or the Royal Slope Solar Facility. No additional analysis in the EA is warranted.

3.2 Biological Resources

3.2.1 Affected Environment

This section characterizes the wildlife and plant species associated with the Project Area. The section informs the amount of habitat within the Project Area and the connectivity habitat nearby. The analysis area is generally focused on the Project Area. The assessment of habitat connectivity is supported by Figures 3.2-1 to 3.2-5 and considers the Sand Hollow-Columbia River / Lower Crab Creek watershed (watershed analysis area) for context when needed to discuss wildlife movement through the Project Area (Figure 3.2-6).

Several common wildlife species may be found in the Project Area and vicinity, including mule deer, elk, bobcat, coyote, badger, raccoon, and smaller mammals like yellow-bellied marmot and chipmunk. Bird species include various songbirds like Lazuli bunting, American robin, and western meadowlark; gamebirds such as quail and ring-necked pheasant; shorebirds and waterfowl such as great blue heron, mallard duck and American coot; and raptors including American kestrel, red-tailed hawk, and northern harrier. Amphibians include Pacific chorus-frog and reptiles include gopher snake, sagebrush lizard and side-blotched lizard. For a complete list of species observed on-site during field surveys or for a list of species likely to occur in the area refer to the Site Characterization Study (ESA 2022; 2024a).

Special-Status Species

Special-status species for this assessment include ESA-listed species and species identified by the Washington Department of Fish and Wildlife as important statewide (Table 3.2-1).

Table 3.2-1 Special-Status Species with the Potential to Occur in the Project Vicinity

Common Name	Listing or Protection Status		Preferred Priority Habitat in the Project Area	Movement Class[3]
	Federal1	State2		
Monarch butterfly	Proposed Threatened	Candidate	Shrubsteppe; wetlands; occurs in the project area	Large
Ute ladies'-tresses	Threatened, Proposed for Delisting	Endangered	May occur in the project area wetlands; occurs in the project vicinity	Not applicable
American badger	—	Recreational species of importance	Shrubsteppe, shrubland	Small
Black-tailed jackrabbit	—	Candidate	Shrubsteppe, inland sand dunes (WDFW 2021)	Small
Desert striped whipsnake	—	Candidate	Movement corridor. Shrubsteppe, inland sand dunes, wetlands	Small
Ferruginous hawk	—	Endangered	Shrubsteppe, inland sand dunes (WDFW 2021)	Large
Greater sage grouse	—	Endangered	Shrubsteppe, wetlands	Large
Mule deer	—	Recreational species of importance	Movement corridor shrubsteppe, inland sand dunes, wetlands and wetland buffers	Large
Sagebrush lizard	—	Candidate	Shrubsteppe, inland sand dunes	Small
Sagebrush sparrow	—	Candidate		Large
Washington ground squirrel	—	Candidate		Small

[1] Listed pursuant to the federal Endangered Species Act. "—" indicates the species is not federally listed nor is it proposed for listing.

[2] Species identified for state-wide protection. Six species in the table above are candidates for listing as state endangered, threatened, or sensitive.

[3] Relates to dispersal ability for animals. The large movement class species move greater distances than small movement class species. Habitat of large movement class becomes isolated at distances greater than 20 km. Habitat connectivity for small movement species diminishes beyond 1 km. Arid Land Institute species movement targets (ALI 2014).

Several species are known to use shrubsteppe (Table 3.2-1) in the Project Area. Many populations of shrubsteppe-dependent species in Washington are at risk due to habitat loss and fragmentation (WDFW 2025). The desert striped whipsnake, one of Washington's rarest snake subspecies, is known from only two locations in Grant County and may occur within the Project

Area. The desert striped whipsnake occurs in shrubsteppe with rock outcrops nearby to forage, breed, and hibernate. Habitat degradation, including loss of shrub cover and fragmentation, threatens both the snake and its primary prey, ground-dwelling lizards. Conservation of high-quality shrubsteppe and protection of hibernation areas are essential for the species.

Monarch butterfly were observed along the canal and neighboring irrigation ponds along the Alternative 1 proposed access route during summer field investigations (ESA 2022). In addition to milkweed, potential nectar sources in the Project Area include various genera of sunflowers (*Asteraceae* spp.), as well as cultivated alfalfa and clover, which may play a role in supporting the local monarch butterfly population (USDA 2015). Big sagebrush and rabbitbrush that occurs in the Project Area may also provide foraging habitat for monarch butterflies.

Wetlands and mesic environments are favored by Ute ladies'-tresses—a special-status orchid. Wetland environments occur along "irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside bar row pits, reservoirs, and other human-modified wetlands" (Fertig et al. 2005). No Ute ladies'-tresses have been observed in the Project Area during 3 years of protocol field surveys (ESA 2024d); however, a small population is known nearby, south and west of the Vantage Substation. This occurrence burned in 2019 in the 243 Command fire. Despite recent fire disturbance, population size has been generally increasing since 2017 with the peak number of 82 plants recorded in 2023, followed by a 22% decrease to 64 plants in 2024 (WNHP 2025).

Priority Habitat Areas

Priority Habitat Areas (PHA) are habitat types or elements with unique or significant value to a diversity of wildlife species, including those identified in Table 3.2-1. The Project Area supports three PHA types including shrubsteppe, inland sand dunes, and wetlands. Table 3.2-2 summarizes the land cover and PHA types within the Project Area (ESA 2022; 2024a; 2024b; 2024c; 2025a).

None of the Project Area is designated or proposed for designation as critical habitat for species listed under the Endangered Species Act. The Project Area lacks fish-bearing streams, and the nearest habitat for fish is the Columbia River (ranging from 0.3 to 1 mile west of the project boundary).

The Alternative 1 Land Use Proposal contains more PHA areas than Alternative 2, in part because it is wider and also because it lacks the proportion of cultivated cropland and developed areas compared with Alternative 2. The Alternative 2 Land Use Proposal contains more cultivated land than Alternative 1. The Alternative 2 Land Use Proposal is situated closer to existing paved roadways (e.g., Beverly Burke Road).

Table 3.2-2 Habitat/Land Cover Types within the Royal Slope Solar Facility Plus Transmission Line Alternatives 1 and 2

Habitat/Land Cover Type	Land Use Proposal Alternative 1 Transmission Line (Acres)	Land Use Proposal Alternative 2 Transmission Line (Acres)	Solar Facilities (Acres)
Cultivated Crops	0.6	32.0	1,759.0
Developed	7.3	4.2	7.9
Barren Land	0	0	0.4
Grassland/Herbaceous*	0	0	13.3
Hay/Pasture	0	0	8.7
Inland Sand Dunes**	39.4	0	1.6
Shrubland*	0	0	182.5
Shrubsteppe**	273.8	133.2	244.6
Freshwater Wetlands – Emergent Herbaceous and Woody**	0.8	0	38.2
Irrigation Canal, Intermittent	2.2	0	2.0
Open Water	1.3	0	4.5
Total (Acres)	**324.9**	**169.4*** **	**2,262.8**

* Non-priority habitat dominated by non-native/invasive species with little to no native shrubsteppe characteristics

** WDFW Priority Habitat

*** This total is larger than the construction work area presented for Alternative 2 in Chapter 2 because it includes replacement areas for exclusion zones that will be avoided but are not shown.

Habitat Connectivity

The Land Use Proposal areas are large, connected natural areas with diverse ecosystems supporting the movement of wildlife, known as "regional biodiversity areas and corridors" (WDFW 2021). The Arid Land Initiative identifies the Land Use Proposal areas and larger analysis area as a linkage of moderate importance (Arid Land Initiative, 2014).

The Land Use Proposal areas are located within a patch of habitat that extends approximately 3,780 acres east and north from the Vantage Substation (Figure 3.2-1). That patch meets the Arid Land Initiative criteria for good absolute size (> 500 acres) and good connectivity (< 1 km) to other large patches (Arid Land Initiative, 2014, Table 2). The habitat in the 3,780 acres provides suitable connectivity for wildlife because of its size and proximity to other large patches of similar habitat in the vicinity (Figure 3.2-1). Unauthorized off-highway vehicle (OHV) use over the past 15 years is causing a downward trend in habitat quality in the analysis area.

Habitat concentration areas (HCAs) known to be important for some special-status species have been mapped in for the Project Area (WWHCWG 2012). Table 3.2-3 provides the relative

proportion of HCAs in the Project Area compared to amount of habitat mapped for the watershed analysis area.

Table 3.2-3 Habitat Concentration Areas for Selected Special-Status Species in the Project Area Compared to the Watershed Analysis Area

Habitat Concentration Area (HCA)	Amount in Project Area (acres)		Relative Amount of HCA in the Project Area Compared with the Watershed (%)	
	Solar Facility + Trans. Line Alt. 1	Solar Facility + Trans. Line Alt. 2	Solar Facility + Trans. Line Alt. 1	Solar Facility + Trans. Line Alt. 2*
HCA American Badger	0.0	0.0	—	—
HCA Black Tailed Jackrabbit	1,460.9	1,539.8	1%	1%
HCA Ferruginous Hawk	491.9	584.5	<1%	<1%
HCA Greater Sage Grouse	0	0	—	—
HCA Mule Deer	0.00	0.00	—	—
HCA Rattlesnake [1]	935.7	826.0	1%	1%

[1] Surrogate for desert striped whipsnake because no HCA data are available.

An HCA composite map that highlights overlapping special-status species HCAs simplifies identification of important HCAs (WWHCWG 2012). The composite HCA map is a suitable indicator for evaluation because it includes species subject to this assessment, including greater-sage grouse, black-tailed jackrabbit, and mule deer. The composite HCA map indicates species concentration is high and very high near the Vantage Substation and medium and high in the Land Use Proposal areas (Figure 3.2-2). Species-specific HCA data are mapped in relation to the Project Area in the September 2025 PHS/HCA Technical Report (ESA 2025a).

Black-tailed jackrabbits and mule deer are likely to use the Land Use Proposal area as a linkage between the Lower Crab Creek Watershed and the Columbia River gorge. Those species use open areas of shrubsteppe, dry grassland, and inland sand dunes to move between HCAs (ESA 2025a). Desert striped whipsnakes and sagebrush lizards are known to use the inland sand dunes, shrubsteppe and talus rock outcrops in the vicinity of the Alternative 1 Land Use Proposal area.

3.2.2 Environmental Consequences

Indicators of effects on biological resources include:

- Loss or degradation of special-status species and priority habitats that intersect the analysis area.

- Reductions in habitat areas continuity for wildlife movement, including special-status species.

The analysis assumes that active restoration would take a minimum of 5 years to recover shrubsteppe vegetation and the associated habitat values of forage and cover. The analysis also assumes that post construction rehabilitation to recover shrubsteppe vegetation would be successful over the long term.

No Action Alternative

The Solar Facility, transmission line, and associated access roads would not be developed and current conditions would continue. Unauthorized OHV use would likely continue in the Project Area. The majority of OHV use would likely degrade vegetation, causing minor reductions in the amount of shrubsteppe and inland sand dune PHA. The area would remain open as a linkage between HCAs because the OHV trails represent a minor barrier, even to small-sized wildlife. The noise and activity of OHV use in the Project Area could cause wildlife to avoid the project area temporarily. Habitat conversion in the Project Area would be minor because no project-related surface disturbance would occur. Agricultural use would continue.

Effects Common to the Action Alternatives

Reclamation determined that neither action alternative would affect ESA-listed bull trout, bull trout critical habitat, gray wolf, Ute ladies'-tresses, nor yellow-billed cuckoo. Neither alternative would affect aquatic habitat. Bull Trout and their critical habitat would not be affected because the Project would not affect the amount nor quality of water that occurs in the Columbia River. Neither action alternative would affect the Columbia River riparian vegetation nor its substrate. Neither action alternative would affect Ute ladies'-tresses because protocol surveys identified no occurrences of Ute ladies'-tresses in the Project area (ESA 2024d) and wetlands that support potentially suitable Ute ladies'-tresses habitat in the Project Area wetlands would be buffered by a minimum of 50 feet during and after construction to meet Grant County critical areas protection guidelines. Neither action would affect the population of Ute ladies'-tresses known to occur west of Vantage substation because no vegetation would be cleared from that area. The amount of surface water flowing through the canal north of the Vantage Substation would not decrease. Fugitive dust would be controlled during construction and implementation of the VMP would prevent noxious weeds from establishing and spreading out from the Land Use Authorization areas.

Applying the VMP during construction and rehabilitation would avoid, minimize, and recover some native vegetation cover values to approximate near pre-construction conditions to the extent feasible (Appendix B; ESA 2026a). The herbaceous bunchgrass, and forb vegetation removed during construction would recover over the short term, as those species are seeded, planted, and become re-established. Shrub recovery would occur over the long term in areas where shrubsteppe habitat is cleared during construction followed by active restoration treatments to recover sagebrush communities.

Both action alternatives would mitigate unavoidable adverse effects to PHS habitats either on-site, through in-lieu fee, or a combination thereof. If on-site mitigation is selected, the replacement ratio for effects to shrubsteppe would meet statutory requirements of the Growth Management Act, RCW Chapter 36.70A (Appendix C).

Wildlife mortality during construction would be negligible because most species and age groups would avoid the activity and noise associated with construction. Identifying and flagging sensitive habitat areas for avoidance during pre-construction biological surveys could potentially minimize mortalities to desert striped whipsnakes, migratory birds, and monarch butterflies during construction. Avoiding vegetation removal during nesting seasons would minimize potential for construction activity to affect migratory birds. The potential for transmission line operations to electrocute birds perching and roosting on structures or wires is negligible because the transmission line spacing would be greater than the wingspan or perching distance for large bird species in the area. The potential for birds to become injured from collisions with transmission lines in the analysis area would increase because more powerlines would span the area. The potential for birds to collide with guy wires would be minor over the long term because guy wires would only be installed where necessary for safety and visibility markers would be installed on all guy wires and the shield wire to minimize the potential for bird collisions (Appendix C).

The potential for invasive weeds to degrade habitat conditions would be minor over the long term because the licensee would implement a series of DFs to minimize the import and establishment of weeds (Appendix C). Unauthorized OHV use in the Project Area would potentially decrease due to signage installed to notify the public that off-road motorized travel is not authorized on Reclamation land. Implementation of the Habitat Mitigation Plan (HMP) would prevent further development from occurring in passive mitigation areas and would promote recovery of shrubsteppe and inland sand dune vegetation in the active mitigation areas currently under cultivation. The location of passive and active mitigation areas identified in the HMP would offset the loss of PHAs displaced by transmission line structures, road footprints, and Solar Facility. Over the long term, the arrangement of passive and active mitigation areas could improve foraging areas available to special-status species, such as desert striped whipsnake, that use both the rock outcrops, shrubsteppe, and inland sand dune habitat.

Decommissioning and restoration would recover PHA vegetation cover and remove structures after the license expires, facilities are removed, and the areas are restored. Shrubsteppe vegetation recovery would recover several decades after transmission line removal and active restoration completion.

Action Alternative 1

Transmission Line

Special-Status Species

Construction would reduce habitat values on approximately 172 acres of the Land Use Proposal area because land clearing, trimming, trampling activities would degrade vegetation cover and forage in those areas (Table 3.2-4). Construction could moderately reduce the desert striped whipsnake population's ability to move between hibernation areas and nearby foraging areas over the long term due to vegetation clearance and degradation. The long-term effects to all other special status would be minor because adjacent areas would remain available. The special-status species that would experience short-term, minor loss of habitat values include sagebrush lizards, sage sparrows, and black-tailed jackrabbits. Construction noise and activity would likely cause diurnal wildlife to avoid the 324-acre Land Use Proposal area for approximately 5 months. Nighttime avoidance effects would be negligible because construction activity would likely cease at night.

Operation of transmission line towers and access roads would cause a minor, long-term increase in the potential for birds to prey on small size-class species like reptiles and burrowing mammals because the 16 new towers would increase perches and sagebrush cover below the towers would decrease. As a result, some special-status species may avoid the Land Use Proposal Area over the long term. A large 3,332-acre patch of shrubsteppe and dry grassland habitat would continue to be available between the transmission line and Beverly Burke Road special-status over the long term (Figure 3.2-4).

The long-term effects of transmission line and access road operation would be negligible for large movement special-status species such as mule deer, birds, and pollinators because the mobility of those species would enable them to easily bypass the transmission line and access roads. Small movement special-status species such as sagebrush lizards and Washington ground squirrels may perceive the transmission line and access road as a minor barrier over the long term due to the relative lack of cover in that area and may perceive transmission line towers as an increased threat of predatory bird perches. The long-term effects of predation by species perching on transmission structures would be minor because the structures would employ DFs designed to dissuade predatory raptors, crows, and ravens from using transmission towers as perches to hunt from (Appendix C).

Small movement species known to use inland sand dune areas such as sagebrush lizards and Washington ground squirrel, would experience minor adverse effects from habitat loss, degradation, and separation. Desert striped whipsnakes could experience moderately adverse effects because the transmission line corridor could limit the local population's access to foraging areas. The long-term effects of habitat loss would diminish as the licensee implements the VMP, implements habitat mitigation, and unauthorized OHV use in the area decreases.

The long-term effect of wildlife displacement from transmission line O&M would be minor because adjacent areas would continue to be accessible by most special-status species. Construction and post-construction areas from Alternative 1 are depicted in Figure 3.2-7. The VMP includes

management of weeds which would limit degradation of adjacent PHA by minimizing the spread of noxious weeds from the transmission line access routes into adjacent PHA areas (Appendix B).

Priority Habitat Areas

Up to approximately 168 acres of PHA would be cleared, trimmed, or trampled during construction. The PHA areas affected include 139 acres of shrubsteppe and 28.8 acres of inland sand dune (Table 3.2-4). Of the cleared areas, approximately 3.1 acres of PHA would be converted to roads and transmission line tower structures over the long term and would represent a permanent loss of habitat until such time that the area is decommissioned and reclaimed (Table 3.2-4). The remaining PHAs cleared of vegetation would be rehabilitated following construction, representing a long-term impact.

Habitat Connectivity

Construction would reduce the continuity of habitat north and east Vantage Substation by approximately 324 acres, which represents a 10% reduction of the 3,780-acre connected patch that currently overlaps the analysis area shown in (Figure 3.2-4). Approximately 3,332 continuous acres of mixed shrubsteppe, inland sand dune and dry grassland habitat would remain connected north and east of Vantage substation. Connectivity of that habitat area would remain good because of its size and relative proximity (< 1 km) to other patches of habitat greater than 500 acres in the Lower Crab Creek watershed. The effects of habitat separation would diminish over the short term because construction activity would end 5 months after initiation. Separation effects would continue to diminish over the long term as restored areas mature. The long-term O&M of the transmission line would present a minor barrier for wildlife movement because transmission line and access roads would remain highly permeable to wildlife movement.

Table 3.2-4 Proposed Effects on Habitat/Land Cover in Alternative 1 Transmission Line

Land Cover and Priority Habitat Type	Short-Term Construction Areas (Ac)	Operational Areas (Ac)***	
		Roads	Structures
Cultivated Crops	< 0.1	—	—
Developed	3.6	< 0.1	—
Grassland/Herbaceous*	0	0	0
Inland Sand Dunes**	28.8	0.6	< 0.1
Shrubland*	0	0	0
Shrubsteppe**	139.0	2.4	0.1
Total	***171.4***	***3.0***	**0.1**
		Total Operational Effects	***3.1***

* Non-priority habitat dominated by non-native/invasive species with little to no native shrubsteppe characteristics.

** WDFW Priority habitat

*** Footprint of impact for the life of the license; assumes 11 transmission line structures (6-pole double-circuit) placed in priority habitats.

Removal of vegetation and construction activity would cause moderate reduction in foraging areas available for desert striped whipsnakes because the transmission line and new road would pass between the rock outcrops and talus slopes where they hibernate, and the inland sand dune-shrubsteppe areas where they forage and hunt (Figure 3.2-4). Sagebrush lizards and other small movement species such as ground squirrels would experience only minor reductions in foraging areas from construction because those species are more widely distributed than desert striped whipsnakes. Localized habitat separations between rock outcrop, inland sand dune, shrubsteppe and dry grasslands in the analysis area would diminish over the long term because construction activity would cease and small movement wildlife would pass over the access roads and under the transmission lines during operation.

Construction activity and noise could cause a minor, short-term shift in movements of medium and large-size class animals between HCAs along Lower Crab Creek and HCAs north of I-90, such as Beezley Hills, Rocky Ford Creek, and Gloyd Seeps areas. Mule deer and black-tailed jackrabbit for example, would likely avoid using the north-south corridor along the Columbia River gorge during daylight hours when construction activity is high. The shift in movement corridor could cause those species to move east along the Crab Creek to the Columbia National Wildlife Refuge, then travel northward to HCAs north of I-90. The avoidance effects would be minor and short term because activity would decrease each evening and cease entirely after 5 months. The north-south movement corridor from Lower Crab Creek to HCAs north of I-90 would continue to be used by species active at night and early morning hours when construction activity is low. Mule deer for example, may use the Columbia River gorge movement corridor during hours of low construction activity rather than shift their movement to corridors further east.

Royal Slope Solar Facility

Impacts due to construction of the proposed solar facility would primarily affect non-priority habitats (254.3 acres or 79% of the area affected short term) compared with construction impacts on priority habitats (21% or 65.7 acres) (Table 3.2-5). Conversion of cultivated crops would account for approximately 83% of the proposed 1,732-acre solar facility footprint, while priority shrubsteppe (10%) and developed/non-priority land cover (7%) would account for much of the remaining land conversion. A man-made irrigation pond will be filled for the solar array, but no construction or operational effects to freshwater wetlands would occur (Table 3.2-5).

Although ferruginous hawks prefer open, arid landscapes such as shrubsteppe habitat, the relative effect of the Project compared to the amount of shrubsteppe present in the entire Sand Hallow-Lower Crab Creek watershed is less than one-half of 1% of the amount of shrubsteppe in the entire watershed analysis area. The long-term effects to shrubsteppe habitat, the largest PHS resource affected by the Project, would be offset by mitigation areas provided in the HMP, thus providing compensation for long-term adverse effects to shrubsteppe habitat. The other special-status species show a similar result, where surface disturbance accounts for a fraction of 1% of the potential available habitat at the watershed scale (ESA 2025a) and adverse effects would be minor.

Table 3.2-5 Proposed Effects on Habitat/Land Cover in the Proposed Solar Facility

Land Cover & Priority Habitat Type	Construction Areas (Ac)	Operational Areas (Ac)***	
		Roads	Solar Facilities
Barren Land	—	—	0.3
Cultivated Crops	190.4	21.2	1,418.3
Developed	3.8	0.6	2.0
Freshwater Wetlands – Emergent and Woody**	0	0	0
Grassland/Herbaceous*	1.4	0.1	9.1
Hay/Pasture	2.5	0.1	6.1
Inland Sand Dunes**	1.4	0.2	0.1
Open Water	—	—	4.5
Shrubland*	56.1	6.6	89.9
Shrubsteppe**	64.3	5.9	166.7
Total	319.9	34.7	1697.0
		Total Operational Effects	***1,731.7***

* Non-priority habitat dominated by non-native/invasive species with little to no native shrubsteppe characteristics

** WDFW Priority Habitat

*** Footprint of impact for the life of the license

Effects Summary

Construction would impact existing land cover on a total of approximately 320 acres, including 65.7 acres of priority habitats (64.3 acres of shrubsteppe and 1.4 acres of inland dune).and would recover over the long term. Solar facilities and roads would replace existing land cover on approximately 1,732 acres. Approximately 83% of the total area required for operation would replace agriculture. The overall effect of these land cover changes to wildlife would be negligible to moderate depending on the species. Several large patches of continuous sagebrush and dry grassland habitat (>500 acres each) would be situated within one km of each other. The Lower Crab Creek watershed would continue to provide habitat concentration areas and linkage for general wildlife and special-status movements (Figure 3.2-3).

Long-term effects to PHA/HCA from Alternative 1 would be minor (less than one-half of 1% affected) compared to the amount of available habitat found in the watershed (ESA 2025a). Wildlife would avoid moving through the Reclamation Land Use Authorization Area during construction of Alternative 1. Construction disturbance would affect a relatively small portion of potential movement corridors because approximately 3,332 continuous acres of mixed shrubsteppe, inland sand dune and dry grassland habitat would remain connected and available for wildlife movement adjacent to the Project Area, east of Vantage substation during construction.

Effects to desert striped whipsnake could be moderately adverse because construction and operation of the transmission line could affect a local population's ability to move between hibernation areas and adjacent foraging areas. Effects on other wildlife species movements in the long term would be minor because the transmission line would not prevent wildlife movement (ESA 2025a). Wildlife would likely continue passing through the Project Area using the corridors along the irrigation canal west of Alternative 1 and along the wetland complexes south of the proposed Solar Facility. The fences associated with the Solar Facility would cause a minor reduction in wildlife movement. Mule deer, for example, would not move through the Solar Facility due to fencing. Adverse effects to smaller wildlife species' movements through the Solar Facility would be minimized by arranging solar arrays to facilitate wildlife movement through the Project Area; and using fencing designs that allow smaller animals to pass underneath the fence, reducing barriers to wildlife movement (see Appendix C). The solar arrays will be clustered in blocks to promote wildlife passage through the interior of the facility. Additionally, the facility was sited to avoid existing animal movement corridors like nearby riparian habitat and wetland buffers. No short-term or long-term effects to wetlands, the irrigation canal or open water or associated buffers would occur due to Alternative 1.

The effects of Alternative 1 would be moderately adverse for biological resources without any mitigation because the only known population of desert striped whipsnake in Washington State could lose access to habitat. However, with the implementation of mitigation to offset impacts on priority habitats, the effects of Alternative 1 on biological resources are anticipated to be minor. The mitigation approaches are outlined in a Habitat Mitigation Plan (HMP) (ESA 2026bc), and measures for minimizing impacts to vegetation during construction and for restoring disturbed habitats are outlined in the VMP. The VMP is included as an attachment to the HMP and is also provided as a stand-alone document (Appendix B). Wildlife species that are present in the Project Area are relatively adapted to human disturbances and are anticipated to shift foraging and breeding activities to nearby habitats during construction. Construction areas within the proposed solar facility and Land Use Proposal Area, not otherwise occupied by facilities, would recover vegetation and some wildlife species are anticipated to reinhabit those areas over the long term. A minor reduction in vegetation cover and forage would persist over the long term from the addition of structures and operational activities.

Effects to monarch butterfly breeding and foraging habitat would be negligible because areas known to support monarch breeding would be excluded from the project footprint. DFs would provide for ongoing identification and protection of monarch breeding and foraging areas during project construction (Appendix C, DFs 12 i-q, 12-bb). The riparian habitat associated with wetlands would not be removed or altered for the Land Use Proposal area, and as currently designed for the Solar Facility. Removal of shrubsteppe and non-priority shrubland would affect less than 1 percent of all combined priority shrubsteppe, inland sand dunes, and wetland habitats in the watershed (not including non-priority habitats). Vegetation removed during construction would be rehabilitated in areas not otherwise necessary for facilities with native vegetation with potential nectar sources for the monarch butterfly.

Potential effects to desert striped whipsnake could be moderate because the Alternative 1 Transmission Line Corridor would separate known habitat areas of the local population. Implementation of the HMP would diminish those effects to minor over the long term.

Overall, effects on common wildlife species from Alternative 1 would be minor over the short term because most of the species are mobile and would avoid short-term construction disturbance like motorized vehicles and land clearing. Any incidental mortality would be rare and isolated and would not have the potential to affect regional population levels. Effects of construction on wildlife habitat loss and degradation would diminish over the long term because rehabilitation and mitigation would offset adverse effects of construction. Shrubsteppe/dry grassland habitat continuity would remain connected for both large and small movement size class wildlife because large patches, more than 500 acres, would be available for wildlife to pass through the Transmission Line Corridor. Habitat changes would be minor. Proposed habitat mitigation, if implemented, would offset long-term loss of PHA where structures displace PHA vegetation.

Action Alternative 2

Transmission Line

Considerations of potential effects on biological resources due to the construction and operation of facilities for Alternative 2 would be similar to those described for Alternative 1, with some distinctions highlighted in the following sub-sections. The primary differences between the effects of the alternatives relate to location, construction duration, and transmission line length, and location. Figure 3.2-8 depicts habitat/land cover types associated with Alternative 2.

Special-Status Species

Construction would reduce habitat cover and forage amount on approximately 142 acres of the Land Use Proposal area for the same reasons described under Alternative 1. The total area affected by construction under this alternative is about 30 acres less than the area that would be affected for Alternative 1, largely because Alternative 2 is not as wide as Alternative 1 and is located partially adjacent to Beverly Burke Road (Table 3.2-6). Loss of habitat for special-status species would be minor because wildlife species could disperse to adjacent areas. Desert striped whipsnakes would retain their ability to disperse between hibernation and foraging areas. Long-term effects on all land cover types resulting from the Alternative 2 transmission line would be more than Alternative 1. Structures and roads would displace vegetation on a total of 4.3 acres under this alternative, compared to 3.1 acres for Alternative 1. Wildlife mortality would be negligible for the same reasons described in Alternative 1.

Table 3.2-6 Proposed Effects on Habitat/Land Cover in Alternative 2 Transmission Line

Land Cover and Priority Habitat Type	Short-Term Construction Areas (Ac)	Operational Areas (Ac)***	
		Roads	Structures
Cultivated Crops	32.0	1.0	< 0.1
Developed	3.8	0	< 0.1
Grassland/Herbaceous*	0	0	0
Shrubland*	0	0	0
Shrubsteppe**	106.1	3.1	0.2
Total	141.9	4.1	0.2
Total Effects from Operational Areas			***4.3***

* Non-priority habitat dominated by non-native/invasive species with little to no native shrubsteppe characteristics

** WDFW Priority Habitat

*** Footprint of impact for the life of the license; assumes 30 transmission line structures (6-pole double-circuit) placed in shrubsteppe habitat.

This alternative has less potential to affect desert striped whipsnakes and sagebrush lizards than Alternative 1 because the Land Use Proposal would not cross any inland sand dune habitat, nor would it cause construction activity, habitat degradation, or structure installation to occur between areas where desert striped whipsnakes hibernate and areas where they hunt. The short-term reduction in cropland could be a minor reduction in forage for mule deer over the short term. Construction noise and activity would cause wildlife to avoid the Land Use Proposal area for the same reasons as described in Alternative 1, except the duration of those effects would last for up to 7 months longer under this alternative.

Operation of transmission line towers and access roads would cause a minor, long-term increase in the potential for birds to prey on small size-class species like reptiles and burrowing mammals in the Land Use Proposal area. The effects of predation would be minor under this alternative because most of the tower structures would be positioned along Beverly Burke Road and that area supports relatively poor habitat quality. Small special-status species such as sagebrush lizards and Washington ground squirrels may experience a minor increase in predation when crossing new access roads that lack cover beneath transmission structures.

Long-term transmission line and access road operation would have minor effects to special-status mobility from HCAs in Lower Crab Creek to HCAs north of I-90. Mule deer and black-tailed jackrabbit may shift movements to nighttime use, when construction activity is absent or low. Desert striped whipsnakes and sagebrush lizards would be less likely to encounter movement barriers under this alternative because the transmission line and access roads would not separate known hibernation areas from hunting areas. After construction ceases, the operation and maintenance of the transmission line would be a negligible barrier for nearly all

special status because they would pass under the transmission lines, between the tower structures, and across access roads without harm.

The long-term effects of decreased habitat continuity in areas north and east of Vantage Substation would be negligible for large movement species like mule deer, birds, and pollinators because they could pass under or over the transmission line during operation.

Priority Habitat Areas

Construction would remove or degrade vegetation on 106.1 acres of shrubsteppe PHA (Table 3.2-6), compared to 139 acres of shrubsteppe PHA for Alternative 1. Although not shown in Table 3.2-6, up to 22.7 acres of shrubsteppe PHA would be removed to accommodate pulling sites and staging areas in the Transmission Line Corridor and temporary work areas. Vegetation would be degraded on the remaining 83.4 acres of shrubsteppe PHA because of the potential for driving, trampling, and equipment laydown to injure plants. Post-construction rehabilitation in temporary construction areas would promote recovery of herbaceous vegetation over the short term and some woody shrubs over the long term. No vegetation would recover on 3.3 acres of shrubsteppe PHA where new roads and structures are installed, which is slightly more than the permanent displacement of about 3.1 acres of PHA under Alternative 1.

Habitat Connectivity

Construction would reduce the continuity of shrubsteppe and dry grassland habitat north and east Vantage Substation by approximately 646 acres (18% of the connected patch that currently overlaps the analysis area shown in Figure 3.2-5). Large and small movement class wildlife would continue to disperse through the analysis area because approximately 3,028 continuous acres of mixed shrubsteppe, inland sand dune and dry grassland habitat would continue to remain connected north and east of Vantage substation during construction (Arid Land Initiative, 2014 at pg. 10). The long-term O&M effects of the transmission line on wildlife movement would be negligible because half of the transmission line structures and new roads would occur along the edge of the habitat patch, adjacent to Beverly Burke Road. In contrast to Alternative 1, no inland sand dune areas would be affected. Habitat connectivity would recover over the long term because construction activity would cease. The presence of structures and new roads for Transmission line O&M would present a negligible to minor barrier for wildlife movement over the long term.

The magnitude of avoidance behaviors exhibited by sagebrush lizards and desert striped whipsnakes during construction would be negligible, and less than that for Alternative 1, because the Alternative 2 transmission line alignment avoids inland sand dune habitat areas. The new roads would not separate the rock outcrops of the Columbia River gorge from adjacent foraging and hunting areas in the shrubsteppe (Figure 3.2-5). In contrast to Alternative 1, those habitat areas would remain connected during construction under this alternative.

The effects of construction activities on the movements of medium and large-size class animals, such as black-tailed jackrabbits and mule deer, would be similar to those described for Alternative

1 but the duration of the movement corridor avoidance would last up to 12 months, or twice as long under this alternative. Mule deer and black-tailed jackrabbits may shift their north-south movement patterns along the Columbia River gorge to night-time hours or shift their north-south movements away from the Columbia River gorge area entirely to use corridors further east that connect the Columbia National Wildlife Refuge with HCAs north of I-90 (ESA 2025a).

Royal Slope Solar Facility

Potential effects to biological resources from the planned solar facility are the same as described for Alternative 1.

Effects Summary

Construction under Alternative 2 would remove or degrade vegetation in fewer areas than Alternative 1. Alternative 2 construction would remove or degrade approximately 33 fewer acres of shrubsteppe PHA than Alternative 1 over the short term because the temporary construction area for the transmission line is narrower under this alternative. Approximately 0.2 acres more shrubsteppe PHA habitat would be displaced by structures and roads over the long term than Alternative 2 because the transmission line is longer than Alternative 1. Alternative 2 would not impact inland dune habitat PHA. The transmission's line proposed position, along Beverly Burke Road would be less likely to benefit predators of desert striped whipsnakes (ravens, magpies, red-tailed hawks) compared to Alternative 1 because new perch sites (transmission infrastructure) would not directly intersect known desert striped whipsnake dispersal corridors between hibernacula and connecting habitat.

Wildlife species that depend on shrubsteppe and shrubland habitat are anticipated to shift activities to nearby available habitats. After shrubsteppe and shrubland habitat recover from construction and rehabilitation, some wildlife species would continue to use the Project Area. The tower structures could potentially increase avian predation effects on sagebrush lizards and Washington ground squirrels in the vicinity of the Land Use Proposal.

Similar to Alternative 1, large-size class wildlife like mule deer would not move through the Solar Facility due to the fencing. Smaller wildlife species may continue moving through the Solar Project Area. Wildlife would avoid moving through the Project Area during construction and would resume moving through the transmission line area over the long term after construction has ceased and restored vegetation matures. Minimization and avoidance measures to maintain and promote movement corridors are the same as those described for Alternative 1. The Lower Crab Creek Watershed would maintain most of its connectivity for east-west wildlife movements.

Long-term effects to PHS/HCA from Alternative 2 would be minor (less than one-half of 1% affected) compared to the amount of available habitat found in the watershed (ESA 2025a). Wildlife would continue to disperse through the Land Use Proposal Area because most of the new structures and roads would occur adjacent to the edge of an existing road (ESA 2025a). The overall effect of habitat separation would be negligible for the same reasons described as

Alternative 1. Several large patches of continuous sagebrush and dry grassland habitat in excess of 500 acres would continue to be available for small and large size class focal species because the patches would be situated within 1 km of each other (Arid Land Initiative, 2014, at pg. 10). The Lower Crab Creek watershed would continue to provide habitat concentration areas and linkage for general wildlife and special-status movements over the long term.

The Wanapum to Mountain View Transmission Line project is proposed within the watershed and would intersect with the proposed Royal Slope Solar Project. If authorized, the effects of that line would add to the habitat separation and the potential for avian collisions with the electrical wires. These total additive effects are anticipated to be minor given the large area within the watershed for wildlife movement and life functions to occur. Two important bird areas (IBAs) are within 10 miles of the Project Area, but the Project Area is not identified as an IBA (ESA 2024a). Bird diverters would minimize the potential for bird strikes. Bird strikes are anticipated to be minor over the long term.

3.3 Cultural Resources

3.3.1 Analysis Area

The analysis area for cultural resources consists of the Area of Potential Effects (APE ;Figure 3.3-1) and the key observation points from which the Project would be visible (Figure 3.7-1 Viewshed Map). The analysis area considers both the APE for physical effects and the viewshed for non-physical visual, auditory, and atmospheric effects.

3.3.2 Affected Environment

Cultural resources include archaeological resources, built environment resources, Traditional Cultural Places (TCPs), and Indian Sacred Sites, that may be affected by the alternatives. Historic properties are a subset of cultural resources that include any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP; 36 CFR § 800.16(l)(1)). This term includes artifacts, records, remains, and properties of traditional religious and cultural importance to an Indian Tribe that meet the National Register criteria. Except in unusual cases, historic properties must be 50 years or older to be eligible for inclusion in the NRHP.

The regulations that implement Section 106 of the NHPA require federal agencies make a "good faith effort" to identify and evaluate cultural resources for eligibility for listing on the NRHP (36 CFR 800.4(b)(1)). They also stipulate that federal agencies evaluate, consider, and seek ways to avoid, minimize, or mitigate any adverse effects on historic properties (36 CFR 800.4(c)) through consultation with interested parties.

Surveys for cultural resources in the APE have been completed as required by implementing regulations for Section 106 of the National Historic Preservation Act (Kovalchik et al. 2025).

The APE surveys along the Land Use Proposal Alternatives, Royal Slope Solar Facility, and Habitat Mitigation Area concluded fall 2025. The records search undertaken in support of this EA identified 48 prior cultural studies within 1 mi of the APE.

The first widely recognized cultural period in the southern Columbia Plateau region is the Paleoindian Period (Ames et al. 1998). The earliest physical evidence of human occupation in this region has been dated to ~16,000 radiocarbon years before present (BP) (Davis et al. 2022). At the time of European and Euro-American exploration and settlement, this region was occupied by Native peoples who shared similar social, political, and subsistence patterns (i.e., Cayuse Phase). Groups in the region included the Middle Columbia Salishans (Moses Columbia, Wenatchi, Entiat, and Chelan), Nez Perce (*Nimíipuu*), Palús *(Palúšpam)*, Wanapum (*Wánapam*), Yakama (*Mámanchatpam* and *Pshwánwapam*), Cayuse (*Liksiyu*), and others (Aoki 1994; Beckham 1998; Schuster 1998; Stern 1998).

Archaeology and Historic Built Environment

Previous surveys identified hundreds of cultural resources within 1 mile of the APE. Archaeological sites also occur within the APE. Historic built environment resources in the APE, include two electric transmission lines eligible for the NRHP. Each of the known electrical transmission line historic built environment resources are significant for their roles in the electrification of the Pacific Northwest.

Cultural resource inventories of the APE for this project occurred from 2021 to 2025 and those inventories identified additional cultural resources (Kovalchik et al. 2025). These cultural resources include precontact period sites, historic period sites, and multicomponent sites (including both precontact and historic resources). The analysis area for the physical effects APE contains 0.06 cultural resources per acre.

Consultations to comply with NHPA, S.106 on the results of the cultural resources inventory report are ongoing and formal determinations of eligibility for NRHP by Reclamation are not complete as the date of this EA. Cultural resource contractors revisited two historic built environment resources (transmission lines) previously determined as NRHP-eligible and confirmed no changes to their NRHP eligibility Six new built environment resources are now recorded in the analysis area (four transmission lines, one canal, and one road). The four transmission lines and were determined eligible in 2024 for listing in the NRHP under Criterion A[6]. The road and the canal were recommended not eligible in 2024 for listing in the NRHP.

Traditional Cultural Places and Sacred Sites

Three TCP studies were developed for the Project (Lally 2023; Miller 2022; Northwest Anthropology 2022). These studies were developed by the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation), the Confederated Tribes of the Colville Reservation

[6] Properties may be eligible for listing on the NRHP under Criteria A if they "are associated with events that have made a significant contribution to the broad patterns of our history" (36 CFR 60.4).

(CTCR), and by Northwest Anthropology under the direction of the Wanapum Band of Priest Rapids (Wanapum), respectively. All three studies indicate TCPs are within or adjacent to the APE, some of those TCPs are sacred sites. This assessment also considers a review of publicly available TCP information within the APE (Kovalchik et al. 2025). The analysis area is a traditional place to gather culturally important plants.

The Vantage to Pomona 230 kV Powerline is an existing transmission line that was completed in 2020. As part of the project a traditional cultural properties study was completed, and the effects were addressed (Lally and Camuso 2011). The Final EIS for the Vantage to Pomona Project identified TCPs within the analysis area that may also be sacred sites as defined in EO 13007. Part of the Vantage to Pomona Project overlaps the Land Use Proposal.

3.3.3 Environmental Consequences

Effects that diminish a resource's ability to convey its historical significance include physical effects that alter the resources itself or nonphysical effects that alter the visual, auditory or atmospheric setting of the resources. Effects to cultural resources for this analysis aligns with the effects analysis completed for the Section 106 process for NHPA, and includes those caused by the Project later in time or farther removed but reasonably foreseeable.

Indicators of effects to cultural resources are detected by:

- Relative density of cultural resource sites that occur in the action area.
- Impacts that diminish aspects of integrity and eligibility for listing in the NRHP, per the NHPA (36 CFR 800.5).
- Impacts on cultural resources that may not be formally documented historic properties or evaluated for NRHP eligibility, including resources that have been identified as TCPs and their associated cultural resources.

The analysis assumes:

- Cultural resources are nonrenewable resources, and damage to NRHP eligible cultural resources (i.e., historic properties) typically results in permanent adverse impacts. Determinations of NRHP eligibility are pending completion of NHPA consultation.
- Reclamation will continue to consult with the Tribes, and other consulting parties, to better understand potential impacts on cultural resources and TCPs.
- Cultural resources within the analysis area that would be subject to destructive and potentially significant adverse effects could require resolution of adverse effects through ongoing NHPA Section 106 compliance; this could include the development of an NHPA Section 106 agreement document if avoidance and minimization measures are not sufficient to avoid an adverse effect.

No Action Alternative

There would be no Project-related effects to archaeological resources, historic built environment resources, or TCPs under the No Action Alternative because the transmission line would not be built. Traditional cultural practitioners' access to the Land Use Proposal area would not be restricted because construction would not occur.

Action Alternative 1

Transmission Line

Construction, operation, and removal of the transmission line would risk physical and non-physical effects to cultural resources due to the density of sites known to occur within transmission line corridor and temporary construction areas. Physical effects may include partial or complete destruction, as well as loss of data potential, from grading, excavation, or other ground-disturbing activities during construction, operation, or decommissioning. Non-physical effects include alterations to the resources' viewshed.

Transmission line and access road construction would cause approximately 172 acres of surface disturbance in the APE (Map 2-9; Table 3.2-4). The overall cultural resource density within the Alternative 1 Land Use Authorization is 0.23 per acre, approximately four times the average density within the overall APE. Construction activity poses risk of adverse impacts from physical disturbance of sites due to the density of sites in the Land Use Authorization Corridor. NHPA consultation and the use of onsite cultural resource monitors would inform the potential for design modifications to minimize physical effects from construction to all known pre-contact archaeological sites. Currently, no design modification is planned to physically avoid historic sites. Therefore, if any historic sites that are unevaluated or eligible for inclusion on the NRHP (i.e., historic properties), then effects to those historic sites would constitute an adverse effect under the NHPA. If evidence of previously unknown sites becomes apparent during construction, then work would stop, licensee will implement the NHPA post-review discovery plan, and Reclamation would consult pursuant to NHPA Section 106. Through ongoing NHPA Section 106 consultation process, potential physical effects would be limited to previously unknown sites, and those determined not eligible for the NRHP, if any are present. The Design Features for cultural resources summarized in Appendix C would promote protection of known, and previously unknown, cultural resources.

No long-term effects to historic built environment resources (i.e., historic transmission lines) would occur from construction, operation, and decommissioning of the Alternative 1 transmission line because the subject resources are electrical transmission lines that would not be physically altered. The addition of the Alternative 1 transmission line would be visible from existing transmission lines and would be thematically consistent with those existing resources. As a result, relevant elements of integrity—setting and feeling—would not be permanently diminished for the existing transmission lines. Short term visual, auditory, and atmospheric (e.g., dust) effects during construction, operation, and decommissioning would be non-permanent. No long-term physical effects to other historic built environment resources (e.g., canal and

roads) would occur from construction, operation, and decommissioning as no physical impacts are planned. Short term visual, auditory, and atmospheric effects to other historic built environment resources during construction, operation, and decommissioning would be non-permanent. Construction and decommissioning activities would cause short term visual, auditory, and atmospheric effects for the first 5 months, and last 5 months of the license term. The addition of the Alternative 1 transmission line would be visible from existing canal and roads and not necessarily be thematically consistent with those existing resources. Therefore, if any of the other historic built environment resources are unevaluated or eligible for inclusion on the NRHP (i.e., historic properties), then effects to those historic sites would constitute an adverse effect under the NHPA.

TCPs identified within and adjacent to the Alternative 1 Land Use Proposal would be affected by the Project. The magnitude of effects on TCPs could include physical alteration, visually affecting the setting of the TCP, or auditory effects from the noise generated by transmission line construction and operation. Potential options for mitigation or avoidance of TCPs will be determined through the ongoing Section 106 NHPA consultation process. Non-physical effects cannot be avoided entirely but may be minimized through Project design.

Adverse effects to the physical integrity of Indian sacred sites could occur under Alternative 1. The TCP studies identify that some TCPs are also sacred sites identified within and adjacent to the Land Use Proposal and would be affected by the transmission line construction and operation. (Northwest Anthropology 2022:29, Lally 2023). Reclamation is engaged in ongoing NHPA Section 106 consultation with consulting parties. Consulting with these parties may result in imposed conditions and/or the creation of an NHPA Section 106 agreement document, which would stipulate mitigation measures, the responsibilities for cultural resource monitoring, inadvertent discoveries, Tribal involvement, and overall protective management for the duration of the project. Execution of an agreement would meet the requirements of the NHPA Section 106 process and resolve the potential for effects that cannot be avoided or minimized (36 CFR 800.2(d)(3)).

Royal Slope Solar Facility

Construction and operation of the solar facility would cause approximately 1,732 acres of surface disturbance in the Solar Facility area (Figure E-1). The overall cultural resource density within the Solar Facility area is 0.04 sites per acre, approximately 2/3 the average density within the overall APE. This lower than the APE average density is likely due to the agricultural disturbance and sand dunes present in this part of the APE and therefore, there is a potential for buried cultural resources. Construction would minimize physical effects to all known pre-contact archaeological sites by design with oversight by onsite cultural resource monitors. Currently, no design modification is planned to avoid historic sites. Therefore, if any historic sites that are unevaluated or eligible for inclusion on the NRHP (i.e., historic properties), then effects to those historic sites constitutes an adverse effect under the NHPA. Construction activity would risk adverse impacts from physical disturbance of sites due to the probability of previously unknown buried deposits under the agricultural zone and due to historic dune mobility in this area. If

evidence of previously unknown sites is discovered during construction, then work would stop and Reclamation would consult pursuant to NHPA Section 106. Nonphysical effects cannot be avoided entirely but can be minimized through Project design. The Design Features for cultural resources summarized in Appendix C would promote protection of known, and previously unknown cultural resources.

No permanent effects to historic built environment resources would occur from the Royal Slope Solar Facility construction because there would be no physical alteration to any of the resources. The construction and operation of Royal Slope Solar Facility would create a new permanent visual element on the landscape visible from existing transmission lines, roads, and canal. As a solar field is a new infrastructure type in this area, it is not thematically consistent with existing historic built environment resources and therefore, if any of the other historic built environment resources are unevaluated or eligible for inclusion on the NRHP (i.e., historic properties), then visual, atmospheric, or auditory effects to those historic sites constitutes an adverse effect under the NHPA. Short term visual, auditory, and atmospheric effects during construction, operation, and decommissioning would be non-permanent.

TCPs identified within and adjacent to the Solar Facility would be affected by construction and operation. The effects on these TCPs could include physical alteration, visually affecting the setting of the TCP, or auditory effects from the noise generated from operation of the Royal Slope Solar Facility. The TCP studies identify that some TCPs are also sacred sites identified within and adjacent to the Land Use Proposal and would be affected by the construction and operation of the Solar Facility. The Applicant's ability to build and operate the Solar Facility in a way that avoids physical effects to all known TCPs will be determined through ongoing consultation with consulting parties through the NHPA, Section 106 process. Non-physical effects cannot be avoided entirely but can be minimized through Project design. For example, the Applicant removed previously proposed solar facility components in the Mitigation Area from the design to mitigate effects on critical priority habitats and avoid and increase the setback from sensitive cultural resources (see Section E-4, Appendix E). Traditional cultural practitioners would be able to continue to access adjacent Reclamation land for gathering and other traditional activities.

Similar to the Alternative 1, effects of the Royal Slope Solar Facility could include potential effects to sacred sites identified within or adjacent to the Solar Facility (Northwest Anthropology 2022:29, Lally 2023). The Royal Slope Solar Facility design avoids effects on documented precontact archaeological sites and other cultural resources recommended for avoidance. Potential physical effects to the integrity of sacred sites that may be present will be addressed through Reclamation's ongoing NHPA Section 106 consultation.

Effects Summary

Implementation of Alternative 1 would result in the potential for physical and non-physical effects on cultural resources. The density of known cultural resources within the Project Area (0.23 per acre for the Land Use Authorization Area) is higher under this alternative than for the No Action or Alternative 2. Reclamation's ability to implement this alternative in a way that avoids or minimizes effects to known cultural resources unevaluated or eligible for inclusion on the

NRHP (i.e., historic properties) would be determined through ongoing consultation with interested Tribes, pursuant to the NHPA Section 106 process. If Reclamation determines that known cultural resources can be successfully avoided, effects would be limited to previously unknown cultural resources. If evidence of previously unknown cultural resources becomes apparent during construction, then work would stop and Reclamation would consult pursuant to NHPA Section 106. Historic built environment resources would not be physically altered, and their integrity would remain intact. TCPs may experience physical, visual, or auditory effects. Potential effects of the Project on TCPs and sacred sites that occur within or adjacent to the Project will be addressed through Reclamation's ongoing consultation under Section 106 of the NHPA.

Action Alternative 2

Transmission Line

Construction, operation, and decommissioning of the transmission line would risk physical and non-physical effects to cultural resources for the same reasons described under Alternative 1 but the likelihood of avoiding pre-contact archeological sites would improve under this alternative because the site density is lower at 0.18 per acre (compared to 0.23 for Alternative 1). Cultural resources are more dispersed compared to Alternative 1. Currently, no design modification is planned to avoid historic sites. Therefore, if any historic sites that are unevaluated or eligible for inclusion on the NRHP (i.e., historic properties), then effects to those historic sites constitutes an adverse effect under the NHPA.

Transmission line construction, operation, and decommissioning would have no long-term effects to historic built environment resources for the same reasons discussed under Alternative 1. Short-term impacts to the visual, auditory, and atmospheric setting of existing resources would occur for up to 12 months at the beginning of the license term, and for another up to 12 months at the end of the license term.

Transmission line construction, operation, and removal would affect TCPs for the same reasons described under Alternative 1. Potential options for mitigation or avoidance of TCPs will be determined through the ongoing Section 106 NHPA consultation process. Reclamation will determine effects on sacred and ceremonial sites during the NHPA Section 106 consultation process ongoing with interested Tribes.

Royal Slope Solar Facility

Under Alternative 2, the effects of Royal Slope Solar Facility would be identical to those described under Alternative 1.

Effects Summary

Implementation of Alternative 2 would result in the potential for physical and non-physical effects to cultural resources. However, the effects to cultural resources under Alternative 2 would be less than those for Alternative 1 because the overall number of cultural resources is

lower and the site density per acre is lower. The lower cultural resource density improves the likelihood that project design would avoid physical effects to pre-contact archaeological sites identified during initial project surveys. Currently, no design modification is planned to avoid historic sites. Therefore, if any historic sites that are unevaluated or eligible for inclusion on the NRHP (i.e., historic properties), then effects to those historic sites would constitute an adverse effect under the NHPA. The likelihood of successfully avoiding pre-contact archeological sites would be greater than Alternative 1 because the site density in Alternative 2 is lower. As with Alternative 1, potential nonphysical effects will be addressed through consultation under Section 106 of the NHPA.

The analysis area for reasonably foreseeable projects includes the APE for the action alternatives combined with the project areas shown in Figure 3.1-1. Past and foreseeable future actions consist of the construction, operation, and decommissioning of electrical transmission lines. These actions are independent of one another, because the completion of one does not enable or lead to the undertaking of another. These actions would be similar to the Land Use Proposal and would affect cultural resources in similar ways. The effects on archaeological resources could be effects to individual archaeological sites and objects, as well as fragmentation of cultural landscapes (geographically defined area containing a significant concentration of archaeological sites and objects), if present. Because the past and future actions are all similar in nature, there is unlikely to be an effect on the historic built environment, which at present consists of electrical transmission lines, roads, and a historic canal. If future actions do not require physical alterations to existing historic built environment resources, the effects of the visual of transmission towers and lines are unlikely to be significantly adverse to these resources.

The effects on TCPs could manifest in different ways, either by additively amplifying effects of one type, such as visual effects, or through compounding effects from different pathways, such as visual effects from one project, and effects on TCP-relevant plants and animals by another. These effects will be identified and addressed through consultation under Section 106 of the NHPA.

3.4 Tribal Interests

3.4.1 Analysis Area

The analysis area for tribal interests is the Project Area.

3.4.2 Affected Environment

Tribal interests are resources associated with cultural practices, beliefs, the sense of purpose, or existence of a living community rooted in that community's history or is important in maintaining its cultural identity and development as an ethnically distinctive people. Federally recognized Tribes associated with the analysis area include the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation) and the Confederated Tribes of the Colville Reservation

(CTCR). The Wanapum Band of Priest Rapids (Wanapum) are also associated with the analysis area. Each of the Tribes and the Wanapum regard their interests in the analysis area differently. For the purposes of this analysis, Tribal interests are limited to Indian Trust Assets (ITAs) and areas of tribal importance and use.

Indian Trust Assets

ITAs are legal interests in property held in trust by the United States for Indian Tribes or individuals. Reclamation identified no ITAs that would be affected by either of the Land Use Proposals (Reclamation 2023). The nearest ITAs are trust lands of the Yakama Nation, located approximately 35 miles southeast of the nearest Land Use Proposal area.

Areas of Tribal Importance and Use

The importance of locations and uses to Tribes and the Wanapum is defined through an ongoing process of consultation. Studies developed for this project indicate the Tribes regard the analysis area as important for various reasons including cultural practices and culturally important wildlife and plants, as documented in the TCP studies for this project. (Lally 2023; Miller 2022; Northwest Anthropology 2022). The TCP studies were developed by the Yakama Nation, the CTCR, and by Northwest Anthropology under the direction of the Wanapum.

Unauthorized OHV use in the Land Use Proposal areas has caused a downward trend in the abundance and condition of vegetation in the analysis area. Outreach and coordination with the Tribes will continue throughout the consultation process to help ensure concerns are identified and considered.

Consultation

Reclamation consults with federally recognized Tribes and the Wanapum according to statutory requirements, regulations, and guidelines, including, but not limited to, the NHPA; the American Indian Religious Freedom Act; the Native American Graves Protection and Repatriation Act; EO 13175, Consultation and Coordination with Indian Tribal Governments; Joint Secretarial Order 3403 on Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters; Departmental Manual, Series 30 Part 512, American Indian and Alaska Natives Programs; and Reclamation Manual, Indian Policy of the Bureau of Reclamation (NIA P10).

Reclamation is in active NHPA Section 106 consultation with the Yakama Nation, the CTCR, and the Wanapum. Through consultation, Reclamation has identified traditional use areas near the project area and is working closely with affected Tribes and the Wanapum to address these concerns through ongoing communication, coordination, and collaboration. Continued coordination with affected Tribes will occur through the appropriate consultation as required and/or requested (Section 106 or government-to-government). Appendix F summarizes outreach and communication with interested Tribes and the Wanapum.

3.4.3 Environmental Consequences

Analysis Indicators

- Access to the analysis area by the Tribes and the Wanapum.
- Loss of hunting and gathering opportunities.

Assumptions

- Ongoing Tribal consultation prior to project activities would identify locations and uses important to Tribes and the Wanapum to avoid or mitigate any adverse impacts to tribal interests.
- Construction activities would restrict access to the Land Use Proposal areas for health and safety purposes.
- This document does not define, confer, nor assess the validity of rights claimed by any Tribal government or member.

No Action Alternative

The transmission line and the associated access roads would not be developed and the current conditions would continue within the Land Use Proposal areas. Unauthorized OHV use would continue to cause minor reductions in the abundance and vigor of plants which may be culturally important at localized areas where trails proliferate in the Land Use Proposal areas. Access to the Land Use Proposal areas would not be constrained.

Action Alternative 1

Transmission Line

Alternative 1 would adversely affect TCPs identified by the Tribes and the Wanapum (see Section 3.3.3). Construction would remove vegetation or degrade its condition on approximately 172 acres of the Land Use Proposal. Vegetation would be cleared, trimmed, or trampled during construction of the transmission line for Alternative 1. Implementation of the VMP would recover some of the species affected by construction over the long term (Appendix B; ESA 2026a), except for 3.1 acres permanently removed due to access road and tower structure placement. This long-term loss of habitat would slightly reduce the abundance and diversity of plants available for gathering use by Tribes and the Wanapum.

Construction activities would limit site access to the Transmission Line Corridor for approximately 5 months for health and safety purposes. Access by members of the Tribes and the Wanapum to the plants and animals that are potentially Tribal resources would be restricted during the 5-month construction period. Access to the Land Use Proposal area would be restored after construction concludes. Formal channels of communication and agreements on site access would be addressed through coordination with Tribal members or through

government-to-government consultation. The long-term presence of transmission line towers and overhead conductors could impair interests identified by Tribes and the Wanpum.

Hunting opportunities in the Land Use Proposal area would decrease on approximately 324 acres because wildlife would avoid the area during the 5-month construction window.

The proposed Alternative 1 transmission line would cause permanent removal of wildlife habitat on 3.1 acres (see Section 3.2.2), primarily due to the construction of new access roads. Ongoing coordination with the Tribes and the Wanapum may identify other Tribal interests. The magnitude of effects that site restrictions, vegetation impacts, combined with the non-physical effects of transmission line operation, such as appearance and sound, would have on tribal interests will be determined through ongoing consultation, communication, and coordination with affected Tribes and the Wanapum.

Royal Slope Solar Facility

The proposed Royal Slope Solar Facility is located on privately owned land and would result in short term effects to 320 acres and permanent effects to 1,732 acres of which approximately 1,418 acres are of cultivated crops. Privately owned land and cultivated crop lands are unlikely to contain Tribal interests. The short-term habitat loss and the long-term habitat loss of 314 acres on uncultivated private land may contain Tribal interests that could be identified through Tribal consultation.

Effects Summary

Site access, hunting, and gathering opportunities would be reduced on approximately 172 acres during the 5-month construction period. Consultation and coordination with the Tribes and the Wanapum will occur to determine if adverse effects to TCPs can be mitigated. Site access would be restored after construction concludes. Hunting and gathering opportunities may partially recover over the long term if implementation of the VMP promotes recovery of culturally important plants and animals.

The Royal Slope Solar Facility and the Wanapum-Mountain View Transmission Line Project are reasonably foreseeable projects that would add to the effects of the Alternative 1 Land Use Proposal (Figure 3.1-1). The Wanapum to Mountain View Transmission Lines could further diminish gathering areas to the extent those areas are currently available to members of the Tribes and the Wanapum. The degree of effects of transmission line structures and operation would be determined by the Tribes and the Wanapum through ongoing communication, coordination, and consultation.

Action Alternative 2

Transmission Line

The type of effects to Tribal interests under the Alternative 2, would be similar to Alternative 1 except the size and location, and duration of effects would be different. Construction would

remove or degrade vegetation on up to approximately 142 acres. The total areas where vegetation would be cleared, trimmed, or trampled during construction would be less under this alternative, and the types of vegetation affected would be different. In contrast to Alternative 1, no inland sand dune habitat areas identified by WDFW would be affected and most plant communities affected would occur along Beverly Burke Road. The VMP would promote recovery of some plant species over the long term. Transmission line tower structures and access roads would displace vegetation on approximately 3.3 acres over the long term (compared to 3.1 acres under Alternative 1).

Construction activities would limit access to the Transmission Line Corridor for health and safety purposes for up to 12 months, or approximately twice the duration forecast for Alternative 1 because more time would be required to build the transmission line. Like Alternative 1, implementation of the VMP would promote recovery of plant communities and wildlife habitat to approximate pre-construction conditions to the extent feasible over the long term. The magnitude of that effect on tribal interests would be determined during ongoing consultation with the Tribes and the Wanapum.

Hunting opportunities would decrease for the same reasons described under Alternative 1. The magnitude of decrease would be determined during ongoing consultation with interested Tribes. In contrast to Alternative 1, most of the transmission line would be located along Beverly Burke Road.

Royal Slope Solar Facility

Potential effects to Tribal Interests from the Royal Slope Solar Facility are the same as described for Alternative 1.

Effects Summary

Site access, hunting, and gathering opportunities would be limited on approximately 362 acres during the 12-month construction period. The areas affected would be different from those affected by Alternative 1 because the transmission line would follow a different route. Consultation and coordination with the Tribes and the Wanapum will occur to determine if adverse effects to TCPs can be mitigated. Access would be restricted for up to 12 months during construction and then be restored. The VMP would promote recovery of some plants affected by construction over the long term. Structures would displace vegetation from up to 3.3 acres during transmission line operation. Wildlife avoidance of the Land Use Proposal area during construction could reduce hunting opportunities for 12 months.

The Royal Slope Solar Facility and the Wanapum-Mountain View Transmission Line Project are reasonably foreseeable projects that would add to the effects of the Alternative 2 Land Use Proposal (Figure 3.1-1). The Wanapum-Mountain View Transmission Line would produce similar short-term, and potentially long-term, effects to Tribal interests in the analysis area. The intensity of effects will be determined through ongoing consultation, communication, and coordination with affected Tribes and the Wanapum.

3.5 Public Safety

This section addresses public safety – including construction worker safety – relative to the presence of physical hazards and, hazardous materials, operation of heavy equipment, construction traffic, and potential for fire during construction and operation of the Land Use Proposal. The public safety analysis area includes the Transmission Line Corridor, access roads, Royal Slope Solar Facility, and a 100-foot buffer area around these features. The timeframe for the analysis of changes to public safety is 30 years because that time span includes all phases of construction, operation, and decommissioning of the structures and roads proposed in the Land Use Proposal areas. The key indicators for public safety effects are changes in the number and potential severity of hazards the public, including construction workers, may encounter.

3.5.1 Affected Environment

Below describes the existing environment related to public safety. These include environmental health hazards related to potential exposure to toxic chemicals, fire and explosion, contamination, liquid and gas pipelines, and emergency services and response capabilities.

Hazards and Hazardous Materials

Four potential sources of contamination exist in the analysis area that were identified as recognized environmental conditions[7] (RECs) as part of a Phase I Environmental Site Assessment (Phase I) for the Project Area (Terracon 2024); however, no RECs were found on Reclamation-owned land. A 500-gallon diesel above ground storage tank with visible oil staining in the vicinity of the tank is located within the Royal Slope Solar Facility boundary (parcel 150232000). There are also three hydraulic motors from irrigation pumps with visible pavement and soil staining, one located at the northwest corner of the Royal Slope Solar Facility boundary on private land (parcel 150234005), one located in the north-central portion of the Royal Slope Solar Facility boundary on private land (parcel 15031000), and one within the Alternative 2 Transmission Line Corridor on private land (parcel 210552000). Phase I also reviewed adjoining properties and determined that current uses on adjoining properties did not represent a REC to the Project Area. The RECs in the Project Area are shown in Figure 3.6-1. Utility and farm workers in the analysis area use hydraulic oils, paints, adhesives, and sealants to operate and maintain electric utilities and agricultural irrigation systems. Further soil testing was conducted as part of an updated Phase I in February 2026 that included exploratory excavations at the locations shown in Figure 3.6-1. The updated Phase I concluded that due to the limited depth of soil staining and relatively low total mass of petroleum-impacted soil removed, staining observed in the vicinity of the hydraulic motors and above ground storage tank would be considered a *de minimis* condition and would not represent RECs in association with the sites (Terracon 2026).

[7] A REC is defined as the presence or likely presence of any hazardous substances or petroleum products in, on or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of future release to the environment.

The Vantage Substation represents an electrical hazard and a physical hazard. Fencing around the substation limits public exposure to hazards associated with the substation. There are approximately five overhead electric power line hazards in the analysis area. One set of powerlines passes along the south side of Beverly Burke Road. All existing powerlines operate according to National Electrical Safety Code (NESC) standards to meet or exceed minimum suspension heights above ground to minimize overhead hazards. Public health hazards associated with electrical utilities in the analysis area are minor. No construction materials are known to occur in the publicly accessible portions of the analysis area.

The presence of microplastics and metals in the Project Area soils is not well understood because no sampling and testing data for those elements are available. Land use practices and atmospheric deposition are both potential sources of microplastics in soils. For soil in north-central Washington that supported agriculture without routine biosolid applications, Adhikari et. al. (2024), reported microplastic concentrations of 117 particles/ kg dry soil. Atmospheric deposition contributed 15 particles / kg dry soil per year and was mainly composed of polyamide fibers. Heavy equipment known to operate in the portion of the analysis area proposed for the Royal Slope Solar Facility includes agricultural equipment, such as tractors, trucks, and trailers for commodity harvest and transport. Cranes and utility service trucks occasionally operate in the analysis area to maintain existing powerlines, substation facilities, surface drains, and irrigation systems. The public health hazards from operation of heavy equipment and use of hazardous substances in the analysis area is low because hydraulic oils, solvents, and paints are contained during transport and used according to label specifications and commercial equipment operators licensed by the Washington State Department of Licensing. Hazardous waste is not generated on Reclamation land in the analysis area.

Three fires have burned approximately 60 acres of the analysis area since 2019. The 243 Command Fire burned south and east of Vantage Substation and areas along Beverly Burke Road. Also in 2019, the Cliff Fire burned portions of the analysis area adjacent to the access road proposed from Highway 243. An unnamed fire burned sagebrush and grasslands along the RB5J1 Wasteway.

Fire and Emergency Services

Grant County Fire District 10 provides initial fire response in the analysis area. The department is staffed with a combination of volunteers and career firefighters. Grant County Fire District 10 Fire Station 3 is located approximately 3 miles south of the Vantage Substation. Incidents that become larger require partnership across multiple agencies including federal and state fire suppression resources. Both the Cliff Fire and the 243 Command Fires required multiple agency resources to suppress.

3.5.2 Environmental Consequences

The key indicators for public safety effects are changes in the number and potential severity of hazards the public, including construction workers, may encounter.

No Action Alternative

Under the No Action Alternative, the transmission line and associated access roads would not be developed, and current conditions would continue. There would be no change from existing hazards and hazardous materials, use of construction materials or heavy equipment, and potential for fire in the analysis area; therefore, there would be no changes to public safety in the analysis area. People's use of the analysis area would continue.

Action Alternative 1

Potential effects on public safety from geotechnical testing and the construction and operation of facilities would be related to issues resulting from existing hazards and hazardous materials, use of construction materials and heavy equipment, and potential for fire.

Transmission Line

During construction, potentially hazardous materials would be introduced to the Land Use Proposal area through construction materials and waste. Most of the solid waste generated would be non-hazardous and primarily consist of cardboard, wood pallets, copper wire, scrap metal, common trash, and wood wire spools. Non-recyclable construction waste would be hauled off-site to an approved local landfill. Construction activities in the Land Use Proposal area may include the transport, use, or temporary storage of hazardous materials, such as batteries, hydraulic fluid, diesel fuel, grease, lubricants, paints, solvents, and adhesives. Workers would be trained and required to identify and properly handle hazardous materials. Additionally, all hazardous materials would be used, stored, and disposed of based on the manufacturers' recommendations for proper use and in accordance with applicable regulatory requirements.

A short-term, minor increase in construction traffic would occur along Highway 243, Highway 26 W, and I-90, because construction vehicles would be using these routes to access the construction area. A portion of the construction traffic would be hauling oversized loads and would be permitted, in accordance with Washington State rules and regulations for commercial vehicle size and weight limits[8]. Some of the traffic associated with this project could be affected by the I-90 Vantage Bridge repairs. For example, alternate routes or arrival times may be required for oversized loads attempting to access the Royal Slope Transmission Project from I-90 during the Vantage Bridge repairs. The minor increase in motor vehicle traffic hazards associated with construction would conclude after approximately 5 months.

Hazardous material use and storage during construction and decommissioning would have negligible effects on public safety because the SPCC would identify preventative measures and practices to reduce the likelihood of an accidental release of hazardous materials and expedite response and remediation in the event of an accidental release. The SWPPP would also include measures to prevent hazardous materials from entering nearby waterways in the instance of an accidental release (see Section 2.2.4 and Appendix C for details on the SPCC and SWPP).

[8] Revised Code of Washington, Title 46, Chapter 46.44

Physical hazards would increase during construction because the Applicant would use heavy equipment and perform earthwork on the site. The number of physical hazards in the Land Use Proposal area would increase during the 5-month construction period because construction materials and heavy equipment use in the Land Use Proposal area would increase. The potential hazard increase from introduction of construction materials and heavy equipment would be minor and short term. Implementation DFs (Appendix C) and Reclamation stipulations would include a requirement that construction holes be covered with a rigid barrier and that temporary fencing, along with signs, would be installed around construction areas to prevent public access. Overhead hazards during construction would increase from approximately five to six overhead power lines through Alternative 1 transmission line construction, operation, and maintenance. The severity of those hazards would be minor because engineering and geotechnical testing would also occur as part of Alternative 1 to inform construction design and final location of the Alternative 1 transmission line structures. Worker exposure to high-voltage lines would be reduced by implementation of DFs and implementation of safety standards at Chapter 296-45 of the WAC, which include the provision of personal protective equipment, training for hazard recognition and safe work procedures, fall protection equipment, and emergency readiness procedures.

The potential for fire ignition would increase slightly during construction because sources of combustion within the analysis area would increase through the introduction of construction equipment and activities. The severity of the increase would be minor because the Applicant would employ precautions during construction such as prohibiting the open burning of construction trash and fire prevention DFs. Operational hazards would be minor because the Applicant would maintain the minimum required clearance between electrical conductors and ground vegetation and would include regular vegetation maintenance to minimize the potential for fire ignition. Implementation of the VMP would minimize the risk for fire by reducing available fuels around the Transmission Line Corridor. A minimum of 25 ft. would be maintained between electrical conductors and vegetation. Implementation of an Emergency Response Plan during construction would ensure emergency responders are fully informed regarding the project's hazardous material risks and how to safely respond to fires at the facility if needed. In addition, DFs would adhere to Reclamation specifications (see Appendix C) and may include a dust control program, idling policy, construction equipment maintenance standards, hazardous materials control, stormwater management, wildfire prevention, and other required measures.

O&M activities would not generate solid or hazardous waste within the boundary of the Land Use Proposal, resulting in no hazard ion Reclamation land during O&M. Waste generated during the decommissioning phase would be similar to the construction phase, except for the potential disposal of treated wood structures. Most of the solid waste generated would be non-hazardous and recycled when possible. Non-recyclable waste would be disposed of in an approved landfill. A minor increase in microplastics and metal in the soil could occur in localized areas around tower piers where degradation and demolition over the life of the license causes fragmentation of concrete piers to occur. Wood structures would be considered hazardous waste due to the

chemicals used to treat the wood for longevity. Decommissioned wood structures would be disposed of in an approved hazardous waste landfill, reducing the severity of the effect.

In addition, as described in Appendix C, Alternative 1 would implement an Emergency Response Plan during operations and would train local emergency response personnel and on-site staff in fire response procedures during operation of the facility.[9] The plan would be completed in accordance with existing federal and state regulations. The Emergency Response Plan would be prepared in consultation with the local fire department, the transmission operator, BPA, and the energy storage system supplier. Accordingly, local emergency responders would be aware of the potential emergency scenarios to minimize public safety hazards during operation. The Emergency Response Plan would also include other transmission line-specific risks such as electrical shock hazards and protocol for downed overhead lines. The Alternative 1 access roads would provide access for emergency responders during construction and operation of the Alternative 1.

Royal Slope Solar Facility

Similar to the Alternative 1 Transmission Line, during the construction phase of the Royal Slope Solar Facility, effects would include potentially hazardous materials introduced to the analysis area through construction materials and waste. During operation, batteries, paint, oil, and hydraulic fluid may be temporarily stored on-site, and small amounts of fuel and other petroleum products may be stored onsite for equipment. The substation will contain equipment that uses sulfur hexafluoride (SF6) gas and equipment which contains insulating mineral oil. However, the preventative measures and practices in the Project's SPCC Plan would ensure safe storage and use of these materials, reducing the risk of hazardous exposure or release.

For reasons discussed above, the proposed solar facility components, including a 260 MW BESS (battery energy storage system), trackers, inverters, transformers, underground electric collection lines, a telecommunications system, fencing and lighting, an O&M building, an on-site solar facility substation, and short term construction areas, could increase physical hazards associated with hazardous materials release. However, for reasons substantially similar to those described above for the transmission line components, the severity of those hazards would be minor due to the implementation of engineering and geotechnical testing, DFs, the SPCC, and the SWPPP as part of Alternative 1. The updated Phase I did not find evidence of hazardous chemicals or conditions that might affect Project development and design. Similar to the Alternative 1 Transmission Line, the construction phase for the solar facility and BESS would pose a slight increase in the risk of fire as a result of typical construction activities that require the usage of heavy machinery.

During operation and maintenance, the primary fire risk associated with the Royal Slope Solar Facility would be related to the BESS. The BESS facility would be comprised of containers which house lithium ion battery modules, power conversion systems, required thermal

[9] The Emergency Response Plan would apply to the Royal Slope Solar Project described in Appendix E and also would apply to the transmission line.

management systems, such as liquid cooling or heating, ventilation, and air conditioning (HVAC), and fire protection systems. The BESS facility site controllers are designed to interface with the grid and safely shutdown the system if required. The Royal Slope BESS facility will meet all applicable safety and fire protection standards. Fire detection measures are incorporated in the Project design in accordance with 2021 International Fire Code requirements in Chapter 12 for Energy Storage Systems, and National Fire Protection Association (NFPA) safety standards 855. The battery module design undergoes rigorous industry testing and certification related to fire safety to minimize the risk that a failure of any single battery cell or module spreads to adjacent batteries or other equipment. These certifications and testing standards include Underwriters Laboratories (UL) 9540A, UL 1642, and UL1973.

Each storage container will be equipped with its own air conditioning or cooling system to ensure it operates within a prescribed temperature range to reduce fire risk. All battery containers will be equipped with fire detection, notification systems, and explosion control. The fire detection system incorporates advanced sensors and detection systems, including multispectral infrared detectors, that operate per NFPA requirements. Explosion control will be accomplished through exhaust ventilation or deflagration panels.

The batteries will be continuously monitored by on-site systems to reduce fire risk and automatically detect abnormal conditions and stop operations, if needed. These systems detect many metrics such as temperature, current, and voltage. In addition to the on-site automatic monitoring systems, an off-site 24-hour control center with trained technicians will continuously monitor the facility and can remotely shut down the facility if needed. The Applicant will also develop an Emergency Response Plan and Fire Prevention Plan prior to construction and subsequently train local emergency response personnel during construction and operation of the facility. The Applicant will work with Grant County Fire District 10 to ensure emergency responders are familiar with the Project Area and what fire suppression measures will be available to them in the event of a fire. In addition, typical O&M activities will include oversight of solar generation, storage, and transmission facilities which will further mitigate the risk of fire.

Effects Summary

Alternative 1 would result in a minor, long-term increase in potential hazardous exposure and fire risk due to the existence of hazards as part of construction and operation and maintenance activities. The Royal Slope Solar Facility would also pose a minor long-term increase in fire risk because the implementation of engineering and design, geotechnical testing, DFs, SPCC, SWPPP, Emergency Response Plan, and Fire Prevention Plan would minimize these risks. For example, preventative measures and practices would minimize the likelihood of an accidental release of hazardous materials and expedite response and remediation in the event of an accidental release, as well as minimize fire risk, and provide rapid response measures in the event of a fire. A minor increase in the amount of microplastics and metals in the soil would occur within the Transmission Line Corridor. Public safety hazards in the analysis area from the action alternatives, added to those that already exist, and those that are reasonably foreseeable would

result in a minor increase in the public's exposure to hazards in the analysis area over the 30-year period of analysis.

Action Alternative 2

Transmission Line

The potential effects on public safety from Alternative 2 would be similar to those described for Alternative 1 for the transmission line infrastructure but the hazard locations would be different. No overhead hazards exist in the Alternative 2 Transmission Line Corridor from the southern boundary of the proposed Royal Slope Solar Facility to Beverly Burke Road. Overhead power distribution lines exist along the south side of Beverly Burke Road, so overhead hazards during construction would increase from approximately one to two overhead power lines in that area of the Alternative 2 Transmission Line Corridor through construction and operation. Entering the existing Vantage Substation, overhead hazards during construction would increase from approximately five to six overhead power lines, the same as with Alternative 1. Similar to Alternative 1, the severity of those hazards would be minor because engineering and geotechnical testing would also occur as part of Alternative 2 to inform construction design and final location of the Alternative 2 transmission line structures, and worker exposure to high-voltage lines would be reduced by implementation of DFs and following industry practices.

A short-term, minor increase in construction traffic would occur along Highway 243, Highway 26 W, and I-90, for the same reasons described in Alternative 1, however the duration of the minor increase in hazardous traffic would increase from 5 to 12 months. A portion of the construction traffic would be hauling oversized loads and would be permitted, in accordance with Washington State rules and regulations for commercial vehicle size and weight limits.[10] As with Alternative 1, the Vantage Bridge repairs at I-90 could also add construction traffic on these routes because the bridge repairs would also generate traffic and traffic restrictions during repair might shift traffic patterns. Alternate routes or arrival times may be required for oversized loads attempting to access the Land Use Proposal area from I-90 during the Vantage Bridge repairs. The hazards associated with construction traffic would conclude after approximately 12 months.

The updated Phase I Site Investigation did not find evidence of hazardous chemicals or conditions within the Alternative 2 Transmission Line Corridor on private land that might affect Project development and design. Minor increases in the amount of microplastics and metals in the soil would occur over the life of the license for the same reasons discussed under Alternative 1.

Royal Slope Solar Facility

Under Alternative 2, the effects of the Royal Slope Solar Facility would be identical to those described under Alternative 1.

[10] Revised Code of Washington, Title 46, Chapter 46.44

Effects Summary

Potential effects of Alternative 2 on public safety would be similar to those described for Alternative 1 above. Public safety hazards in the analysis area would result in a minor increase in the public's exposure to hazards in the analysis area from short-term traffic hazards during construction and long-term overhead hazards during operation. Construction equipment would cause a slight increase in the risk of fire over the short term and operation of the BESS would cause a slight increase in fire risk over the 25-year life of the license. Implementation of DFs would reduce the risk of negligibility to the public because fences and signage would keep the public away from accessing active construction sites. Construction workers would be exposed to hazards during construction work and implementation of safety standards at Chapter 296-45 of the WAC would keep the magnitude of those hazards minor. People with access to the construction area would experience a minor increase in hazard potential due to the hazards inherent in transmission line construction work. Implementation of DFs and construction site safety procedures and protocols would reduce these risks. In contrast to Alternative 1, the location of overhead hazards would shift to a minor increase that would occur within 150 ft. of Beverly Burke Road. A minor increase in the amount of microplastics and metals in the soil would occur within the Transmission Line Corridor.

3.6 Visual Resources

This section presents the regional and local environmental setting, analytical methods, and effects concerning visual resources, the existing scenic quality of the site and its surroundings, and the light and glare conditions of the area surrounding the site. The Project Area is defined as the footprint of the proposed Royal Slope Solar Facility, and the two transmission line alternatives (Land Use Proposal) as well as short term disturbance areas and access roads. The analysis area for visual resources consists of the Project corridors (transmission line and access road corridors) and the viewshed, including surrounding public vantage points from which the Land Use Proposal would be visible.

The following are key terms used in this analysis:

- **Contrast** is a measure of the degree of change in line, form, color, and texture that a project would create, when compared to the existing landscape. Visual contrast ranges from "none" to "strong."
- **Distance zones** Generally defined as the foreground (up to 3 miles from the viewer), midground (3 to 5 miles from the viewer), and background (beyond 5 miles from the viewer). "Seldom seen" areas are not visible from multiple Key Observation Points (KOPs) within the foreground, midground, or background and those areas beyond the horizon or where the distance is so great that the elements of the view are not visually distinguishable. Visual effects generally decrease with distance from intrusions.

- **Key Observation Points** are important viewpoints located in areas where sensitive viewers gather such as recreational, historical, and cultural sites, communities, scenic overlooks and along commonly traveled routes. The following factors are considered when selecting KOPs: angle of observation, number of viewers, viewing times, relative project size, season of use, and lighting conditions.
- **Viewshed** is generally the analysis area where an observer may have line-of-sight visibility of project components. The application of distance zones helps to define locations within the analysis area where effects on the visual resources are lessened or amplified due the relative location of project elements.
- **Visual quality** is a measure of visual appeal and is influenced by landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. In general, viewsheds with the most variety and most harmonious composition have the greatest scenic value.
- **Visual Resource Management Classes** are categories assigned to public lands based on scenic quality, sensitivity level, and distance zones. Each of the four classes have objectives which prescribe the amount of change planned in the characteristic landscape.
- **Viewer sensitivity** is a measure of the viewer's concern over the visual quality. It has three attributes: activity, cultural values, and public interest. Visual sensitivity would vary with the type of users.

Unless otherwise indicated in this section, duration (temporal scale) and magnitude (intensity/severity) of the effects follows the criteria shown in Section 3.1.1.

3.6.1 Affected Environment

The Project landscape features deep valleys and canyons, as well as notable landforms such as the Columbia River and the Saddle Mountains. The Saddle Mountains are distinguished by their steep slopes, rugged terrain, and exposed basalt rock formations. These mountains create a striking contrast against the flat, arid landscape, providing a dramatic backdrop to the Columbia River and the surrounding agricultural zones.

The landscapes within the analysis area blend rural and natural environments with agricultural regions. They reflect the cultural and environmental aspects of rural life, including natural habitats, farms, fields, small residential communities, and recreational areas. Additionally, the presence of the Grant County PUD Visitor Center and the Wanapum Dam Overlook, along with the associated electrical infrastructure, adds an industrial and utility-specific (i.e., power generation and transmission) dimension to the area.

Sensitive viewers identified within the analysis area include residents, recreational enthusiasts, and Tribal members. Two residences are situated within 2 miles of the nearest Land Use Proposal. A residence located along SW Road 13 would be within 0.25 miles from the Royal Slope Solar Facility and 1 mile away from the nearest transmission line Land Use Proposal, if authorized. Another residence situated along Highway 26 would be across the road (0.1 miles) from the

Royal Slope Solar Facility and approximately 2 miles away from the nearest transmission line Land Use Proposal. The Wanapum Village is a small community located about 2.5 miles southwest of the Land Use Proposal areas. These communities could be more sensitive to changes in landscape appearance than casual observers passing through the area or those working in the energy industry.

The viewshed extends beyond the Project Area to encompass key locations where Project elements might be visible (Figure 3.7-1). This area is characterized by distinct landscapes – including the High Plateau, Sentinel Mountain, and Wanapum Lake – each offering a unique combination of visual features that contribute to the overall impression of the Project Area.

The High Plateau

The High Plateau provides expansive views framed to the south by the Sentinel Mountains and bisected by the Columbia River. This landscape features a vast open expanse with moderately dense, low-lying vegetation in the foreground and gently rolling terrain in the background. Naturally rounded shrubs with silvery-green foliage, alongside perennial greens, create undulating patterns throughout the area, resulting in irregular and angular lines. Human-made features include power generation and transmission facilities, agricultural fields, and both paved and unpaved roads. The region supports a variety of recreational activities, including photography and upland bird hunting.

Wanapum Lake

The western shore of Wanapum Lake is bordered by Huntzinger Road and State Highway 243, providing expansive panoramic views of the lake, Columbia River gorge, and Wanapum Dam. Energy development is evident at the eastern end of the dam, linking to additional utility infrastructure extending eastward beyond the analysis area. Other human-made features include developed areas near the bridges and residential homes within this gently rolling rural landscape. Large recreational sites are equipped with amenities such as boat launches, campgrounds, and picnic areas.

Along the eastern shore, State Highway 243 is flanked by the steep walls of the High Plateau and the Columbia River, creating a semi-enclosed viewshed. Rocky cliffs, adorned with sagebrush and native plants, transition to pockets of forested areas that enhance the agricultural landscape, where lush greenery sharply contrasts with the predominantly arid steppe. Project Area visibility is most pronounced near the dam, where human-made features merge with natural landforms, giving the landscape an industrial character.

Sentinel Mountain

Sentinel Mountain offers expansive panoramic views of natural and human-made elements, including meandering streams, rolling hills, cultivated fields, and visible utility infrastructure, that punctuate the landscape. The terrain transitions from open grasslands to patches of shrubs and groves of trees, creating a richly varied and textured environment. This area is a welcoming

destination for outdoor enthusiasts, providing opportunities for hiking, birdwatching, and photography. The elevation of Sentinel Mountain allows visitors to appreciate the sweeping vistas below, where the interplay of light and shadow across the terrain adds depth to the views.

3.6.2 Environmental Consequences

Reclamation has implemented an analytical method to assess potential effects on visual resources. This method evaluates the level of contrast introduced by various alternatives as observed from KOPs. Developed by the Bureau of Land Management (BLM) in 1986, this approach has proven effective in predicting and mitigating effects on visual quality. The significance of the effects is determined by how well they align with Visual Resource Management (VRM) objectives and their potential effects on sensitive viewers. Reclamation conducted a Visual Impact Assessment for the Project, including a viewshed analysis, KOPs, field studies, and photo simulations to inform this analysis (Tetra Tech 2025). The indicator for effects for this analysis is the change in contrast created by the Land Use Proposal.

After reviewing the Vantage-Pomona Heights report (BLM 2016), the Grant County Comprehensive Plan (Grant County 2018), and Reclamation's Scattered Tracts RMP (Reclamation 1998), Reclamation concluded that the visual resource objectives most suitable for the analysis area aim to partially retain the existing character of the landscape while incorporating the fundamental elements found in the predominant natural features of the characteristic landscape.[11] The level of visual change should be moderate, allowing management activities to attract attention without dominating the view of the casual observer. Changes should be in accordance with the guidelines established by the BLM in 1986.

This assessment process provides a framework for determining visual contrast and identifying measures to mitigate these effects (BLM 1986). The level of visual contrast introduced by a project can be measured by the changes in visual characteristics resulting from project implementation. The greater the difference between the character elements found within the existing landscape and those proposed in a project, the more apparent the level of visual contrast. The following general criteria were employed to evaluate the degree of contrast:

- None – The contrast is not visible or perceived.
- Weak – The contrast can be seen but does not attract attention.
- Moderate – The element contrast begins to attract attention and begins to dominate the characteristic landscape.
- Strong – The element contrast demands attention, would not be overlooked, and is dominant in the landscape.

[11] Reclamation's objectives for managing the appearance of Reclamation land correspond to the U.S. Bureau of Land Management, Visual Resource Management Class III (BLM 1986).

No Action Alternative

Under the No Action Alternative, Reclamation would not authorize the Applicant's Land Use Proposal. The Project would not be constructed. There would be no changes to the existing landscapes, and no viewers would be affected; thus, the VRM Class III objectives would be achieved.

Action Alternative 1

Transmission Line

The construction phase would remove vegetation and generate dust. Most construction work would be scheduled during daylight hours, with nighttime operations limited to circumstances that are deemed necessary. If nighttime work occurs, downward-directed lighting would be used exclusively to minimize visual effects. In planning these activities, significant attention would be devoted to both environmental effects and community concerns. The primary focus would be on minimizing disruptions while adhering to established DFs (see Appendix C) to limit surface disturbance, reduce soil erosion, and control dust emissions. Short-term disturbance areas that are no longer needed would be recontoured and revegetated.

Throughout both the construction and operational phases, visible elements of the Project may attract the attention of nearby observers within the foreground and midground of the Construction Work Areas (Figure 2-9). The visual contrast resulting from construction activities may vary from weak to strong, potentially leading to noticeable visual effects in the surrounding areas. However, these visual changes would be short term in nature. Transmission line construction activity in the analysis area would diminish 5 months after construction begins.

The Alternative 1 transmission line components would be situated within the foreground and midground of several observation points atop the High Plateau. New transmission lines would parallel existing lines before connecting to the Vantage Substation (Figure 2-1). The new transmission lines would resemble structures found at the Vantage Substation and surrounding electrical infrastructure, which would serve to minimize visual contrast depending on the viewer's location and angle of view.

Views of the Alternative 1 transmission line from locations on or near Wanapum Lake would not attract the attention of casual observers, whether traveling along highways or recreating. The steep cliff wall of the plateau would screen the Vantage Substation and the Alternative 1 transmission line from view along State Highway 243. The transmission line would cause a minor visual impact when viewed from Wanapum Lake because the structures would blend with existing landscape appearance and infrastructure visible along the Lake's eastern shore from that angle and distance (Figure 3.7-2, KOP 9). From atop Sentinel Mountain, any visible transmission line components would be a minor compared to other human-made structures, adding only minor visual contrast (Figure 3.7-2, KOP 29).

Royal Slope Solar Facility

The solar panels would be set back from the road and positioned to follow the natural contours of the terrain. Their configuration would align with the horizontal and vertical lines, as well as the geometric shapes associated with existing electric transmission lines, roads, and the built environment within the Project Area (Figure 3.7-3). However, their installation would introduce strong geometric shapes, repeating patterns, smooth contours, and darker colors that sharply contrast with shrubsteppe, inland sand dunes, and agricultural landscapes, resulting in moderate to strong visual contrast that would vary based on the viewer's relative location and angle of view.

The solar panels would be particularly noticeable to those traveling along Highway 26, dominating the view for approximately half of the total viewing time of 7.5 minutes. Panels would be arranged on the sites in solar arrays mounted on either fixed-tilt or tracking technology, depending on the PV panels ultimately selected. An anti-reflective coating would be applied to the panels to mitigate reflection (Figure 3.7-4) and maintained over the life of the Royal Slope Solar Facility. The anti-reflective coating and tracker system would help ensure any glare produced will be directed back towards the sun and will not be reflected elsewhere. For example, when the sun is low on the horizon, the sun's angle in the sky is low; however, reflected rays will still be directed away from ground-level receptors because the maximum downward angle of the arrays will not be below 30 degrees. Any residual glare from the panels is expected to primarily affect westbound travelers in the early mornings and eastbound travelers in the early evenings when the sun is positioned behind the viewer; however, any glare that does occur would be low, minimal, transient, and brief in nature. Even with setbacks and careful alignment, the installation would alter the characteristic landscape, diminishing its visual quality and attracting the attention of casual observers in the foreground who have a direct line of sight.

From atop Sentinel Mountain, the solar panels would appear as a collection of dark shapes with regular edges that contrast moderately with the surrounding hilly terrain irregular lines and tan color. From this vantage point, the solar panels would draw the attention of a casual observer. Other visible Project components, such as the transmission line would be inconspicuous compared to other human-made structures, adding only minimal visual contrast (Figure 3.7-2, KOP 29).

The Royal Slope Solar Project would convert up to 1,732 acres of agricultural and undeveloped land into a solar array field. While the scale of this Project, when considered alongside existing and proposed transmission lines and the Vantage Substation, is relatively insubstantial, it would contribute to the incremental transition from characteristic landscapes that balance rural and natural environments with agriculturally based communities to landscapes with a more industrial feel. Nevertheless, Alternative 1 would result in a minor adverse effect on visual resources.

The Land Use Proposal and Wanapum-Mountain View 230 kV Transmission Line Project would both add 230 kV transmission lines to the Vantage Substation. The Wanapum-Mountain View 230kV Transmission Line Project transmission structures would be visible north and east of the substation. When viewed from KOPs, the new structures would be clustered with other existing lines that approach the Vantage substation from the north. From atop Sentinel Mountain, any visible Project components would be inconspicuous compared to other human-

made structures, adding only minimal visual contrast. However, unlike the Land Use Proposal, the Wanapum-Mountain View 230 kV Transmission Line Project transmission line would increase the number of transmission line towers visible from this KOP (Figure 3.7-2, KOP 29). Construction activities associated with the Wanapum-Mountain View 230 kV Transmission Line Project would add to the potential for observers to notice visual contrast in the analysis area

Within the Royal Slope Solar Facility area, a habitat mitigation area would result in beneficial effects on the visual quality of the surrounding areas because a portion of the land within the mitigation area would revert to native vegetation, as detailed in the HMP developed in coordination with WDFW.

Effects Summary

The Alternative 1 transmission line would meet Reclamation's objectives for appearance of Reclamation lands by partially retaining the existing character of the landscape. While management activities may attract attention, they would only dominate the view for a brief period. The Project elements would generally reflect the basic features present in the existing landscape, ensuring a degree of visual continuity. Observers traveling along nearby roads would be less affected by the Project than recreational observers, who may be more stationary or contemplative. The effect on motorists is expected to be minor, with effects moderately increasing in areas where solar panels are apparent.

In contrast, static viewers, who are more sensitive to changes in the landscape, are likely to experience greater magnitude of effects than motorists. Those who choose to access High Plateau and Sentinel Mountain despite the lack of motorized vehicle access would feel the effects more intensely, as they have a strong connection to the natural environment. The effects on these viewers would range from moderate to high, depending on their proximity to the solar panels and transmission lines, as well as their personal attitudes toward the existing infrastructure. Taken together, the addition of transmission lines from Royal Slope Alternative 1 and the Royal Slope Solar Facility would continue to meet the VRM class objectives and the character of the landscape would be retained.

Action Alternative 2

Transmission Line

The effects of construction on landscape appearance would cause noticeable contrasts for the same reasons described in Alternative 1, however the locations and durations of the visual effects would be different under this alternative. Construction activity would cause motorists traveling along Beverly Burke Road to observe moderate visual contrasts during the 12-month construction period. As with Alternative 1, the application of DFs to minimize light, minimize removal of vegetation, and implement dust abatement measures would limit the contrasts that construction of the transmission line would cause. Construction would cause moderate, short-term visual impacts to motorists traveling along Beverly Burke Road. The appearance of construction effects would be minor after 12 months of construction activity.

The effects resulting from the operations and maintenance of Alternative 2 would cause contrasts for the same reasons described for Alternative 1, however the transmission line location, length and number of structures would change the magnitude of visual impact, depending on the observer perspectives (Figure 2-13). The operational effects would be negligible from Wanapum Lake areas because casual observers would be unlikely to notice the transmission line due to viewing angles, distances, and existing infrastructure. Visual impact from Sentinel Mountain would be minor for the same reasons described in Alternative 1. The level of contrast for motorists traveling along Beverly Burke Road would be moderate for the Alternative 2 Transmission Line, an increase relative to Alternative 1, because the structures would appear along the road, in the foreground.

This alignment would parallel Beverly-Burke Road, approaching the Vantage Substation from the east. The strong vertical lines of the power poles and the repeating patterns associated with the infrastructure would create new visual intrusions in the foreground of Beverly Burke Road, which would be experienced by rural drivers constrained by reduced speeds compared to the highways (Figure 3.7-5, Simulation).

While the average viewing time for motorists driving this route would be limited to approximately 5 minutes within this dynamic viewshed, the visual contrast would range from moderate to strong. This could detract from the visual quality of the landscape and diminish the overall appeal of the rural setting, especially since residents are more connected to the landscapes where they have chosen to settle. Additionally, currently unobstructed views of the Sentinel Gap (Figure 3.7-6, Existing) would be interrupted by the new transmission lines resulting in a minor contrast (Figure 3.7-6, Simulation). As with Alternative 1, DFs would minimize the appearance of construction and operation of the Transmission Line.

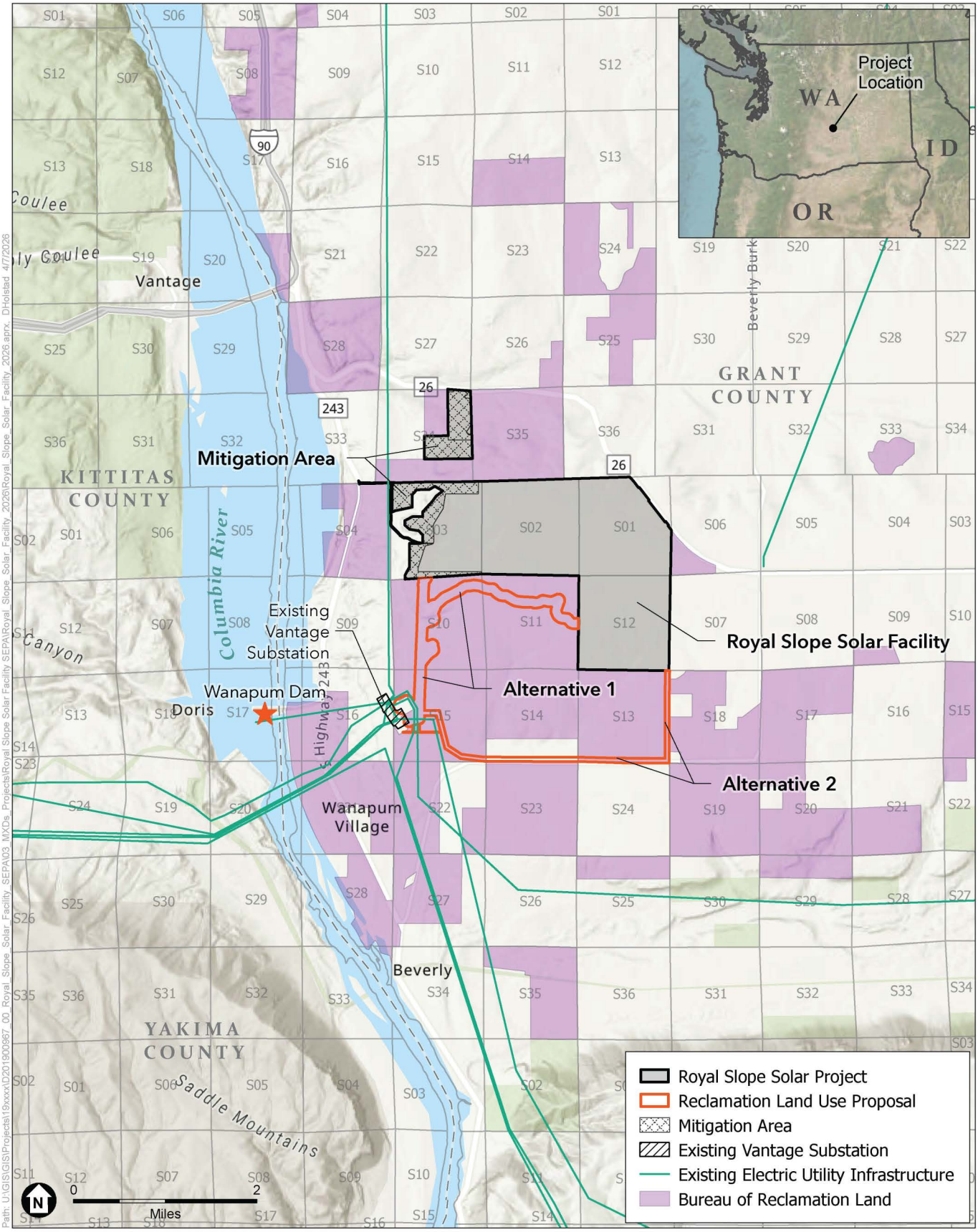
Royal Slope Solar Facility

Under Alternative 2, the effects of Royal Slope Solar Facility would be identical to those described under Alternative 1. The effects of habitat mitigation on landscape appearance would be identical to those described for Alternative 1.

Effects Summary

Alternative 2 would meet Reclamation's objectives because the appearance of the landscape character would be partially retained. The Project would cause moderate to strong levels of visual contrast, depending on observer proximity for the same reasons described under Alternative 1. Management activities may attract attention and would temporarily dominate motorists' views traveling along State Highway 26W. However, the Project elements would generally reflect the basic features present in the existing landscape, ensuring a degree of visual continuity. The effects to viewers would be similar to those described for Alternative 1; however, residents traveling along Beverly Burke Road would experience greater effects under this alternative (Figure 3.7-5). Residents may be sensitive to changes in visual quality, as they may have a strong connection to and investment in this landscape.

Appendix A Figures



SOURCE: Basemap: Esri; BoR Boundary: WA DNR, 2021; Infrastructure: Clearway, 2025.

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Figure 1-1
Location Map
Royal Slope Transmission Project EA

ESA

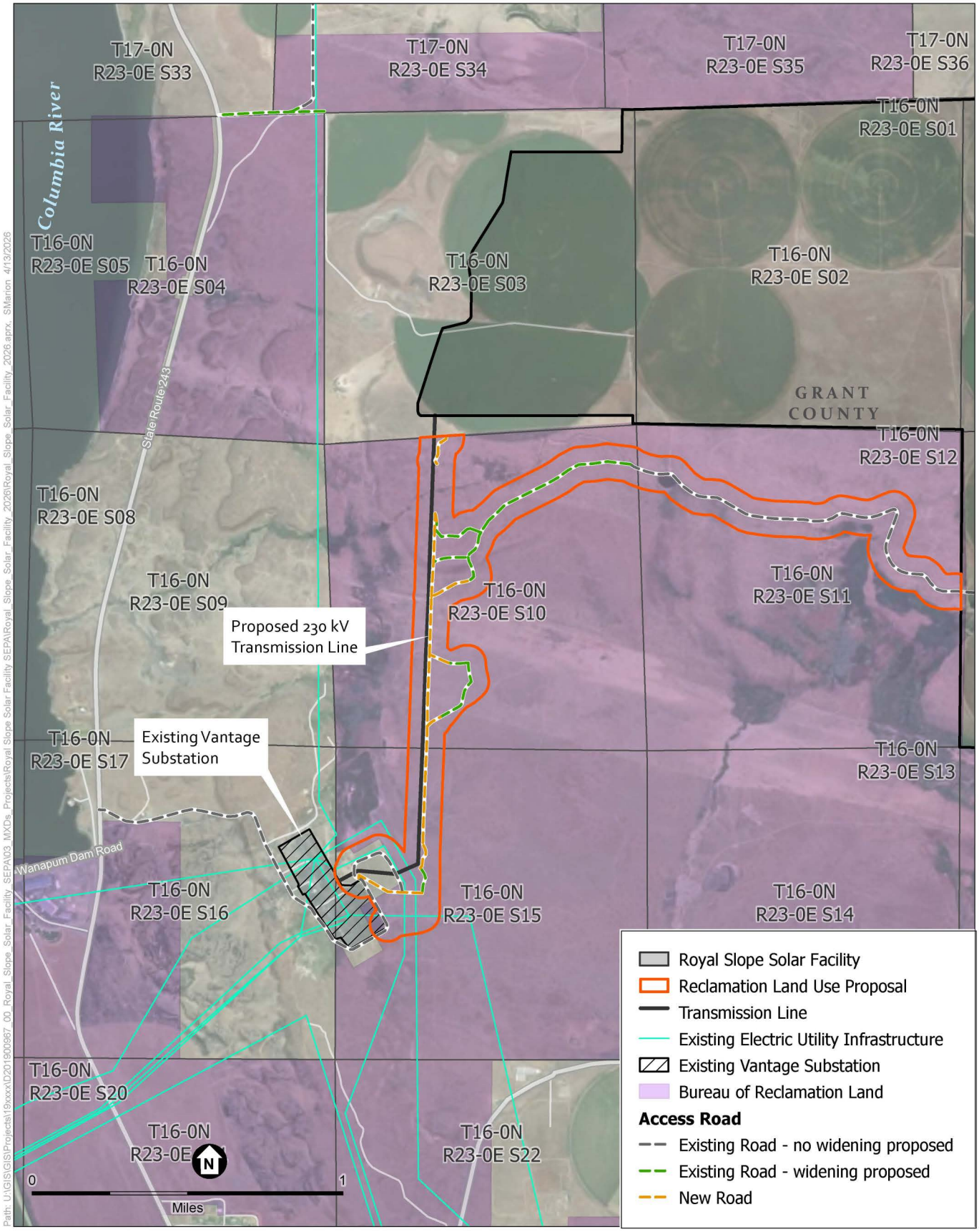
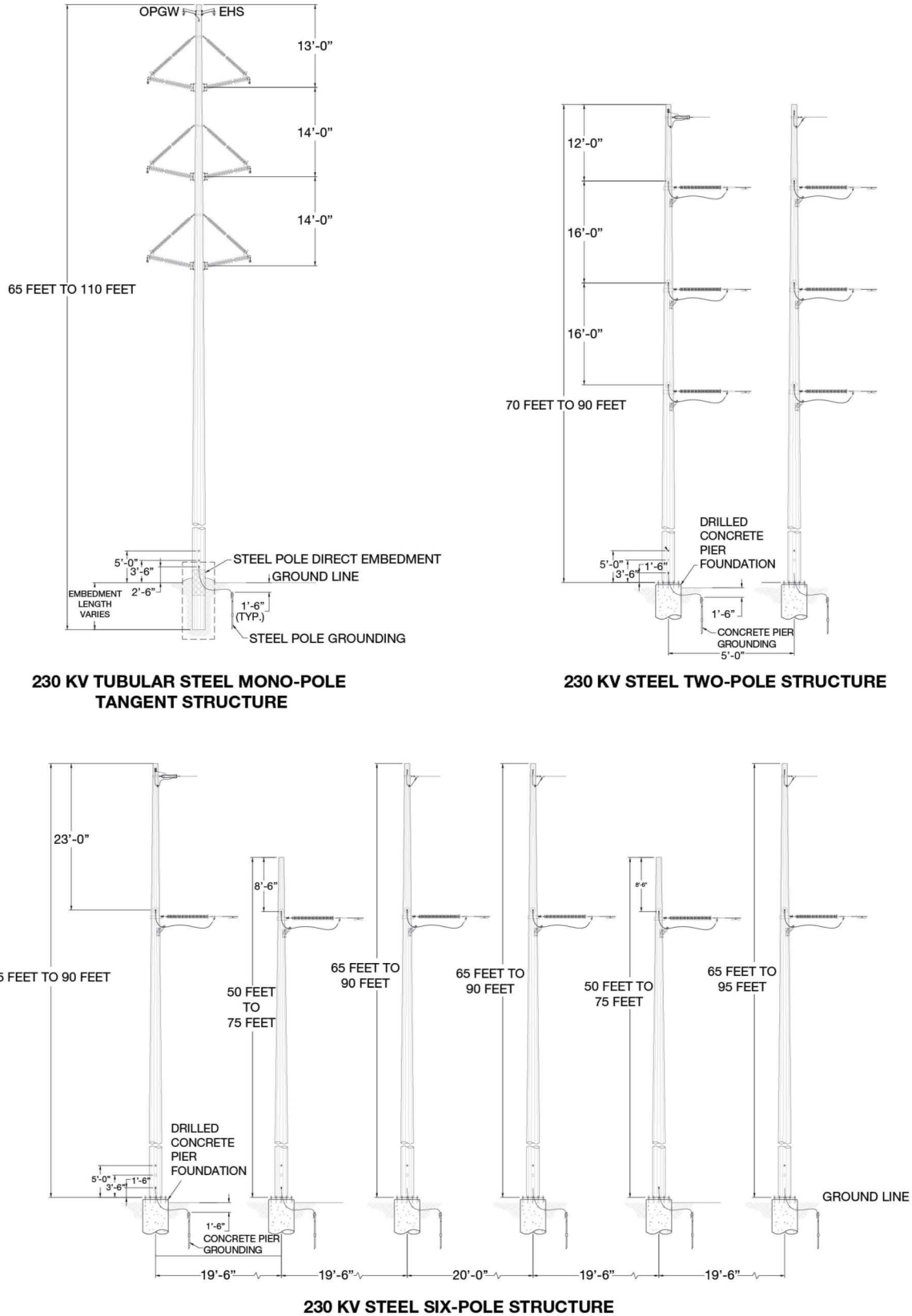


Figure 2-1
Proposed Action Alternative 1
Royal Slope Transmission Project EA

ESA



SOURCE: Ulteig, 2023

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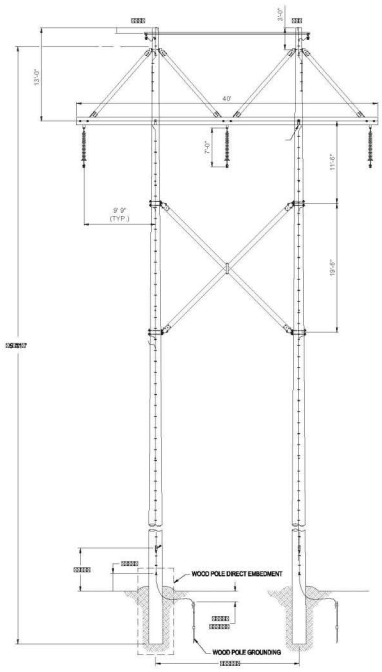
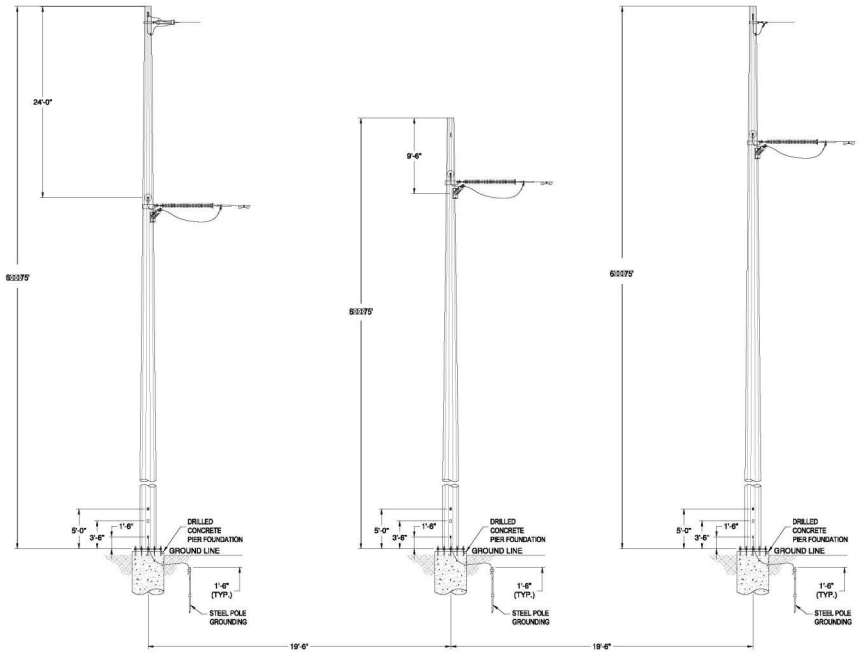
Figure 2-2
Typical Double-circuit 230 Kilovolt Structure



230 kV Wood H-Frame Structure



230 kV Steel Three-Pole Structures

SOURCE: Ulteig, 2023

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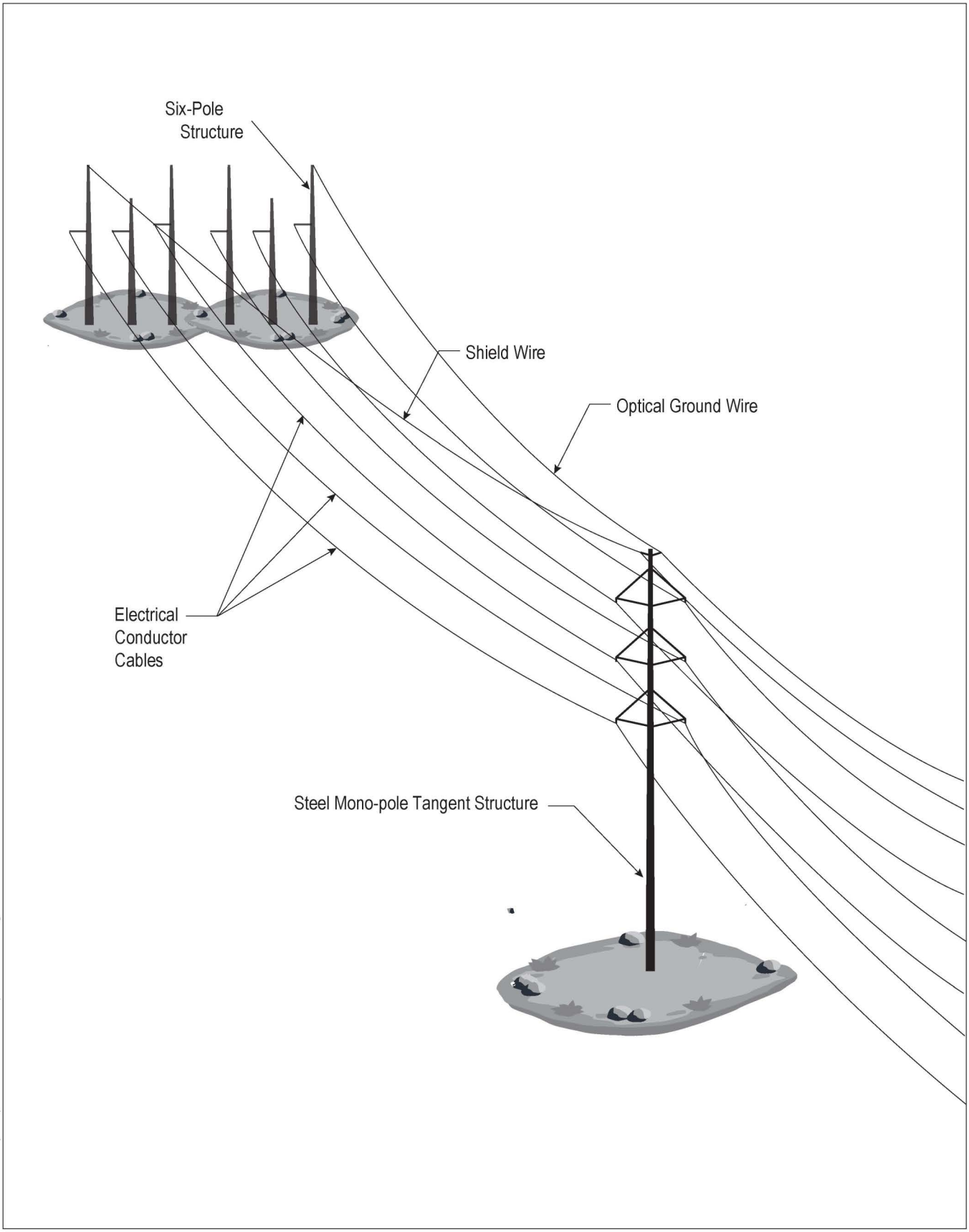
Figure 2-3
Typical Single-circuit 230 Kilovolt Structure



SOURCE: Ulteig, 2023

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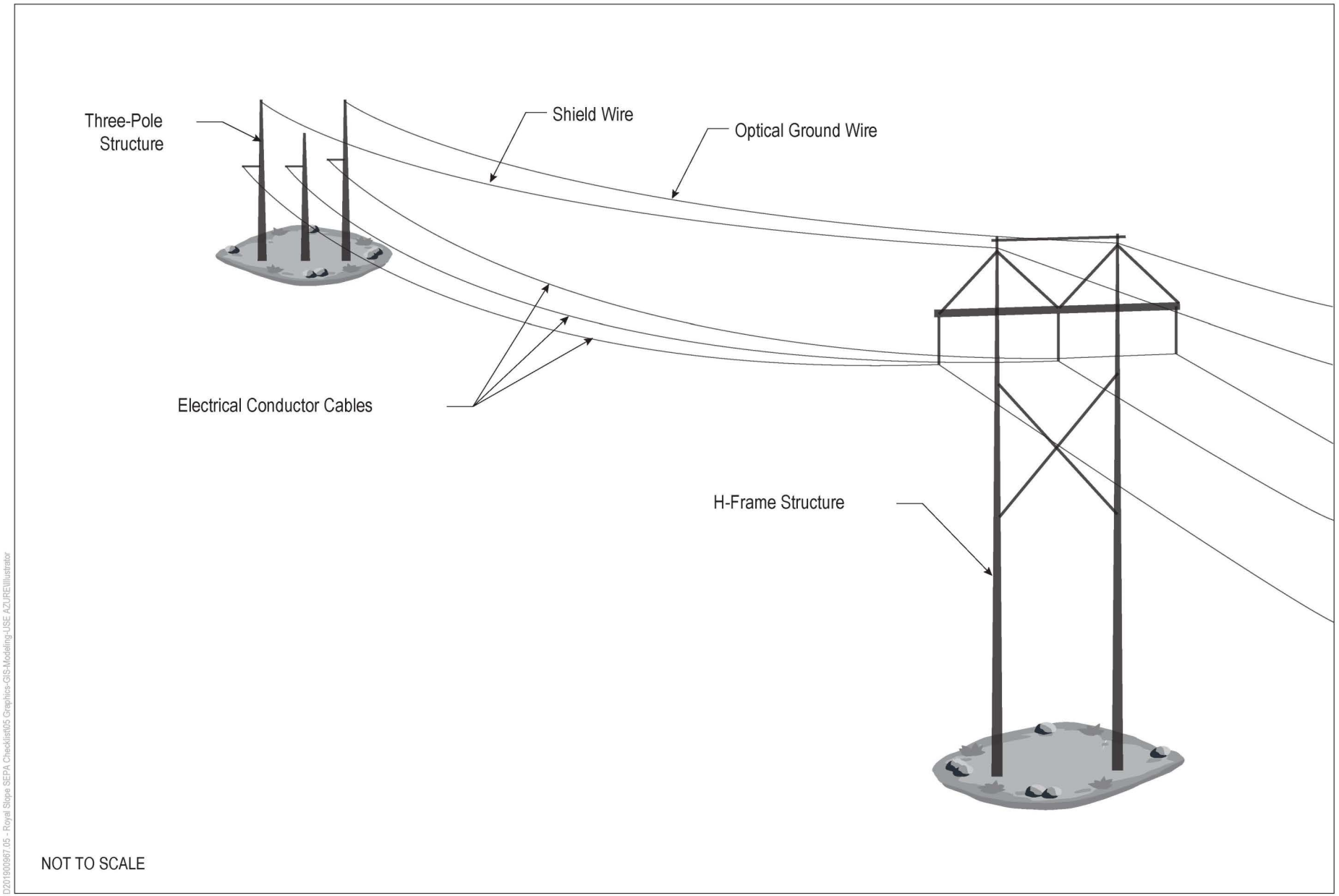
Figure 2-4
Double-circuit 230 kV Transmission Wire and Cable Configuration



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SOURCE: ESA, 2023

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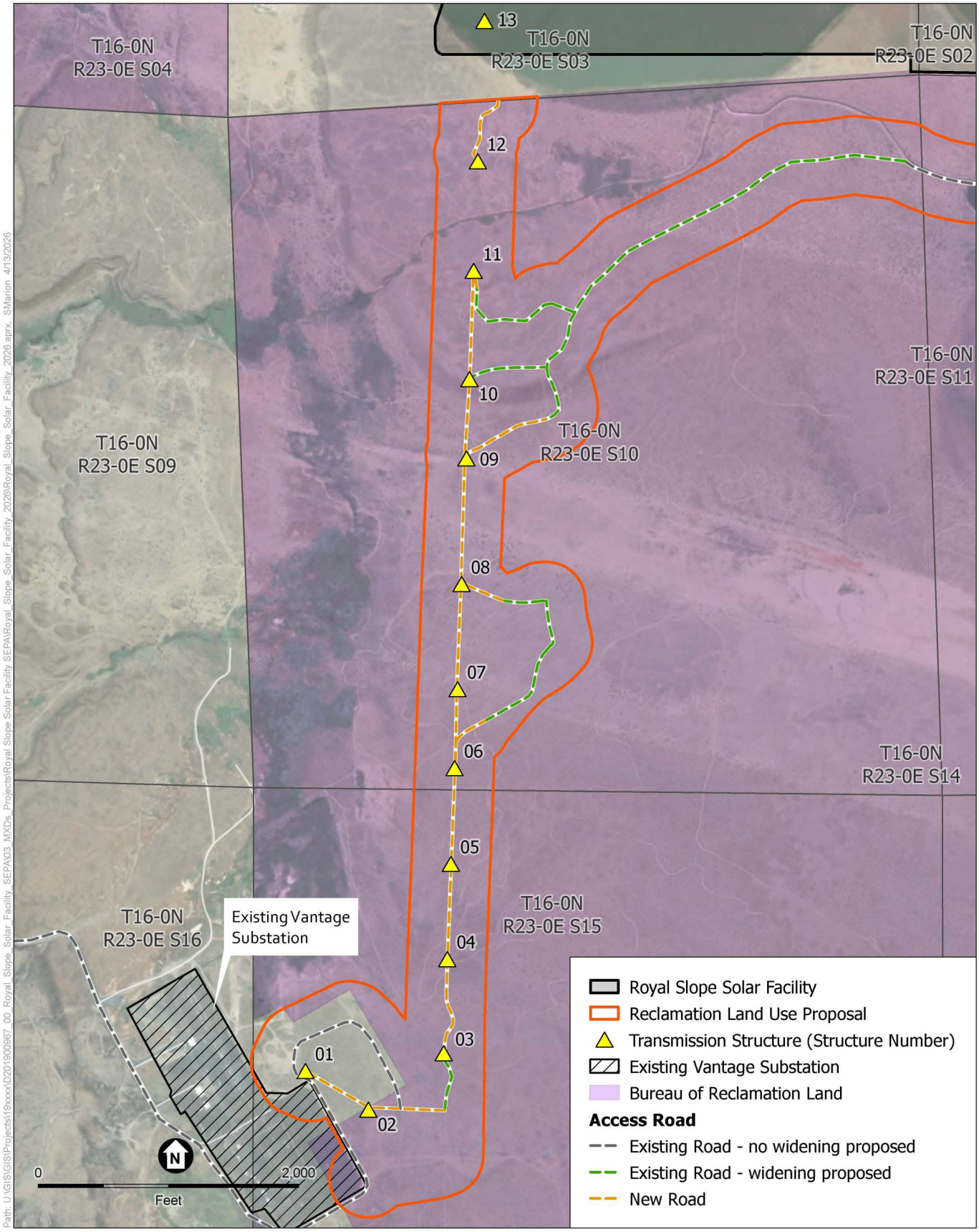
Figure 2-5
Single-circuit 230 kV Transmission Wire and Cable Configuration

ESA



SOURCE: Imagery: Maxar, 2023; BoR Boundary: WA DNR, 2021; Infrastructure: Clearway, 2025.

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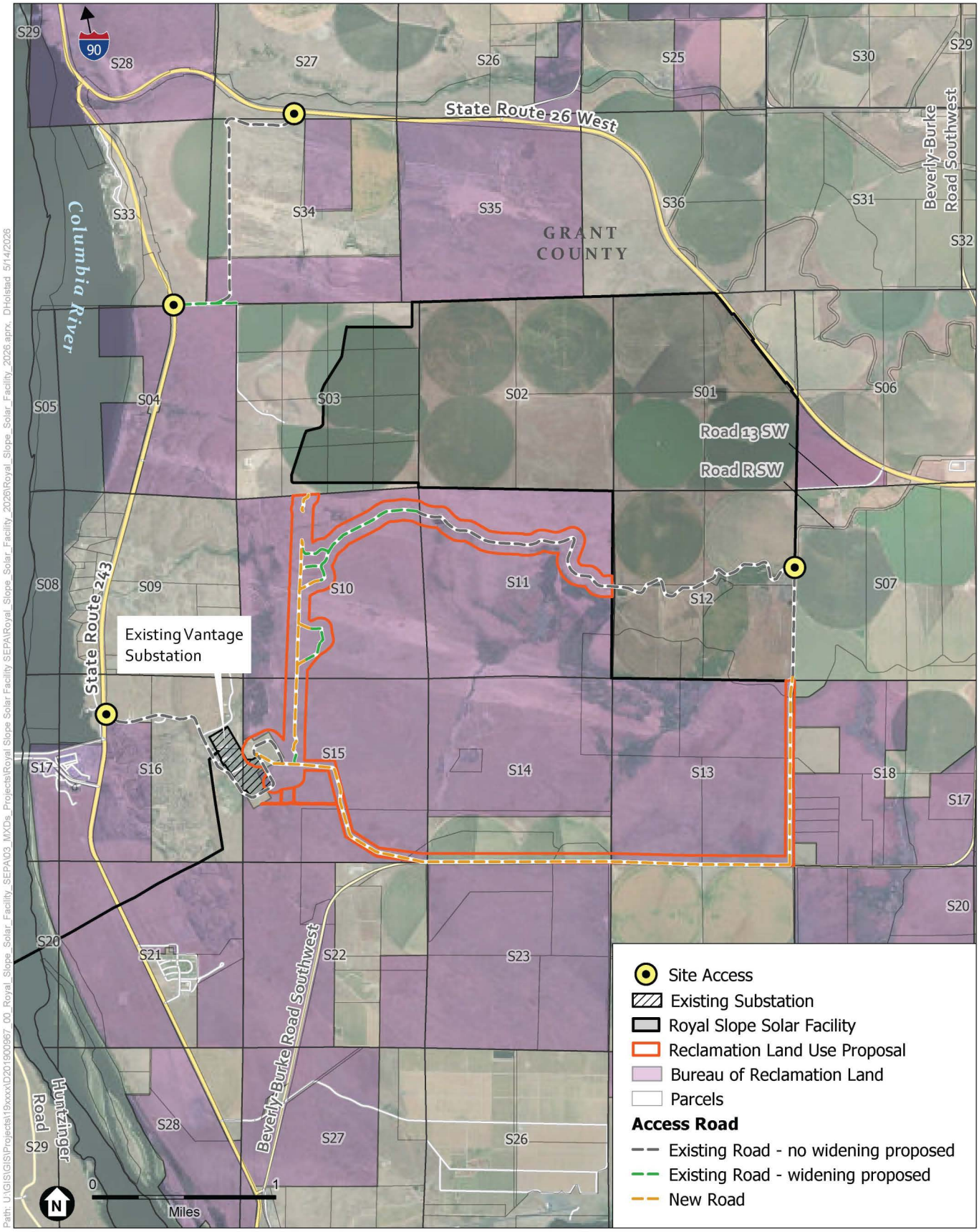
Figure 2-6
Proposed Action Alternative 1 Preliminary Transmission Structure Locations
Royal Slope Transmission Project EA

ESA



SOURCE: Imagery: Maxar, 2023; Roads: Esri, 2022; BoR Boundary: WA DNR, 2021

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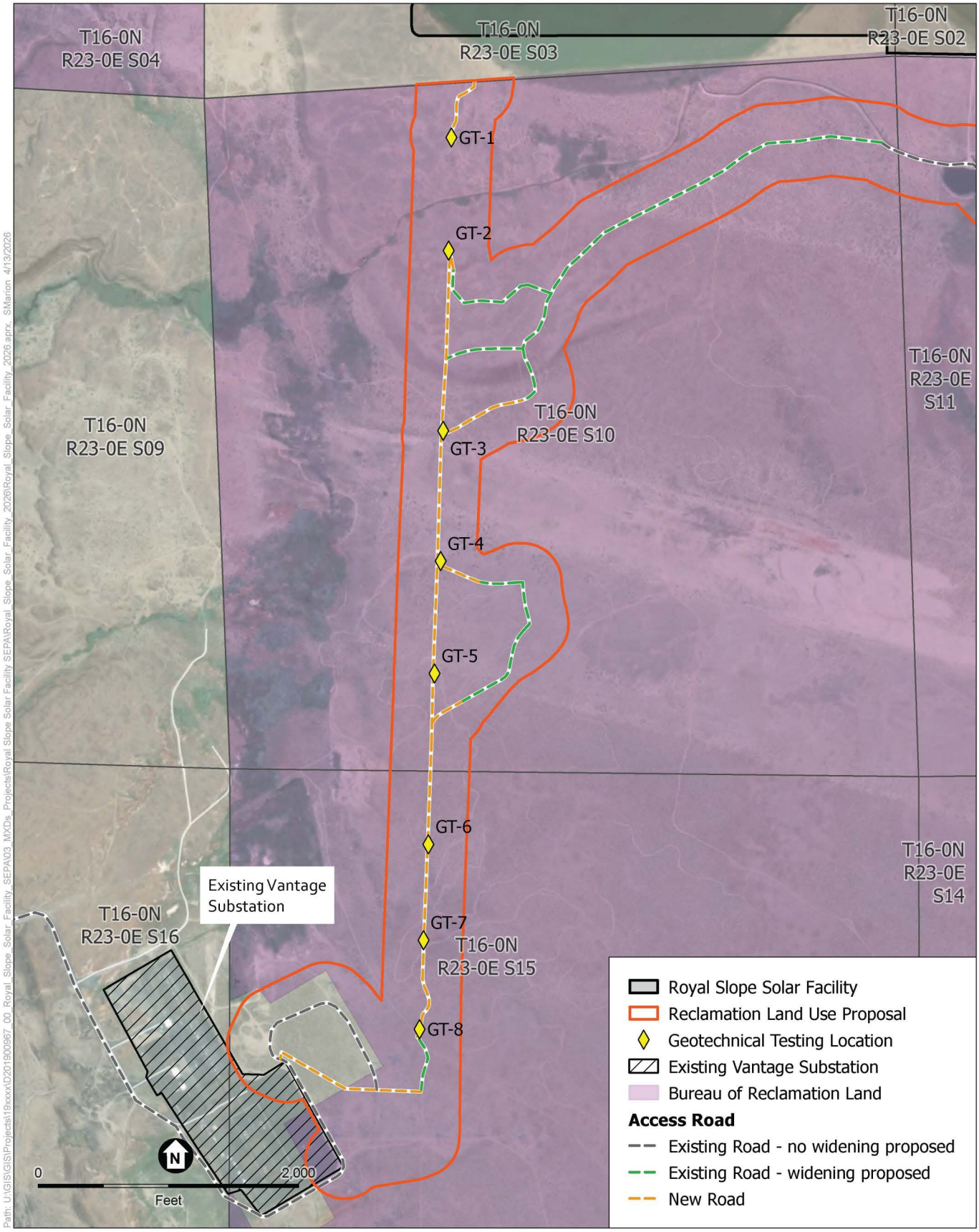
Figure 2-7
Site Access
Royal Slope Transmission Project EA

ESA



SOURCE: Imagery: Maxar, 2023; BoR Boundary: WA DNR, 2021; Infrastructure: Clearway, 2025.

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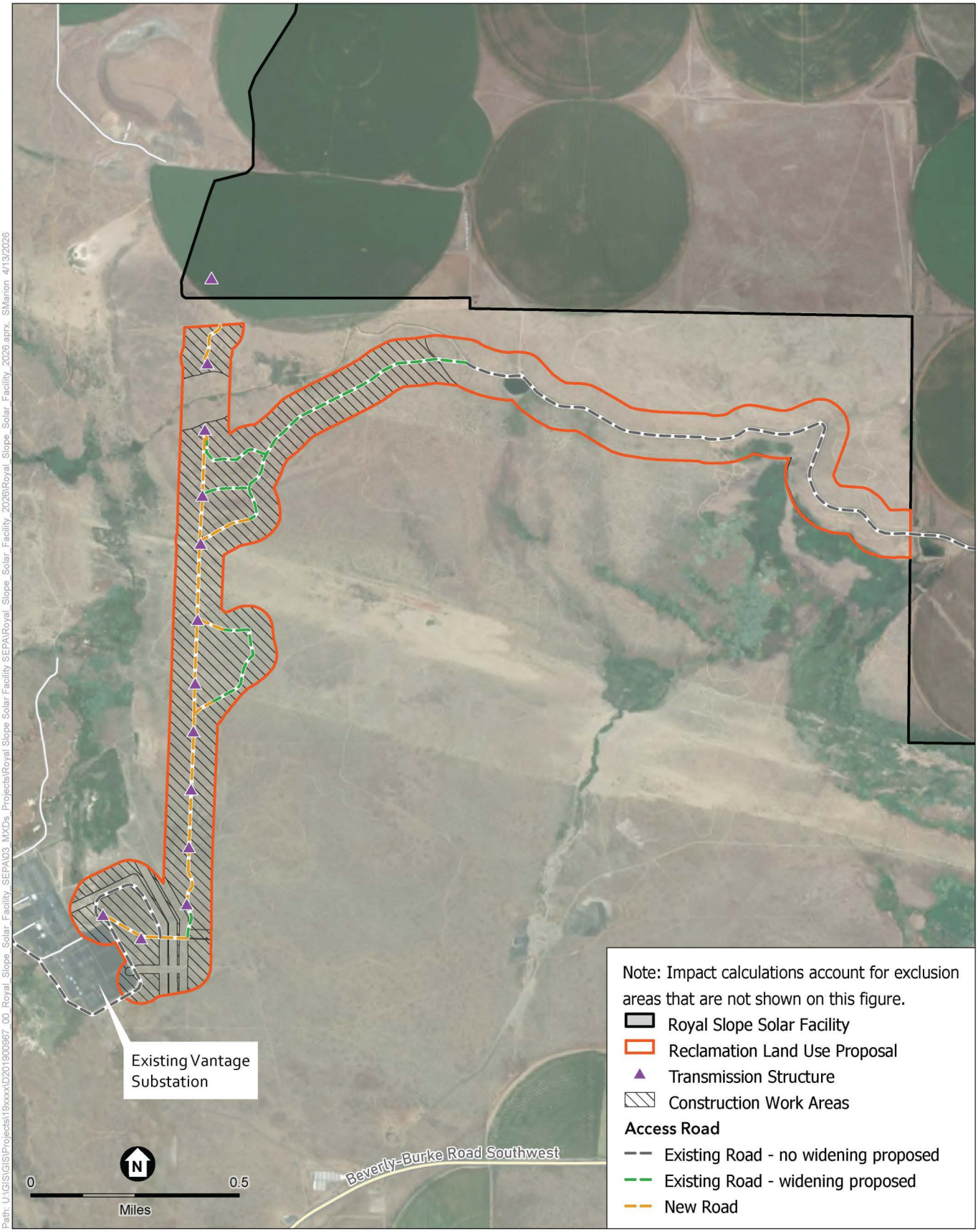
Figure 2-8
Proposed Action Alternative 1 Preliminary Geotechnical Testing Locations
Royal Slope Transmission Project EA

ESA



SOURCE: Imagery: Maxar, 2023; Roads: Open Street Map, 2021; BoR Boundary: WA DNR, 2021; Infrastructure: Clearway, 2025.

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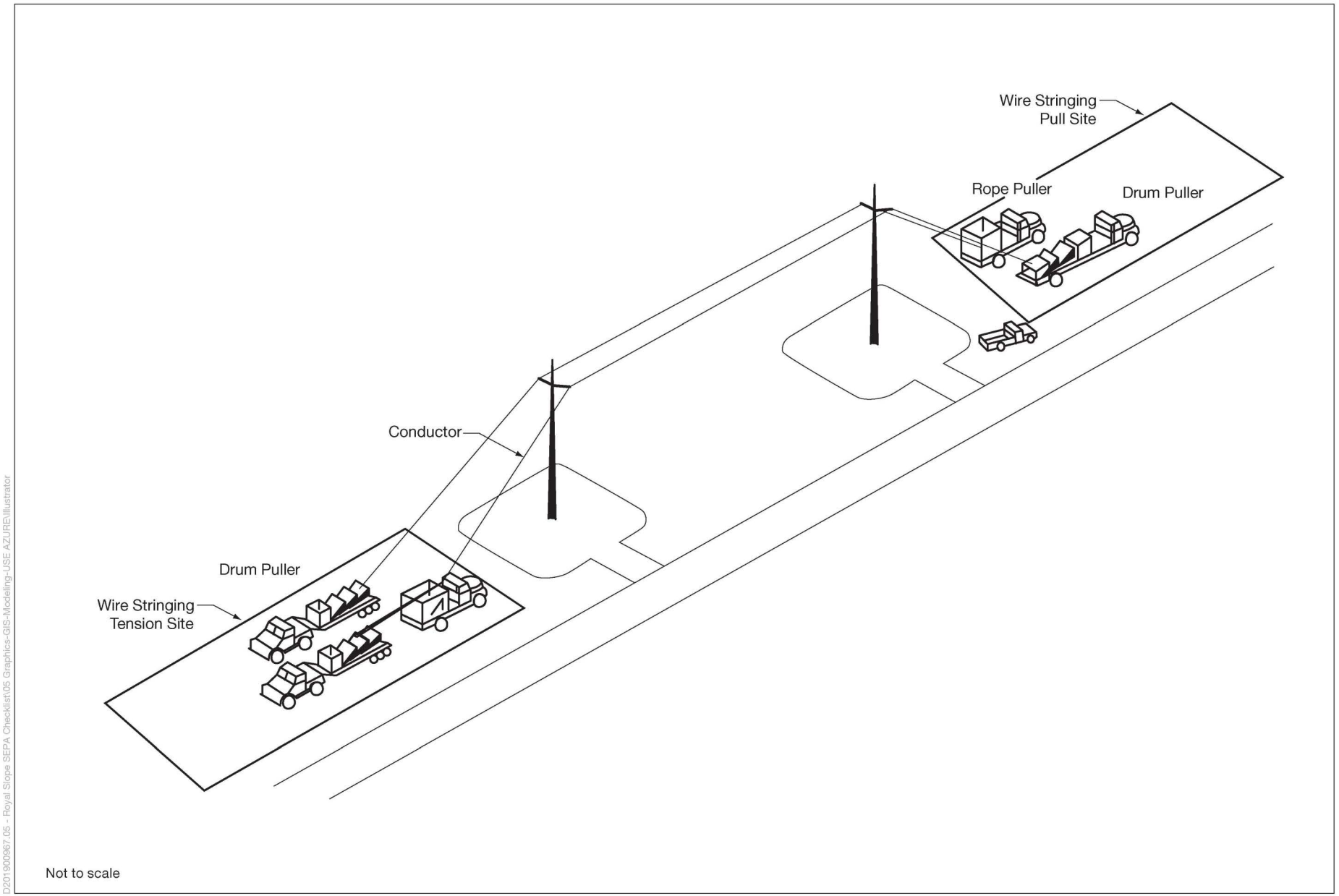
Figure 2-9
Proposed Action Alternative 1 Temporary Work Area
Royal Slope Transmission Project EA

ESA



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SOURCE: ESA, 2009

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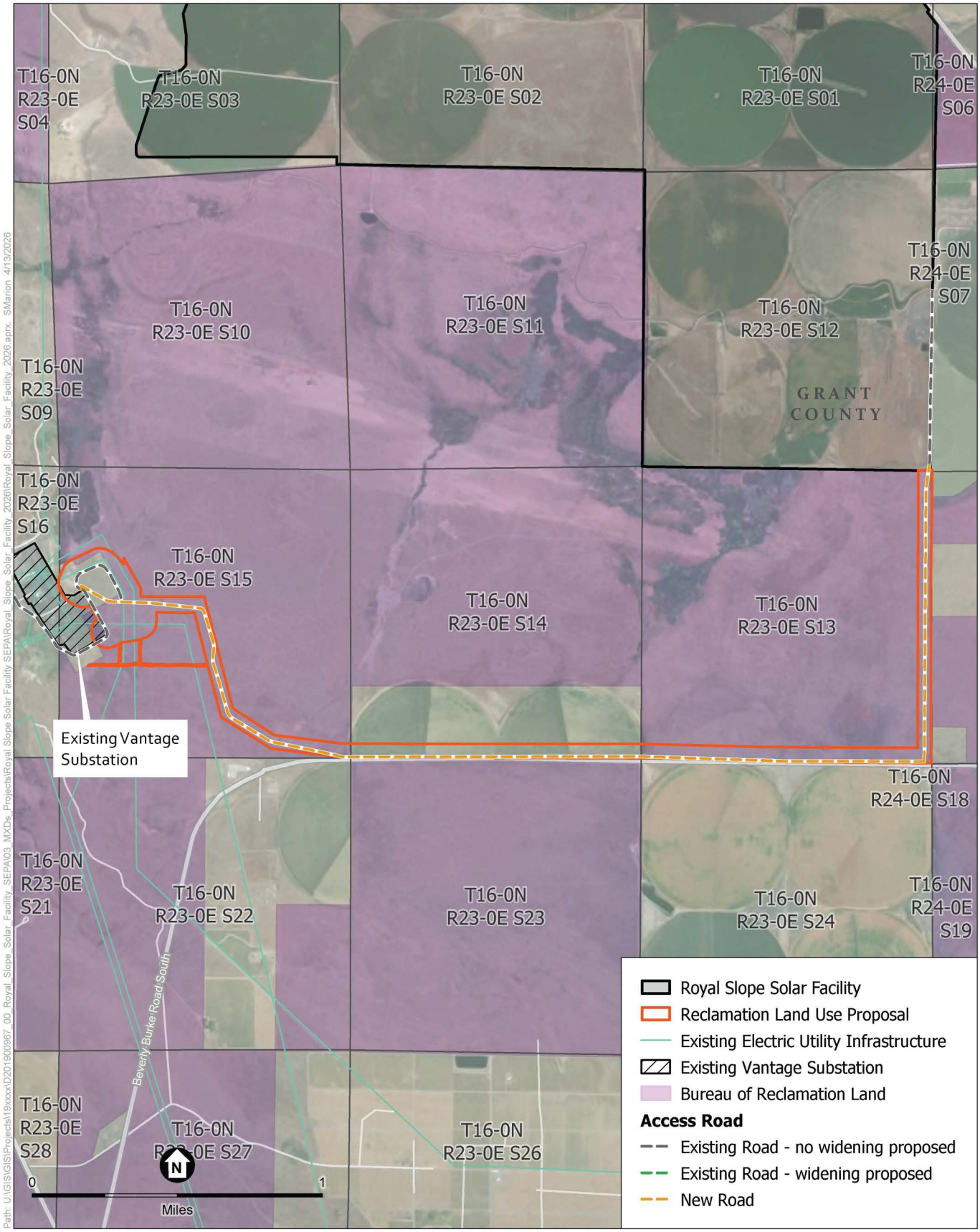
Figure 2-10

Typical Construction Stringing Activity

Royal Slope Transmission Project EA

ESA



SOURCE: Imagery: Maxar, 2023; Roads: Open Street Map, 2021; BoR Boundary: WA DNR, 2021; Infrastructure: Clearway, 2025.

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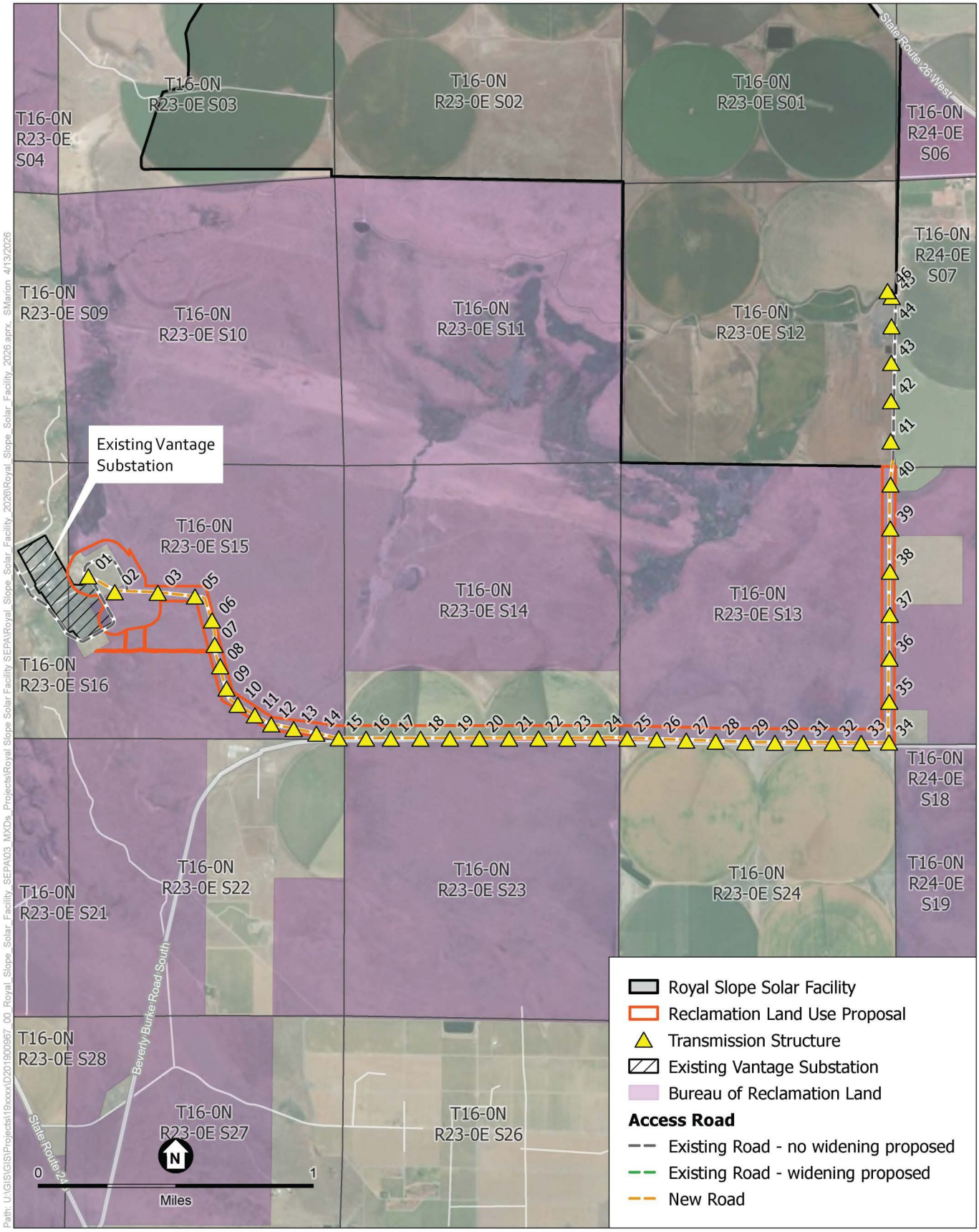
Figure 2-11
Proposed Action Alternative 2
Royal Slope Transmission Project EA

ESA



SOURCE: Imagery: Maxar, 2023; BoR Boundary: WA DNR, 2021; Infrastructure: Clearway, 2025.

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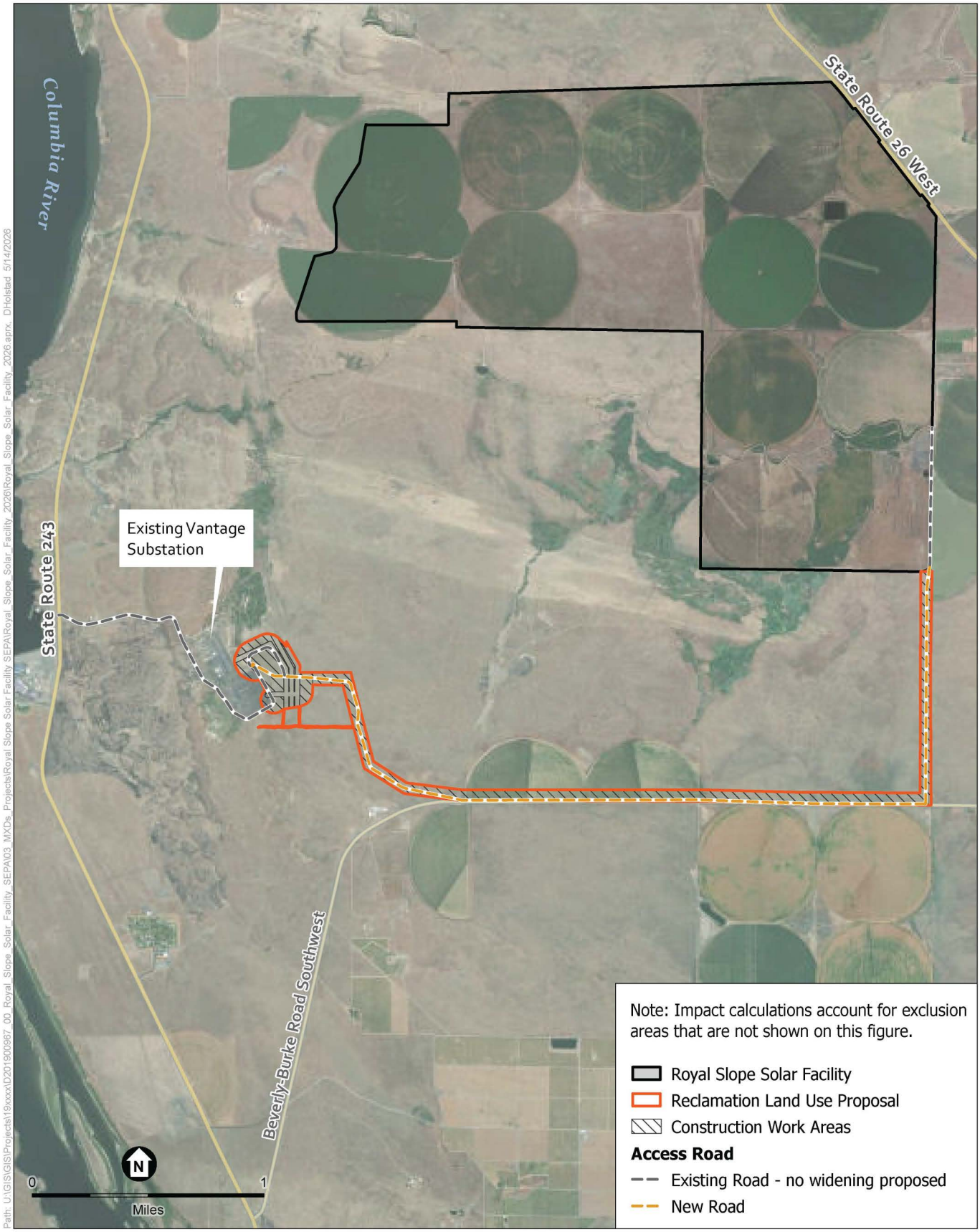
Figure 2-12
Proposed Action Alternative 2 Preliminary Transmission Structure Locations
Royal Slope Transmission Project EA

ESA



SOURCE: Imagery: Maxar, 2023; Roads: Open Street Map, 2021; BoR Boundary: WA DNR, 2021; Infrastructure: Clearway, 2025.

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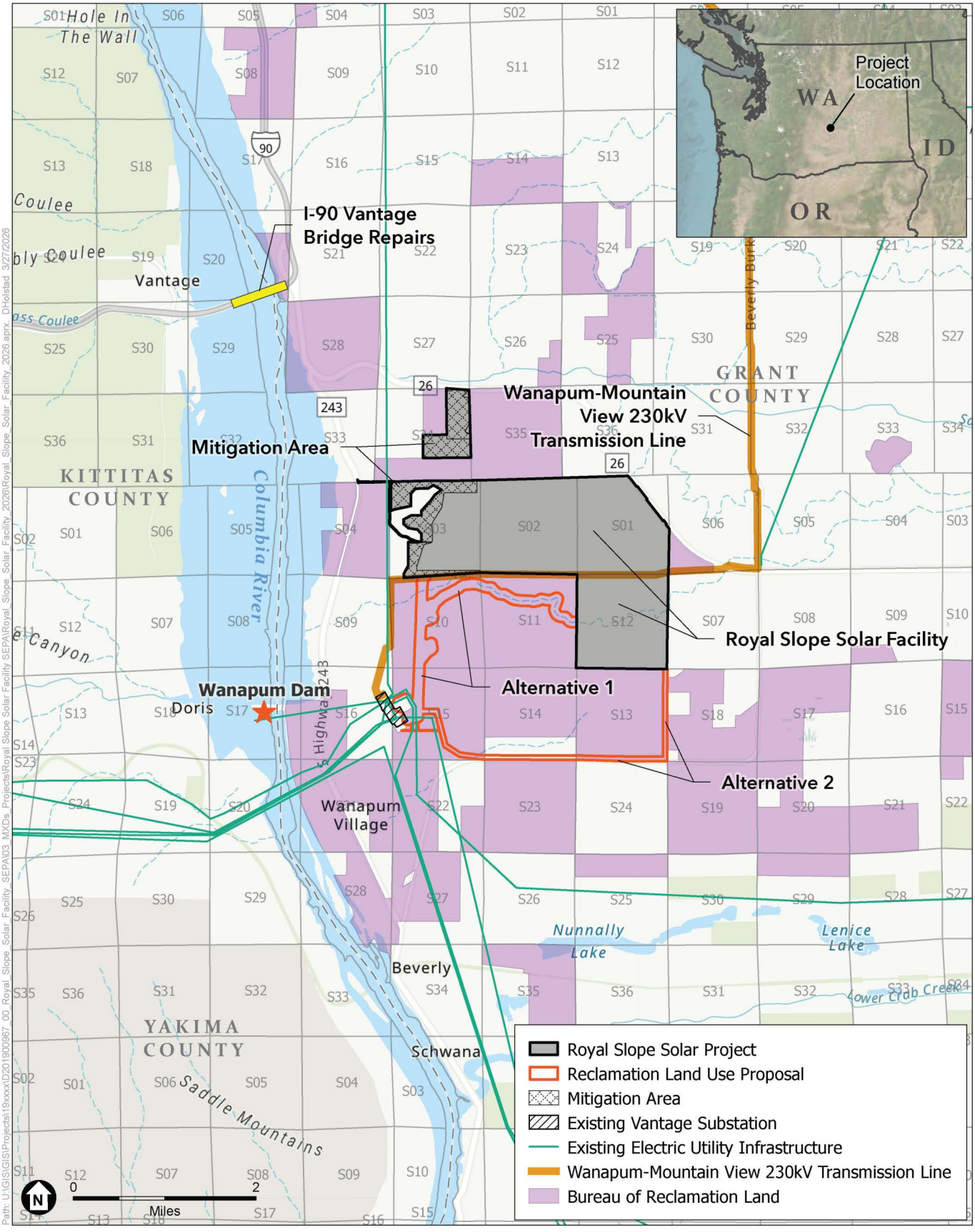
Figure 2-13
Proposed Action Alternative 2 Temporary Work Area
Royal Slope Transmission Project EA

ESA



SOURCE: Basemap: Esri; BoR Boundary: WA DNR, 2021; Infrastructure: Clearway, 2025.

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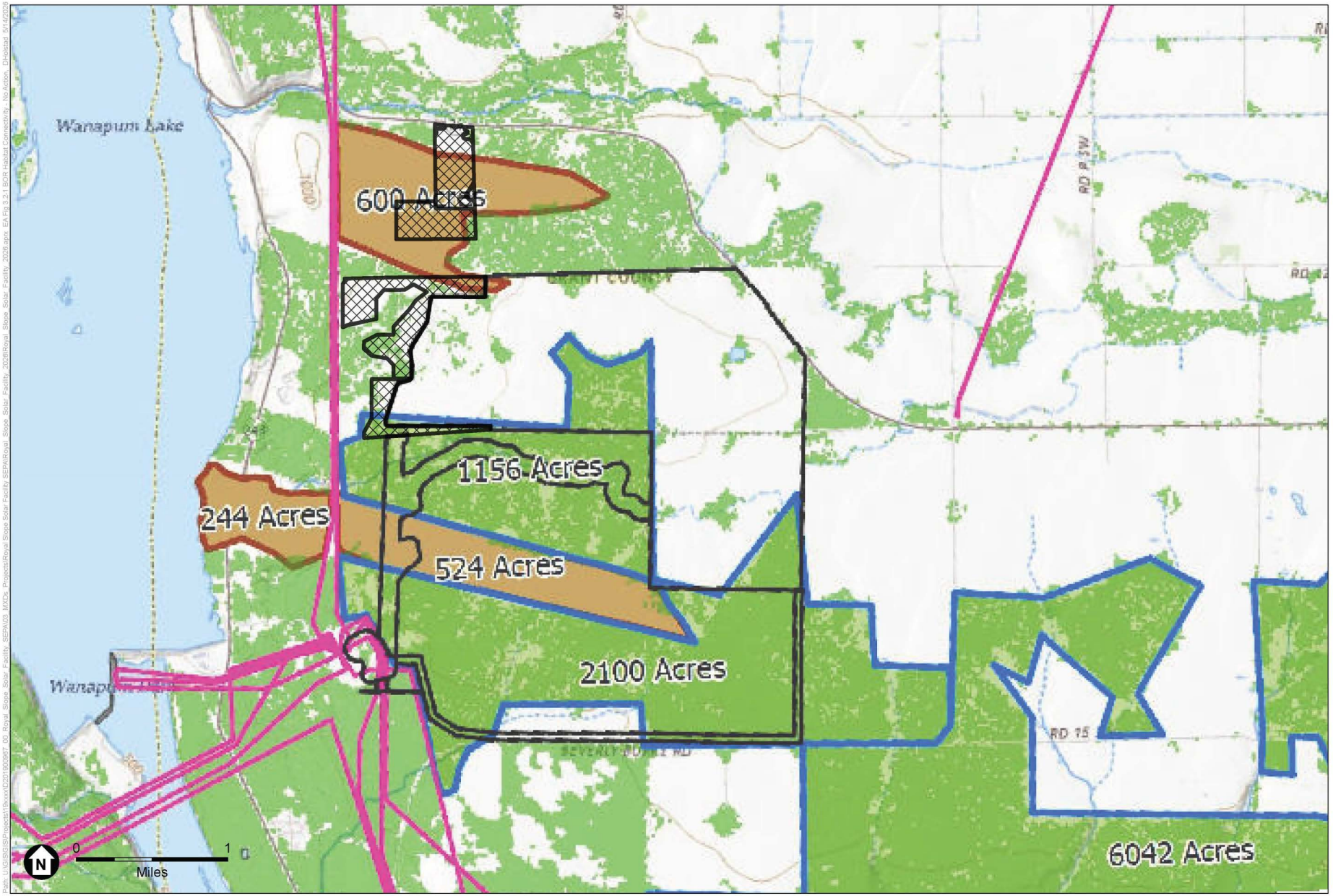
Figure 3.1-1
Reasonably Foreseeable Future Projects & Royal Slope Transmission Line Project

ESA



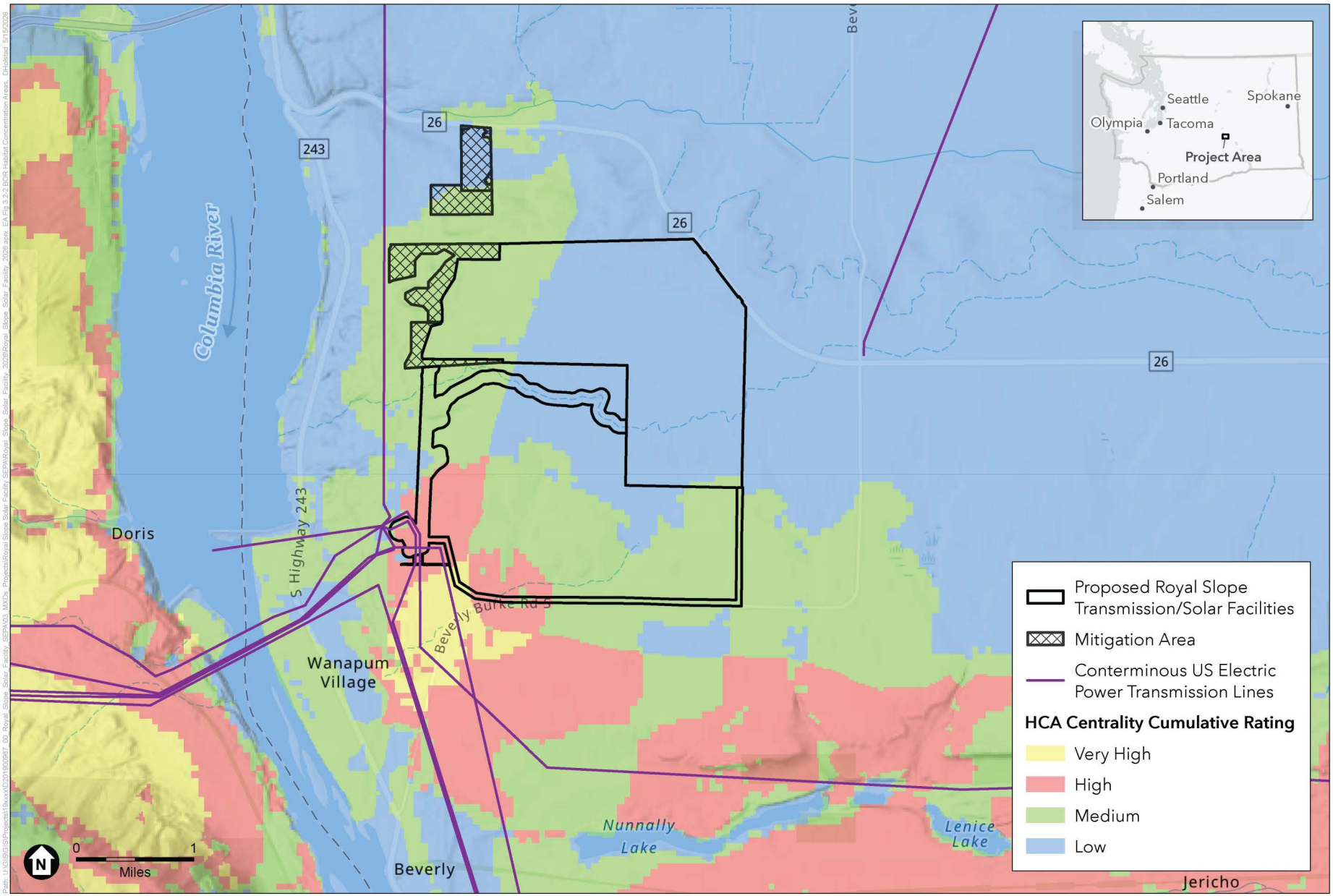
SOURCE: BOR 2026, ESA 2026

Transmission Lines (Existing)
Shrubsteppe & Dry Grassland Patch
Inland Sand Dune Patch
Project Area
Mitigation Area

D201900967.00

Figure 3.2-1
Habitat Connectivity - No Action
Royal Slope Solar Facility SEPA

ESA



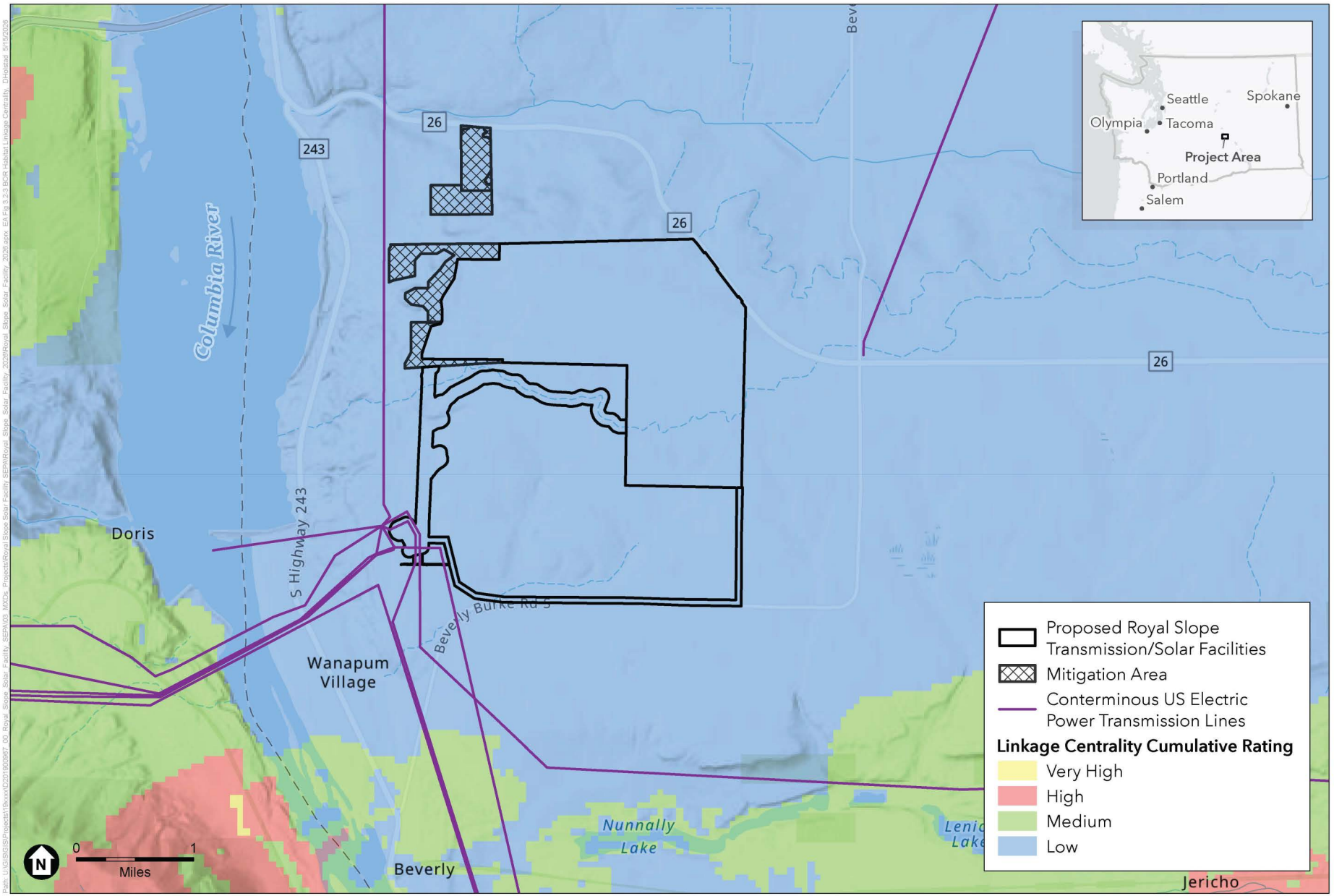
SOURCE: Data Basin 2026

Note: Habitat concentration areas (HCAs) are defined as habitat areas that are expected or known to be important for focal species based on survey data or habitat association modeling. HCAs provide locations from which to model linkages. This raster layer was generated from a composite analysis of 11 focal species HCA centrality maps Washington Wildlife Habitat Connectivity Working Group (WHCWG).

D201900967.00

ESA

Figure 3.2-2
Habitat Concentration Areas
Royal Slope Solar Facility SEPA



SOURCE: Data Basin 2026

Note: Linkage centrality is a measure of how important particular linkages are for keeping a network connected. The linkage network maps we present in this report are derived from two modeling approaches: focal species and landscape integrity. The focal species approach produced linkage networks for 11 focal species selected to represent the connectivity needs of a broader assemblage of wildlife (Washington Wildlife Habitat Connectivity Working Group WHCWG 2012).

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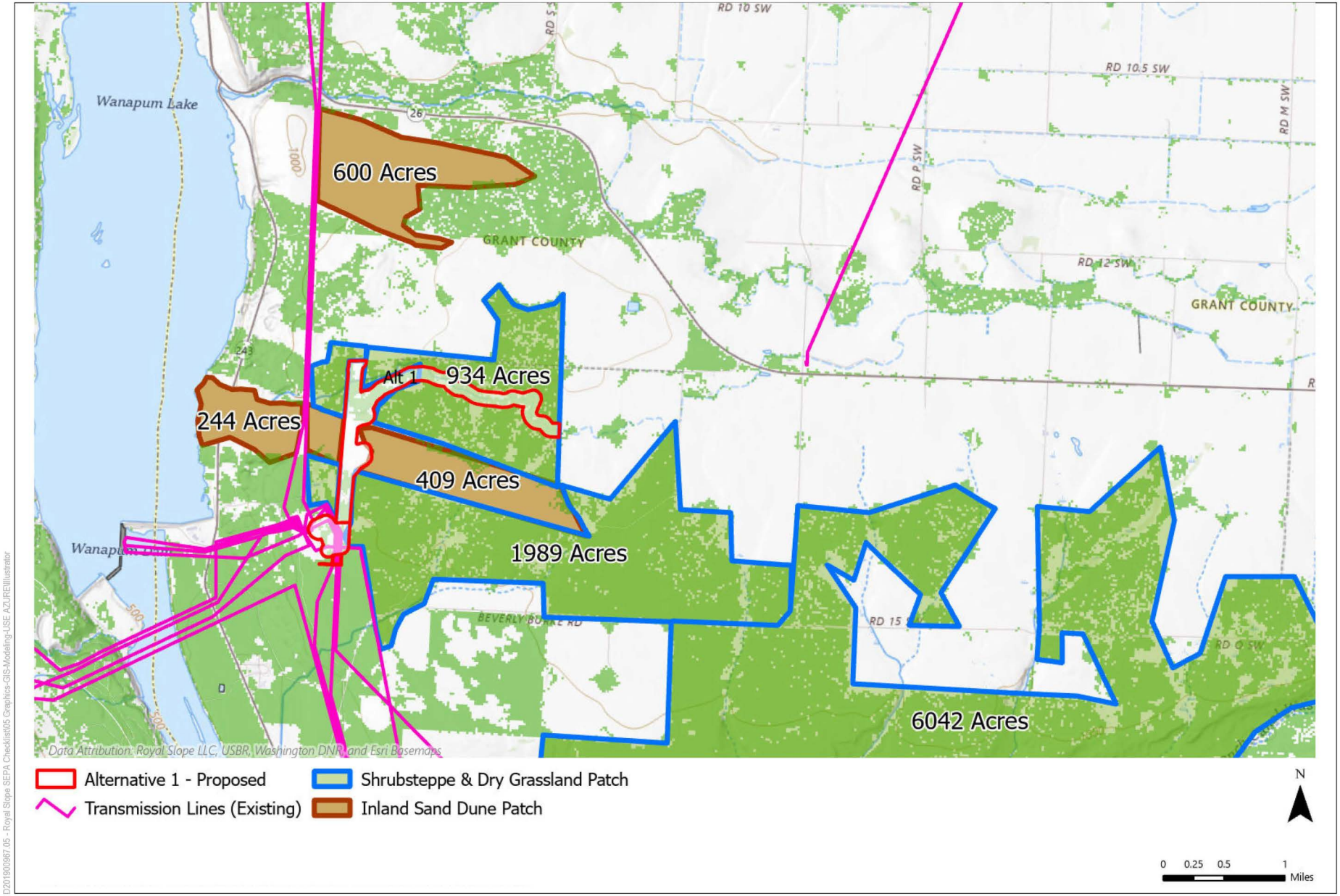
Figure 3.2-3
Habitat Linkage Centrality
Royal Slope Solar Facility SEPA

ESA



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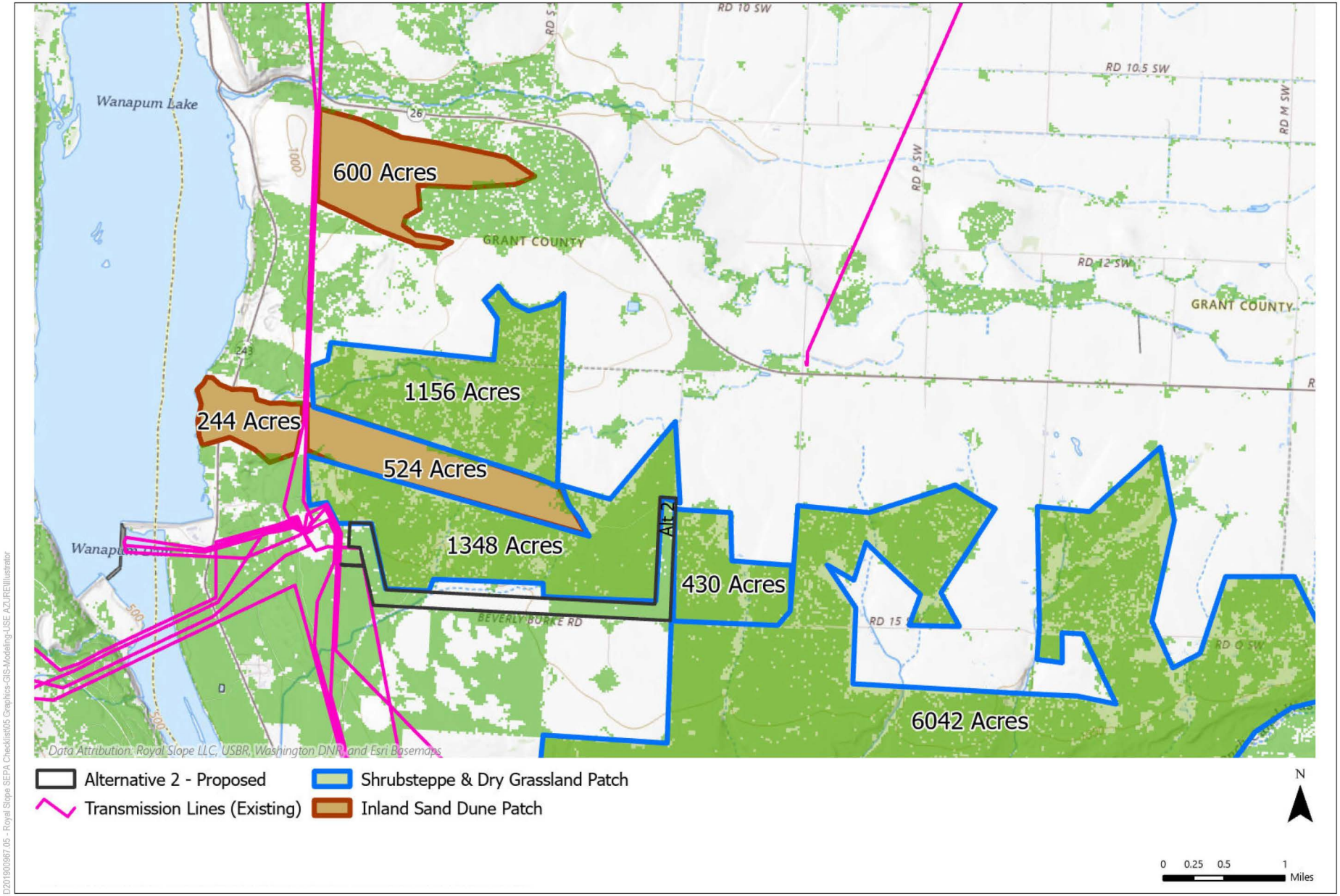
SOURCE: Bureau of Reclamation, 2025

D201900967.06

Figure 3.2-4
Habitat Connectivity – Alternative 1

ESA



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SOURCE: Bureau of Reclamation, 2025

D201900967.06

Figure 3.2-5
Habitat Connectivity – Alternative 2

ESA

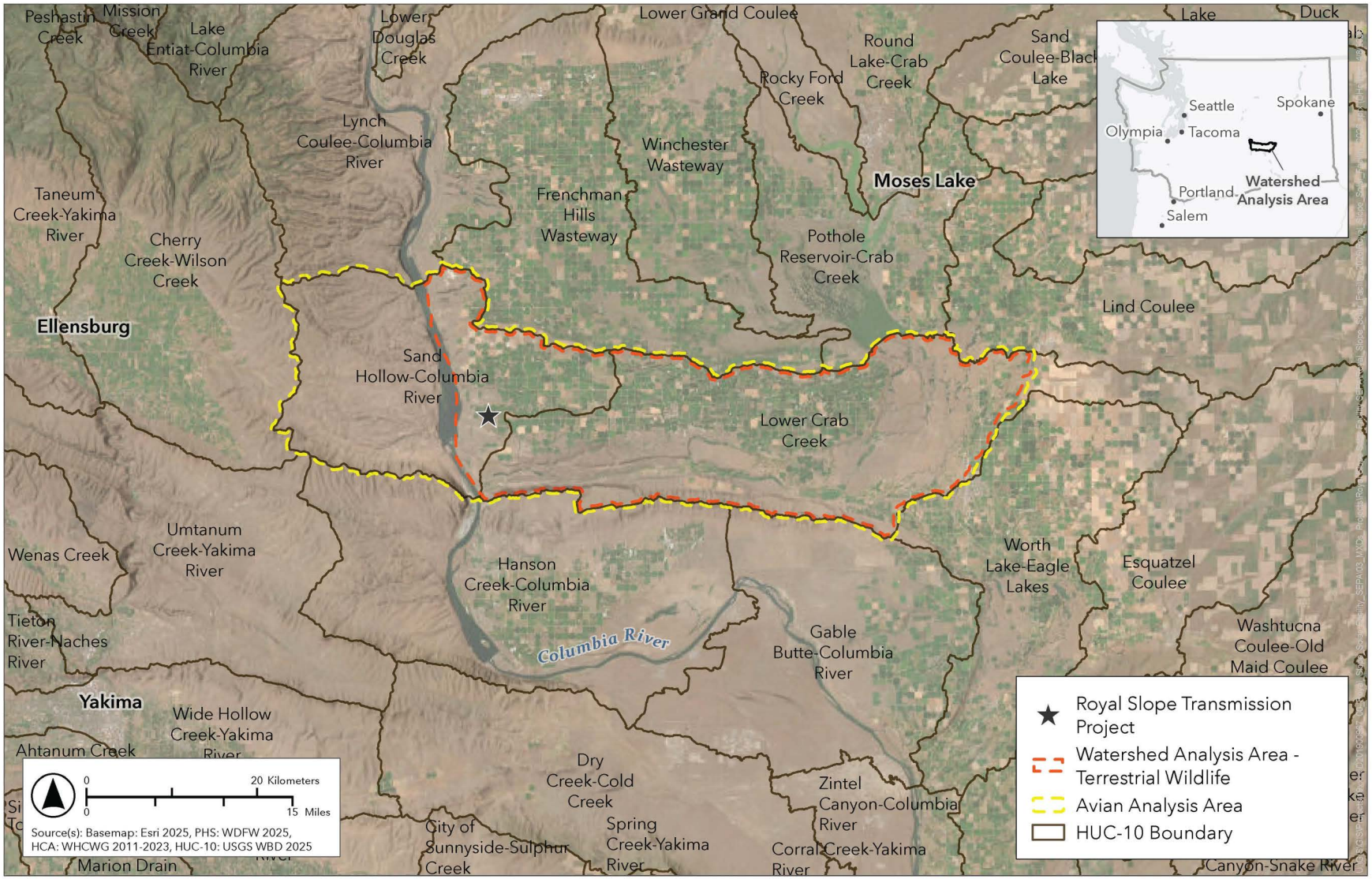

Figure 3.2-6
Project Area in Relation to the Lower Crab Creek/Sand Hollow Watershed

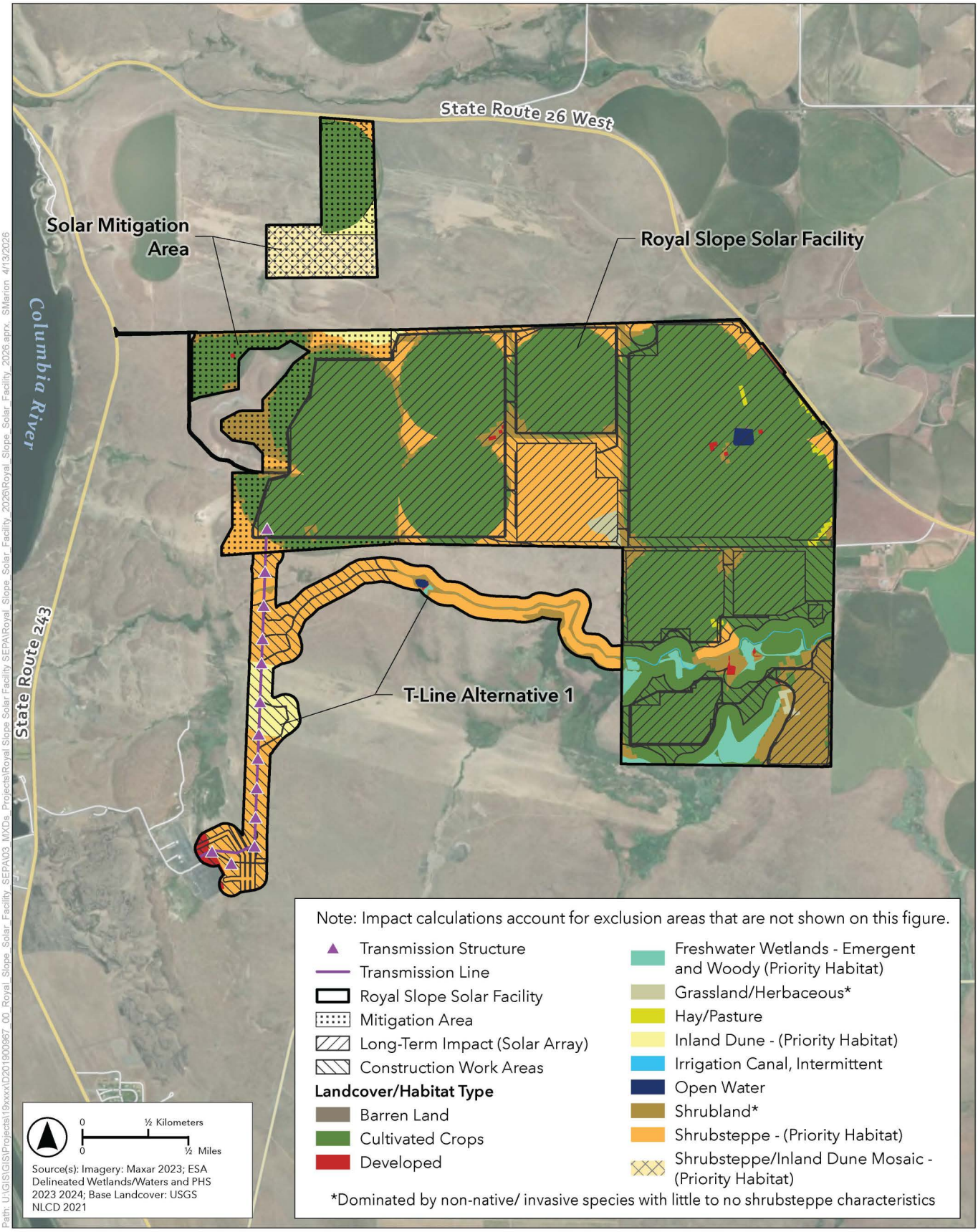

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Figure 3.2-7
Habitat Impacts - Alternative 1
Royal Slope Transmission Project EA

ESA

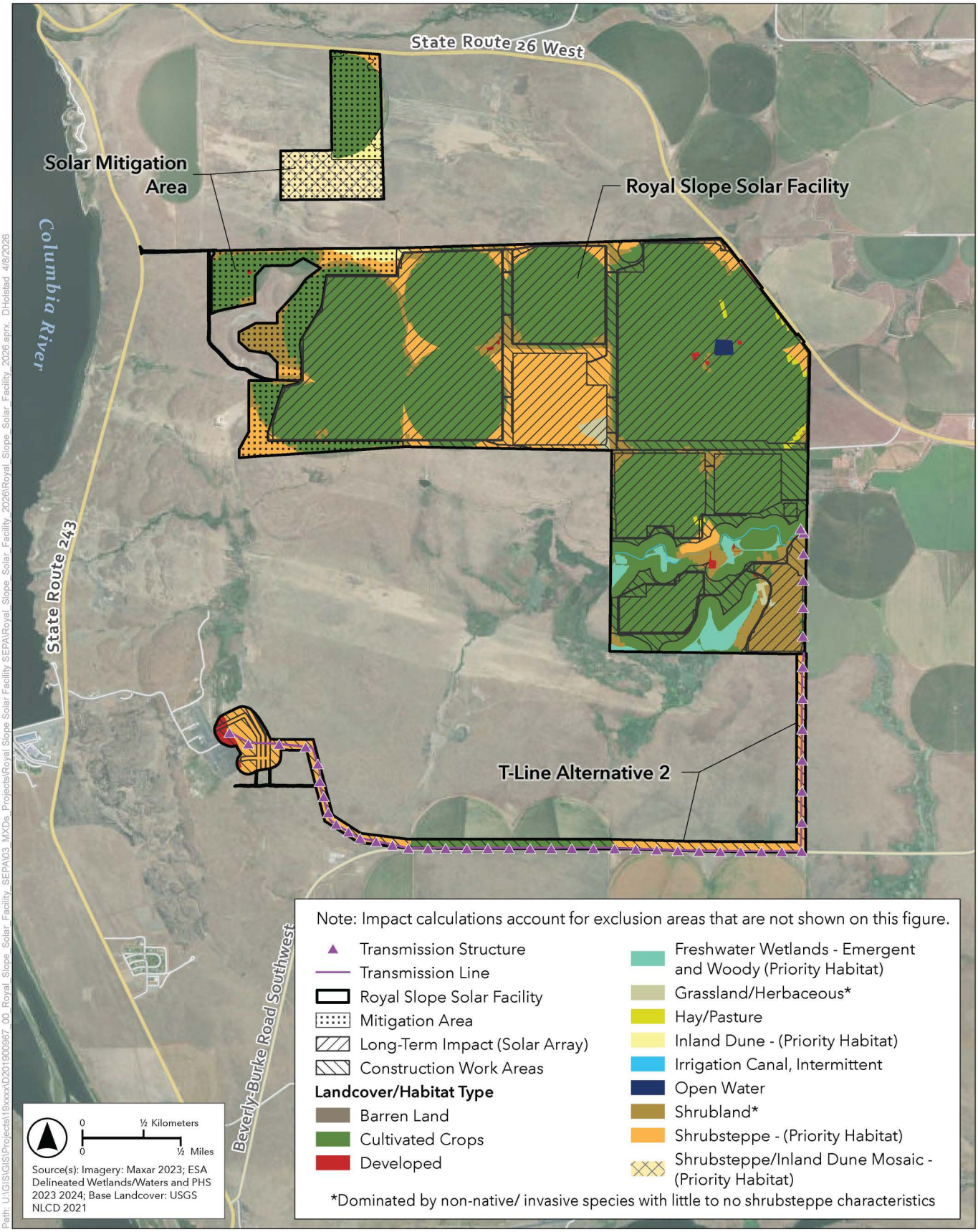

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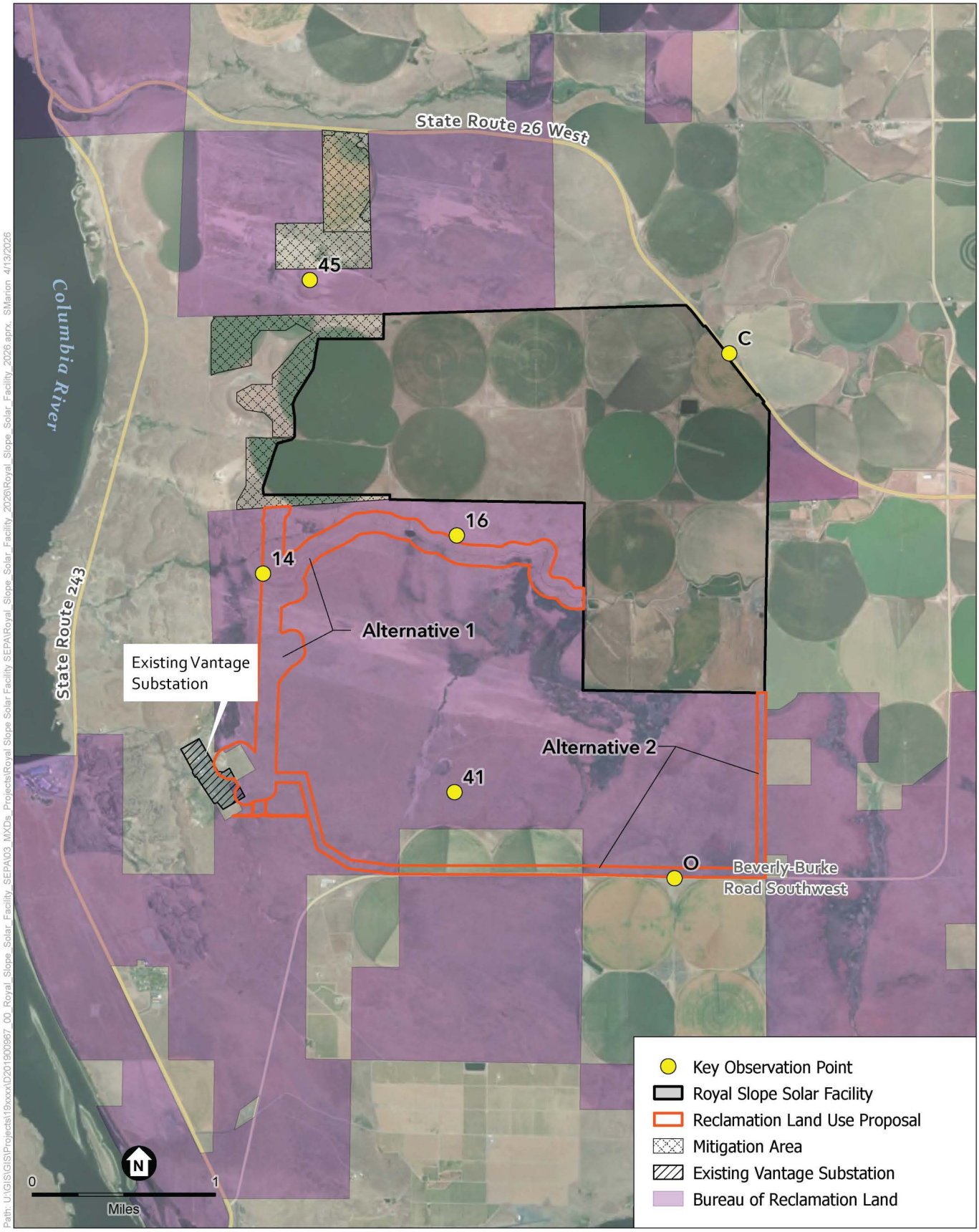
Figure 3.2-8
Habitat Impacts - Alternative 2
Royal Slope Transmission Project EA

ESA

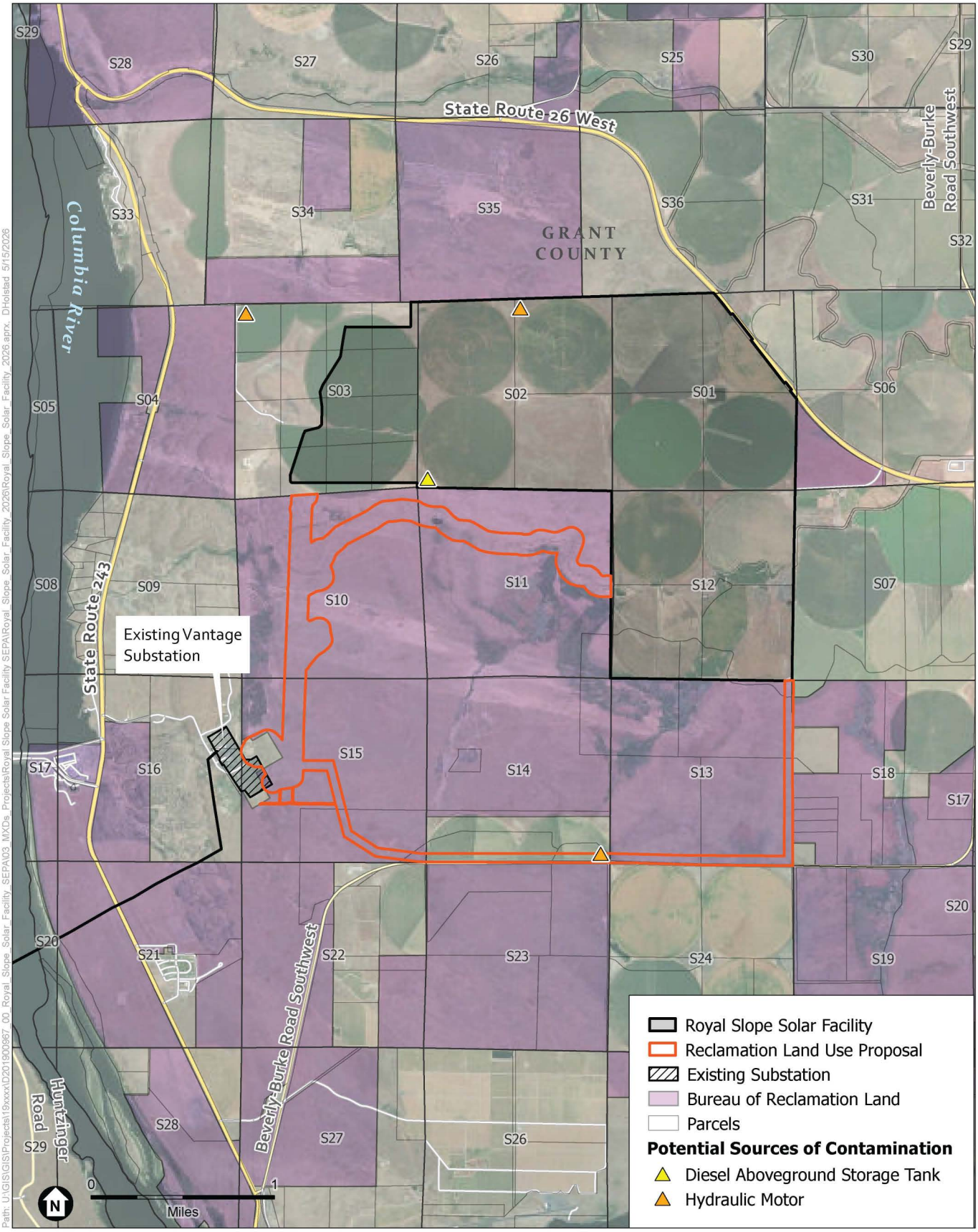


SOURCE: Imagery: Maxar, 2023; Roads: Open Street Map, 2021; BoR Boundary: WA DNR, 2021; Infrastructure: Clearway, 2025.

D201900967.02

Figure 3.3-1
Area of Potential Effect (APE)
Royal Slope Transmission Project EA

ESA



SOURCE: Imagery: Maxar, 2023; Roads: Esri, 2022; BoR Boundary: WA DNR, 2021

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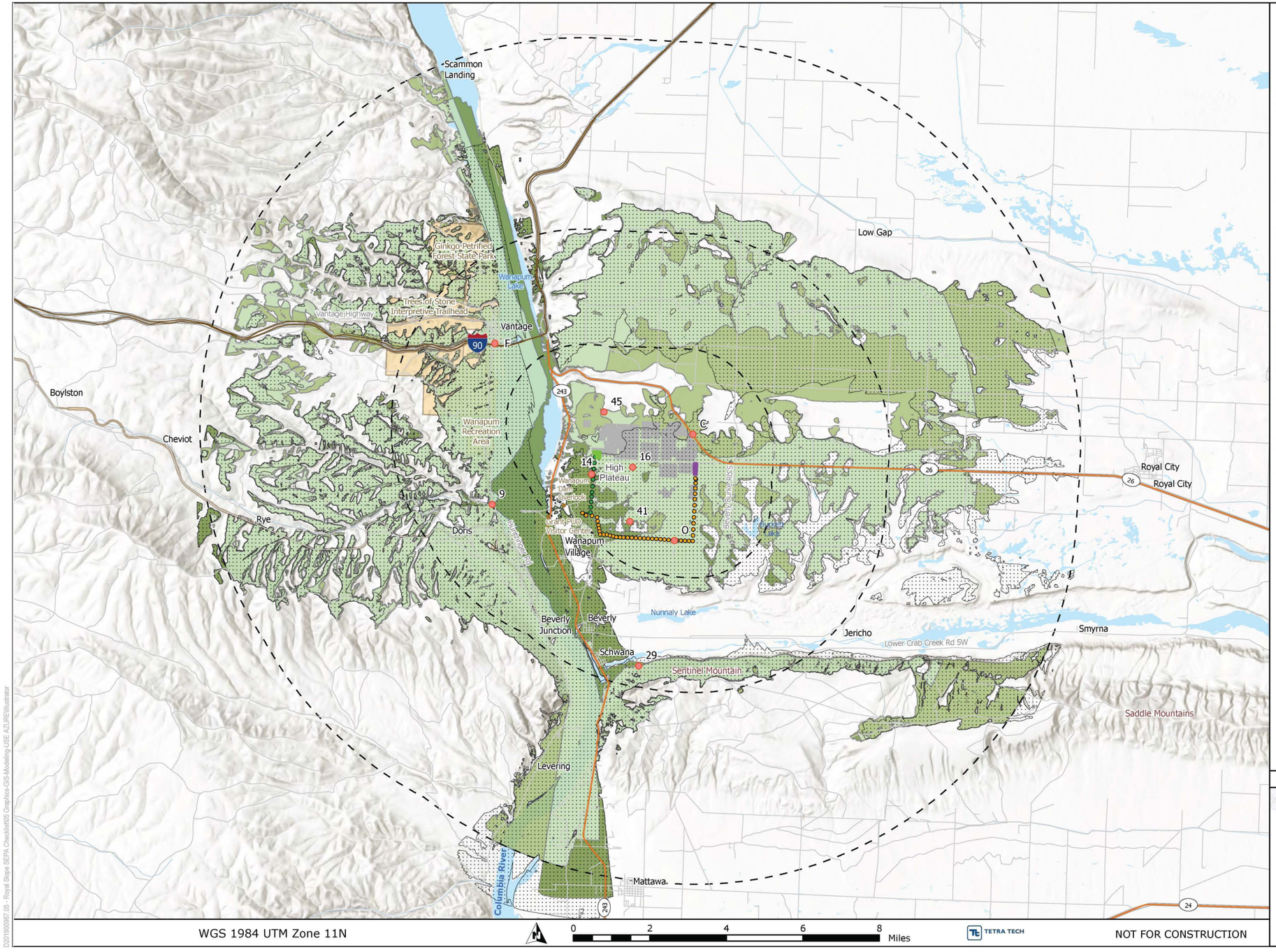
Figure 3.6-1
Potential Sources of Contamination Map
Royal Slope Transmission Project EA

ESA



SOURCE: Tetra Tech, 2025

D201900967.06

Figure 3.7-1
Viewshed Results Map

ESA

KOP 9: The Cove (from Huntzinger Rd) looking east across Wanapum Lake. Solar arrays are not visible at this location. Alternative 1 (approx. 2.6 miles away) and Alternative 2 (approximately 2.5 miles away) have potential visibility at this location.

KOP 29: Columbia Wildlife Refuge 1 looking north. Alternative 1 (approx. 4 miles away), Alternative 2 (approx. 3 miles away), and solar arrays (approx. 5.4 miles away) have potential visibility at this location.

SOURCE: Tetra Tech, 2025b

D201900967.06

Figure 3.7-2
Existing Views from KOP 9 and KOP 29

KOP 45: SAND DUNE 3

Existing View

Simulation

Image Data

Date of Photograph:	October 1, 2024
Time of Photograph:	11:14AM
Weather Conditions:	Sunny
Latitude:	46.916196° N
Longitude:	-119.927626° W
Viewing Direction:	South
Distance to Project	0.30 miles

Locator Map

SOURCE: Tetra Tech, 2025b

D201900967.06

Figure 3.7-3
Existing and Simulated Views from KOP 45

ESA

KOP C: WESTBOUND SHOULDER OF HIGHWAY 26

Existing View

Simulation

Image Data

Date of Photograph:	October 1, 2024
Time of Photograph:	8:52AM
Weather Conditions:	Sunny
Latitude:	46.910153° N
Longitude:	-119.879355° W
Viewing Direction:	Northwest
Distance to Project	170 ft

Locator Map

SOURCE: Tetra Tech, 2025b

D201900967.06

Figure 3.7-4
Existing and Simulated Views from KOP C

ESA

KOP Ob: BEVERLY BURKE RD S & PRIVATE ACCESS RD 2 ALTERNATIVE 2

Existing View

Simulation

Image Data

Date of Photograph:	September 30, 2024
Time of Photograph:	2:41PM
Weather Conditions:	Sunny
Latitude:	46.868768° N
Longitude:	-119.886129° W
Viewing Direction:	Northwest
Distance to Project	2.3 miles

Locator Map

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SOURCE: Tetra Tech, 2025b

D201900967.06

Figure 3.7-5
Existing and Simulated Views from KOP Ob

ESA

KOP 41a: UPLAND 2 ALTERNATIVE 2

Existing View

Simulation

Image Data

Date of Photograph:	September 30, 2024
Time of Photograph:	3:13PM
Weather Conditions:	Sunny
Latitude:	46.875698° N
Longitude:	-119.911391° W
Viewing Direction:	South-Southwest
Distance to Project	0.45 miles

Locator Map

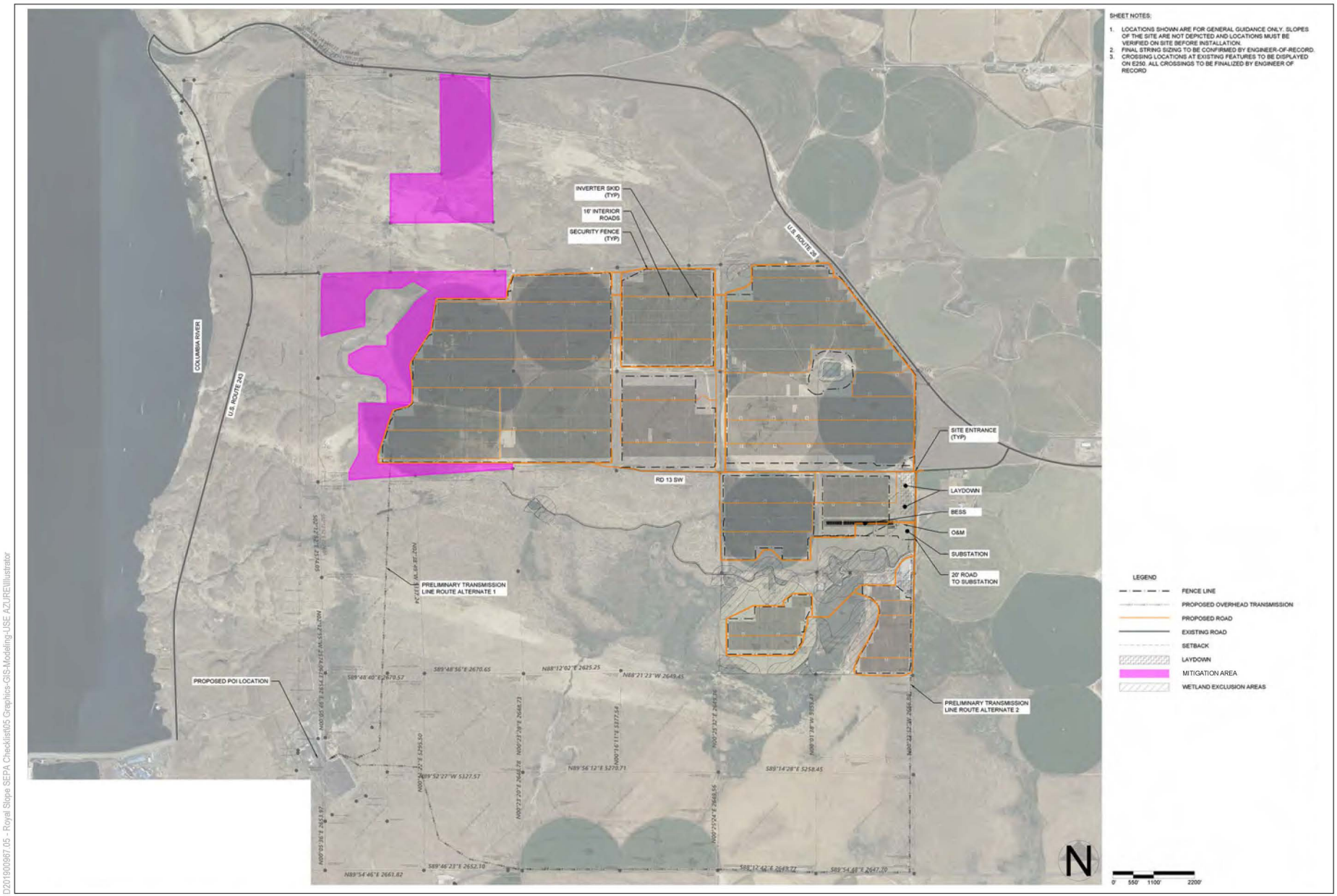
D201900967 05 - Royal Slope SEPA Checklist\05 Graphics-GIS-Modeling-USE AZURE\Illustrator

SOURCE: Tetra Tech, 2025b

D201900967.06

Figure 3.7-6
Existing and Simulated Views from KOP 41a

ESA



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SOURCE: Revamp Engineering, Inc., 2024

D201900967.06

Figure E-1
Royal Slope Solar Facility

ESA

Appendix B Operation and Maintenance Plans

Final

ROYAL SLOPE SOLAR ENERGY PROJECT

Transmission Line Vegetation Management Plan

Prepared for
Royal Slope Solar LLC

April 2026

Final

ROYAL SLOPE SOLAR ENERGY PROJECT

Transmission Line Vegetation Management Plan

Prepared for
Royal Slope Solar LLC

April 2026

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CONTENTS

Transmission Line Vegetation Management Plan

Figures

Tables

Attachments

Acronyms and Other Abbreviations

Acronym or Abbreviation	Definition
BPA	Bonneville Power Administration
DFs	Design Features
ESA	Environmental Science Associates
kV	kilovolt
NEPA	National Environmental Policy Act
NWCB	Washington State Noxious Weed Control Board
PUD	Public Utility District
Reclamation	U.S. Bureau of Reclamation
USFS	U.S. Forest Service
WDFW	Washington Department of Fish and Wildlife
WNHP	Washington Natural Heritage Program
WSDA	Washington State Department of Agriculture
WSDOT	Washington State Department of Transportation

ROYAL SLOPE SOLAR ENERGY PROJECT

Transmission Line Vegetation Management Plan

1.0 Introduction and Authorization

On behalf of Royal Slope Solar LLC, Environmental Science Associates (ESA) has prepared this Vegetation Management Plan to describe existing conditions and identify recommended site rehabilitation and undesirable plant control or removal measures for the Royal Slope Transmission Line Project (referred to as the Transmission Line). The area of interest is east and north of the existing Vantage Substation in Grant County (**Figure 1**). This report will also be used as a guide to control weeds for the Royal Slope Solar Facility mitigation areas (not shown on the figures). Refer to the EA for a complete project description. This report was prepared based on a review of Washington State and Grant County noxious weed lists (**Attachment A**), control methods, coordination with Grant County noxious weed board staff (C. Hintz, pers. comm. 2024), and the following sources:

- Pacific Northwest Weed Management Handbook (Peachey 2024)
- Weeds of the West (Whitson 2001)
- Natural Heritage Plant database (WHNP 2019)
- USDA Plants (2024)

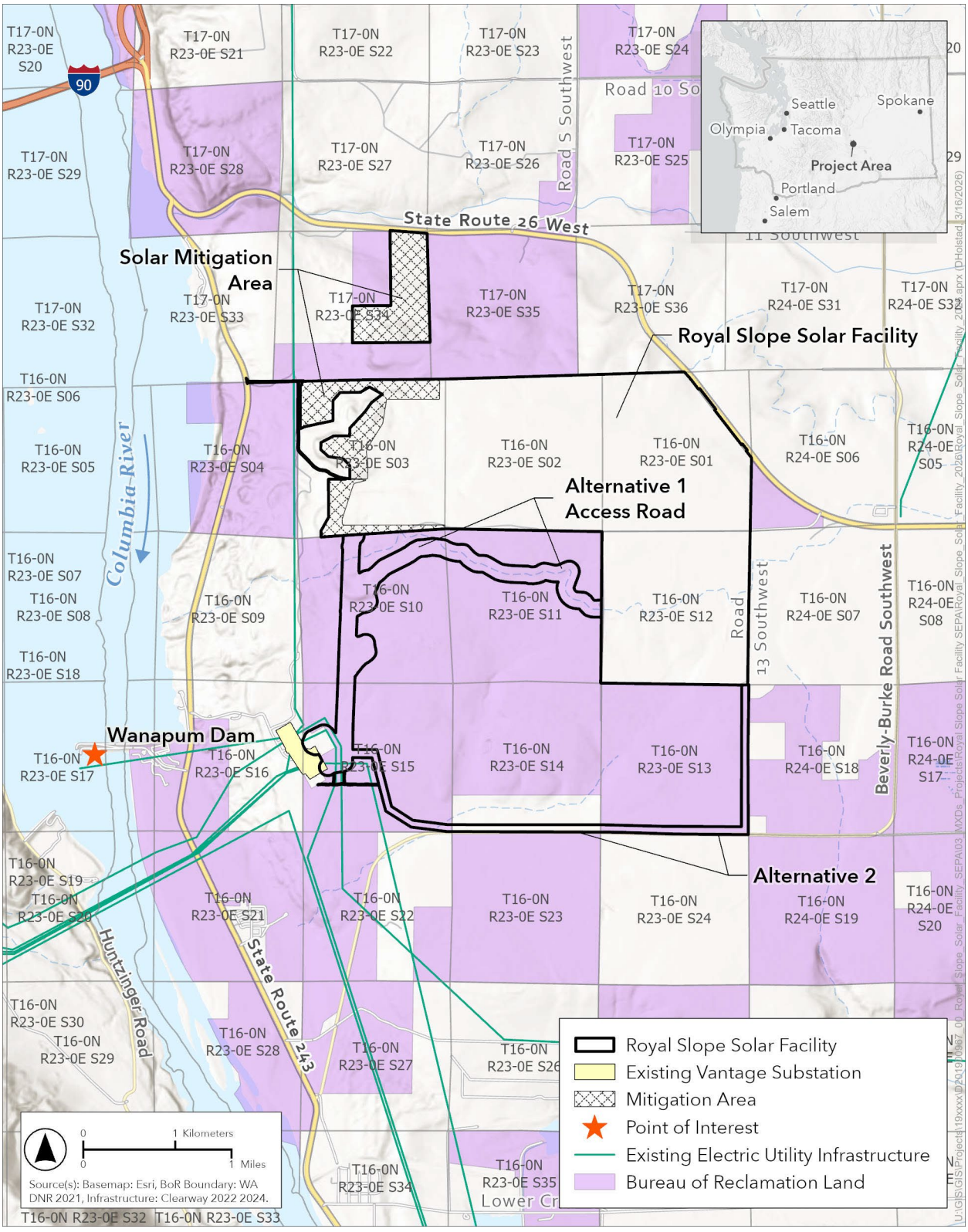

Figure 1
Location Map

2.0 Project and Site Description

This section describes existing conditions and proposed transmission line development. Proposed impacts are shown in Figures 2 and 3.

2.1 Existing Conditions

Land cover within the Transmission Line Alternative 1 is identified in **Table 1**.

TABLE 1
LAND COVER WITHIN THE ROYAL SLOPE TRANSMISSION LINE ALTERNATIVE 1

Habitat/Land Cover	Acres	% Relative Cover
Cultivated Crops	0.60	< 1
Developed – all categories	7.27	2
Shrubland*	0	0
Inland Dune - Priority Habitat	39.40	12
Shrubsteppe - Priority Habitat	273.84	84
Open Water	1.26	<1
Irrigation Canal, Intermittent	2.24	<1
Freshwater Wetland – Priority Habitat	0.80	< 1
Total	**324.87**	**100%**

* Dominated by non-native / invasive species with little to no characteristics of shrubsteppe.

A majority of the land cover within Transmission Line Alternative 1 consists of shrubsteppe habitat (84 percent relative cover), with inland dune as the next most dominant land cover (12 percent relative cover). Both are considered Priority Habitats by the Washington Department of Fish and Wildlife (WDFW 2024).

Land cover within the Transmission Line Alternative 2 is identified in **Table 2**.

TABLE 2
LAND COVER WITHIN THE ROYAL SLOPE TRANSMISSION LINE ALTERNATIVE 2

Habitat/Land Cover	Acres	% Relative Cover
Cultivated Crops	31.99	19
Developed – all categories	4.19	2
Shrubland*	0	0
Inland Dune - Priority Habitat	0	0
Shrubsteppe - Priority Habitat	133.21	79
Open Water	0	0
Irrigation Canal, Intermittent	0	0
Freshwater Wetland – Priority Habitat	0	0
Total	**169.39**	**100%**

* Dominated by non-native / invasive species with little to no characteristics of shrubsteppe.

Similar to Alternative 1, the dominant land cover within Transmission Line Alternative 2 corridor consists of shrubsteppe habitat (79 percent relative cover), with the next most dominant land cover type being cultivated cropland (19 percent relative cover).

2.2 Project Description

The 230 kV transmission line will connect the Royal Slope Solar Facility to the existing BPA Vantage Substation. The transmission line will cross under the existing Avista-Walla 230 kV transmission line, Grant County Public Utility District (PUD) Wanapum-Priest 230 kV transmission line, and BPA Midway-Vantage No. 1 230 kV transmission line. Refer to the EA for a complete project description including quantification of land cover impacts.

2.3 Proposed Impacts on Vegetation

Construction and operation of the selected transmission line will affect vegetation as depicted on **Figures 2 and 3**.

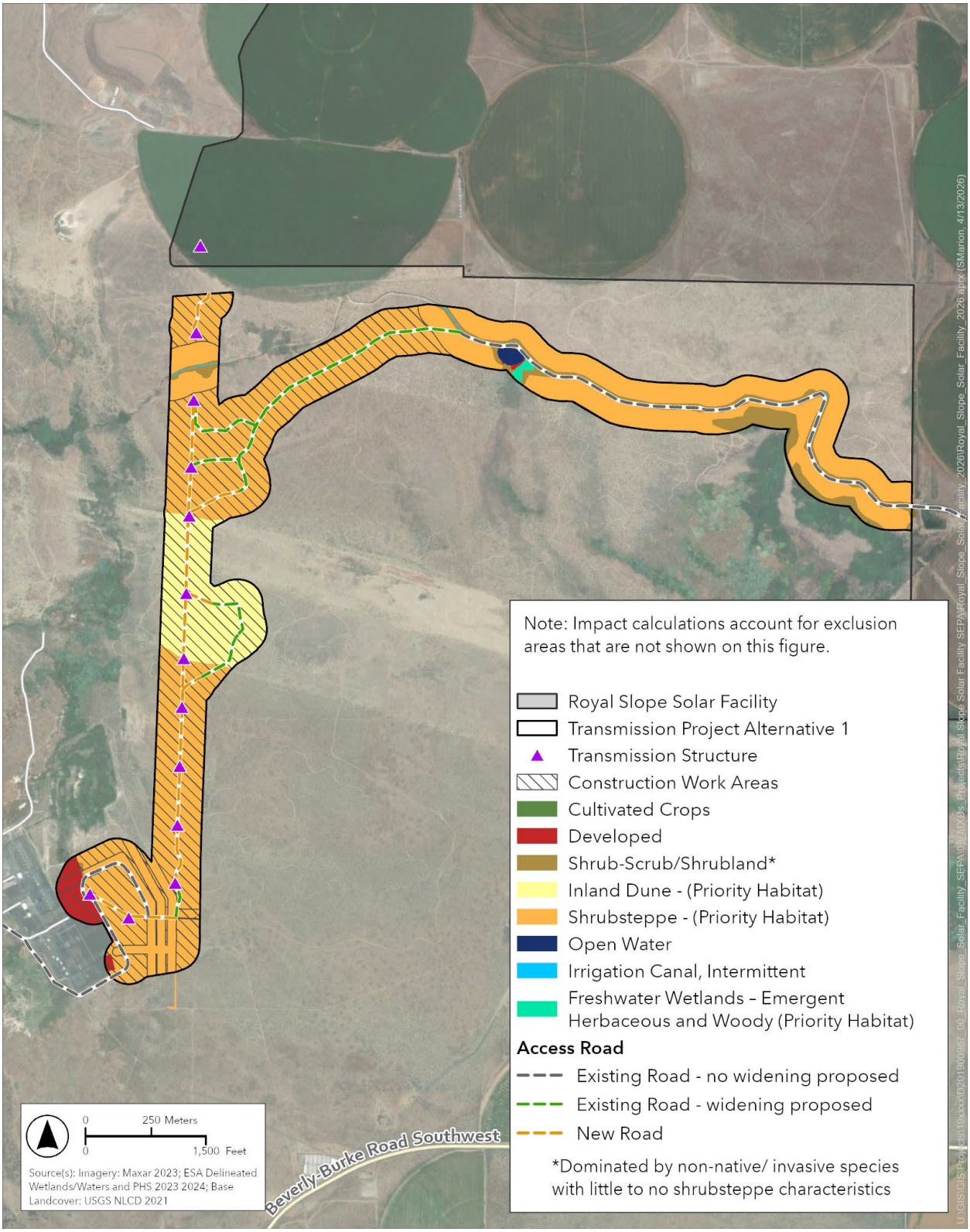

Figure 2
Proposed Vegetation Impacts - Transmission Line Alternative 1

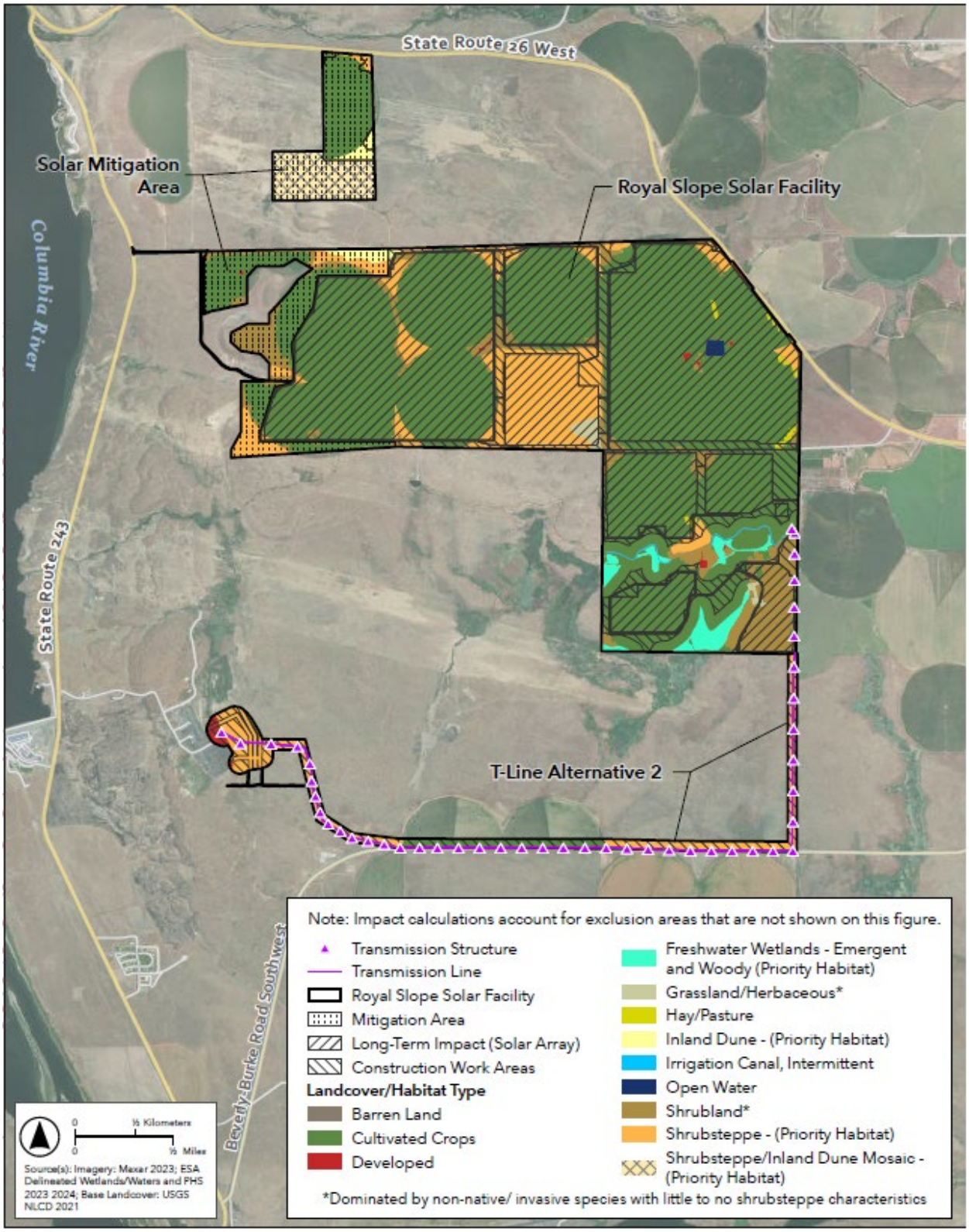

Figure 3

Proposed Vegetation Impacts - Transmission Line Alternative 2

3.0 Site Rehabilitation Strategies

This section describes measures to avoid or minimize impacts on existing vegetation during construction, and methods for re-establishing groundcover in areas temporarily disturbed or areas that require conversion to different land cover types to meet the project purpose.

3.1 Avoidance/Minimization of Impacts on Vegetation During Construction

Several design features (DFs) for avoiding/minimizing impacts on vegetation and sensitive resources during construction of the Transmission Line are outlined in the National Environmental Protection Act (NEPA) Environmental Assessment prepared for this project (ESA 2026a). Refer to EA Appendix C for a complete list of DFs; relevant DFs related to protecting and/or restoring vegetation are summarized here.

- Construction activities would be confined to previously disturbed areas where possible for such activities as work, staging, and storage, waste areas and vehicle and equipment parking areas. Vegetation disturbance would be minimized to the extent possible.
- In construction areas where re-contouring is not required, vegetation will be left in place wherever possible and the original contour will be maintained to avoid excessive root damage and allow for re-sprouting. Disturbance will be limited to overland driving where feasible to minimize changes in the original contours.
- Every effort will be made to minimize vegetation removal and permanent loss at activity sites. If necessary, native vegetation that supports monarch butterfly host plants and adjacent high-value foraging areas will be flagged for protection. The Applicant will clearly define staging and construction access routes to minimize impacts on native vegetation.
- To the extent practicable, native shrubs removed during construction will be saved and placed strategically in areas that are bare but being replanted after construction. The dead shrubs will provide temporary cover for smaller species like snakes and lizards while the vegetation recovers and seed from removed shrubs has potential to be harvested.
- Within the limits of standard transmission tower design and in conformance with engineering requirements, structures will be placed to avoid sensitive features, including but not limited to, wetlands, riparian areas, water courses, sensitive habitats and species, and cultural resources.
- Wetland habitat areas are excluded from development plans and would be buffered by 300 feet during construction activity.
- Pre-construction surveys will be conducted in advance of the construction start date (approximately 10 to 14 days in advance) to identify potential wildlife resources to avoid during mobilization, including nesting songbirds and snake hibernacula.
- If ferruginous hawks are observed nesting in the area any time directly before or during construction, an additional assessment and review by WDFW will be requested.
- Biological monitors will be assigned to the Project at key times and locations during construction. The monitors will be responsible for ensuring that impacts to special-status species, native vegetation, wildlife habitat, or unique resources will be avoided to the fullest extent possible. Where appropriate, monitors will flag the boundaries of areas where activities need to be restricted to protect native plants and wildlife, or special-status species. These restricted areas will be monitored to ensure their protection during construction. In construction areas (e.g., marshalling yards, structure site work

areas, spur roads from existing access roads) where ground disturbance is significant or where re-contouring is required, surface reclamation will occur as required by Reclamation. The method of reclamation will normally consist of, but is not limited to, returning disturbed areas back to their natural contour, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches.

- Post-construction rehabilitation and restoration of vegetation include planting species known to host monarch larvae (e.g., *Asclepias speciosa, A. cordifolia, A. fascicularis*) and nectaring NOTE Pg 5 of this list https://xerces.org/sites/default/files/publications/18-003_02_Monarch-Nectar-Plant-Lists-FS_web%20-%20Jessa%20Kay%20Cruz.pdf.

3.2 Site Rehabilitation Methods

Areas disturbed during construction will be replanted with native species. The method and type of replanting may involve one or more of the following: seeding and/or installing plugs, bare root or container plants.

Two possible methods of reseeding include drill seeding and broadcast seeding. Seeding using a hydroseeder may be another method of reestablishment. If so, a tracer would be used to visibly aid uniform application, following Washington State Department of Transportation (WSDOT) hydroseeding specifications (WSDOT 2025). Ideal seeding dates for Eastern Washington are October 1 through November 15 (WSDOT 2025).

Drill Seeding

Drill seeding is the preferred method of sowing native seed for areas with adequate to good topsoil, gentle topography, and accessible to agricultural equipment. Drill seeding may not be appropriate for portions of the Transmission Line that are undulating or where slopes are greater than 10 percent, such as toward the canal.

Broadcast Seeding

This is an appropriate method for areas where drill seeding is not feasible. Do not seed during windy weather or when the ground is frozen, or excessively wet. If straw is applied, crimp it to prevent it from blowing away. Or hydroseed with mulch and tackifier per WSDOT specifications.

3.3 Proposed Plant Species by Habitat Type

Different seed mixes and plant species are proposed according to the existing habitat areas that will be disturbed during construction. Shrubsteppe and inland dune are the primary habitats that will be disturbed. Shrublands areas can be re-seeded with the shrubsteppe mix or similar species as nursery stock or seed sources are available. Shrublands are dominated by non-native/invasive species with little to no characteristics of shrubsteppe but share similar soils.

The composition/proportion of species in the seed or plant schedule mixes will be determined closer to installation date as availability and cost will vary. Potentially suitable species for rehabilitating shrubsteppe are listed in **Table 3**.

TABLE 3
SHRUBSTEPPE PLANT LIST

Plant Form	Common Name	Scientific Name	Notes
Shrub and sub-shrub (woody species)	Big sagebrush	*Artemisia tridentata*	Include at least two species
	Green rabbitbrush	*Chrysothamnus viscidiflorus*	
	Parsnipflower buckwheat	*Eriogonium heracleoides*	
	Rubber rabbitbrush	*Ericameria nauseosa*	
	Spiny hop sage	*Grayia spinosa*	
Herbaceous (Forb and low shrub)	Douglas' dustymaidens	*Chaenactis douglasii*	Include at least four forb species
	Gairdner's penstemon	*Penstemon gairdneri*	
	Hoary-aster	*Dieteria canescens*	
	Munro's globemallow	*Sphaeralcea munroana*	
	Showy penstemon	*Penstemon speciosus*	
	Threadleaf fleabane	*Erigeron filifolius*	
	Yarrow	*Achillea millefolium*	
Herbaceous (Grass)	Bluebunch wheatgrass	*Pseudoroegneria spicata*	Include at least three grass species
	Bottlebrush squirreltail	*Elymus elymoides*	
	Idaho fescue	*Festuca idahoensis*	
	Sandberg bluegrass	*Poa secunda*	

Plant species composition of inland dune habitat depends on the succession stage of the dune and degree of stabilization. Early successional dunes will have a different composition than more stabilized dunes, but some species will be found across the different dune stages. Additionally, several inland dune plant species are similar to shrubsteppe species. Potentially suitable species for rehabilitating inland dune are listed in **Table 4**.

TABLE 4
INLAND DUNE PLANT LIST

Plant Form	Common Name	Scientific Name	% of Mix
Shrub	Antelope bitterbrush	*Purshia tridentata*	Select at least three species
	Big sagebrush	*Artemisia tridentata* ssp. *wyomingensis*	
	Green rabbitbrush	*Chrysothamnus viscidiflorus*	
	Rubber rabbitbrush	*Ericameria nauseosa*	
	Snow buckwheat	*Eriogonum niveum*	
	Spiny hop sage	*Grayia spinosa*	
Herbaceous (Forb)	Carey's balsamroot	*Balsamorhiza careyana*	Select at least four species
	Lemon scurfpea	*Psoralidium lanceolatum*	
	Mountain evening primrose	*Oenothera pallida*	
	Silverleaf phacelia	*Phacelia hastata*	
	Sharpleaf penstemon	*Penstemon acuminatus*	
	Turpentine wavewing	*Pteryxia terebinthina*	
Herbaceous (Grass)	Indian ricegrass	*Achnatherum hymenoides*	Select at least two species
	Montana wheatgrass	*Elymus lanceolatus*	
	Sandberg bluegrass	*Poa secunda*	

4.0 Noxious Weed Prevention and Control

This section describes the known/likely undesirable plant species in the project area, methods of prevention and methods/strategies for control and containment, and resources for additional information.

4.1 Definition of Undesirable Plant Species

Undesirable plant species consist of noxious weeds and other plant species deemed problematic for the successful establishment and maintenance of native and non-native/naturalized plant species (**Table 5**). The definitions of noxious weed classes from the Washington State Noxious Weed Control Board (NWCB 2023a, 2023b) are as follows:

- **Class A Weeds:** Non-native species that are new to the state of Washington and are generally rare. Preventing new infestations and eradicating existing infestations are the highest priorities. Eradication is required by law.
- **Class B Weeds:** Non-native species that are widespread in some parts of the state but limited in others. Species are designated for control in regions where they are not yet widespread. Preventing new infestations in these areas is a high priority. In regions where a Class B species is already abundant, control is decided at the local level, with containment as the primary goal.
- **Class C Weeds:** Class C weeds are often widespread, or are of special interest to the agricultural industry. The State Noxious Weed Control Board does not require control of Class C noxious weeds. Check with the Grant County Noxious Weed Control Boards for which Class C species require control.

TABLE 5
NOXIOUS WEED SPECIES KNOWN OR SUSPECTED TO OCCUR IN THE VICINITY

Common Name	Scientific Name	Designation	Characteristics
Canada thistle	*Cirsium arvense*	C	Perennial, spreads by creeping rhizomes, can form large monocultures. Purple flowers, smaller flower heads compared to bull thistle.
Dalmatian toadflax	*Linaria dalmatica* ssp. *Dalmatica*	B	Yellow snapdragon-like flowers; short-lived perennial; spreads by horizontal or creeping roots and by seed.
Jointed goatgrass	*Aegilops cylindrica*	C	Winter annual. Reddish tips, looks like ryegrass.
Knapweed, diffuse	*Centaurea diffusa*	B-des.	White or pink flowers, long taproot.
Kochia	*Bassia scoparia*	B-des.	Annual with small, green flowers. Densely branched.
Long spine sandbur	*Cenchrus longispinus*	B-des.	Spike-like burs.
Puncturevine	*Tribulus terrestris*	B-des.	Annual, grows flat, yellow flowers, very sharp spikes on seeds.
Rush skeletonweed	*Chondrilla juncea*	B-des.	Yellow flowers, no leaves on stems (only basal leaves).
(Prickly) Russian thistle	*Salsola tragus L., Salsola iberica Sennen,*	B-des.	Summer annual; reproduces by seed; becomes "tumbleweed."
Saltcedar	*Tamarix ramosissima*	B-des.	Small shrub/tree of moist areas; can grow in dry areas.
Starthistle	*Centaurea solstitialis*	B-des.	Annual or biennial. Deep taproots, yellow flowers.
White cockle	*Silene latifolia*	B-des.	White flowers, fleshy green leaves.

NOTE:
This list was compiled based on site observations, the most common noxious weeds in Grant County, and input from C. Hintz (2024); starthistle is included because it is on the "watch" list but is not widely established in Grant County to date (Hintz pers. comm. 2024).

4.2 Prevention and Pre-Construction Measures

The best weed control method is to prevent establishment, which is proposed through education/training and avoidance/minimization of vegetation impacts during construction. Construction crews should receive training and tools for cleaning equipment to prevent the inadvertent introduction to the project site. Recognizing and removing "tumbleweeds" and other seed heads that may be trapped inside wheel wells prior to entering the project site will aid in minimizing weed distribution.

4.3 Methods of Control

Methods for controlling selected weeds are summarized in **Table 6**. Refer to on-line sources (e.g., Grant County Weed Control [2024] website) for more details on identification and control. An integrated approach using multiple methods over several applications will yield the best results.

TABLE 6
NOXIOUS WEED SPECIES – CONTROL STRATEGIES

Species	Known to be present	Manual*	Chemical	Mechanical	Cultivation	Biocontrol	Notes
Canada thistle	Yes	Yes	Yes	Yes	Yes, clean cultivation	Yes, 2 agents available for eating seed-heads	Spreads by rhizomes; dispose of roots and seedheads.
Dalmatian toadflax	Yes	Yes	Yes	Yes	Yes, clean cultivation	Yes	The toadflax stem weevil is effective.
Knapweed, diffuse	Yes	Yes	Yes	Yes	Yes	Yes	Not known to be toxic.
Kochia	Unknown	Yes	Yes, early spring	Yes	Yes, till in spring	Unknown/Not Available	Mowing or slashing before flowering is effective.
Long spine sandbur	Unknown	Yes	Yes	Yes	Yes	Unknown/Not Available	--
Puncturevine	Yes	Yes	Yes	Yes	Yes	Yes, seed weevil and stem weevil larvae and adults	Can puncture car tires; if attached, scrape off wheels with a sharp tool.
Rush skeletonweed	Yes	Yes	Yes	Yes**	Yes**	Yes	Biocontrol may not be effective
(Prickly) Russian thistle	Unknown	Yes	Yes	No	Yes, on-going & intensive	Yes, 3 possible agents	Mowing can be counter-productive when plants are mature, unless repeated over years
Saltcedar	Yes	Yes	Not in PNW handbook	Yes, but can re-sprout	Yes, deep root plowing needed	Yes, but not available in WA	Bio-control not available in Washington
Starthistle	Unknown	Yes	Yes	Yes	Yes	Unknown/Not Available	--
White cockle	Unknown	Yes	Yes	Yes	Yes	Unknown/Not Available	--

NOTES:

* Generally effective for small patches and/or when plants are small.
** Latex sap can interfere with equipment.

Manual methods of removing noxious weeds include hand-pulling, hoeing, grabbing, cutting, hacking or slashing with hand tools. Manual removal should always be done wearing gloves. The most effective time for manual removal is just before flower heads appear on plants, which can vary by species and can vary among individual plants within the same species. In an unseasonably warm spring, flower heads will appear sooner and monitoring the timing of flowering is recommended.

Chemical control may be suitable for small- to medium-sized infestations and includes applying the appropriate herbicide/pesticide at the right time of year to selected weeds. Generally, the plant should be actively growing and small in size for effective chemical control. Most, if not all, weeds will require repeated chemical applications over more than one year for effective control/eradication. Chemical application should be done by qualified individuals wearing appropriate personal protection equipment. For chemical control by species, refer to the Pacific Northwest Pest Management Handbook (Peachey 2024). Refer to Appendix B for optimal times of the year to control different weed species.

Mechanical control includes mowing, weed whacking and cultivation (tilling), which is identified as a separate column in Table 6. Repeated mowing can weaken stems and prevent seeding. Repeated tilling at frequent intervals within a season can be effective at reducing/eliminating several noxious weeds in areas with a history of tilling; however, cleaning equipment before changing fields is necessary to prevent spreading weeds such as Canada thistle which can grow from small root fragments.

Biological control consists of releasing an approved insect like a weevil that feeds on the target species to reduce vigor and/or minimize seed production. Consult the Washington State University (WSU) Integrated Weed Control Project for the most up to date information on bio-controls.

Recommended Control Measures during Active Construction

Common vegetation management strategies and site mobilization activities proposed within the construction corridor include but are not limited to the following: mowing, mechanized clearing and trimming, herbicide application, covering with geotextile fabric, inspections, and monitoring. Controlling undesirable plant populations as early as they are detected prevents further maintenance that may be required by the species spreading over time.

Mowing or slashing undesirable plants prior to flowering or at the very early flowering stages is an effective method of halting the spread of plant seeds.

DFs related to construction mobilization and active construction include the following (excerpted from the EA Appendix C):

- Before ground-disturbing activities begin, inventory weed infestations and prioritize areas for treatment in project operating areas and along access routes.
- Remove sources of weed seed and propagules to prevent the spread of existing weeds and new weed infestations.
- Avoid acquiring water for dust abatement where access to the water is through weed infested sites.
- Use only BLM-approved herbicides. Some state or local restrictions may apply.
- Use only licensed herbicide applicators.

- The Applicant will prepare and submit for approval a Pesticide Use Proposals (PUPs), prior to initiating integrated pest management measures. Reclamation may delegate the review and approval authority as necessary and as appropriate.

Control Measures During Transmission Line Operation

Post-construction management of weeds in the transmission line corridor will follow the spirit of BPA's Final EIS for vegetation management (2000), which involves outreach to, and coordination with, land managers, landowners, and tribes to avoid or reduce potential environmental impacts and allow for safe operation and maintenance of the transmission system..

5.0 Monitoring and Reporting on Temporarily Disturbed Areas

5.1 Schedule

A post-construction survey of the temporarily disturbed areas will be conducted following construction, and appropriate seeding will be applied. Monitoring of rehabilitated areas will continue annually for 3 years post-construction. A qualified biologist or landscape designer will conduct the monitoring. The as-built plan will be used as the basis for monitoring plant survival. Monitoring will begin the first full growing season after construction is complete and the plants have been installed.

5.2 Data Collection

Native and non-native/invasive species cover in the temporarily disturbed areas will be evaluated quantitatively and qualitatively 1 year after construction, as well as in Years 2 and 3. Data collection will occur during the late summer (i.e., July–September). The following information will be recorded during each monitoring site visit:

- General plant health assessment and plant aerial coverage from the established sampling points and transects (e.g., line-intercept).
- Presence of noxious weeds (weedy and/or non-native species) with estimated percent cover.
- Photo documentation of site conditions from established photo points.
- Signs of wildlife use.

5.3 Reporting

Monitoring reports will be prepared by a qualified biologist or landscape designer for review and approval by regulatory agencies during monitoring Years 1 through 3. The reports will compare the native cover and invasive species cover performance standards described in the Habitat Mitigation Plan (ESA 2024b) to the field observations during monitoring, and will recommend species replacements or other maintenance activities, if necessary. Reports will present data collected during the site visits and document success in meeting specific performance standards. Photographs will illustrate and document site conditions. Monitoring reports will be submitted to Reclamation by the end of each monitoring year.

6.0 Summary and Next Steps

Several noxious weed species have the potential to invade the construction area based on establishment in the general vicinity and the ability to germinate by way of windblown seeds. Prevention is the best strategy for controlling noxious weed populations. A preconstruction weed survey is recommended to document the current status and locations of noxious weeds prior to site mobilization in order to effectively monitor and prevent the spread of noxious weeds. Pre-construction mechanical or chemical control of selected weeds is recommended whenever feasible.

7.0 References and Source Material

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Attachment A

State and County Weed Lists

2024 Grant County Weed List

For weed control information, please contact:

Noxious Weed Control Board of Grant County

32 C Street N.W., Room 321
P.O. Box 1115
Ephrata, Washington 98823
(509) 754-2011, Ext. 4710
(800) 572-0119, Ext. 4710

grantco@televar.com
www.grantcountyweedboard.org

Noxious weeds are non-native plants that have been introduced to Grant County through human actions. Because of their aggressive growth and lack of natural enemies in the county, these species can be highly destructive, competitive or difficult to control. These exotic species can reduce crop yields, destroy native plant and animal habitat, damage recreational opportunities, clog waterways, lower land values, and poison humans and livestock.

To help protect Grant County's resources, the Noxious Weed Control Board of Grant County adopts a county weed list each year, as directed by RCW 17.10.090. The list categorizes weeds into three major classes – A, B, C – according to the seriousness of the threat they pose to Grant County.

2024 Regulation and Policy Letter

The Noxious Weed Control Board of Grant County (hereinafter referred to as Board) shall promote weed control by personal contact with landowners and through whatever public media can be arranged. The Board will promote weed control through public seminars, hearings, demonstrations, field trips, school lectures and regularly scheduled Board meetings. Landowners are responsible for the control of noxious weed propagules on their property.

It is the policy of the Board to work closely with all public agencies and municipalities and to encourage all landowners to control their own weeds by whatever means they have at their disposal or by those commercially available. Control means to prevent all seed production and to prevent the dispersal of all propagative parts capable of forming new plants. Eradicate means to eliminate a noxious weed within an area of infestation. The Board Coordinator and Consultants will assist in locating and identifying noxious weeds and encourage the landowner to report to the Board the location of all other noxious weed infestations.

The Board, or duly authorized staff personnel representing the Board, have the authority to enter all property under the Board's jurisdiction for the purposes of enforcing the weed laws of the State of Washington under Chapter 17.10.160 of the Revised Code of Washington and to hire a licensed contractor to comply with said statute to control the infestation.

If the property owner does not take prompt action to control the noxious weeds in accordance with RCW 17.10, and this regulation, the Board shall cause their being controlled at the expense of the landowner as per RCW 17.10.170. Charges for the regulatory work shall be based on the cost of control work to include labor and materials and necessary legal and administrative fees. The amount of such expenses shall constitute a lien against the property.

It shall be required that the following noxious weed propagules be prevented from spreading within the boundaries of Grant County, Washington, under the Board's jurisdiction.

Class A Weeds

Class A weeds are non-native species whose distribution in Grant County and Washington State is still limited. Preventing new infestations and eradicating existing infestations are the highest priority. Eradication of all Class A weeds is required by law.

Common Name	Scientific Name
common crupina	*Crupina vulgaris*
cordgrass, common	*Spartina anglica*
cordgrass, dense-flowered	*Spartina densiflora*
cordgrass, saltmeadow	*Spartina patens*
cordgrass, smooth	*Spartina alterniflora*
dyer's woad	*Isatis tinctoria*
eggleaf spurge	*Euphorbia oblongata*
false brome	*Brachypodium sylvaticum*
floating primrose-willow	*Ludwigia peploides*
flowering rush	*Butomus umbellatus*
French broom	*Genista monspessulana*
garlic mustard	*Alliaria petiolata*
giant hogweed	*Heracleum mantegazzianum*
goatsrue	*Galega officinalis*
hydrilla	*Hydrilla verticillata*
Johnsongrass	*Sorghum halepense*
knapweed, bighead	*Centaurea macrocephala*
knapweed, Vochin	*Centaurea nigrescens*
kudzu	*Pueraria montana* var. *lobata*
meadow clary	*Salvia pratensis*
oriental clematis	*Clematis orientalis*
Palmer amaranth	*Amaranthus palmeri*
purple starthistle	*Centaurea calcitrapa*
reed sweetgrass	*Glyceria maxima*
ricefield bulrush	*Schoenoplectus mucronatus*
sage, clary	*Salvia sclarea*
sage, Mediterranean	*Salvia aethiopis*
silverleaf nightshade	*Solanum elaeagnifolium*
small-flowered jewelweed	*Impatiens parviflora*
South American spongeplant	*Limnobium laevigatum*
Spanish broom	*Spartium junceum*
Syrian beancaper	*Zygophyllum fabago*
Texas blueweed	*Helianthus ciliaris*
thistle, Italian	*Carduus pycnocephalus*
thistle, milk	*Silybum marianum*
thistle, slenderflower	*Carduus tenuiflorus*
thistle, Turkish	*Carduus cinereus*

Class A Weeds *(Continued)*

variable-leaf milfoil and hybrids	*Myriophyllum heterophyllum, Myriophyllum heterophyllum x Myriophyllum hippuroides*
wild four-o'clock	*Mirabilis nyctaginea*

Class B Weeds

Class B weeds are non-native species that are presently limited to portions of Grant County. Preventing infestations of Class B weeds is a high priority. In regions where a Class B species is already abundant, control is decided at the local level, with containment as the primary goal.

blueweed	*Echium vulgare*
Brazilian elodea	*Egeria densa*
bugloss, annual	*Lycopsis arvensis*
bugloss, common	*Anchusa officinalis*
camelthorn	*Alhagi maurorum*
common fennel, (except bulbing fennel)	*Foeniculum vulgare* (except *F. vulgare* var. *azoricum)*
common reed (nonnative genotypes only)	*Phragmites australis*
common tansy	*Tanacetum vulgare*
Dalmatian toadflax	*Linaria dalmatica* ssp. *dalmatica*
Eurasian watermilfoil	*Myriophyllum spicatum*
European coltsfoot	*Tussilago farfara*
fanwort	*Cabomba caroliniana*
gorse	*Ulex europaeus*
grass-leaved arrowhead	*Sagittaria graminea*
hairy willowherb	*Epilobium hirsutum*
hanging sedge	*Carex pendula, Carex pendula subsp. pendula* and *Carex pendula subsp. agastachys*
hawkweed oxtongue	*Picris hieracioides*
hawkweed, orange	*Hieracium aurantiacum*
hawkweeds: All nonnative species and hybrids of the Meadow subgenus	*Hieracium,* subgenus *Pilosella*
hawkweeds: All nonnative species and hybrids of the Wall subgenus	*Hieracium,* subgenus *Hieracium*
herb-Robert	*Geranium robertianum*

Class B Weeds *(Continued)*

hoary alyssum	*Berteroa incana*
houndstongue	*Cynoglossum officinale*
indigobush	Amorpha fruticosa
knapweed, black	*Centaurea nigra*
knapweed, brown	*Centaurea jacea*
knapweed, diffuse	*Centaurea diffusa*
knapweed, meadow	*Centaurea x gerstlaueri*
knapweed, Russian	*Rhaponticum repens*
knapweed, spotted	*Centaurea stoebe*
knotweed, Bohemian	*Fallopia x bohemica*
knotweed, giant	*Fallopia sachalinensis*
knotweed, Himalayan	*Persicaria wallichii*
knotweed, Japanese	*Fallopia japonica*
kochia	*Bassia scoparia*
lesser celandine	*Ficaria verna*
loosestrife, garden	*Lysimachia vulgaris*
loosestrife, purple	*Lythrum salicaria*
Malta starthistle	*Centaurea melitensis*
parrotfeather	*Myriophyllum aquaticum*
perennial pepperweed	*Lepidium latifolium*
poison hemlock	*Conium maculatum*
policeman's helmet	*Impatiens glandulifera*
puncturevine	*Tribulus terrestris*
Ravenna grass	*Tripidium ravennae*
rough chervil	*Chaerophyllum temulum*
rush skeletonweed	*Chondrilla juncea*
saltcedar	*Tamarix ramosissima*
Scotch broom	*Cytisus scoparius*
shiny geranium	*Geranium lucidum*
spurge flax	*Thymelaea passerina*
spurge laurel	*Daphne laureola*
spurge, leafy	*Euphorbia virgata*
spurge, myrtle	*Euphorbia myrsinites*
sulfur cinquefoil	*Potentilla recta*
tansy ragwort	*Jacobaea vulgaris*
thistle, musk	*Carduus nutans*
thistle, plumeless	*Carduus acanthoides*
thistle, Scotch	*Onopordum acanthium*
velvetleaf	*Abutilon theophrasti*
water primrose	*Ludwigia hexapetala*
white bryony	*Bryonia alba*
Wild basil/basil savory	*Clinopodium vulgare*
wild chervil	*Anthriscus sylvestris*
yellow archangel	*Lamiastrum galeobdolon*
yellow floating heart	*Nymphoides peltata*
yellow nutsedge	*Cyperus esculentus*
yellow starthistle	*Centaurea solstitialis*

Class C Weeds

Class C weeds are other non-native weeds that are typically widespread in Grant County and Washington state, or are of special interest to the state's agricultural industry. Long-term programs of suppression and control are expected for Class C weeds.

black henbane	*Hyoscyamus niger*
buffalobur	*Solanum rostratum*
cereal rye	*Secale cereale*
common barberry	*Berberis vulgaris*
common groundsel	*Senecio vulgaris*
common St. Johnswort	*Hypericum perforatum*
Eurasian watermilfoil hybrid	*Myriophyllum spicatum x M. sibiricum*
field bindweed	*Convolvulus arvensis*
hairy whitetop	*Lepidium appelianum*
hoary cress	*Lepidium draba*
jointed goatgrass	*Aegilops cylindrica*
longspine sandbur	*Cenchrus longispinus*
oxeye daisy	*Leucanthemum vulgare*
Russian olive	*Elaeagnus angustifolia*
scentless mayweed	*Tripleurospermum inodorum*
Swainsonpea	*Sphaerophysa salsula*
thistle, bull	*Cirsium vulgare*
thistle, Canada	*Cirsium arvense*
white cockle	*Silene latifolia*
wild carrot, to exclude *Daucus carota subsp. sativus* (garden carrot) grown commercially or for food	*Daucus carota*
yellowflag iris	*Iris pseudacorus*

Noxious Weeds Recommended for Control

The following noxious weeds are present in Grant County and recommended for control. Control of these noxious weeds is non-mandatory with information on plant characteristics and control methods available from the Weed Board.

medusahead	*Taeniatherum caput-medusae*
tree-of-heaven	*Ailanthus altissima*

As Grant County landowners, let's take pride in controlling noxious weeds

Class A Weeds: Non-native species whose distribution in Washington is still limited. Preventing new infestations and eradicating existing infestations are the highest priority. Eradication of all Class A plants is required by law.

Class B Weeds: Non-native species presently limited to portions of the State. Species are designated for required control in regions where they are not yet widespread. Preventing new infestations in these areas is a high priority. In regions where a Class B species is already abundant, control is decided at the local level, with containment as the primary goal. Please contact your County Noxious Weed Control Board to learn which species are designated for control in your area.

Class C Weeds: Noxious weeds that are typically widespread in WA or are of special interest to the state's agricultural industry. The Class C status allows county weed boards to require control if locally desired, or they may choose to provide education or technical consultation.

Class A Weeds
Eradication is required

common crupina	*Crupina vulgaris*
cordgrass, common	*Spartina anglica*
cordgrass, dense-flowered	*Spartina densiflora*
cordgrass, saltmeadow	*Spartina patens*
cordgrass, smooth	*Spartina alterniflora*
dyer's woad	*Isatis tinctoria*
eggleaf spurge	*Euphorbia oblongata*
false brome	*Brachypodium sylvaticum*
floating primrose-willow	*Ludwigia peploides*
flowering rush	*Butomus umbellatus*
French broom	*Genista monspessulana*
garlic mustard	*Alliaria petiolata*
giant hogweed	*Heracleum mantegazzianum*
goatsrue	*Galega officinalis*
hydrilla	*Hydrilla verticillata*
Johnsongrass	*Sorghum halepense*
knapweed, bighead	*Centaurea macrocephala*
knapweed, Vochin	*Centaurea nigrescens*
kudzu	*Pueraria montana* var. *lobata*
meadow clary	*Salvia pratensis*
oriental clematis	*Clematis orientalis*
purple starthistle	*Centaurea calcitrapa*
reed sweetgrass	*Glyceria maxima*
ricefield bulrush	*Schoenoplectus mucronatus*
sage, clary	*Salvia sclarea*
sage, Mediterranean	*Salvia aethiopis*
silverleaf nightshade	*Solanum elaeagnifolium*
small-flowered jewelweed	*Impatiens parviflora*
South American spongeplant	*Limnobium laevigatum*
Spanish broom	*Spartium junceum*
Syrian beancaper	*Zygophyllum fabago*
Texas blueweed	*Helianthus ciliaris*
thistle, Italian	*Carduus pycnocephalus*
thistle, milk	*Silybum marianum*
thistle, slenderflower	*Carduus tenuiflorus*
thistle, Turkish	*Carduus cinereus*
variable-leaf milfoil	*Myriophyllum heterophyllum*
wild four-o'clock	*Mirabilis nyctaginea*

Class B Weeds

blueweed	*Echium vulgare*
Brazilian elodea	*Egeria densa*
bugloss, annual	*Lycopsis arvensis*
bugloss, common	*Anchusa officinalis*
butterfly bush	*Buddleja davidii*
camelthorn	*Alhagi maurorum*
common fennel, (except bulbing fennel)	*Foeniculum vulgare* except *F. vulgare* var. *azoricum)*
common reed (nonnative genotypes only)	*Phragmites australis*
common tansy	*Tanacetum vulgare*
Dalmatian toadflax	*Linaria dalmatica* ssp. *dalmatica*
Eurasian watermilfoil	*Myriophyllum spicatum*
European coltsfoot	*Tussilago farfara*
fanwort	*Cabomba caroliniana*
gorse	*Ulex europaeus*
grass-leaved arrowhead	*Sagittaria graminea*
hairy willowherb	*Epilobium hirsutum*
hanging sedge	*Carex pendula, Carex pendula subsp. pendula* and *Carex pendula subsp. agastachys*
hawkweed oxtongue	*Picris hieracioides*
hawkweed, orange	*Hieracium aurantiacum*
hawkweeds: All nonnative species & hybrids of the meadow subgenus	*Hieracium,* subgenus *Pilosella*
hawkweeds: All nonnative species & hybrids of the wall subgenus	*Hieracium,* subgenus *Hieracium*
herb-Robert	*Geranium robertianum*
hoary alyssum	*Berteroa incana*
houndstongue	*Cynoglossum officinale*
indigobush	*Amorpha fruticosa*
knapweed, black	*Centaurea nigra*
knapweed, brown	*Centaurea jacea*
knapweed, diffuse	*Centaurea diffusa*
knapweed, meadow	*Centaurea × gerstlaueri*
knapweed, Russian	*Rhaponticum repens*
knapweed, spotted	*Centaurea stoebe*
knotweed, Bohemian	*Fallopia × bohemica*
knotweed, giant	*Fallopia sachalinensis*
knotweed, Himalayan	*Persicaria wallichii*
knotweed, Japanese	*Fallopia japonica*
kochia	*Bassia scoparia*
lesser celandine	*Ficaria verna*
loosestrife, garden	*Lysimachia vulgaris*
loosestrife, purple	*Lythrum salicaria*
loosestrife, wand	*Lythrum virgatum*
Malta starthistle	*Centaurea melitensis*
parrotfeather	*Myriophyllum aquaticum*
perennial pepperweed	*Lepidium latifolium*
poison hemlock	*Conium maculatum*
policeman's helmet	*Impatiens glandulifera*
puncturevine	*Tribulus terrestris*
Ravenna grass	*Tripidium ravennae*
rough chervil	*Chaerophyllum temulum*
rush skeletonweed	*Chondrilla juncea*
saltcedar	*Tamarix ramosissima*
Scotch broom	*Cytisus scoparius*
shiny geranium	*Geranium lucidum*
spurge flax	*Thymelaea passerina*
spurge laurel	*Daphne laureola*
spurge, leafy	*Euphorbia virgata*
spurge, myrtle	*Euphorbia myrsinites*
sulfur cinquefoil	*Potentilla recta*
tansy ragwort	*Jacobaea vulgaris*
thistle, musk	*Carduus nutans*
thistle, plumeless	*Carduus acanthoides*
thistle, Scotch	*Onopordum acanthium*

velvetleaf	*Abutilon theophrasti*
water primrose	*Ludwigia hexapetala*
white bryony	*Bryonia alba*
wild basil	*Clinopodium vulgare*
wild chervil	*Anthriscus sylvestris*
yellow archangel	*Lamiastrum galeobdolon*
yellow floating heart	*Nymphoides peltata*
yellow nutsedge	*Cyperus esculentus*
yellow starthistle	*Centaurea solstitialis*

Class C Weeds

absinth wormwood	*Artemisia absinthium*
Austrian fieldcress	*Rorippa austriaca*
babysbreath	*Gypsophila paniculata*
black henbane	*Hyoscyamus niger*
blackgrass	*Alopecurus myosuroides*
buffalobur	*Solanum rostratum*
cereal rye	*Secale cereale*
common barberry	*Berberis vulgaris*
common catsear	*Hypochaeris radicata*
common groundsel	*Senecio vulgaris*
common St. Johnswort	*Hypericum perforatum*
common teasel	*Dipsacus fullonum*
curlyleaf pondweed	*Potamogeton crispus*
English hawthorn	*Crataegus monogyna*
English ivy - four cultivars only	*Hedera helix* 'Baltica', 'Pittsburgh', and 'Star', and *H. hibernica 'Hibernica'*
Eurasian watermilfoil hybrid	*Myriophyllum spicatum* x *Myriophyllum sibiricum*
evergreen blackberry	*Rubus laciniatus*
field bindweed	*Convolvulus arvensis*
fragrant waterlily	*Nymphaea odorata*
green alkanet	*Pentaglottis sempervirens*
hairy whitetop	*Lepidium appelianum*
Himalayan blackberry	*Rubus bifrons* (*Rubus armeniacus*)
hoary cress	*Lepidium draba*
Italian arum	*Arum italicum*
Japanese eelgrass	*Nanozostera japonica*
jubata grass	*Cortaderia jubata*
jointed goatgrass	*Aegilops cylindrica*
lawnweed	*Soliva sessilis*
longspine sandbur	*Cenchrus longispinus*
medusahead	*Taeniatherum caput-medusae*
nonnative cattail species & hybrids (reminder, does not include the native common cattail, *Typha latifolia*)	*Typha* species
old man's beard	*Clematis vitalba*
oxeye daisy	*Leucanthemum vulgare*
Pampas grass	*Cortaderia selloana*
perennial sowthistle	*Sonchus arvensis*
reed canarygrass	*Phalaris arundinacea*
Russian olive	*Elaeagnus angustifolia*
scentless mayweed	*Tripleurospermum inodorum*
smoothseed alfalfa dodder	*Cuscuta approximata*
spikeweed	*Centromadia pungens*
spiny cocklebur	*Xanthium spinosum*
spotted jewelweed	*Impatiens capensis*
Swainsonpea	*Sphaerophysa salsula*
thistle, bull	*Cirsium vulgare*
thistle, Canada	*Cirsium arvense*
tree-of-heaven	*Ailanthus altissima*
ventenata	*Ventenata dubia*
white cockle	*Silene latifolia*
wild carrot (except where commercially grown)	*Daucus carota*
yellow flag iris	*Iris pseudacorus*
yellow toadflax	*Linaria vulgaris*

To learn more about noxious weeds and noxious weed control in Washington State, please contact:

WA State Noxious Weed Control Board
P.O. Box 42560
Olympia, WA 98504-2560
(360) 725-5764
Email: noxiousweeds@agr.wa.gov
Website: http://www.nwcb.wa.gov

Or

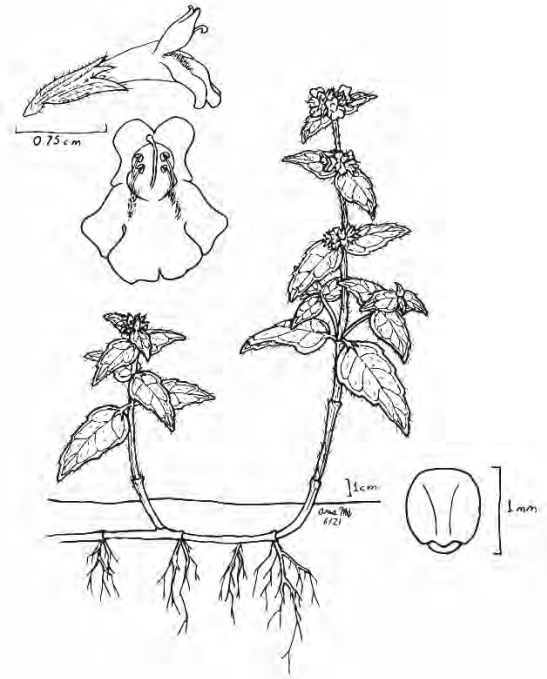
WA State Department of Agriculture
(509) 249-6973

Or

Your County Noxious Weed Control Board

2023

Washington State Noxious Weed List



Wild basil, *Clinopodium vulgare*, was a new Class B noxious weed for 2022. This invasive mint quickly invades disturbed areas and forest understories, creating monocultures.

Illustration by Anne Schuster

List arranged alphabetically by:

COMMON NAME

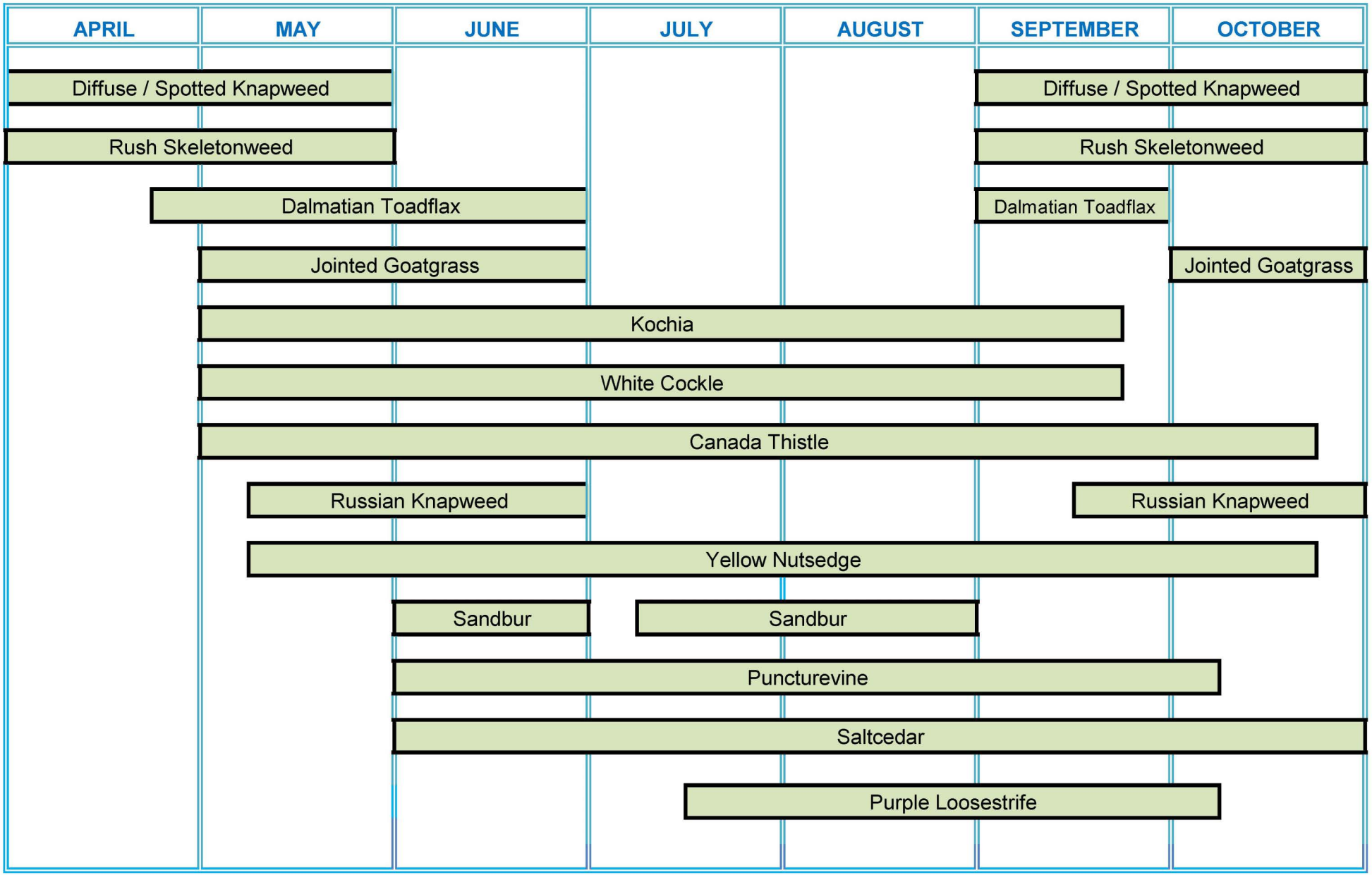
Washington State Noxious Weed Control Board

Attachment B

Optimal Window of Weed Control

WINDOW OF OPPORTUNITY TO CONTROL WEEDS

(OPTIMAL CHEMICAL APPLICATION WINDOWS)



Source: Grant County Noxious Weed Control Board

01/2017

Appendix C Design Features

The Bureau of Reclamation will require Design Features (DFs) to avoid, minimize, or compensate for potential effects on the human and natural environment that could occur if Reclamation authorizes the Royal Slope Land Use Proposal. The DFs would apply to all activities Reclamation may authorize on Reclamation land for the Royal Slope Land Use Proposal, including geotechnical investigations, transmission line and access road construction, operation, and decommissioning. The DFs include measures for public safety, dust abatement, air pollution, noise abatement, water pollution abatement, waste material disposal, erosion control, cultural resources, vegetation, wildlife, and threatened and endangered species.

In this appendix, the term "licensee" refers to the entity Reclamation authorizes to use Reclamation land for the Royal Slope Land Use Proposal during all project phases. The licensee may change over the term of the license. A licensee may also be known as an applicant, grantee, project operator, project developer, land use license holder, etc. The DFs are numbered to aid in tracking. Each DF identifies the licensee or Reclamation as the party responsible for implementation.

Reclamation will require the licensee to identify and disclose DFs as part of the project Plan of Development (POD). In some cases, the authorized officer will require development of separate plans that specify how specific issues (for example, stormwater runoff and pollution, management of hazardous materials and waste) will be addressed for the project. In situations where similar activities are required to meet other federal, state, or local requirements, Reclamation encourages developers to coordinate with Reclamation to address these related requirements directly with the relevant regulatory body and append information related to compliance with those obligations to their POD.

1. **General**

    a. The licensee shall restrict construction vehicle movement on Reclamation land to areas Reclamation designates in the Reclamation land use authorization license(s).

    b. Tire muck shakers, or similar track out devices, will be used and placed at construction roadway entrances/exits to prevent mud and debris from construction vehicles being carried onto roadways.

    c. The licensee shall seek to maintain the maximum amount of undisturbed soil and vegetation that is practicable for the project design and avoid construction practices such as grading, disc and roll, and other techniques that disturb soil and that completely remove vegetation – to the maximum extent practicable. Development shall minimize ground-disturbing activities, such as soil compaction, excavation, and vegetation removal as well as the number and size/length of roads, and laydown and staging areas.

d. The licensee shall minimize changes in the original contour of the land. In construction areas where re-contouring is not required, vegetation will be left in place wherever possible and the original contour will be maintained to avoid excessive root damage and allow for re-sprouting.

e. In construction areas (e.g., staging areas, structure site work areas, new access roads) where ground disturbance is significant or where re-contouring is required, the licensee shall rehabilitate the surface, as required by Reclamation. The licensee shall rehabilitate construction areas not otherwise required for operation of transmission line structures and access roads as practicable and in accordance with the POD and Vegetation Management Plan. The method of construction area rehabilitation will normally consist of, but is not limited to, returning disturbed areas not otherwise required for long-term operation and maintenance back to their natural contour, reseeding, and installing erosion controls.

f. Within the limits of standard transmission tower design and in conformance with engineering requirements, structures will be placed to avoid sensitive features, including but not limited to wetlands, riparian areas, water courses, sensitive habitats and species, and cultural resources that are unevaluated or eligible for the NRHP.

g. A POD including specific plans to address resource requirements will be prepared in consultation with Reclamation's Authorized Official prior to construction being authorized. These plans will detail additional measures required to minimize potential Project impacts on cultural and natural resources and health and human safety. The POD shall include techniques for reclamation and re-vegetation of the land use corridor, resource protection, noxious weed control, dust control, hazardous spill prevention, fire prevention, stormwater pollution prevention, and project decommissioning.

h. Construction holes left open overnight will be covered with a rigid barrier to prevent livestock or wildlife from falling in.

i. The licensee will provide a public liaison before and during construction to respond to questions and concerns from neighboring entities and persons, including residents, about noise and other construction disturbances and or concerns.

j. The licensee will establish a method for receiving questions, concerns, or complaints during construction (e.g., toll-free telephone number, email, address, website) and develop procedures for responding to callers.

k. The licensee shall incorporate into the POD, strategies or plans to decommission project facilities and reclaim/restore the disturbed lands and resources within the authorized right-of-way, as soon as practicable after operations cease. These plans shall include coordination with and approval by the Reclamation's Authorized Official in advance of interim/final reclamation.

2. **Air Quality**

    a. Road construction and rehabilitation will include dust control measures, as required, and identified in licensee's POD, approved by Reclamation. The licensee will use an existing private well or water trucks to control dust during construction when necessary.

    b. The licensee shall not burn trash during any phase of construction, operation, or decommissioning of the transmission line and access roads.

3. **Appearance**

    a. No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate limits of survey or construction activity.

    b. Applicant & contractors will maintain a clean construction site, with litter being removed daily and all related equipment and materials being removed following completion of construction activities.

4. The project would comply with all requirements of formal consultations under Endangered Species Act, Section 7 and National Historic Preservation Act, Section 106.

5. Excavated material and construction debris may not be wasted in any stream or river channel in flowing waters. This includes material such as grease, oil, joint coating, or any other possible pollutants. Excess materials must be wasted at a Reclamation-approved upland site well away from any channel. Construction materials, bedding material, excavation material, etc. may not be stockpiled in riparian, wetland, or water channel areas. Silt fencing would be appropriately installed and left in place until after revegetation becomes established, at which time the silt fence can then be carefully removed. Machinery must be fueled and properly cleaned of dirt, weeds, organisms, or any other possibly contaminating substances off-site prior to construction.

6. **Additional Analyses** – If the Proposed Action were to change significantly from that described in this EA because of additional or new information, or if other spoil, or work areas beyond those outlined in this analysis are required outside the defined project construction area, additional environmental analyses may be necessary.

7. **National Pollutant Discharge Elimination System (NPDES) Permit** – The licensee shall incorporate, into the POD, a Stormwater Pollution Prevention Plan (SWPPP) that avoids or minimizes adverse impacts to surface water or groundwater quality or flow and that meets the requirements of all applicable federal, state, and county regulations, permits, and building codes to prevent and reduce soil erosion and prevent flooding. The licensee shall oversee construction activities in accordance with an approved SWPPP, incorporating stormwater DFs to reduce the adverse effects of erosion and sedimentation. Such practices would include silt fencing, straw bales, temporary catch basins, and inlet filters to control stormwater.

8. **Hazardous Materials Control** – The licensee shall incorporate, into the POD, a Spill Prevention, Control, and Countermeasures Plan (SPCC Plan) to identify techniques to immediately contain, report, and clean up hazardous material leaks, spills, or releases, and

repair equipment before entering new areas. The licensee will be responsible for implementing the SPCC Plan during Project construction, operation, and decommissioning. The SPCC Plan would outline preventive measures and practices to reduce the likelihood of an accidental release of a hazardous or regulated liquid and, in the event such a release occurs, to expedite the response to and remediation of the release. All hazardous materials would be used, stored, and disposed of in accordance with the manufacturers' specifications and consistent with applicable regulatory requirements. Prior to construction, workers would be trained to engage in safe work practices and to properly identify and handle any hazardous materials on-site.

9. **Fugitive Dust Control**

   a. Water trucks will be used for dust abatement when necessary. Reasonable precautions to prevent fugitive dust from becoming airborne must be implemented on applicable dirt or gravel construction areas and material stockpiles which may produce airborne dust particles.

   b. The licensee shall avoid use of dust palliatives in areas in close proximity water courses and aquatic environments to avoid contamination and impacts on soil characteristics and ecological features.

10. **Cultural Resources**

   a. The licensee shall work with Reclamation and stakeholders to avoid, minimize, or mitigate physical, visual, auditory, and atmospheric effects on historic properties in the APE when their eligibility qualifying characteristics may be diminished. Pre-contact cultural resources will be physically avoided through design and ongoing consultation under the NHPA.

   b. The licensee shall secure archaeological monitors and make them available to provide oversight during all construction activities to avoid potential impacts on cultural resources. A written cultural resource monitoring plan, an NHPA post-review discovery plan, and NAGPRA discovery plan will be prepared and consulted on prior to construction. All construction personnel will receive cultural resources training prior to conducting ground disturbing work. Monitoring by an SOI qualified professional archaeologist will be implemented during ground disturbance during construction. The licensee will stop work and implement the NHPA post-review discovery plan if previously unknown cultural resources are discovered during construction. In addition, the Applicant will commit to offering paid tribal monitoring positions during construction. An SOI qualified professional archaeologist will mark all known archaeological resources to create an exclusion zone, using barrier fence or stakes and survey tape, for avoidance during construction.

   c. The Project layout has been adjusted to bypass significant environmental resources, including archaeological resources.

   d. The licensee, in coordination with Reclamation, shall develop plans to minimize impacts on historic properties.

e. A native seed mix will be planted after construction, and the vegetation will be maintained throughout the operation phase.

f. The Applicant recognizes the importance of traditional cultural practices and is committed to working collaboratively with traditional cultural practitioners to support reasonable access for gathering of culturally significant plants and materials at the Royal Slope Solar Facility, while ensuring safety for all parties involved. Access will not be restricted on Reclamation land except during construction to address safety concerns.

11. **Paleontological Resources** – All construction personnel will receive paleontological resources training prior to conducting ground disturbing work. Should vertebrate or invertebrate fossils be encountered by the licensee during ground-disturbing actions, construction must be suspended until a qualified paleontologist can be contacted to assess the find.

12. **Biological Resources**

a. The licensee shall develop and implement measures outlined in the Habitat Mitigation Plan (HMP)to offset residual unavoidable effects to priority habitats and species (PHS) recommended by Washington Department of Fish and Wildlife (WDFW).[12] Compensatory mitigation may be required by Reclamation for any residual unavoidable impacts to PHS, identified by WDFW. The licensee shall design compensatory mitigation for effects to PHS on Reclamation land, where required, in coordination with Reclamation and WDFW.[13] Measures that would protect the mitigation areas by precluding future development of the area (except for the purposes of regular maintenance) would be implemented. The implemented measures will be recorded with the Grant County Assessor's office. Documented proof of the protective covenant will be provided to WDFW, Grant County, and Reclamation.

b. A noxious weed control plan would be developed and implemented for both construction and operations. The goal of this plan would be to prevent the introduction of noxious weeds into the area of analysis and potentially reduce the presence and distribution of noxious weeds species that currently occur. This would be accomplished by developing and implementing an Integrated Weed Management Plan consistent with applicable regulations and agency policies for the control of noxious weeds plant species. The plan will address monitoring; ROW vegetation management; use of certified weed-free seed and mulching; cleaning of vehicles to avoid introducing noxious weeds; and education of personnel on weed identification, the manner in which noxious weeds spread, and methods for treating infestations. Principles of integrated pest management, including biological controls, will be used to prevent the spread of invasive species per appropriate Reclamation and Weed Control Board of Grant County guidelines. The plan will cover periodic monitoring, reporting, and immediate eradication of noxious weed species

[12] The Priority Habitats and Species (PHS) Program is WDFW's primary means of recommending habitat protection, pursuant to the Washington State Growth Management Act and Shoreline Management Act.
[13] State of Washington Management Recommendations for Washington's Priority Habitats: Shrubsteppe. Pg. 15, September 2011. Accessed online https://wdfw.wa.gov/sites/default/files/publications/01333/wdfw01333.pdf.

occurring within all managed areas. A controlled inspection and cleaning area will be established to visually inspect construction equipment arriving at the project area and to remove and collect seeds that may be adhering to tires and other equipment surfaces. To prevent the spread of noxious weeds, the licensee will work with the local Reclamation field office to determine whether a pre-activity survey is warranted and, if so, to conduct the survey. If noxious weed plant species are present, the licensee will work with the local field office to develop a noxious weed control strategy. The plan will include a post-construction monitoring element that incorporates adaptive management protocols.

c. Before ground-disturbing activities begin, inventory weed infestations and prioritize areas for treatment in project operating areas and along access routes.

d. Remove sources of weed seed and propagules to prevent the spread of existing weeds and new weed infestations.

e. The licensee shall avoid acquiring water for dust abatement where access to the water is through weed infested sites.

f. Reclamation shall retain the licensee's bonds until all terms and conditions of the land use authorization license are documented to conform with the license terms and conditions. Achievement of Reclamation requirements, including but not limited to weed treatments, rehabilitation of temporary construction areas, and decommissioning, will be documented by inspection, documentation, and concurrence by Reclamation.

g. Use only BLM-approved herbicides. The licensee shall incorporate, into the POD, plans to use herbicides and pesticides consistent with the most current (at the time of application) BLM and DOI policies, including the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and Record of Decision (BLM 2007), the Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and Record of Decision (BLM 2016), and standard operating procedures. The licensee shall use only EPA-registered pesticides/herbicides that also comply with federal, state, and local regulations. Only herbicides and pesticides identified on their label as safe for the aquatic environment may be used in the wetted area of any waterbody or where riparian vegetation is present.

h. As part of the integrated pest management plan, herbicides will be deployed only by applicators licensed by the Washington State Department of Agriculture.

i. The licensee will prepare and submit for approval a Pesticide Use Proposals (PUPs), prior to initiating integrated pest management measures. Reclamation may delegate the review and approval authority as necessary and as appropriate.

j. Wetland habitat areas are excluded from transmission line and access road development plans and would be buffered a minimum of 50 feet and up to 300 feet to maintain existing milkweed during transmission line and access road construction activity.

k. Where milkweed occurs along Road 13 SW, the road will not be widened such that it would impact milkweed. The milkweed within 300 feet of the stilling basin located NW ¼, of the NW ¼ of Section 11, Township 16N Range 23E associated with the Rb5J1 wasteway will be left intact.

l. The licensee shall perform pre-construction biological clearance surveys at all activity areas to minimize impacts on special-status species, specifically nesting migratory birds protected under the MBTA, monarch butterfly reproduction habitat, and desert striped whipsnake occurrences. If surveys detect occurrences, the licensee shall then coordinate with WDFW on recommended avoidance measures. If ferruginous hawks are observed nesting in the area any time directly before or during transmission line and road construction, the licensee will request an additional assessment and review by WDFW.

m. The licensee shall avoid and minimize impacts to PHS, to the maximum extent practicable, including by implementing appropriate avoidance and minimization measures established in coordination with the Reclamation and WDFW. A Project HMP and Vegetation Management Plan will be prepared and implemented for areas of native habitat affected during construction. The Applicant will clearly define staging and construction access routes to minimize impacts on native vegetation.

n. The licensee will be responsible for minimizing impacts to special-status species and habitats. Where appropriate, the licensee will flag the boundaries of areas where activities need to be restricted to protect special-status species. The licensee shall monitor flagged areas during construction to ensure their protection.

o. The licensee will prepare, as part of the POD, A Worker Environmental Awareness Program (WEAP) and the licensee will require all construction crews and contractors to participate in WEAP training prior to starting work on the Project. The WEAP training will include a review of the special-status species and other sensitive resources that exist in the Project area, the locations of the sensitive biological resources, their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all personnel trained will be maintained.

p. Ground disturbance and vegetation removal would be completed outside of the migratory bird nesting season (March 1–August 31), to the extent possible.

q. All transmission and sub-transmission towers and poles will be designed in accordance with guidelines included in Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (Avian Power Line Interaction Committee [APLIC] 2012). The transmission line designs shall meet the APLIC avian safety recommendation for large birds (i.e., 60 inches of horizontal separation and 40 inches of vertical separation).

r. The licensee shall incorporate, into the POD, wildlife deterrence techniques during construction and operation of the project to dissuade interest from, use by, and mortality of wildlife. Measures may include, but are not limited to:

- Avoid, to the extent practicable, the use of guy wires to minimize impacts on birds and bats.

- Outfit support wires, shield wires, powerlines, with markers and reflectors to minimize collisions of birds, bats, and other wildlife.
- Place mechanisms to visually warn birds (e.g., permanent markers or bird flight diverters) on transmission lines, guy wires, shield wires, and fences at regular intervals sufficient to prevent birds collisions.

s. New light sources will be minimized, and lighting will be designed (e.g., using downcast lights) to limit the lighted area to the minimum necessary. Lighting must be directed downward and away from riparian and aquatic areas to minimize attracting wildlife.

t. Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas to the extent practicable. All combustion engine machinery will be turned off while not in use.

u. Vehicles will not exceed a speed limit of 15 mph while working in the proposed Project area to reduce the potential of mortality to wildlife.

v. No vehicles or equipment shall be refueled within 100 feet of an ephemeral drainage or wetland unless a bermed and lined refueling area is constructed. Any vehicles driven and/or operated within or adjacent to drainages or wetlands shall be checked and maintained daily to prevent leaks of materials.

w. All trash, food items, and human-generated debris shall be properly contained and/or removed from the site. All food-related trash items including wrappers, cans, bottles, and food scraps, will be disposed of and removed from the site each day. Food items may attract coyotes and domestic dogs consequently exposing special-status animals to increased risk of predation. No deliberate feeding of wildlife will be allowed.

x. The development of new access will be minimized and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.

y. To the extent feasible, development will maintain existing hydrologic patterns with respect to runoff supporting seasonal wetlands.

z. The licensee will prepare, as part of the POD, and implement an operational HMP that will describe the habitat avoidance, minimization, and mitigation and management efforts and plans. The HMP will continue to be updated in coordination with WDFW and Reclamation.

aa. No firearms will be allowed on the project site.

bb. The licensee shall not permit any of their employees or contractors to bring dogs, cats, nor any other pets to the project sites during any phase of construction, operation, and decommissioning, unless individuals require such accommodation under the American Disabilities Act.

cc. The licensee shall comply with all local, state, and federal regulations for use of chemicals, fuels, lubricants, or herbicides. All uses of such compounds will be applied

according to label instructions and other restrictions mandated by the U.S. Environmental Protection Agency, and other state and federal legislation.

dd. The licensee shall appoint a representative as the point of contact (POC) for any employee or contractor who inadvertently kills or injures a special-status species, or finds one dead, injured, or entrapped. The POC will be identified in the POD, and during the employee education program. The representative's name and telephone number will be provided to Reclamation, and the USFWS/WDFW.

ee. The licensee POC shall report incidents of special-status animal mortalities or injuries immediately. The POC shall contact the USFWS, WDFW, and Reclamation within 24 hours. In addition, formal notification will be provided in writing within three working days of the incident or finding. Notification will include the date, time, location, and circumstances of the incident. Any federally threatened or endangered species found dead or injured will be turned over immediately to USFWS or its designee for care, analysis, or disposition.

ff. The licensee shall minimize grading and construction activities after dusk. If such activity is necessary, one or more on-site monitors shall be required to ensure special-status species active at night are avoided.

gg. Large shrubs that require removal from temporary construction areas will be saved and placed strategically in bare areas being replanted after construction.

hh. Post-construction Rehabilitation will include planting sagebrush plugs in targeted areas to speed recovery of vegetation disturbed by temporary construction and return it to approximate pre-construction conditions.

13. **Previously Disturbed Areas** – The licensee shall confine construction activities to previously disturbed areas where possible for such activities as work, staging, and storage, waste areas and vehicle and equipment parking areas. Vegetation disturbance would be minimized to the extent possible.

14. **Public Access**

    a. Temporary construction fencing installation on Reclamation land will be limited to the extent possible; however, as needed to prevent public access to active construction areas, fencing would consist of temporary chain link fence and signage within the Transmission Line Corridor around active construction areas and equipment and material staging areas. The fencing would avoid sensitive resources. Reclamation would coordinate with landowners or those holding special permits and other authorized parties regarding access to or through the Transmission Line construction area. The temporary fencing would be removed from Reclamation land after construction is complete.

    b. The licensee is responsible for posting at intervals along the transmission line corridor, signage notifying the public that off-road vehicle use is not authorized on

Reclamation land. Reclamation is responsible for providing the signs, hardware, and providing enforcement.

15. **Disturbed Areas**

a. All disturbed areas resulting from the project would be smoothed, shaped, contoured, and rehabilitated to as near the pre-project construction condition as practicable. A road inventory will be conducted immediately prior to construction to document existing road conditions. Roadbed restoration methods may include loosening of the soil surface, reseeding, installing erosion controls (such as cross drains and water bars), and placement of topsoil or native soils in rutted areas. After completion of the construction and restoration activities, disturbed areas would be seeded at appropriate times with weed-free, native seed mixes having a variety of appropriate species (especially woody species where feasible) to help hold the soil around structures, prevent excessive erosion, and to maintain riparian area functions. If the licensee is unable to procure seed materials described in the Vegetation Management Plan, then licensee will propose alternative seed materials for Reclamation approval prior to application. Weed control on all disturbed areas would be implemented. Revegetation efforts would be monitored and reported to Reclamation, along with photos of the completed project.

b. The licensee shall include measures, in the POD, for interim reclamation of temporary disturbed areas by revegetation, soil stabilization, soil compaction, soil erosion, and habitat restoration. The plan must detail mitigation measures (avoid, minimize, or mitigate for impacts) and include clear compliance metrics. Developers shall reseed disturbed areas, consistent with the most up-to-date techniques necessary to reestablish native vegetation and impacted habitat types, using certified weed-free seed mixes that include native, geographically appropriate, pollinator-friendly species. The licensee must implement restoration measures during construction, operations, and decommissioning as soon as impacting activities cease.

c. The licensee shall incorporate into the POD, strategies or plans to decommission project facilities and reclaim/restore the disturbed lands and resources within the authorized right-of-way, as soon as practicable after operations cease. These plans shall include coordination with and approval by the Reclamation's authorized officer in advance of interim/final reclamation.

16. **Emergency Response Plan and Fire Prevention Plan**

a. Any internal combustion engine operated on or near brush or grass covered land shall be equipped with a spark arrester or the engine shall be constructed, equipped, and maintained for prevention of fire.

b. The licensee shall incorporate, into the POD, An Emergency Response Plan and Fire Prevention Plan. The licensee would be responsible for implementing both the Emergency Response and Fire Prevention Plans to manage incidents that may occur during construction, operation, and decommissioning of the Transmission Line, in conjunction with the Royal Slope Solar Project and would train local emergency

response personnel during operation of the transmission line and Royal Slope Solar Project. The contents of the Emergency Response Plan and Fire Prevention Plan would include: consultation with the local fire department, the transmission operator, the Bonneville Power Administration (BPA), and the energy generation supplier; defined roles and responsibilities in an emergency; descriptions of potential emergency scenarios, including fire and on-site training of fire personnel and on-site operations staff; and training for local first responders, including monitoring of fire from a safe distance using infrared cameras until temperature of the affected enclosure cools to ambient temperature, electrical shock hazards, and protocol for downed overhead lines.

17. The licensee shall notify the Cascade Area Office Manager in writing at least fourteen (14) days in advance of commencing any ground disturbing activities for this project.

Appendix D Threatened & Endangered Species Known to Occur in the Project Region

Common Name	Scientific Name	ESA Status1 and Critical Habitat Designation	Critical Habitat in Project Vicinity?
Bull trout, Mid-Columbia Recovery Unit	*Salvelinus confluentus*	Threatened Final Designated	Yes, 0.5 mile west in the Columbia River
Gray wolf	*Canis lupus*	Endangered None Designated	No
Monarch butterfly	*Danaus plexippus*	Proposed Threatened Proposed	No
Suckley's Cuckoo Bumble Bee	*Bombus suckleyi*	Proposed Endangered None Designated	No
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened, Proposed for Delisting None Designated	No
Yellow-billed cuckoo	*Coccyzus americanus*	Threatened Final Designated (for California)	No

1. Endangered Species Act, Threatened: Species are likely to become endangered within the foreseeable future. Proposed Threatened: propose to list as a threatened species with protective regulations under section 4(d) of the Act.

Appendix E Royal Slope Solar Facility – Features Common to Either Action Alternative

The Applicant submitted an application and amended application to Grant County (County) for a Conditional Use Permit and State Environmental Protection Act (SEPA) checklist for construction, operation, and decommissioning of the Royal Slope Solar Project. The County will issue the permits, issue the permits with conditions, or deny the permits for the Royal Slope Solar Project. The Royal Slope Solar Facility is not part of the federal action and it is not a connected federal action. However, the Royal Slope Solar Facility would rely on the transmission line proposed on Reclamation lands for electric transmission from the facility, and a description is included here to aid the assessment of effects. Royal Slope Solar proposes to build, operate, and maintain a 260 MW utility-scale solar energy generation facility and battery energy storage system (BESS) (anticipated 260 MW) on private lands, adjacent to the federal action areas. The Royal Slope Solar Facility would be constructed within 2,263 acres of private land that is currently in agricultural use and zoned as Rural Resources (RRes) and Rural Remote (RRem). Of the 2,263 acres, the Royal Slope Solar Facility is proposed to occupy 1,732 acres; the remaining 531 acres in the northwest would not be developed as part of the Project and a portion of the land would be used for potential habitat mitigation for the Royal Slope Solar Facility (described in Section E-4).

The Royal Slope Solar Facility would have a nameplate capacity of up to 260 MW of electrical generation and would consist of photovoltaic (PV) panels, a 260-MW BESS, trackers, inverters, transformers, underground electric collection lines, a telecommunications system, fencing and lighting, an O&M building, an on-site Royal Slope Solar Facility collector substation (solar facility substation), and construction areas. Additional elements would include a septic system and water supply, which may be either an on-site water well, municipal water source, or water transported in from legally permitted water sources near the Royal Slope Solar Facility and stored in on-site water storage tanks for fire suppression and use at the O&M building. The general arrangement of the Royal Slope Solar Facility is presented on the Royal Slope Solar Facility preliminary site layout shown in Figure E-1 in Appendix A. Table E-1 contains the design characteristics of the proposed Royal Slope Solar Facility.

Table E-1 Design Characteristics of the Royal Slope Solar Facility

Solar Facility Feature	Design Characteristic
Solar Facility Size	1,732 acres (2,263-total-acre site)
Solar Facility Capacity	260 MW alternating current (AC)
Solar Arrays	759,708 ground-mounted solar modules with PV panels Up to 20 feet high
Inverter Blocks	Up to 355 in skids of 5 (71 skids total)
BESS	260 MW capacity 14-acre footprint – up to 10 feet in height
Electrical Collection System	34.5-kV electrical collection system installed underground, buried a minimum of 3 feet below grade
Collector Substation	2.8-acre footprint – up to 100 feet in height 100-kilowatt (kW) emergency generator
O&M Building	0.2-acre footprint – up to 20 feet in height
Interior Service Roads	17.9 miles – 28 feet in width
Security Fencing	7-foot-tall, barbed wire chain-link perimeter fences

E.1 Solar Arrays

The Royal Slope Solar Facility would consist of approximately 759,708 ground-mounted solar modules, with PV panels, tracker components, direct current (DC) to alternating current (AC) power inverters, medium-voltage transformers, and a medium-voltage collection system. The ultimate decision for the module types and racking systems will depend on market availability at the time of construction. The types and racking systems chosen may result in a modified layout arrangement; however, the Royal Slope Solar Facility footprint would not extend beyond the Royal Slope Solar Facility's 2,263-acre site and boundary outlined in Figure E-1, nor impact protected environmental resource areas. The layout is to be placed to avoid grading wherever possible. Any areas that have slopes out of the solar tracker tolerance will use general earthwork cut-and-fill methods to level within tracker tolerances.

Types of panels that may be installed include thin-film panels (including cadmium telluride and copper indium gallium diselenide technologies), crystalline silicon panels, bifacial panels, or any other commercially available PV technology that meets the Royal Slope Solar Facility's requirements and is available in the market at the time of construction. The panels will be dark blue or black in color and will include an anti-reflective coating. Panels will be arranged on the sites in solar arrays mounted on either fixed-tilt or tracking technology, depending on the PV panels ultimately selected.

Panels would be arranged in strings with a maximum height of 20 feet. Panels would be electrically connected into panel strings using wiring secured to the panel racking system. Underground cables will be installed to convey the DC electricity from the panels via combiner boxes located throughout the PV arrays to inverters to convert the DC to AC electricity. The output voltage of the inverters would be stepped up to the collection system voltage via transformers located close to the inverters. The underground collection system lines will be 34.5 kV.

E.2 Inverter Blocks

The Royal Slope Solar Facility would be designed and laid out primarily in increments that would include an inverter equipment area and transformers. The Royal Slope Solar Facility would include up to 355 inverters (arranged in skids of 5) to convert the DC electricity from the solar field to AC electricity.

E.3 Supporting Accessory Components

The Royal Slope Solar Facility's supporting accessory components include a BESS, underground electrical collection system, solar facility substation, O&M facility, site access points, new interior service roads, security fencing, gates, lighting, and an above ground 230 kV transmission line and point of interconnection (POI) to Vantage Substation, as described in the EA Sections 2.2 and 2.3. Site access points include from the north off State Route (SR) 26, from the east along Road 13 SW off SR 26, and from the west along an existing road extending east from SR 243.

Battery Energy Storage System

The BESS is estimated to have a capacity of 260 MW with a duration of 4 hours and is anticipated to be located within 25 feet of the solar facility substation in the southwest portion of the Royal Slope Solar Facility under the Alternative 1 transmission line alignment or the southeast portion under the Alternative 2 transmission line alignment. The BESS would consist of lithium-ion phosphate battery technology that will be used to either control electric frequency or store energy generated from the Royal Slope Solar Facility. The BESS would consist of multiple modules inside rows of enclosures installed on concrete foundations and attached to bi-directional power conversion systems. The enclosures will leverage heat pump technology to maintain the thermal window needed to maintain battery degradation for the life of the system (20+ years). The preliminary anticipated footprint of the BESS and associated electrical infrastructure is anticipated to be approximately 14 acres. The maximum height of the BESS and associated infrastructure would be 10 feet. However, the BESS and associated infrastructures are subject to final design and engineering and market availability of components at the time of construction.

Underground Electrical Collection System

A 34.5-kV electrical collection system would be installed either underground, buried a minimum of 3 feet below grade, or above ground using a cable hanger or similar system. The output voltage of the inverters would be stepped up to the collection system voltage via transformers located close to the inverters. AC electrical cables would be arranged in several branch circuits to connect the electrical output of the solar field to the on-site solar facility substation. Cable lengths would vary with the distance of the solar field to the on-site solar facility substation.

Collector Substation

The solar facility substation is anticipated to be located in the southwestern section of the Royal Slope Solar Facility site under the Alternative 2 transmission line alignment (Figure E-1). The final location is subject to final design and engineering. The overall footprint of the solar facility substation is anticipated to be approximately 350 by 350 feet (122,500 square feet) with structures up to 100 feet in height. The solar facility substation would include transformers, breakers, switches, instrument transformers, meters, a control building (approximately 14 by 50 feet with an overall height up to 20 feet), overhead tubular and stranded bus, and related equipment. All substation equipment will be installed above ground on steel structures and concrete foundations and placed within the fence line of the solar facility substation. Control cables (up to 600 volts), fiber optic cables, and medium voltage cables (34.5 kV) would be run in underground conduit, cable tray, or duct bank between the solar facility substation equipment and the control building as well as to areas of the PV plant and equipment.

The solar facility substation would be surrounded by a 7-foot-tall, barbed-wire chain-link fence for safety and security and to comply with electrical codes. The solar facility substation must have access to communication systems in the area (transmission system networks and internet service providers) to comply with Federal Energy Regulatory Commission requirements, which may be accomplished by underground lines, overhead lines, or wirelessly. A telecommunication circuit would be routed and installed at the solar facility substation to provide internet and remote access to the solar facility substation relaying and supervisory control and data acquisition systems. The substation may include a 100-kW emergency generator to supply backup power to the control building and substation equipment, if needed.

Operations and Maintenance Facility

The O&M facility is anticipated to be located adjacent to the solar facility substation in the southeastern corner of the Royal Slope Solar Facility, under the Transmission Line Corridor Alternative 2 alignment. However, the location is subject to final design and engineering. The O&M facility would be an approximately 0.2-acre area consisting of an O&M building with offices, a restroom, a kitchen, and a storage area and will include a heating, ventilating, and air conditioning system. The maximum height of the O&M building would be 20 feet. A gravel parking lot for up to 11 spaces for employees, visitors, and emergency response vehicles would be located adjacent to the O&M building.

Interior Service Roads

Interior service roads would be built as shown on Figure E-1, subject to final design and engineering. New interior access roads will be constructed to provide access to solar modules and associated infrastructure and will be all-weather gravel compacted roads that will be up to 16 feet wide with 6-foot shoulders on either side, for a total width of up to 28 feet, and a combined total of approximately 94,400 linear feet. The aggregate depth will be 6 inches. Any turns in these roads would maintain a minimum 40-foot inside turning radius. These roads would remain through Royal Slope Solar Facility operation.

A new interior access road would be constructed to the substation and would be an all-weather gravel compacted road that will be up to 20 feet wide with 6-foot shoulders on either side, for a total width of 32 feet. Any turns in this road would maintain a minimum 40-foot inside turning radius. This road would remain through Royal Slope Solar Facility operation.

Security Fencing, Gates, and Lighting

The boundaries of the Royal Slope Solar Facility would be secured by 6-foot-tall chain-link perimeter fences, topped by three strands of barbed wire that will add an additional foot to the fence height for a total of a 7-foot-tall perimeter fence. The security fence may include wildlife-friendly fencing at its base. There would be up to seven ingress and egress points that would be gated for access by the O&M team.

Permanent lighting would be installed at the O&M building and at the solar facility substation. Lighting would be hooded and facing downward. If lighting is provided around the parking lot, it would be designed to minimize direct illumination of abutting properties and adjacent streets. There would not be permanent lighting throughout the solar arrays.

E.4 Mitigation Area

Within the Royal Slope Solar Facility area, habitat mitigation would potentially occur within a portion of the Mitigation Area (Figure E-1), which would be established to offset priority habitat impacts from the Royal Slope Solar Facility. The Applicant removed previously proposed solar facility components in this area from an earlier version of the design to mitigate effects on critical priority habitats and avoid and increase the setback from sensitive cultural resources. The Applicant proposes now to reserve use of a portion of this area to offset impacts to priority habitats, including shrubsteppe and inland sand dunes, by allowing the land to revert to native vegetation, as will be outlined in the Habitat Mitigation Plan in coordination with WDFW. If additional mitigation is needed, other than what is provided in the HMP, mitigation may also include payment of an in-lieu fee to Grant County or a local conservation entity (land trust or conservation organization) to secure land in an amount sufficient to offset the mitigation need or to support an ongoing or planned conservation project that benefits the types of habitats impacted by the Project.

E.5 Solar Facility Construction

Schedule and Workforce

Construction of the Royal Slope Solar Facility would be completed within a consecutive up to approximately 25-month period, concurrent with construction of the transmission line corridor.

Construction would occur primarily Monday through Friday during daylight hours. Construction may occur during nighttime and weekends as needed for material and equipment delivery and/or to accommodate schedule delays due to weather or other events, which would be coordinated with Grant County. If nighttime construction is necessary, it would be performed using temporary lighting, directed downward.

The number of construction workers at the Royal Slope Solar Facility would vary depending on construction activities from approximately 50 to 350. A maximum of 350 construction workers is anticipated during the peak construction period lasting approximately 6 to 9 months. Workers would commute to the Royal Slope Solar Facility from nearby towns (e.g., Beverly, Vantage, Royal City, Wanapum, Moses Lake). The Applicant would encourage workers to carpool to minimize vehicle trips.

Construction Access, Equipment, and Staging Areas

Construction vehicles would access the site from I-90, Highway 26, and Highway 243. The primary construction transport routes to the Royal Slope Solar Facility site would use existing roadways. The Royal Slope Solar Facility would be accessed from unimproved roads on the south side of SR 26, west from an existing road extending east from Highway 243, and from the east along Road 13 Southwest. The Royal Slope Solar Facility would have one access point from the existing dirt road that extends east from Highway 243, partially on Reclamation land, that would be improved with gravel under either Alternative 1 or Alternative 2.

Typical construction equipment would include scrapers, dozers, tractors, backhoes, excavators, pre-drillers, pile drivers, cranes, forklifts, and other common types of construction equipment.

Up to six construction laydown yards and temporary construction staging areas totaling 27.7 acres would be located on the Royal Slope Solar Facility during construction (Figure E-1). Subject to final design and engineering, the primary laydown yard would be approximately 12.6 acres in size and located in the northwest portion of the Royal Slope Solar Facility, east of a Royal Slope Solar Facility access point from the existing dirt road that extends east from SR 243 that would be improved with gravel under Alternative 1. Subject to final design and engineering, up to five additional smaller laydown yards totaling 15.1 acres are also included (Figure E-1). These smaller laydown yards would range from 0.8 acres to 4.6 acres. The laydown yards and temporary construction staging areas would be graded, if needed, with a gravel surface and temporarily fenced to provide storage for supplies, vehicles, and equipment during construction. This laydown yard and temporary construction staging area would be used for construction worker

parking. This construction laydown yard and staging area would then be replaced by Royal Slope Solar facilities.

Solar Facility Installation

The construction sequence of the Royal Slope Solar Facility would generally entail site preparation and vegetation clearing, then grading, access road installation, fencing installation, pile driving, racking, underground cable installation, and PV module installation. Substation and BESS construction would run concurrently with PV module installation.

The layout of solar arrays would be placed so as to avoid grading wherever possible. Any areas that have slopes out of the solar tracker tolerance would use general earthwork cut-and-fill methods to level within tracker tolerances.

Structures supporting the PV modules would consist of steel piles (e.g., cylindrical pipes, H-beams, or similar), which will be driven into the soil using pneumatic techniques, such as a hydraulic rock hammer attachment on the boom of rubber-tired or tracked equipment. The Royal Slope Solar Facility will include up to 140,000 piles installed to a depth of 6 to 12 feet. Given the presence of shallow bedrock on the site, these piles will be driven after the construction team pre-drills holes, each with a size measured approximately to the diameter of the cross-section of the pile. The piles will be spaced 10 to 15 feet apart. For a single-axis tracking system, piles typically will be installed to a reveal height of approximately 4 feet above grade but could be higher or lower in certain areas depending on site topography. The fixed-tilt system reveal height will vary based on the racking configuration specified in the final design. For single-axis tracking systems, following pile installation the associated motors, torque tubes, and drivelines (if applicable) will be placed and secured. Some designs allow for PV panels to be secured directly to the torque tubes using appropriate panel clamps. For some single-axis tracking systems, and for all fixed-tilt systems, a galvanized metal racking system, which secures the PV panels to the installed foundations, will be field assembled and attached according to the manufacturer's guidelines.

The approximately 71 inverters used to convert the DC electricity from the solar field to AC electricity would also have driven pile foundations.

Water and Wastewater

During construction of the Royal Slope Solar Facility, approximately 1,148 AF of water would be required for dust suppression and other purposes. Water would be provided from three existing irrigation groundwater wells completed in the Grande Ronde Basalt Aquifer, through temporary lease of an appurtenant irrigation water right. Water trucks would be used as necessary to deliver water to work areas. Alternatively, water may be trucked in for construction uses from offsite sources with existing water rights (i.e., a municipal water source or vendor with a valid water right). Domestic water for employees would be provided by an onsite well or delivered to the site. Portable restroom facilities would be provided for construction workers.

Nominal wastewater would be generated during construction; sanitary waste would average up to 525 gallons per day. Additionally, water from the appurtenant irrigation water right may be used to assist in the establishment of the compensatory mitigation area.

Stormwater

Site drainage would be designed to follow the natural drainage patterns of the site. No on-site water retention basins are planned. Site preparation and construction activities would be performed in accordance with a SWPPP, incorporating stormwater DFs to reduce the adverse effects of erosion and sedimentation (see Appendix C). Such practices would include silt fencing, straw bales, temporary catch basins, and inlet filters to control stormwater. The SWPPP would be prepared in accordance with the State of Washington Department of Ecology Construction Stormwater General Permit (CSWGP) and the State of Washington Department of Ecology 2019 Stormwater Management Manual for Eastern Washington. It is anticipated that Grant County would approve the Royal Slope Solar Facility Conditional Use Permit (CUP) application with the draft SWPPP as a condition of approval prior to construction.

Solid Waste and Hazardous Waste

Most of the solid waste generated during construction would be non-hazardous and would consist primarily of cardboard, wood pallets, scrap metal, common trash, and wood wire spools. Construction activities would generate approximately 400 cubic yards of solid waste. Waste materials would be recycled whenever feasible. Non-recyclable construction waste would be hauled to an approved local landfill.

Construction activities may involve the transportation, use, or temporary storage of a variety of hazardous materials, such as batteries, hydraulic fluid, diesel fuel, grease, lubricants, paints, solvents, and adhesives. During construction, diesel fuel and gasoline may be stored on the Royal Slope Solar Facility site in above ground tanks or within a fuel truck for refueling equipment and vehicles. An SPCC Plan would be implemented during construction.

E.6 Operations and Maintenance

Workforce, Access, and Equipment

O&M of the Royal Slope Solar Facility would require up to approximately 11 on-site personnel each day. Personnel would access the Royal Slope Solar Facility from unimproved roads on the south side of Highway 26, west from an existing road extending east from Highway 243, and from the east along Road 13 Southwest. O&M would require the use of vehicles and equipment, including a skid steer loader for maintenance and mowers or other vegetation management equipment. Pickup trucks would be in daily use at the Royal Slope Solar Facility.

Water and Wastewater

Water use for the O&M building would be permitted through a separate process and is estimated at 25 gallons per person per day with up to 11 workers per day (0.31 AF per year). Water would be supplied by an on-site water well. A septic system would be located at the O&M building to serve the sanitary wastewater treatment needs. The sanitary facilities would drain to an on-site septic system or underground holding tank for truck pumping. Sanitary wastewater would average up to 234 gallons per day. Additionally, the O&M facility may include a water cistern to store water for fire suppression needs.

Emergency Response Plan

As discussed above in Appendix C, the Applicant would implement an Emergency Response Plan and would train local emergency response personnel during operation of the Royal Slope Solar Facility. The Emergency Response Plan would primarily apply to the Royal Slope Solar Facility but would also apply to the Transmission Line.

E.7 Decommissioning and Site Rehabilitation

The Royal Slope Solar Facility is anticipated to be in commercial operation for approximately 25 years from the commencement of operations, with a potential for continued use in accordance with County requirements, which may include new or amended use permits. Royal Slope Solar will have a Decommission and Reclamation Plan for the Royal Slope Solar Facility. This plan will be completed pursuant to Grant County Code (GCC) 23.08.357(i) that requires an applicant for any solar energy facility to enter into a Development Agreement with Grant County pursuant to GCC 25.28 concurrently with the land use applications for the solar energy facility. GCC 25.28 requires completion of decommissioning and reclamation within 3 years of the date that power production is deemed to have ceased or after the facility has ceased to produce power for a period of 12 consecutive months at any time during the life of the facility.

Decommissioning activities would require approximately the same number of construction personnel, equipment, and duration (up to approximately 25 months) described in Section 2.3.1 for initial Royal Slope Solar Facility construction.

Decommissioning the Royal Slope Solar Facility would involve removal of the Royal Slope Solar Facility's components as necessary for reuse of the site, including the solar panels, panel trackers, supports and mounts, inverters, electrical conductors, electrical cables, and substation components; removal of other structures; and the regrading of any areas significantly impacted by the removal of any components. GCC 25.28 requires removal of all non-utility owned equipment, conduits, structures, fencing, and foundations to a depth of at least 3 feet below grade. Roads may be removed or left in place based upon the landowner's anticipated reuse after decommissioning; any components left in place will be presented in writing, in which the landowner agrees for these elements to remain per GCC 25.28(4).

Various solar facility components may be considered a form of toxic, hazardous electronic, or "e-waste," and disposal of solar energy facility components would not be acceptable within Grant County pursuant to GCC 23.08.357(i)(9). As part of the Development Agreement with Grant County, the Applicant would include a plan for disposal of any damaged or decommissioned components that would stipulate that solar facility components classified as hazardous waste would be disposed of outside of Grant County.

The Decommissioning and Reclamation Plan would contain the measures necessary to fulfill Royal Slope Solar's restoration obligations. Restoration of the Royal Slope Solar Facility would be to a reasonable approximation of its original condition prior to construction, allowing for any permanent improvements chosen by the landowners to be left on-site as detailed in a landowner agreement. The restoration conditions would comply with the Stormwater Management Manual for Eastern Washington in effect at the time of reclamation.

Appendix F Consultation and Coordination

F.1 Agency Consultation and Coordination

National Historic Preservation Act Section 106

December 18, 2020, Reclamation notified Tribal and other interested consulting parties regarding the Land Use Proposal and invited them to participate in an informal Project initiation meeting. On January 11, 2021, Reclamation held a meeting with representatives of the Confederated Tribes of the Colville Reservation (CTCR), the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation), the Wanapum Band of Priest Rapids (Wanapum), and the Washington Department of Archaeology and Historic Preservation (DAHP) to discuss the Land Use Proposal. On July 28, 2021, Reclamation issued a letter initiating consultation with the CTCR, Yakama Nation, Wanapum, and DAHP on the area of potential effects (APE) and the level of effort (LOE). On October 8, 2021, Reclamation issued a letter consulting on a revised APE and updated LOE with these same consulting parties. On December 13, 2021, Reclamation held a meeting with the CTCR, Yakama Nation, and Wanapum to discuss the TCP Studies/Traditional Plants Study.

August 2021 – Reclamation conducted consultation under Section 106 of the National Historic Preservation Act (NHPA) on the APE and LOE for the Project via correspondences to Tribal Historic Preservation Offices of the CTCR and the Yakama Nation, the Representative of the Wanapum, a non-Federally recognized group, as well as the Washington DAHP. Reclamation requested concurrence on the APE and LOE.

May 2022 – Reclamation sent an email to the CTCR, Yakama Nation, and Wanapum requesting review of the archaeology testing plan on May 17, 2022.

May 2023 – Reclamation consulted under Section 106 of the NHPA on the revised APE and updated LOE for the Project via correspondences to Tribal Historic Preservation Offices of the CTCR and the Yakama Nation, the Representative of the Wanapum, and the Washington DAHP. Reclamation requested concurrence on the revised APE and updated LOE.

December 2023 – Reclamation provided a draft cultural resources report for the Land Use Proposal to the Tribal Historic Preservation Offices of the CTCR and the Yakama Nation, the Representative of the Wanapum, and the Washington DAHP.

April 2024 – Reclamation solicited input from Tribal Historic Preservation Offices of the CTCR and the Yakama Nation, the Representative of the Wanapum, and the Washington DAHP regarding initial observation points for purposes of characterizing visual effects of the Land Use Proposal.

March 2025 – Reclamation issued a letter re-affirming federal lead agency status and a commitment to continue coordination and consultation with BPA to the CTCR, Yakama Nation, Wanapum, DAHP, and BPA on March 5, 2025. Reclamation consulted under Section 106 of the NHPA on the revised APE and updated the LOE for the Project via correspondences to Tribal Historic Preservation Offices of the Tribal Historic Preservation Offices of the CTCR, the Yakama Nation, the Representative of the Wanapum, and the Washington DAHP on March 6, 2025. Consultation on the revised APE and updated LOE concluded on June 3, 2025.

February 2026 – Reclamation formally invited Clearway Energy Group as a consulting party.

April 2026 – Reclamation distributed the draft cultural resources inventory report to the Consulting Parties on April 3rd, 2026, for a collaborative 30-day review period. The report covers the APE in its entirety and has updated visual simulations. Reclamation will consider input received during this 30-day review period prior to finalizing the document and submitting the final report for formal consultation to support Reclamation's National Register Eligibility Determinations and Finding of Effect.

Archaeological Resources Protection Act

On June 5, 2025, Reclamation notified the CTCR, Yakama Nation, and the Wanapum of an Archaeological Resources Protection Act (ARPA) permit application received from Lithos and provided proposed permit conditions. No concerns were received from the notified parties. The ARPA permit was issued July 7, 2025, and expired October 31, 2025. Fieldwork was conducted between July 9 and October 23, 2025.

Endangered Species Act

Reclamation determined neither action alternative would affect any ESA-listed salmon, steelhead, nor any of their associated critical habitat designations. Reclamation consulted the USFWS Information for Planning and Consultation (IPaC) throughout the development of this EA to understand other ESA-listed species and critical habitat designations that could potentially be affected by the Project (USFWS 2024, 2025, 2026). Reclamation made findings of no effects for the subject ESA-listed entities: bull trout (*Salvelinus confluentus*), bull trout critical habitat; gray wolf (*Canis lupus*), Ute ladies'-tresses (*Spiranthes diluvialis),* and yellow-billed cuckoo (*Coccyzus americanus*). Reclamation determined neither action alternative would affect ESA-listed species nor any designated critical habitats. For that reason, Reclamation does not request concurrence with its determinations or request consultation with the USFWS.

Clean Water Act (CWA)

Prior to start of construction, the Applicant would acquire a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit (CSWGP) from the Washington State Department of Ecology. This permit regulates stormwater runoff from construction sites to help control and reduce water pollution. As part of the CSWGP, a SWPPP

would be developed a sediment, erosion, and pollution prevention control measures would be implemented. As the facility design is finalized, if effects to federally regulated wetlands would occur, the Applicant would obtain any necessary CWA 404 permits from the U.S. Army Corps of Engineers (i.e., Nationwide Permit (NWP) 51 for Land-Based Renewable Energy or NWP 57 for Electric Utility Line and Telecommunications Activities) and any associated terms and conditions to comply with the CWA. Any impacts to waters of the state, including wetlands, may require a Section 401 Water Quality Certification (Clean Water Act) and/or authorization for impacts to non-federally regulated waters (Chapter 90.48 RCW) from Ecology.

F.2 Tribal Consultation and Coordination

In addition to the Section 106 NHPA consultation process described in Appendix F Section F.1, Reclamation continues to offer government-to-government Tribal consultation and coordination under its responsibilities in accordance with federal law. On August 18, 2022, Reclamation mailed letters containing a notice of the Proposed Action and Invitation to Consult to the CTCR, Yakama Nation, Spokane Tribe of Indians, Confederated Tribes of the Umatilla Indian Reservation, and Wanapum.

The Spokane Tribe of Indians responded in a letter of August 30, 2022, that the Tribe would defer to the Yakama Nation because the APE for the Proposed Action was determined to be in the Yakama Nation's traditional area. The Wanapum Band of Priest Rapids responded in an email of September 29, 2022, expressing interest in consultation, and indicating that they intended to issue a TCP study of the Project Area.

Reclamation mailed Project proposal updates the CTCR, The Yakama, and the Wanapum Band of Priest Rapids on March 3, 2025, to keep them informed and invite engagement, including government-to-government consultation. Reclamation's March 3 correspondence to the tribes included updated project proposal maps and a memo from the Applicant summarizing how environmental review for the Project would be coordinated with the Grant County permitting process. To date, no Tribe has requested formal government-to-government consultation. The offer for formal consultation would stand throughout the life of the Project and would be scheduled and completed as requested by the Tribes.

Appendix G Public Involvement

The scoping process provided opportunities for the public, governmental agencies, and tribes to identify their concerns related to the Land Use Proposal. Reclamation: (1) conducted internal scoping; (2) posted a scoping package online; (3) notified the public that the scoping package was available for viewing through local media, emails, and website postings; (4) conducted outreach with potentially affected tribes; and (5) conferred with and solicited written comments from the public and local, state, and federal agencies. Details regarding public and agency scoping are found in Appendix F and the scoping process is summarized in the timeline below:

- January 2021 – Reclamation hosted an informal Project initiation meeting to introduce the Land Use Proposal, review the land ownership pattern of the Land Use Proposal area, and discuss overall strategies for assessing potential effects to cultural resources.
- August 2021 – Reclamation initiated scoping among internal subject matter experts and program managers in the agency.
- May 2022 – Reclamation corresponded with staff from the U.S. Fish and Wildlife Service (USFWS) to discuss threatened or endangered plant and animal species in the region that could potentially be affected by the Land Use Proposal.
- July 2022 – Reclamation informed BPA staff that Reclamation will proceed with an EA to document environmental review. Reclamation invited BPA to participate in Reclamation's environmental review of the land use authorization as a cooperating agency.
- September 2022
  - Reclamation posted the scoping package online, including Project information and a map.
  - Reclamation posted letters to potentially interested tribes to notify them of scoping package availability, including links to the scoping package internet address, a solicitation for comments, and instructions on how to provide written comments.
  - Reclamation notified a list of interested public entities by email of scoping package availability, including links to the scoping package internet address, a solicitation for comments, and instructions on how to provide written comments.
  - Reclamation sent a news release to notify local media outlets of scoping package availability, including links to the scoping package internet address, a solicitation for comments, and instructions on how to provide written comments. The press release was sent to agencies, Tribes, members of Congress, organizations, and individuals, soliciting their help in identifying any issues and concerns related to the Land Use Proposal.
  - Reclamation received comments from one Grant County Commissioner and one state agency, WDFW, in response to the public involvement outreach in 2022. Appendix G details Reclamation's scoping efforts for the EA.

- October 2022 – Reclamation received written public comments via email.
- January 2024 through July 2025 – Reclamation hosted monthly calls with Grant County Development Services staff to confer about the Land Use Proposal.
- June 2025 – Reclamation invited the USFWS, BPA, Federal Aviation Administration, Department of Defense, Federal Energy Regulatory Commission, Environmental Protection Agency, Washington Department of Fish and Wildlife (WDFW), Ecology, Grant County Development Services, and local agencies, as well as Tribes consulting under the NHPA to cooperate or participate in the NEPA review.
- February 2026 – Reclamation posted a draft EA to the project website and sent an email to notify all known interested publics, cooperating agencies, participating agencies, and interested tribes that Reclamation would accept comments on the draft EA during a 15-day public review and comment period. The public review period ended on March 6, 2026.

To date, Reclamation received comments from regional Tribes, Grant County Commissioner (District 1), Washington Department of Ecology, WDFW, EPA, National Park Service, and USFWS. Comments generally raised concerns about the status of Reclamation-managed lands, the disposal of materials after Land Use Proposal decommissioning, landscape appearance, traditional use areas, and sensitive plant and wildlife species and habitats. These issues are addressed in Chapter 3 of this EA.

Appendix H Required Permits

List of Permits/Consultations Required for the Proposed Action

Agency/Department	Purpose & Responsibility for Obtaining Permits
Washington State Department of Ecology	National Pollutant Discharge Elimination System (NPDES) Permit for construction stormwater discharge. The Project Applicant is responsible for obtaining a Construction Stormwater Permit and an Industrial Stormwater General Permit. Water Quality Certification Under Section 401 of the CWA. Reclamation does not anticipate impacts to waters of the state from either Land Use Proposal because both routes avoid surface waters, no point source effluent is proposed, and groundwater would not be affected. If the transmission line design is further developed and finalized, including any access roads, construction laydown areas, etc., the project proponent would be in contact with Ecology regarding any potential direct or indirect impacts (both temporary and permanent) to waters of the state, including wetlands, as those may trigger an authorization. Reclamation won't issue a license or permit before Ecology makes a determination on a water quality certification request or Ecology waives the right to review. Any conditions that the certifying agency sets then become conditions of the federal permit or license.
Washington State Historic Preservation Office	Consultation pursuant to Section 106 of the NHPA, 54 USC 300101.
United States Fish and Wildlife Service	Consultation pursuant to Section 7 of the ESA, if Reclamation determines effects to ESA-listed species or designated critical habitat.
Grant County Development Services	Conditional Use Permit for the Royal Slope Solar Project & Washington SEPA review. The Applicant is responsible for obtaining this permit.
Washington State Department of Transportation	The Applicant would be responsible for obtaining permits for these oversized or overweight loads in transit to the project area.
Bonneville Power Administration	The Applicant would be responsible for obtaining a Large Generator Interconnection Agreement with BPA.

Appendix I Report Preparers

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- Melinda Hernandez-Burke — Tribal Interests
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- Savannah Battista — Public Safety
- Drew Holstad — GIS

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