Attachment B: Draft Habitat Mitigation Plan

Draft Habitat Mitigation Plan

Wallula Gap Solar Project

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Prepared for

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Acronyms and Abbreviations

Applicant	Wallula Gap Solar, LLC
ASC	Application for Site Certification
BCC	Benton County Code
BESS	battery energy storage system
BPA	Bonneville Power Administration
CAO	Critical Areas Ordinance
EFSEC	Energy Facility Site Evaluation Council
Facility	Wallula Gap Solar Facility
Facility Area	Areas to be developed including fenced areas, roadways, generation lines and communications infrastructure
Facility Parcels	the extent of parcels in which the Applicant has executed or is pursuing a lease to construct the Facility
FWHCA	fish and wildlife habitat conservation area
GMA	Growth Management Act
HMP	Habitat Mitigation Plan
JARPA	Joint Aquatic Resources Permit Application
kV	kilovolt
MW	megawatt
NWI	National Wetland Inventory
PUD	Public Utility District
PV	photovoltaic
RCW	Revised Code of Washington
SCA	Site Certification Agreement
SEPA	State Environmental Policy Act
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife

1.0 INTRODUCTION

Wallula Gap Solar, LLC (the Applicant), a subsidiary owned by OneEnergy Renewables, proposes to construct and operate the Wallula Gap Solar Facility (the Facility), a 60 megawatt (MW) solar photovoltaic (PV) project with an optional battery energy storage system (BESS) located in Benton County, Washington. The Facility will utilize solar PV panels to convert energy from the sun into electric power, which will then be delivered to the electric power grid. The Facility will consist of PV modules mounted on single-axis trackers supported on stationary piles. Each row of solar panels will be strung together in a north-south orientation and the panels will tilt on a single-axis (facing east in the morning and tilting toward the west, following the sun, through the course of each day to maximize energy output). Each string of panels is arranged in rows with approximately 8 to 12 feet of space between the rows. The racking system and panels are supported by steel piles driven to a depth of 5 to 12 feet below grade. The top of the panels will stand no higher than 10 feet.

The Facility will interconnect through a line tap to Benton Public Utility District's (PUD) 115-kilovolt (kV) line near the Prior #2 substation. The generation will then be connected to the Bonneville Power Administration's (BPA) facilities at the Plymouth tap (aka Paterson Tap), where Benton PUD and BPA facilities connect at BPA's McNary substation. Benton PUD will upgrade, build, own and operate the structures which constitute the transmission facilities from the project to BPA's system; BPA-Transmission Service will install, own, and operate required incremental additions to the McNary substation as well as the metering and the control and communications equipment at the Facility.

The Facility Parcels (i.e., parcels that are included partially or wholly by the lease agreement with the landowner on which the Facility will be sited) consist of 1,220 acres (Figure 1). Within the Facility Parcels, the Project Area Extent (437 acres) represents the collective portions of the Facility Parcels that are under active Site Control for the construction and operation of the Facility. The Facility Area represents the maximum footprint of the Facility, including 392 acres of fenced area, approximately 9 acres of access roads within the fenced area, and approximately 635 feet of generation tie line facilities outside of the fenced area. The Applicant conducted studies for the Facility Area including field surveys and desktop surveys in 2022 and 2023. As referenced in the Addendum (Fields and Jensen 2023), limited portions of the Facility Area were surveyed for habitat utilizing aerial imagery and data from previous field surveys in 2022. All habitat impacts will be field verified prior to the Final Habitat Mitigation Plan in consultation with the Washington Department of Fish and Wildlife (WDFW) and Energy Facility Site Evaluation Council (EFSEC). Therefore, habitats for those added acres were assessed using a desktop analysis as well as photo analysis based on photos taken during wildlife surveys in 2022 (Jansen and Lawes 2023; Fields and Jansen 2023). The Facility Area where impacts will occur will be the focus of this Draft Habitat Mitigation Plan (HMP).

The Applicant has prepared this Draft HMP to support the Facility's EFSEC Application for Site Certification (ASC) and compliance with applicable regulations.

2.0 REGULATIONS AND GUIDELINES

The HMP was developed to meet the regulatory standards described in the regulations and guidelines summarized in this section.

2.1 EFSEC

Energy facilities subject to review by EFSEC include thermal electrical generation, pipelines, electrical transmission lines, petroleum refineries, petroleum storage, and alternative energy electrical generation (wind, solar, geothermal, landfill gas, wave or tidal action, and biomass). However, alternative energy facilities (of any size) are not required to enter the EFSEC process in Washington; the applicant may opt in to the EFSEC process, or may choose to permit a project at the local level. However, the Benton County Board of County Commissioners adopted Ordinance Amendment 2021-004 which removed "solar power generation facility, major" from the list of conditional uses allowed. For the proposed Facility, the Applicant has elected to be sited under EFSEC jurisdiction.

Once an alternative energy facility has elected EFSEC permitting, EFSEC coordinates all evaluation and licensing steps for siting certain energy facilities in Washington. EFSEC specifies the conditions of construction and operation. If approved, a Site Certification Agreement (SCA) is issued in lieu of other individual state or local agency permits. Chapter 80.50 of the Revised Code of Washington (RCW) includes the laws EFSEC must follow in siting and regulating major energy facilities. Title 463 of the Washington Administrative Code (WAC) sets forth the regulations establishing how EFSEC functions under state and federal law.

EFSEC is responsible for evaluating applications under the Washington State Environmental Policy Act (SEPA; see Section 2.3) and to ensure that environmental and socioeconomic impacts are considered before a site is approved. After evaluating an application, EFSEC submits a recommendation to the Governor. If EFSEC determines that constructing and operating the facility will produce minimal adverse effects on the environment, ecology of the land and wildlife, and ecology of the state waters and aquatic life, and meets its construction and operation standards, then it recommends that a SCA be approved and signed by the Governor. The SCA lists the conditions the applicant must meet during construction and while operating the facility. WAC 463-60-332 outlines how potential impacts to habitat, vegetation fish, and wildlife must be addressed in the EFSEC ASC, and is outlined below in Section 10.0. This information has been prepared and presented in the ASC. This HMP has been prepared pursuant to WAC 463-60-332(3), which requires that the EFSEC ASC include a detailed mitigation plan. In addition, this HMP describes how the Facility follows the WDFW Wind Power Guidelines (WDFW 2009), as applicable, and Policy M-5002, pursuant to WAC 463-60-332(4).

2.2 Benton County Critical Areas Ordinance

Under Washington State's Growth Management Act (GMA), all cities and counties are directed to adopt critical areas regulations. Counties and cities are required to include the best available science in developing policies and development regulations to protect the functions and values of critical areas (RCW 36.70A.172). Benton County's Critical Areas Ordinance (CAO) was developed to comply with the requirements of the GMA, and was most recently updated on August 21, 2018, consistent with the GMA periodic review requirement in RCW 36.70A.130.

Benton County's regulations regarding critical areas are established in Title 15 of the Benton County Code (BCC). Title 15 defines critical areas as including any of the following areas or ecosystems: 1) wetlands (see Chapter 15.04 BCC), 2) critical aquifer recharge areas (see Chapter 15.06 BCC), 3)

frequently flooded areas (see Chapter 15.08 BCC), 4) geologically hazardous areas (see Chapter 15.12 BCC), and 5) fish and wildlife habitat conservation areas (FWHCA; see Chapter 15.14 BCC).

Per BCC 15.14.010, FWHCAs include the following: 1) areas where federal or state designated endangered, threatened, and sensitive species have a primary association[1]; 2) state priority habitats and areas associated with state priority species; 3) habitats and species of local importance as designated by Benton County (i.e., shrub-steppe habitat); 4) waters of the state; 5) naturally occurring ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat; 6) lakes, ponds, streams, and rivers planted with native fish populations; 7) Washington State Wildlife Areas; and 8) Washington State Natural Area Preserves and Natural Resource Conservation Areas (Benton County 2018). Information provided in the EFSEC ASC submitted for this Facility, as well as this HMP, addresses the requirement per BCC 15.14.030 for the Applicant to provide a habitat assessment and discuss the habitat avoidance, minimization, and mitigation measures proposed for the Facility.

As described in Section 5.0, the Facility would include disturbance in areas considered FWHCAs as defined by the CAO (e.g., shrub-steppe and associated wildlife species). This HMP addresses avoidance, minimization, and potential compensatory mitigation for impacts to upland habitats, including upland areas considered FWHCAs.

There are National Wetland Inventory (NWI) mapped wetlands including freshwater emergent, freshwater forested/shrub, and riverine wetlands within the Facility Area (Jansen and Lawes 2023; USFWS 2023). Pools of standing water were observed in several locations during the March survey and were in the general location of the NWI mapped wetlands (Jansen and Lawes 2023). There are also National Hydrography Dataset mapped intermittent streams and perennial ponds within the Facility Area (USGS 2023). A formal wetland and waters delineation was conducted in 2022 and two wetlands were documented within the Project Area Extent while no streams or water bodies were observed (GG Environmental 2022).

The Facility will be designed to avoid wetlands, and no wetland or wetland buffers impacts (temporary or permanent) are proposed within the current Facility layout. As no streams were observed within the current Facility layout, no impacts to streams are anticipated within the current Facility layout. If any design or development changes result in impacts to streams or stream buffers, the appropriate agencies would be contacted to coordinate the appropriate permits and avoidance, minimization, and mitigation measures.

2.3 Washington State Environmental Policy Act

SEPA is the state interdisciplinary policy that identifies and analyzes environmental impacts associated with state governmental decisions, including permits to construct energy facilities. The applicable SEPA statutes and regulations include RCW Ch. 43.21C, Washington Environmental Policy Act, WAC Ch. 197-11, Washington State Department of Ecology SEPA Rules, and Section 6.35 of the

[1] Primary association area - The area used on a regular basis by, in close association with, or is necessary for the proper functioning of the habitat of a critical species. Regular basis means that the habitat area is normally, or usually known to contain a critical species, or based on known habitat requirements of the species, the area is likely to contain the critical species. Regular basis is species and population dependent. Species that exist in low numbers may be present infrequently yet rely on certain habitat types (Benton County 2018).

BCC, which establish requirements for compliance with SEPA. As the Applicant has elected to be sited under EFSEC jurisdiction, as discussed above, EFSEC will serve as the lead agency for SEPA review.

This Draft HMP, in addition to the analysis provided in the Facility's EFSEC ASC, supports the finding that, with the implementation of proposed mitigation, any environmental impacts can be reduced to a level of non-significance as defined and understood in SEPA.

2.4 WDFW Wind Power Guidelines

The WDFW published the Wind Power Guidelines in 2009 to provide consistent statewide guidance for the development of land-based wind energy projects that avoid, minimize, and mitigate impacts to fish and wildlife habitats in Washington state (WDFW 2009). The permitting authority (e.g., EFSEC) is responsible for SEPA review before issuing a project permit. However, WDFW is considered an agency with environmental expertise through SEPA and provides review and comments on environmental documents. Solar power-specific guidelines for solar energy developers to utilize in consideration of mitigation in the state of Washington are not available. Absent this guidance, and consistent with approved mitigation plans for other solar projects in Washington, the Applicant used the Wind Power Guidelines to develop this HMP where applicable, including the mitigation considerations listed below, which summarize the priorities for the habitat selected to replace the functions and values of habitat impacted by the Facility (i.e., replacement habitat):

- Like-kind (e.g., shrub-steppe for shrub-steppe, grassland for grassland) and/or of equal or higher habitat value than the impacted area, noting that an alternative ratio may be negotiated for replacement habitat that differs from impacted habitat;
- Given legal protection (through acquisition in fee, a conservation easement, or other enforceable means);
- Protected from degradation, including development, for the life of the project to improve habitat function and value over time;
- In the same geographical region as the impacted habitat; and
- At some risk of development or habitat degradation and the mitigation results in a net habitat benefit.

2.5 WDFW Policy M-5002

WDFW established Policy M-5002 requiring or recommending mitigation in 1999. This policy applies to all habitat protection assignments where WDFW is issuing or commenting on environmental protection permits, documents, or violation settlements; or when seeking commensurate compensation for impacts to fish and wildlife resources resulting from oil or other toxic spills. The Applicant reviewed Policy M-5002 to support the development of this HMP, including the following considerations:

- The goal is to achieve no loss of habitat functions and values. Mitigation credits and debits will be based on a scientifically valid measure of habitat function, value, and area.
- WDFW uses the following definition of mitigation in which avoiding impacts is the highest mitigation priority: actions that shall be required or recommended to avoid or compensate for

impacts to fish, wildlife, or habitat from the proposed project activity. The type(s) of mitigation required shall be considered and implemented, where feasible, in the following sequential order of preference:

  - Avoid the impact altogether by not taking a certain action or parts of an action.
  - Minimize impacts by limiting the degree or magnitude of the action and its implementation.
  - Rectify the impact by repairing, rehabilitating, or restoring the affected environment.
  - Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action.
  - Compensate for the impact by replacing or providing substitute resources or environments.
  - Monitor the impact and take appropriate corrective measures to achieve the identified goal.

- On-site in-kind mitigation is preferred.
- Mitigation plans will include the following: baseline data; estimate of impacts; mitigation measures; goals and objectives; detailed implementation plan; adequate replacement ratio; performance standards to measure whether goals are being reached; maps and drawings of proposal; as-built drawings; operation and maintenance plans (including who will perform); monitoring and evaluation plans (including schedules); contingency plans, including corrective actions that will be taken if mitigation developments do not meet goals and objectives; and any agreements on performance bonds or other guarantees that the proponent will fulfill the mitigation, operation and maintenance, monitoring, and contingency plan.
- Mitigation measures will be completed before or during project construction.
- Mitigation site will be protected for the life of the project.
- Mitigation banking may be an acceptable form of mitigation.

3.0 AGENCY CONSULTATION HISTORY

Coordination on the Project began with WDFW in December 2021. Table 1 briefly summarizes that coordination, including dates of phone calls, meetings, and letters as well as topics discusses or decisions made.

Table 1. Summary of Agency Consultation History

Meeting, Phone Call, or Letter Date	Parties Involved	Topics Discussed	Key Decisions or Agreements
December 10, 2021	WDFW	Initial review request of project description and site	• The Applicant provided a project description and information to WDFW who then conducted an internal data review and site visit to the Facility along public roads (OneEnergy 2021).
January 31, 2022	WDFW	Review of Survey Methods from initial review request sent from	• Recommendations were made via email regarding wildlife and habitat survey methods.

Meeting, Phone Call, or Letter Date	Parties Involved	Topics Discussed	Key Decisions or Agreements
		OneEnergy on December 10, 2021 Site visit on January 26, 2022	
March 4, 2022	WDFW	WDFW Priority Species and Habitats (PHS)	• As part of the desktop analysis, a request for PHS from WDFW was queried to develop a list of PHS (WDFW 2023).
October of 2022	USFWS	Federally listed species	• As part of the desktop analysis, the USFWS Information for Planning and Consultation system was queried to develop a list of wildlife and plants listed as threatened, endangered, or as sensitive species (USFWS 2022).
January 4, 2023	WDFW	Review of Report by WDFW	• The Applicant completed initial field surveys, however WDFW noted discrepancy in avian species observed.
February 6, 2023	WDFW	Revised Report sent to WDFW	• Applicant provided memo provided by biologists. • Applicant provided revised report.
February 10, 2023	WDFW	WDFW email response to Memo and revised report	• WDFW concurred with correction of avian identification and songbird assessment via email.
June 16, 2023	WDFW	Notification of additional 9 acres of land in layout	• The Applicant notified WDFW of additional land.
June 22, 2023	WDFW	Additional land survey Discussion	• Mike Ritter with WDFW indicated that an addendum to the Tier 3 Wildlife, Habitat, and Plant Survey Report was adequate for concurrence from WDFW (Fields and Jansen 2023). • The Applicant then completed a field visit to record habitat type, priority habitat species, and rare plants in the additional land and describe the habitat types and rare plants observed in the parcel addition in the addendum (Fields and Jansen 2023).
July 31, 2023	WDFW	WDFW Review of Addendum	• WDFW Concurrence to Report and Addendum.
September 14, 2023	WDFW	Contents of the habitat mitigation plan Mitigation options	• Mitigation ratios from the WDFW 2009 Wind Power Guidelines will be utilized. • Impacts will be considered Permanent or Temporary. Permanent mitigation ratios will be utilized for areas behind the security fence. • The option of providing mitigation dollars to WDFW was removed from the HMP.
November 15, 2023	WDFW	Applicant submitted updated report to WDFW	• Limited areas within the Facility Area were not included in the 2022 habitat and rare plant field surveys; however, habitats were assessed using a desktop analysis as well as photo analysis based on photos taken during wildlife surveys in 2022 (Fields and Jansen 2023).

4.0 HABITAT MAPPING

The Applicant conducted field surveys to map and characterize habitat within the Project Area in 2022, which encompasses the Facility Area. In general, habitat types were adapted from habitat descriptions in the Washington Department of Fish and Wildlife Wind Power Guidelines (WDFW 2009). Descriptions of habitat types mapped within the Facility Area are provided in the Tier 3 Wildlife, Habitat, and Plant Survey Report (Jansen and Lawes 2023) as well as the Addendum (Fields and Jansen 2023). Pasture dominates the Facility Area (Figure 2) and the percent composition of habitat types in the Facility Area is shown in Table 2. Table 3 provides a crosswalk between habitats mapped at the Facility and WDFW Habitat Types and Classifications (WDFW 2023, WDFW 2009). Vegetation in the Facility Area consisted primarily of non-native grasses and forbs; however, early successional shrubs (rubber rabbitbrush [*Ericameria nauseosa*]) and patches of woody vegetation (willow [*Salix* spp.] and Russian olive) were scattered throughout pastures, particularly in the southern portion of the Facility Area. Vegetation within much of the Facility Area has been modified by livestock grazing, rock and soil quarries, and roads used to access the surrounding agricultural fields. Grazing and other disturbances reduced plant cover from pastures, exposing bare ground and sandy soils in many areas. One WDFW Priority Habitat was mapped within the Facility Area: shrub-steppe (WDFW 2023).

Table 2. Habitat Types within the Facility Area

Habitat Type	Area (acres)[1/]	Percent Composition
Shrub-steppe	19.1	5
Pasture	365.6	93
Developed/disturbed	7.0	2
Wetland	0.2	<1
Total	**391.9**	**100**

1/ Totals may not sum exactly due to rounding.

Table 3. Facility Habitat Type Crosswalk with WDFW Habitat Type and Classification

Project Habitat Type	Johnson and O'Neil (2001) Habitat Type	WDFW (2023) Priority Habitat	WDFW (2009) Wind Power Guidelines Habitat Type	WDFW (2009) Wind Power Guidelines Classification
Shrub-steppe	Shrub-steppe	Shrub-steppe	Shrub-steppe	Class II
Pasture	Agriculture, Pastures and Mixed Environs	Not a Priority Habitat	Croplands, Pasture, Urban and Mixed Environs	Class IV
Developed/disturbed	Urban and Mixed Environs		Urban and Mixed Environs	

The pasture habitat type corresponds most closely with pasture and mixed environs (Class IV) WDFW habitat (WDFW 2009) and "Unimproved Pasture" subtype of the "Agriculture, Pastures, and Mixed Environs" habitat type (Johnson and O'Neil 2001). Per WDFW (2009), unimproved pastures are "predominately non-native grassland sites, often abandoned fields that have little or no active management." Per Johnson and O'Neil (2001), unimproved pastures include "…rangelands planted to

exotic grasses that are found on private land, state wildlife areas, federal wildlife refuges and U.S. Department of Agriculture Conservation Reserve Program (CRP) sites."

5.0 FACILITY IMPACTS

Construction and operation of the Facility would result in both permanent and temporary impacts on vegetation, as well as permanent alterations of vegetation within the solar array's perimeter fence lines. Table 4 provides anticipated acres of impact to each type from construction and operation of the Facility, including acres of temporary, permanent, and altered impacts. Figure 3 provides habitat types and project impacts from construction and operation of the Facility. The following defines the terms used when discussing the various habit impact types considered in this HMP:

- Permanent impacts include locations where permanent Facility components would occur (e.g., solar array panel posts, inverter pads, new permanent access roads, O&M building, Project substation, poles for overhead transmission lines). Vegetation in these areas would be removed for the life of the Facility and constitute a permanent habitat loss.
- Temporary impact areas include work areas located outside the solar array perimeter fence that would be disturbed during construction and revegetated following construction, such as laydown areas and pulling areas for the transmission line, a corridor for trenching to install collector lines, and temporary access roads. Temporarily disturbed areas would be revegetated in accordance with a Revegetation and Weed Management Plan that will be developed and agreed upon by EFSEC, with input from Benton County Noxious Weed Control Board and WDFW, prior to construction.
- Altered habitat impacts include lands within the solar array perimeter fence, minus any areas occupied by permanent Facility structures. These areas would either be passively or actively revegetated. Passive revegetation would involve waiting to see what plant species colonize naturally following construction. If passive revegetation is not successful (e.g., native species fail to colonize and site is dominated by non-native species), active revegetation could then occur. If necessary, active revegetation would include revegetating with low-growing vegetation consisting of native species and/or a mix of native and desirable non-native, non-invasive species. Inclusion of non-native, non-invasive species may be desirable in some instances. For example, some non-native, non-invasive species may provide more rapid soil stabilization and vegetative cover than slower-growing native species. Rapid vegetative cover of these species may also reduce the fuel load created by proliferation of non-native species such as cheatgrass. Following construction and revegetation, these areas would contain an altered vegetation community compatible with solar arrays and support an altered wildlife community that is able to pass over, under, or through the perimeter fence, but would retain value to wildlife as described in Section 6.0 of this HMP.

Table 4. Anticipated Impacts to Habitat Types from the Facility

Habitat Type	Temporary Impacts (Acres)[1/]	Altered Habitat Impacts (Acres)[2/]	Permanent Impacts (Acres)[3/]	Total[4/,5/]
Pasture	0.0	356.1	9.5	365.6
Shrub-steppe	0.0	17.6	1.5	19.1
Developed/disturbed	0.3	6.9	0.3	7.5
Wetland	0.0	0.0[6/]	0.0	0.2
Total[4/]	0.3	380.8	11.3	**392.4**

1/ Temporary impacts include: collector lines, temporary access roads, and work areas located outside the solar array perimeter fence lines and laydown and pulling areas associated with the transmission line.
2/ Altered habitat impacts consists of all lands within the perimeter fence lines, minus any areas occupied by permanent Facility features/structures.
3/ Permanent impacts include solar array panel posts, inverter pads, permanent access roads, substation, O&M building, and poles for transmission line.
4/ Totals may not sum exactly due to rounding.
5/ Approximately 0.5 acres of Facility impacts are outside of the Facility Area including for roads and the gen-tie corridor.
6/ The 0.2-acre wetland feature shown within the Facility Area in Table 2 and on Figure 2 and Figure 3 will be avoided during construction and operations. The 40-foot buffer required by Benton County around the category IV wetland will also be enforced and best management practices will be utilized to ensure the wetland retains functionality similar to pre-Facility conditions.

6.0 SCIENTIFIC BASIS

WDFW (2009) defines permanent impacts to habitat as those impacts that are anticipated to persist and cannot be restored within the life of the project, which may include "new permanent roads, operations and maintenance facilities, turbine pads, impervious and/or areas devoid of native vegetation resulting from project operations." Areas that would be revegetated under the solar arrays following construction of the Facility would not be impervious, would not be devoid of native vegetation, and would be revegetated within the life of the Facility; therefore, these areas are not considered permanently impacted habitat. Following completion of construction, areas under the solar arrays would be revegetated with either low-growing native vegetation or a mix of native and non-native, non-invasive vegetation.

A study demonstrated that successful revegetation under solar panels is possible, even with native grass species adapted to full-sun conditions (Beatty et al. 2017). This study demonstrated that revegetation under solar panels was able to "achieve ground cover sufficient to control erosion and begin to restore wildlife habitat" (Beatty et al. 2017). Research in Oregon (Hassanpour Adeh et al. 2018) quantified changes to the microclimatology, soil moisture, water usage, and biomass productivity due to the presence of solar panels. In this study, areas under PV panels maintained higher soil moisture, showed a significant increase in late season biomass (90 percent more biomass), and were significantly more water efficient (328 percent more efficient), although caution should be used in applying these results from west of the Cascade Mountains to the drier Columbia Plateau (Hassanpour Adeh et al. 2018). Similarly, pre- and post-construction biological monitoring data at a PV solar facility in California indicated similar to higher vegetation productivity on-site compared to reference sites (Sinha et al. 2018). As a result, areas under solar panels that would be revegetated are considered altered habitat impacts rather than temporary or permanent impacts, although permanent mitigation ratios would apply.

Habitat within the solar fence line would remain available to wildlife such as small mammals, birds, reptiles, and invertebrates in an altered condition. Limited research is available regarding the effects

of PV array development (including the effects of fencing and shading) on residual wildlife habitat value; however, preliminary studies indicate residual habitat value remains for various species of birds, and the value may differ based on restoration and vegetation management practices. For example, DeVault et al. (2014) studied avian abundance at PV array fields and paired airport grassland areas using transect surveys. The results indicated that airport grasslands generally had greater species diversity and PV arrays generally had more total birds observed; however, overall bird mass was comparable at airport grasslands and PV arrays, suggesting smaller birds tended to use the PV arrays rather than the airport grasslands. Similarly, Visser et al. (2018) measured bird abundance and diversity at a PV array facility in South Africa using point counts within and outside the facility. The primary conclusion of the study was that bird diversity and density were higher outside of the facility, but the facility was not absent of birds. Visser et al. (2018) found that the bird community inside the facility comprised birds that were generalist species or those that use grassland habitat. Thus, the species composition appeared to be associated with a change from a shrub/woodland habitat to a grassland habitat within the facility. H.T. Harvey and Associates (2015) studied avian abundance and behavior using point count methods at a PV array in grassland habitat. Counts were conducted inside the facility and in undeveloped reference areas over a 3-year period before, during, and after construction. The results were highly variable, with some species (e.g., horned lark [*Eremophila alpestris*]) showing increases in abundance over time and within the facility, while others (e.g., mourning doves [*Zenaida macroura*] and raptors) showed decreases during construction and increases in use upon transitioning to operations, but overall higher use in reference areas compared to the facility. This limited research demonstrates that while bird species use may change at PV arrays, use of the area is not eliminated; instead, the altered habitat supports an altered avifaunal community.

Similarly, post-construction biological monitoring data at a PV solar facility in California documented the presence of dozens of wildlife species, including California horned lark (*Eremophila alpestris actia*), ferruginous hawk (*Buteo regalis*), loggerhead shrike (*Lanius ludovicianus*), prairie falcon (*Falco mexicanus*), black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheyi*), San Joaquin kit fox (*Vulpes macrotis mutica*), and coast range fence lizard (*Sceloporus occidentalis bocourtii*) (Sinha et al. 2018). This California site was reseeded with native flora species to allow vegetation to grow beneath the solar panels, creating new habitats, providing sources of food for various wildlife species, and providing dust control (Sinha et al. 2018). The results of monitoring indicated that although solar facility construction activities do involve short-term disturbance, responsibly developed solar facilities can provide shelter, protection, and stable use of land to support biodiversity (Sinha et al. 2018).

7.0 AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

The final Facility layout will be designed to avoid and minimize impacts on vegetation and wildlife to the extent possible. For impacts that cannot be avoided, mitigation is proposed. As described in WDFW's Policy M-5002 (see Section 2.5), avoidance of impacts is the highest mitigation priority. When impacts cannot be avoided, they should be minimized, restored, reduced, or compensated for, in that order of priority. Benton County's CAO describes mitigation requirements that are consistent with

Policy M-5002. The plan presented here is consistent with both the Benton County CAO mitigation guidelines and the WDFW mitigation policy.

7.1 Avoidance and Minimization

Avoidance and minimization measures would be implemented during design, construction, and operation. The following avoidance and minimization measures were either applied during Facility development or are proposed for Facility construction and operations:

- To minimize impacts to wildlife and habitat, baseline studies were conducted at the Facility in coordination with the WDFW and consistent with the WDFW Wind Power Guidelines (WDFW 2009). In order to minimize impacts to and avoid wildlife resources and habitat, the Applicant used the results of these baseline studies to inform the layout design.
- The Facility and its equipment were sited on previously disturbed (e.g., pasture,) areas as feasible to avoid impacts to native habitats and associated wildlife species.
- The Facility will use industry standard BMPs to minimize impacts to vegetation, waters, and wildlife.
- No barbed wire will be used on perimeter fencing around the solar arrays.
- Evening and nighttime construction activities will be avoided to the extent practicable, which will limit the impacts of construction noise to wildlife.
- Vehicle speeds will be limited to 25 miles per hour on internal Facility access roads to avoid wildlife collisions. Existing posted speed limits on county and private roads will be followed outside of the Facility Area.
- If construction occurs during the bird nesting season, nest clearance surveys will be conducted prior to site disturbance in suitable habitats.

7.2 Restoration

A Vegetation and Weed Management Plan would be developed in consultation with the Benton County Weed Control Board and WDFW prior to construction. The Vegetation and Weed Management Plan would include measures designed to ensure successful revegetation, including measures for re-establishing vegetation where appropriate, controlling the establishment or spread of invasive species, weed control, and monitoring. Additionally, the Vegetation and Weed Management Plan would include benchmarks and timelines for revegetation.

7.3 Compensatory Mitigation

After avoidance and minimization measures have been implemented, some impacts to wildlife habitat would remain. This section describes compensatory mitigation proposed to account for the effects of unavoidable impacts to habitat, in compliance with the regulations and guidelines described in Section 2.

7.3.1 Habitat Mitigation Calculation

Habitat types were mapped in the Project Area, which encompasses the Facility Area, as described in Section 4.0 (Johnson and O'Neil 2001; WDFW 2009; WDFW 2023). Estimated impacts to each habitat type from the Facility are summarized in Section 5.0. In order to offset the estimated habitat impacts, the Applicant will provide mitigation consistent with the WDFW Wind Power Guidelines (WDFW 2009). While those guidelines do not address solar energy development, WDFW has routinely recommended that the ratios be applied to solar projects. The inclusion of "altered" habitat has evolved during project-level siting discussion between WDFW, EFSEC, and energy companies over the last several years. Mitigation ratios for altered habitats are consistent with those for permanent impacts. This is consistent with guidance from EFSEC on other projects that include similar habitat types in eastern Washington.

Table 5 summarizes Facility impacts by impact type for habitat subtypes that result in the need for mitigation, for the purpose of calculating the maximum mitigation need for the Facility. See Table 4 in Section 5 for a full tabulation of all Facility impacts.

Table 5. Estimated Facility Impacts on Habitat Subtypes and Associated Mitigation Need

Habitat Type	Habitat Subtype[1/]	WDFW (2009) Classification	Impact(Acres)	Mitigation Ratio[2/]	Mitigation (Acres)
Temporary Impacts Only[3/,4/,5/]					
Shrubland	Sagebrush shrub-steppe	Class II	0.0	0.5:1	0.0
Permanent Impacts Only[3/, 4/]					
Shrubland	Sagebrush shrub-steppe	Class II	1.5	2:1	3.0
Altered Habitat Only[4/]					
Shrubland	Sagebrush shrub-steppe	Class II	17.6	2:1	35.2
Total[6/]					**38.2**

Notes:
1/ Only impacted subtypes that result in the need for mitigation are shown. Pasture and developed/disturbed habitat types are not included as they do not require mitigation according to the WDFW Wind Power Guidelines (WDFW 2009).
2/ Temporary and permanent impact mitigation ratios are consistent with the WDFW (2009) Wind Power Guidelines; modified habitat mitigationratios were developed for this Facility in the absence of solar development guidelines and considering revegetated habitat under solar arrays does not meet the definition of temporary or permanent impacts from WDFW (2009).
3/ Overlapping permanent disturbance is subtracted from temporary impact areas ; those are included only in the permanent impact calculations.
4/ Temporary impacts associated with solar facilities include a 10-foot construction buffer along the outside of the solar fencelines. Permanent impacts include the solar inverters and new access roads within the Solar Siting Areas. Modified impacts include those areas associated with the solar arrays. Following construction, low-growing vegetation would be planted under the solar arrays; therefore, these impacts would be considered a modification of habitat versus a temporary or permanent impact.
5/ Per WDFW (2009), for temporary impacts, a reduced mitigation ratio may be considered if restoration results in a higher level of habitat function than pre-project conditions. This reduced ratio may be applied as a credit to subsequent Facility phases following determination thatrevegetated result in a higher level of habitat function compared to pre-Facility conditions.
6/ Totals may not sum exactly due to rounding.

7.3.2 Mitigation Options

The Applicant proposes two potential mitigation options, which have become standard practice for energy projects in Washington: (1) acquisition of a conservation easement to protect and enhance a compensatory habitat mitigation area, (and 2) payment to provide option with a local land trust or conservation organization, as available. In addition, the Applicant would also consider alternative mitigation pathways if available in the future. The Applicant may use one option or a combination of options to mitigate for habitat impacts, and will determine the combination of the mitigation options

that best correlate to the impacted areas in consultation with WDFW and the affected landowners, subject to EFSEC's approval.

Prior to construction, the Applicant would update or supplement this HMP to identify the selected mitigation option based on coordination with stakeholders, availability of mitigation opportunities, and the final layout and final habitat mapping, which will affect the quantity and habitat subtypes of impacted areas and thus the mitigation need. Additional details to be provided include a description of the baseline conditions at the mitigation area(s), including maps; mitigation measures (e.g., noxious weed control) and a description of how these mitigation measures have taken into consideration the probability of success; and ongoing management practices that will protect habitat and species, including a maintenance program. The final mitigation approach will offer enough habitat to meet the regulatory requirements described in Section 2. The duration of any mitigation option(s) will be for the life of the Facility.

Option 1 – Conservation Easement

Option 1 may include a conservation easement on habitat that will offset the loss of habitat and its related impacts on wildlife. The intent of mitigation will be to follow WDFW's mitigation siting criteria outlined in the Wind Power Guidelines, as follows:

- Like-kind (e.g., shrub-steppe for shrub-steppe; forested for forested, grassland for grassland) and/or of equal or higher habitat value than the impacted area, noting that an alternative ratio may be negotiated for replacement habitat that differs from impacted habitat;
- Given legal protection (through acquisition in fee, a conservation easement, or other enforceable means);
- Protected from degradation, including development, for the life of the project to improve habitat function and value over time;
- In the same geographical region as the impacted habitat; and
- At some risk of development or habitat degradation and the mitigation results in a net habitat benefit.

If Option 1 is pursued, potential enhancements to provide habitat uplift may be appropriate depending on the mitigation area selected for conservation easement; enhancements could include weed control, seeding, planting, and/or other appropriate measures to ensure habitat functions and values are improved over time. The mitigation area could be managed by the Applicant or a designated conservation partner to ensure the habitat is protected from degradation for the life of the Facility.

Option 2 – Mitigation Payment to Local Conservation Entity

Option 2 may include a payment to a local land trust or conservation organization to support an ongoing or planned conservation project that benefits the types of habitats impacted by the Facility, which could include mitigation banking. The identification of potential locations for mitigation in this option may consider areas identified for conservation and/or restoration by local tribes. The payment fee amount would be derived as described above, based on the acreage estimated in Option 1 as well

as determined using similar methods to those outlined under the mitigation "by fee" option in WDFW (2009). The fee could be used towards the acquisition and conservation of a property of the size described above to meet the Facility mitigation need, or could be used to provide uplift to a larger area and/or at an existing conservation easement. The conservation project would be determined through coordination between the Applicant, EFSEC, WDFW, and the land trust or conservation organization or tribe.

This HMP would be implemented concurrently with Facility construction and continue through the life of the Facility. Prior to construction, the Applicant would confirm the selected mitigation option(s) and update or supplement this HMP to describe the mitigation area(s) and appropriate mitigation measures, as applicable, as well as documentation of a conservation easement and/or a long-term financial commitment, depending on the option selected. During construction, the Applicant would initiate baseline surveys to inform any mitigation treatments (e.g., noxious weed control, seeding, etc.). Prior to operation, the Applicant would initiate any mitigation treatments, which could continue, as needed, through Facility operation.

8.0 MONITORING AND REPORTING

Once the Facility design has been finalized, and prior to construction, Table 5 above would be revised to reflect actual habitat impacts and associated mitigation acres as appropriate. The Applicant would also monitor the habitat impacts following construction to verify the extent of impacts and document post-construction recovery of areas disturbed temporarily or altered as a result of the Facility. The Applicant would provide a memorandum to EFSEC with the updated acreage impact calculations and proposed conservation easement location or conservation project funding (as applicable) for approval by EFSEC. Once the conservation easement has been put in place, a copy of the deed restriction would be provided to EFSEC.

If the conservation easement option is chosen, the mitigation area would be protected from degradation, including development, for the life of the Facility, and thus, habitat function and value would likely improve over time as degrading forces are removed. Annual easement monitoring would occur to confirm that land controls remain in place and any agreed upon management activities with landowners remain in effect (e.g., fencing for controlled grazing, or invasive plant management). Annual monitoring may be reduced to a lower frequency (e.g., bi-annual or tri-annual) if it is demonstrated that the easement is being implemented as designed, for the first five years of monitoring. Any changes in the frequency of easement monitoring would be approved by EFSEC.

For the conservation project funding option, part of the payment would likely fund a stewardship endowment that would cover costs for the conservation project steward to monitor and report on how they have implemented the funding to meet the mitigation needs of the Facility. The Applicant would support this effort as needed.

9.0 SUCCESS CRITERIA

Mitigation of the impacts to wildlife habitat from the Facility may be considered successful if the Applicant (1) protects sufficient habitat to meet the estimated habitat replacement requirements as described in Table 5, allowing for some variance based on functions and values and benefits to

wildlife and wildlife habitat provided by the chosen mitigation area; or (2) provides commensurate funding to a conservation project. For the funding option, mitigation would be considered successful at the time of payment to EFSEC.

10.0 WASHINGTON ADMINISTRATIVE CODE COMPLIANCE

Compliance with the WAC is shown in Table 6.

Table 6. Washington Administrative Code 463-60-332(3) Requirements Matrix

Requirement	Section(s) where addressed
(3) Mitigation plan. The application shall include a detailed discussion of mitigation measures, including avoidance, minimization of impacts, and mitigation through compensation or preservation and restoration of existing habitats and species, proposed to compensate for the impacts that have been identified. The mitigation plan shall also:	Entire
(a) Be based on sound science	Throughout (e.g., see Sections 6.0 and 7.3.1)
(b) Address all best management practices to be employed and setbacks to be established	Sections 7.1
(c) Address how cumulative impacts associated with the energy facility will be avoided or minimized	Sections 5 and 7.3
(d) Demonstrate how the mitigation measures will achieve equivalent or greater habitat quality, value and function for those habitats being impacted, as well as for habitats being enhanced, created or protected through mitigation actions	Sections 5 and 7.3
(e) Identify and quantify level of compensation for impacts to, or losses of, existing species due to project impacts and mitigation measures, including benefits that would occur to existing and new species due to implementation of the mitigation measures;	Sections 7.3.1 through 7.3.3
(f) Address how mitigation measures considered have taken into consideration the probability of success of full and adequate implementation of the mitigation plan	Section 7.0
(g) Identify future use of any manmade ponds or structures created through construction and operation of the facility or associated mitigation measures, and associated beneficial or detrimental impacts to habitats, fish and wildlife	Not Applicable
(h) Discuss the schedule for implementation of the mitigation plan, prior to, during, and post construction and operation	7.3.3
(i) Discuss ongoing management practices that will protect habitat and species, including proposed monitoring and maintenance programs	Sections 7.2, 7.3.2, and 8.0
(j) Mitigation plans should give priority to proven mitigation methods. Experimental mitigation techniques and mitigation banking may be considered by the council on a case-by-case basis. Proposals for experimental mitigation techniques and mitigation banking must be supported with analyses demonstrating that compensation will meet or exceed requirements giving consideration to the uncertainty of experimental techniques, and that banking credits meet all applicable state requirements.	Not Applicable

11.0 REFERENCES

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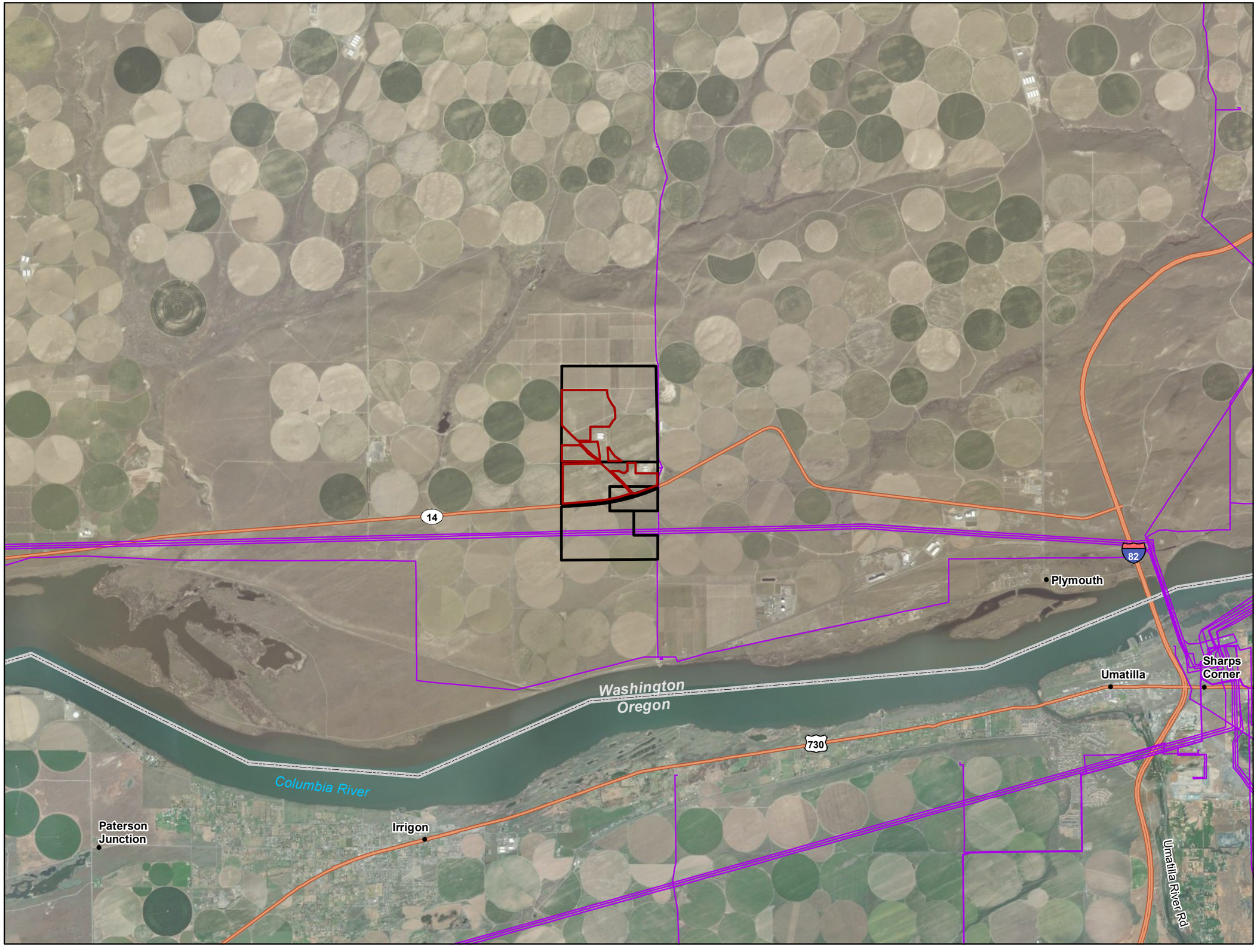
FIGURES

Wallula Gap Solar

Figure 1
Facility Location

Benton County, WA



- Facility Parcels
- Facility Area
- State Boundary
- Highway
- Existing Transmission Line

N

0 0.5 1 2

Miles

NOT FOR CONSTRUCTION

Wallula Gap Solar

Figure 2
Habitat Types within the Facility Area

Benton County, WA

Facility Area

Habitat

- Pasture
- Shrub-steppe
- Mixed Environs
- Wetland

N

0 250 500 1,000

Feet

NOT FOR CONSTRUCTION

Wallula Gap Solar

Figure 3
Habitat Types and Facility Impacts

Benton County, WA

Facility Area

Habitat
- Pasture
- Shrub-steppe
- Mixed Environs
- Wetland

Facility Impacts

Permanent Impacts
- Access Road
- Inverter Station
- Project Substation
- BESS
- O&M Building
- Interconnection Area

Temporary Impacts
- Underground Gen-Tie

Altered Area
- Overhead Gen-Tie
- Solar Array
- Security Fence
- Staging Area

N

0 250 500 1,000

Feet

NOT FOR CONSTRUCTION