

# Exhibit P

## Fish and Wildlife Habitats and Species

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**Wagon Trail Solar Project  
January 2022**

**Prepared for**



**Prepared by**



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## **List of Attachments**

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Attachment P-3. Draft Habitat Mitigation Plan

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Attachment P-5. Draft Noxious Weed Control Plan

## Acronyms and Abbreviations

Applicant	Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC
Facility	Wagon Trail Solar Project
OAR	Oregon Administrative Rules
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
WAGS	Washington ground squirrel
WMMP	Wildlife Monitoring and Mitigation Plan
WREF I	Wheatridge Wind Energy Facility I
WREF II	Wheatridge Wind Energy Facility II
WREF III	Wheatridge Wind Energy Facility III

## 1.0 Introduction

Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC (Applicant) proposes to construct and operate the Wagon Trail Solar Project (Facility), a solar energy generation facility and related or supporting facilities in Morrow County, Oregon. This Exhibit P provides information about the fish and wildlife habitats and species that could be affected by the Facility, other than the species addressed in Exhibit Q.

## 2.0 Analysis Area

In accordance with Oregon Administrative Rules (OAR) 345-001-0010(59)(c) and as defined in the Project Order, the analysis area for fish and wildlife habitat and associated species is “the area within and extending 0.5 mile from the site boundary” (Figure P-1; ODOE 2021).

## 3.0 Agency Consultation

The Applicant filed a Notice of Intent to apply for Site Certificate with the Oregon Energy Facility Siting Council on June 11, 2021. The Oregon Department of Fish and Wildlife (ODFW) provided the following comments on the Notice of Intent (ODFW 2021a):

- “ODFW recommends the application include a map that shows the different vegetation classifications for the project area. The map should also include the habitat classified into habitat categories based on ODFW’s Mitigation policy. Mapped vegetation classes will assist ODOE [Oregon Department of Energy], ODFW, and the Applicant identify areas of potential wildlife occurrence across the project area.”
- “ODFW recommends Washington ground squirrel [*Uroditellus washingtoni*; WAGS] surveys are completed in suitable habitat within 1,000 feet of all ground disturbing activities. These surveys will assist ODOE, ODFW and the Applicant identify occupied WAGs habitats and work together to avoid any impacts to WAGs in the project area.”
- “ODFW recommends raptor nest surveys are completed within a quarter mile radius of the project area prior to construction. ODFW also recommends that no construction occur within one-quarter mile of active raptor nests during the nesting season.”
- “ODFW recommends the Applicant surveys for any State Sensitive Species (burrowing owls, loggerhead shrikes, long billed curlews, white-tailed jack rabbits, grasshopper sparrows, and sage sparrows) in appropriate habitats within the project area, and provide a map showing the locations of the different species with respect to the proposed activities.”

- “ODFW recommends the application clearly detail a post construction monitoring plan for the Facility which includes: 1) monitoring of all known raptor nest sites in the project area for the life of the Facility; 2) post construction fatality monitoring; and 3) monitoring of all known WAGS colonies in the project area for the life of the Facility.”
- “ODFW recommends that the application include a mitigation package which addresses the loss of habitat as a result of the construction of the proposed Facility, operation of the Facility, and any other loss of function due to maintenance of facilities. ODFW recommends the mitigation package include mitigation for both short- and long-term impacts. ODFW recommends consideration of acquisition through fee title and/or a conservation easement of proposed mitigation site to protect habitat to compensate for the habitat that is altered or degraded by the proposed Facility. ODFW recommends that the conservation easement include provisions for monitoring as well as management activities including habitat improvement and potential wildlife surveys and/or research activities.”
- “ODFW recommends the Applicant include a vegetation plan as part of the application. The plan should outline how the areas that are temporarily disturbed will be rehabilitated and returned to their pre-construction functionality.”

## **4.0 Description of Biological and Botanical Surveys Performed**

*OAR 345-021-0010(1)(p) Information about the fish and wildlife habitat and the fish and wildlife species, other than the species addressed in subsection (q) that could be affected by the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0060. The applicant shall include:*

*(A) A description of biological and botanical surveys performed that support the information in this exhibit, including a discussion of the timing and scope of each survey.*

### **4.1 Information Review**

Prior to conducting surveys in 2019, 2020, and 2021, the Applicant conducted desktop reviews to identify special-status fish and wildlife species with the potential to occur in the analysis area. Information reviewed included federal and state endangered, threatened, proposed, and candidate species; species of concern; birds of conservation concern; and sensitive and sensitive-critical species (OCS 2016, ODFW 2021b, ODFW 2021c, ORBIC 2019, USFWS 2008, USFWS 2020a, USFWS 2020b). The Applicant also conducted desktop reviews to identify federal and state endangered, threatened, proposed, and candidate plant species with the potential to occur within the analysis area based on known occurrences recorded by herbaria and other sources (Burke Museum 2020, ODA 2020, ORBIC 2019, OFP 2019, OFP 2011, USFWS 2020c, WDNR 2020, Wheatridge 2015, Wheatridge 2019).

The Applicant reviewed habitat and range information for special-status fish, wildlife, and plant species known to occur in Morrow County and the Columbia Plateau to develop the list of special-

status species that had the potential to occur within the analysis area. Species were eliminated from consideration if their habitat was absent from the analysis area, or their range did not overlap with the analysis area. The Applicant also reviewed special-status species information recorded during surveys at the adjacent Wheatridge Renewable Energy Facilities I, II, and III (WREF I, WREF II, and WREF III respectively; Wheatridge 2015, 2019).

In addition to reviewing publicly available sources, the Applicant submitted a request to the Oregon Biodiversity Information Center (ORBIC) to obtain site-specific records of special-status species occurrences and sensitive habitats within 10 miles of the Facility (ORBIC 2020). The Applicant also reviewed aerial photographs, National Wetlands Inventory data, the National Hydrography Dataset, and big game winter range spatial data to preliminarily identify ODFW habitats within the analysis area (ODFW 2013, USFWS 2018, USGS 2018). The Applicant also reviewed ODFW habitats mapped during surveys for the adjacent WREF I, WREF II, and WREF III; the extent of these surveys partially overlapped with the Facility's location (Wheatridge 2015, 2019).

## 4.2 Field Surveys

The parent company of the Applicant has conducted biological and botanical surveys in the vicinity of the Facility since 2011. Exhibit P of the Request for Amendment #4 for the Wheatridge Wind Energy Facility provides a summary of field surveys conducted from 2011-2018 (Wheatridge 2019). Only field surveys conducted during 2019, 2020, and 2021 within the analysis area for the Facility proposed in this Application for Site Certificate are detailed in this exhibit (Table P-1).

**Table P-1. Summary of Field Surveys Conducted within the Analysis Area in 2019-2021**

Year	Survey	Reference	Extent
2021	Wildlife habitat mapping and categorization surveys	Section 4.2.1	Wagon Trail Solar 2021 Habitat Survey Area
2020	Wildlife habitat mapping and categorization surveys	Attachment P-1	Wagon Trail Solar 2020 Habitat Survey Area
2020	Wildlife habitat mapping and categorization surveys	Tetra Tech 2021a	WREF III site boundary
2019	Wildlife habitat mapping and categorization surveys	Tetra Tech 2020a	WREF I & WREF II Micrositing Corridor
2021	Special status wildlife species surveys	Attachment P-1, Attachment Q-1	Wagon Trail Solar 2021 Habitat Survey Area + 2021 WAGS Survey Area
2020	Special status wildlife species surveys	Tetra Tech 2021a	WREF III site boundary
2020	Special status wildlife species surveys	Attachment P-1, Attachment Q-1	Wagon Trail Solar 2020 Habitat Survey Area + 2020 WAGS Survey Area
2020	Raptor nest surveys	Tetra Tech 2021b	WREF III site boundary + 0.5-mile buffer
2020	Raptor nest monitoring	Tetra Tech 2020b	WREF I & WREF II site boundaries + 0.25-mile buffer
2019	Raptor nest surveys	Gerhard and Kronner 2019	WREF I & WREF II Micrositing Corridor + 2-mile buffer

Survey methods for the 2019 surveys conducted at WREF I and WREF II are described in detail in reports submitted to the ODOE for pre-construction compliance (Gerhard and Kronner 2019, Tetra Tech 2020b). Raptor nest monitoring conducted during construction are detailed in a June 2020 memo submitted to the ODOE and the ODFW (Tetra Tech 2020a). Methods for 2020 surveys conducted at the adjacent WREF III are also described in detail in reports submitted to the ODOE for pre-construction compliance (Tetra Tech 2021a, 2021b). Methods for the 2020 surveys conducted at the Facility can be found in the survey report in Attachment P-1. Wildlife habitat mapping and categorization surveys and special status species surveys conducted in 2020 occurred within a preliminary site boundary to which areas were added after field surveys were completed (Tetra Tech 2021a). These additional areas were surveyed in May 2021 with the same methods as the surveys performed in 2020. Surveys conducted for state threatened and endangered wildlife and plant species are described in Exhibit Q.

#### ***4.2.1 Wildlife Habitat Mapping and Categorization Surveys***

Prior to conducting field surveys, Tetra Tech mapped preliminary habitat polygons using aerial photography, previous habitat assessments, and United States Department of Agriculture CropScape Cropland Geographic Information System data to identify the range of habitat types within the analysis area (ODFW 2013; USDA-NASS 2020; Wheatridge 2015, 2019). Additions were made to the preliminary site boundary following these surveys. Field-based habitat surveys were conducted in portions of the site boundary during pre-construction compliance surveys performed by the Applicant's parent company at the adjacent Wheatridge Renewable Energy Facilities I, II, and III in 2019 and 2020 (Figure P-2). Areas added incrementally to the site boundary were field surveyed during 2020 and 2021 with the exception of an approximately 107-acre area in the far southeast portion of the site boundary which was desktop delineated. Tetra Tech conducted wildlife habitat mapping surveys within a preliminary site boundary from May 12-13, 2020 and from May 25 to 28, 2020, concurrent with special status wildlife and WAGS surveys (Attachment P-1, Attachment Q-1; Tetra Tech 2021a). Habitat mapping was completed in late May 2021 within areas added to the site boundary following 2020 surveys, following the same methods described in Attachment P-1. The remainder of the analysis area was desktop delineated using the methodology implemented prior to conducting surveys.

#### ***4.2.2 Special Status Wildlife Species Surveys***

Special status wildlife surveys targeted species that had the potential to occur in the survey areas (Attachment P-1, Attachment Q-1; Tetra Tech 2021a). Potential occurrence was determined as described in Section 4.1.

Special status species surveys were conducted concurrent with WAGS surveys during April and May of 2019, and concurrent with WAGS and habitat categorization surveys in March, April, and May of 2020 and 2021. Spring surveys coincide with the period of highest biological activity of neotropical migrant and breeding birds, foraging and breeding animal species, and other taxa. Surveys recorded all wildlife and wildlife sign observed during the surveys, as well as those

observed incidentally during these survey periods. Surveyors recorded the location of special status wildlife species (or recognizable sign), and recorded information on the number of individuals and their behavior. Wildlife were noted outside the site boundary and within the analysis area when these areas were traversed (where accessible) for the purposes of documenting wildlife and habitat resources (i.e., WAGS and raptor nests).

The extent of surveys conducted from 2019-2021 are summarized in Table P-1 and are shown in Figure P-2 and Figure Q-2. Documented occurrences of each species reported from 2019-2021 are summarized in Section 6.1.

#### **4.2.3 Raptor Nest Surveys**

Raptor nest surveys were performed by the parent company of the Applicant in 2019 within 2 miles of the adjacent WREF I and WREF II facilities (Figure P-3; Gerhard and Kronner 2019). In 2020, construction monitoring at WREF I and WREF II included special status species raptor nest monitoring within 0.25 miles of construction activities, spanning the entire breeding season for these species (March 15 – August 15; Tetra Tech 2020b). An additional raptor nest survey was performed by the parent company of the Applicant within 0.5 miles of the adjacent WREF III in 2020 for preconstruction compliance (Tetra Tech 2021b). Surveys conducted prior to 2019 at WREF I, WREF II, and WREF III are addressed in detail in the Application for Site Certificate (Wheatridge 2015) and the Request for Amendment 4 (Wheatridge 2019) for those projects.

## **5.0 Identification and Description of Habitat**

*OAR 345-021-0010(1)(p)(B) Identification of all fish and wildlife habitat in the analysis area, classified by the general fish and wildlife habitat categories as set forth in OAR 635-415-0025 and the sage-grouse specific habitats described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through -0025 (core, low density, and general habitats), and a description of the characteristics and condition of that habitat in the analysis area, including a table of the areas of permanent disturbance and temporary disturbance (in acres) in each habitat category and subtype.*

*OAR 345-021-0010(1)(p)(C) A map showing the locations of the habitat identified in (B).*

### **5.1 Description of Habitat Types and Categories within the Analysis Area**

The ODFW Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0015) provides a framework for assigning one of six categories to habitats based on the relative importance of these habitats to fish and wildlife species. The definition of each habitat category is shown in Table P-2.



**Table P-2. ODFW Habitat Categorization**

<b>ODFW Habitat Category</b>	<b>Definition</b>
1	Irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population or unique assemblage.
2	Essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage.
3	Essential habitat for fish and wildlife, or important habitat for fish and wildlife that is limited either on a physiographic province or site-specific basis, depending on the individual species or population.
4	Important habitat for fish and wildlife species.
5	Habitat for fish and wildlife having high potential to become either essential or important habitat.
6	Habitat that has low potential to become essential or important habitat for fish and wildlife.
Source: OAR 635-415-0025.	

Table P-3 describes habitat categories and types found within the analysis area, including the vegetation and other characteristics of each habitat type and category. Habitat was delineated consistent with methods employed at the adjacent WREF I, WREF II, and WREF III (Wheatridge 2015, 2019). During field surveys, the Applicant identified habitat that met the definitions for Category 3, 4, 5, and 6 habitats (Wheatridge 2015, 2019; Attachment P-1). Suitable WAGS habitat within 785 feet of active WAGS colonies was mapped as Category 1 habitat, and suitable habitat within 4,136 feet of WAGS Category 1 habitat as Category 2 habitat. The analysis area does not overlap with ODFW-designated Mule Deer Winter Range (ODFW 2013).

Table P-3. Habitat Types, Subtypes, and Categories within the Analysis Area

Habitat Type	Habitat Subtype	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6
The First Row is an Overlay That Automatically Assigns Categories, Based on Species Presence, to One or More of the Habitat Types Described Below							
Active WAGS Colony Overlay applies to subtypes Native Grassland, Shrub-steppe and select Revegetated or Other Planted Grasslands		Active Washington ground squirrel colony with a 785-foot buffer in suitable habitat.	Additional 4,136 foot (total of 1.5km) buffer on WAGS Category 1 habitat except where there are habitat barriers to dispersal.				
Open Water – Lakes, Rivers, Streams	Permanent Ponds/Lakes Open water areas, including natural lakes, reservoirs, stock ponds, beaver ponds	Natural lakes or beaver ponds with high-quality habitat.	Most other open water areas with lower-quality habitat (for example, some habitat requisites missing or bullfrogs abundant).	Highly degraded open water area, dominated by non-native vegetation or no vegetation around margins (for example, highly degraded stock pond).	N/A	Natural lakes or beaver ponds with high-quality habitat.	N/A
	Seasonal Ponds Open water areas that contain water part of the year	Seasonal ponds with high quality, mostly native vegetation.	Seasonal ponds with lower-quality habitat that is still dominated by native plant species.	Highly degraded, with a higher proportion of non-native vegetation or no vegetation around margins (for example, a seasonal stock pond).	Habitat almost completely dominated by non-native plant species or otherwise highly degraded.	Seasonal ponds with high quality, mostly native vegetation.	
	Perennial Streams mapped by the U.S. Geological Survey having permanent (year-round) flow	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	Fish-bearing natural stream channels that do not support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provide marginal spawning (gravel present in pockets/30% embedded) and/or rearing habitat; or non-fish-bearing natural stream channels which drain into fish-bearing streams based on StreamNet data.	Non-fish-bearing natural stream channels that do not directly drain into fish-bearing streams.	N/A	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	N/A
	Intermittent or Ephemeral Streams mapped by the U.S. Geological Survey as intermittent	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	Fish-bearing natural stream channels that do not support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provide marginal spawning (gravel present in pockets/30% embedded) and/or rearing habitat; or non-fish-bearing natural stream channels which drain into fish-bearing streams based on StreamNet data.	Non-fish-bearing natural stream channels that do not directly drain into fish-bearing streams.	Non-fish-bearing ephemeral streams or excavated channels with high restoration potential; not important habitat.	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	N/A

Habitat Type	Habitat Subtype	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6
Grassland	Exotic Annual Grassland	N/A	N/A	N/A	Non-native grasslands with a very high weed component and disturbed or less nutrient-rich soils. The forb component is composed primarily of non-native weeds, such as cheatgrass, bulbous bluegrass, cereal rye, tumble-mustard, and Russian thistle, with occasional patches of native bunchgrass, primarily Sandberg bluegrass. The high weed content is primarily due to past fires, which burned native shrubs and bunchgrasses and were followed by heavy grazing and/or wind erosion.	N/A	N/A
	Native Grassland	N/A	N/A	Dominated by native perennial grasses such as Sandberg bluegrass, bluebunch wheatgrass, Idaho fescue, western needlegrass, and needle-and-thread grass. Various native forbs and low shrubs such as gray rabbitbrush and, to a lesser extent, green rabbitbrush are present but are an inconspicuous component. Native vascular plants are diverse, and a variety of invertebrates can be found utilizing the plants throughout the growing season. These habitats have been altered through land use or wildfires, and generally contain a significant component of non-native vegetation (broad-leaf weeds and annual grasses). Category 3 Native Perennial Grasslands generally occur on sites with shallow soils and harsh exposures, or in areas that have experienced livestock grazing or frequent fires. Provide essential foraging habitat to a variety of common resident and migratory birds and common mammals.	Category 4 Native Perennial Grassland is ecologically similar to Category 3 Native Perennial Grassland but is classified as Category 4 because its small size and isolated nature limit its value to wildlife.	N/A	N/A

Habitat Type	Habitat Subtype	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6
Shrub-steppe	Basin Big Sagebrush Shrub-steppe	N/A	Shrub-steppe habitat with an overstory of mature (large structure) patches of basin big sagebrush. Understory plants consist of a mix of native bunchgrasses and exotic annual grasses depending largely on level of impact from disturbance. Common grasses are Sandberg bluegrass, bluebunch wheatgrass, cheatgrass, and bulbous bluegrass. Category 2 Basin Big Sagebrush Shrub-steppe has a higher shrub density and greater plant health than similar but lesser quality Category 3 Basin Big Sagebrush Shrub-steppe habitat. Category 2 Basin Big Sagebrush Shrub-steppe offers high quality breeding habitat for shrub obligate species including loggerhead shrike and may support Washington ground squirrel. Sagebrush lizard may be found in areas where more sandy soils are present.	Patches of Category 3 Basin Big Sagebrush Shrub-steppe lack the density and plant health of Category 2 Basin Big Sagebrush Shrub-steppe or are in patches of limited size. The overstory sagebrush in this type is often decadent or lacks full foliage. Understory vegetation in Category 3 Basin Big Sagebrush Shrub-steppe often tends toward annual grasses and low weeds. These areas were historically higher quality habitats but are experiencing degradation due to land use practices or frequent fires. However, the mature shrub cover provides escape and resting cover for common wildlife and is limited in the immediate area and the region.	N/A	N/A	N/A
	Rabbitbrush/ Snakeweed Shrub-steppe	N/A	N/A	Have been affected by recent fires and are in a relatively early seral stage. Native rabbitbrush and other low-stature plants such as broom snakeweed and various buckwheat species are common. The understory is native Sandberg bluegrass, non-native cheatgrass, bulbous bluegrass, and tumblemustard. Patches of native perennial grasses, such as bluebunch wheatgrass and needle-and-thread grass, are present. Many of these sites contain small patches of sagebrush that are less than one acre (0.4 ha) in size.	Has the same plant species but differs in composition from Category 3 Rabbitbrush/Snakeweed Shrub-steppe in that it has a greater weed and annual grass component than Category 3 Rabbitbrush/Snakeweed Shrub-steppe. While aspect and soils may contribute somewhat to this, disturbances such as livestock grazing and fires likely have a far greater effect.	N/A	N/A
Developed	Revegetated or Other Planted Grasslands	N/A	N/A	Planted grasslands on previously farmed or other disturbed lands that may be enrolled in the Conservation Reserve Program. This habitat subtype is comprised mainly of native or native-like grasses. Native vegetation in Category 3 Revegetated or Other Planted Grasslands may be sparse and not well-developed and may have a significant component of annual grasses and weeds.	N/A	N/A	N/A
	Dryland Wheat	N/A	N/A	N/A	N/A	N/A	Agricultural fields that are currently in small grain production or fallow.

Habitat Type	Habitat Subtype	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6
Developed (continued)	Irrigated Agriculture	N/A	N/A	N/A	N/A	N/A	Agricultural fields that are irrigated.
	Other	N/A	N/A	N/A	N/A	N/A	Includes farming/ranching home and shop sites, corrals, structures, feedlots, active and inactive gravel quarries, non-irrigated pastures, graveled and paved roads, rights-of-way, and waste areas associated with on-going human activities.
Sources: StreamNet 2012							

## 5.2 Quantity of Habitat Types and Categories within the Analysis Area

Table P-4 shows the acreages within the analysis area and site boundary of each habitat type and assigned habitat category. The location of each habitat type and category within the analysis area are shown on Figures P-5 and P-6, as directed by OAR 345-021-0010(1)(p)(C). Presence of a particular habitat category within the site boundary does not indicate that this habitat will necessarily be impacted by the Facility. A table of the areas of permanent disturbance and temporary disturbance (in acres) in each habitat category and habitat type are presented in Section 8 with the discussion on potential impacts to fish and wildlife habitat.

**Table P-4. Habitat Acres within the Site Boundary and the Analysis Area**

ODFW Habitat Category	Habitat Type	Acres within Analysis Area <sup>1</sup>	Acres within Site Boundary <sup>1</sup>
1	Grassland-Exotic Annual	13.5	0.0
	Grassland-Native Perennial	29.7	0.0
	Shrub-steppe-Rabbitbrush/Snakeweed	17.6	0.0
<b>Category 1 Total</b>		<b>60.8</b>	<b>0.0</b>
2	Grassland-Exotic Annual	54.0	1.0
	Grassland-Native Perennial	81.4	16.3
	Shrub-steppe-Rabbitbrush/Snakeweed	64.7	0.9
	Shrub-steppe-Basin Big Sagebrush	0.5	0.3
<b>Category 2 Total</b>		<b>200.6</b>	<b>18.4</b>
3	Grassland-Native Perennial	1,344.6	223.5
	Developed-Revegetated or Other Planted Grassland	950.8	119.4
	Shrub-steppe-Basin Big Sagebrush	447.6	104.5
	Shrub-steppe-Rabbitbrush/Snakeweed	314.2	42.1
<b>Category 3 Total</b>		<b>3,057.2</b>	<b>489.5</b>
4	Grassland-Exotic Annual	1,381.5	188.4
	Shrub-steppe-Rabbitbrush/Snakeweed	50.4	41.3
<b>Category 4 Total</b>		<b>1,431.9</b>	<b>229.7</b>
5	Open Water-Ephemeral Stream	4.5	4.5
<b>Category 5 Total</b>		<b>4.5</b>	<b>4.5</b>
6	Developed-Dryland Wheat	14,586.1	6,609.5
	Developed-Irrigated Agriculture	240.0	0.0
	Developed-Other	262.4	88.5
<b>Category 6 Total</b>		<b>15,088.5</b>	<b>6,698.0</b>
<b>Grand Total</b>		<b>19,843.4</b>	<b>7,449.5</b>

## 6.0 Identification of State Sensitive Species and Site-Specific ODFW Issues

*OAR 345-021-0010(1)(p)(D) Based on consultation with the Oregon Department of Fish and Wildlife (ODFW) and appropriate field study and literature review, identification of all State Sensitive Species that might be present in the analysis area and a discussion of any site-specific issues of concern to ODFW.*

### 6.1 Identification of State Sensitive Species

Based on the desktop analysis and extensive field surveys conducted in the analysis area (described in Section 4) and adjacent facilities, 15 state sensitive species and 2 eagle species have potential to occur in the analysis area (Table P-5)—5 are sensitive-critical species and 10 are sensitive species in the Columbia Plateau Ecoregion (Table P-5). State endangered, threatened, and candidate species are also addressed in Exhibit Q. Of these 15 species, 4 were observed during field surveys from 2019-2021: the Brewer's sparrow (*Spizella breweri*), grasshopper sparrow (*Ammodramus savannarum*), long-billed curlew (*Numenius americanus*), and Swainson's hawk (*Buteo swainsoni*). While not state sensitive species, bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are addressed briefly in this document as a species of concern protected under the Bald and Golden Eagle Protection Act. A total of 4.5 acres of Ephemeral Stream habitat was identified within the analysis area. Fish and other species that require aquatic habitat such as ponds and perennial streams (e.g., turtles) were determined not to have potential to occur based on the absence of wetlands and waters in the analysis area, and thus are not discussed further in this exhibit.

Table P-5. State Sensitive Species with Known or Potential Occurrence within the Analysis Area

Common name	Scientific name	ODFW Status in Columbia Plateau <sup>1</sup>	Expected Habitat	Known or Potential Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
Mammals					
Hoary bat	<i>Lasiurus cinereus</i>	S	Found in forested upland habitats, including junipers. Roosts in the foliage of trees; late-successional forest habitat. Long-distance migrant.	Documented during: Bat Species Investigation (Wheatridge 2015)	Probable transient during migration periods.
Pallid bat	<i>Antrozous pallidis</i>	S	Caves/karst, cliffs, desert scrub, grassland, and shrubland. Also roosts on bridges. Non-migratory.	Unlikely due to lack of habitat.	Limited potential foraging habitat available.
Silver-haired bat	<i>Lasionycteris noctivagans</i>	S	Associated with older Douglas-fir/western hemlock and ponderosa pine forests as well as juniper woodland habitat near streams, ponds and lakes. Tree-roosting (primarily in cavities), under loose bark, caves, mines and in abandoned buildings. Long-distance migrant. late-successional forest habitat.	Documented during: Bat Species Investigation (Wheatridge 2015)	Limited foraging habitat available. Probable transient during migration periods.
Spotted bat	<i>Euderma maculatum</i>	S	Uses crevices in cliffs, caves and canyon walls for day and nights roosts. Will also roost in trees at night and typically forage in meadows, shrub-steppe, or water sources. Regional migrant.	Low Potential due to lack of habitat.	Limited foraging habitat available. Potential transient.
Townsend’s big-eared bat	<i>Corynorhinus townsendii</i>	SC	Found in natural caves, mines, and buildings in the summer, occasionally trees. Hibernates October to April in caves and mines. Regional migrant.	Low potential due to lack of habitat.	Limited foraging habitat available. Potential transient.
Birds					
Bald eagle	<i>Haliaeetus leucocephalus</i>	None <sup>2</sup>	Nests in forested areas adjacent to large bodies of water. Nests in trees, rarely on cliff faces and ground nests in treeless areas. Known to scavenge opportunistically on carcasses in otherwise unsuitable habitat particularly during migration.	Documented during: Avian Point Counts (Wheatridge 2015)	Potential scavenging and foraging habitat.
Brewer’s sparrow	<i>Spizella breweri</i>	S	Sagebrush shrubland, generally with a canopy height of more than five feet. Often associated with big sagebrush. Nest in thick crowns or low in brush, or in clumps of grass.	Documented during: Avian Point Counts, Special Status Wildlife Surveys (Wheatridge 2015); Special Status Species Surveys (Tetra Tech 2021a)	Limited sagebrush habitat available.
Burrowing owl (Western)	<i>Athene cunicularia hypugaea</i>	SC	Open, treeless landscapes with available burrows excavated by other species.	Documented during: Avian Point Counts, Raptor Nest Surveys, Special Status Wildlife Surveys (Wheatridge 2015)	Limited nesting and foraging habitat available.
Common nighthawk	<i>Chordeiles minor</i>	S	Nests and roosts on gravel or sparsely vegetated grasslands. Forages for insects in all habitats, including sagebrush and rock scablands of eastern Oregon as well as urban and developed environments.	Documented during: Avian Point Counts (Wheatridge 2015)	Limited nesting and foraging habitat available.
Ferruginous hawk	<i>Buteo regalis</i>	SC	Open, grassy areas and shrub-steppe with scattered shrubs or trees for perching and nesting. Can nest in juniper or cottonwood trees near small streams, on rocky sites with an expansive view, on rimrock, or on undisturbed ground.	Documented during: Avian Point Counts, Raptor Nest Surveys, Special Status Wildlife Surveys (Wheatridge 2015); Special Status Wildlife Surveys (Wheatridge 2019); Raptor Nest Surveys (Gerhard and Kronner 2019)	Nesting and foraging habitat available.



Common name	Scientific name	ODFW Status in Columbia Plateau <sup>1</sup>	Expected Habitat	Known or Potential Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
Golden eagle	<i>Aquila chrysaetos</i>	None <sup>2</sup>	Usually nests on cliffs but also can nest in trees. Breeds in open and semi-open habitats at a variety of elevations, in tundra, shrublands, grasslands, woodland-brushlands, and coniferous forests, farmland and riparian areas. Typically forages in open habitats like grasslands, areas with steppe-like vegetation.	Documented during: Avian Point Counts, Eagle Nest Survey and Monitoring (Wheatridge 2015)	Potential foraging habitat.
Grasshopper sparrow	<i>Ammodramus savannarum</i>	S	Large areas of dry grassland habitat with low to moderate height and low shrub cover.	Documented during: Avian Point Counts, Special Status Wildlife Surveys (Wheatridge 2015); Special Status Wildlife Surveys (Wheatridge 2019); Special Status Species Surveys (Tetra Tech 2021a)	Breeding and foraging habitat available.
Loggerhead shrike	<i>Lanius ludovicianus</i>	S	Tall sagebrush, with open grassy areas and bare ground for foraging. Often nest near isolated trees or large shrubs.	Documented during: Avian Point Counts, Special Status Wildlife Surveys (Wheatridge 2015); Special Status Wildlife Surveys (Wheatridge 2019)	Limited breeding and foraging habitat available.
Long-billed curlew	<i>Numenius americanus</i>	SC	Open habitat, short- grass or mixed prairie, limited woody vegetation. Dryland wheat areas are also sometimes used as nesting and foraging habitat.	Documented during: Avian Point Counts, Special Status Wildlife Surveys (Wheatridge 2015); Special Status Wildlife Surveys (Wheatridge 2019); Special Status Species Surveys (Tetra Tech 2021a)	Breeding and foraging habitat available.
Sagebrush sparrow	<i>Artemisiospiza nevadensis</i>	SC	Shrub-steppe with high shrub cover, particularly big sagebrush.	Low potential due to limited habitat.	Limited sagebrush habitat available.
Swainson’s hawk	<i>Buteo swainsoni</i>	S	Open country grassland habitat with scattered trees and shrubs for nesting.	Documented during: Avian Point Counts, Raptor Nest Surveys (Wheatridge 2015); Special Status Wildlife Surveys (Wheatridge 2019); Raptor Nest Surveys (Gerhard and Kronner 2019); Raptor Nest Monitoring (Tetra Tech 2020b); Special Status Species Surveys (Tetra Tech 2021a); Raptor Nest Survey (Tetra Tech 2021b)	Nesting and foraging habitat available.
Reptiles					
Northern sagebrush lizard	<i>Sceloporus graciosus</i>	S	Shrub-steppe with sandy soils, sparse grasses and forbs.	Low potential due to limited habitat.	Limited sagebrush habitat available.
Species and status: BCI 2020; Csuti et al. 2001; Gerhard and Kronner 2019; Marshall et al. 2006; OCS 2016; ODFW 2021a; ORBIC 2019, 2020; Tetra Tech 2020a, 2021a; Western Bat Working Group 2020; Wheatridge 2015, 2019. 1. ODFW Status: S = State Sensitive; SC = State Sensitive—Critical 2. Protected by the Bald and Golden Eagle Protection Act.					

## 7.0 Baseline Survey of Habitat Use by State Sensitive Species – OAR 345-021-0010(1)(p)(E)

*OAR 345-021-0010(1)(p)(E) A baseline survey of the use of habitat in the analysis area by species identified in (D) performed according to a protocol approved by the Department and ODFW.*

### 7.1 Wildlife Surveys

State sensitive species observed during wildlife habitat mapping and categorization surveys, raptor nest surveys, and sensitive wildlife species surveys from 2019-2021 (detailed in Table P-1) are shown on Figure P-4 and described in Table P-6, below.

**Table P-6. Special-Status Wildlife Species Observed During Surveys (2019-2021)**

Species	ODFW Status <sup>1</sup>	Individual Observations Within Analysis Area <sup>2</sup>	Habitat Subtypes Where Observed
Brewer's sparrow <i>Spizella breweri</i>	S	1	Revegetated or Other Planted Grassland (1)
grasshopper sparrow <i>Ammodramus</i> <i>savannarum</i>	S	23	Exotic Annual Grassland (10), Native Perennial Grassland (6), Rabbitbrush/Snakeweed (5), Revegetated or Other Planted Grassland (2)
Swainson's hawk <i>Buteo swainsoni</i>	S	6	Developed/Other (3), Basin Big Sagebrush (3)
long-billed curlew <i>Numenius americanus</i>	SC	2	Exotic Annual Grassland (1), Native Perennial Grassland (1)
1. SC = Sensitive-Critical Species, S = Sensitive Species			
2. The number of observations shown tallies multiple individuals per location in some instances.			

The probability of detection of individual species is dependent on many factors including activity patterns of the species, timing of surveys, amount of time surveyors were present in a particular area, and detectability of the species. The number of observations for each species shown in Table P-6 should not be interpreted as a measure of the number of individuals present within the analysis area. It is the number of independent observations of a species, with multiple individuals tallied when observed together. Independent observations could represent repeated observations of the same individual at different times.

### 7.2 Raptor Nest Surveys

A total of four sensitive species raptor nests were identified within the analysis area during surveys (Figure P-4). All four nests were occupied by Swainson's hawks; two occur within the site

boundary. Both nests which occur within the site boundary are located in broadleaf trees at private residences. One of these was surveyed in both 2019 and in 2020 and was occupied by Swainson's hawk in both survey years (Strawberry Lane and Bombing Range Road). The second nest was visited in 2019 only (Route 207). Outside the site boundary, the nest at Bombing Range Road and Grieb Lane is also in a broadleaf tree at a residence; the nest in the northwest portion of the analysis area is situated in a juniper tree.

## **8.0 Description of Potential Adverse Impacts**

*OAR 345-021-0010(1)(p)(F) A description of the nature, extent and duration of potential adverse impacts on the habitat identified in (B) and species identified in (D) that could result from construction, operation and retirement of the proposed facility.*

This section describes potential impacts to habitat and state sensitive species that are known to occur or have the potential to occur within the analysis area. Permanent impacts to fish and wildlife habitat are discussed as well as disturbance impacts to mammals, birds, and reptiles. As described in detail in Exhibit B, the Applicant proposes to construct the Facility in phases over several years. The impact analysis presented in this exhibit represents a fully built-out scenario, but takes into consideration a phased construction schedule.

### **8.1 Potential Impacts to Fish and Wildlife Habitat**

Both permanent and temporary impacts to fish and wildlife habitat will occur during the construction and operation of the Facility. Due to the multi-year construction schedule of the Facility, both permanent and temporary impacts to fish and wildlife habitat will occur in phases over this time period. Permanent impact areas are those that would be converted from the existing condition to a different condition for the life of the Facility. Direct impacts to habitat include permanent loss of some specific habitat types; indirect impacts may include increased potential for the invasion of noxious weeds, particularly along fence lines and roads. These habitats are identified and described in Section 5.0, and Table P-7 provides the number of acres that will be permanently and temporarily impacted by the Facility, organized by habitat category and subtype. For purposes of analysis, the Applicant considered a solar array that will occupy approximately 3,641 acres within 16 fenced areas within the proposed site boundary. This entire area is considered permanently disturbed; all temporary disturbance areas are outside the fenced solar array. The specific extent of each component's temporary impact is detailed in Exhibit C and is described in terms of a total, worst-case scenario impact for the full duration of phased construction.

**Table P-7. Impacts by Habitat Category and Type**

ODFW Habitat Category	Habitat Subtype	Permanent	Temporary
2	Shrub-steppe-Rabbitbrush/Snakeweed	<0.1	<0.1
<b>Total</b>		<b>&lt;0.1</b>	<b>&lt;0.1</b>
3	Developed-Revegetated or Other Planted Grassland	0.0	0.2
	Grassland-Native Perennial	7.0	2.0
	Shrub-steppe-Rabbitbrush/Snakeweed	0.0	4.3
<b>Total</b>		<b>7.0</b>	<b>6.5</b>
4	Grassland-Exotic Annual	0.0	0.1
	Shrub-steppe-Rabbitbrush/Snakeweed	0.0	0.25
<b>Total</b>		<b>0.0</b>	<b>0.35</b>
5	Wetlands/Waters-Ephemeral Stream	0.0	<0.1
<b>Total</b>		<b>0.0</b>	<b>&lt;0.1</b>
6	Developed-Dryland Wheat	3,653.9	158.2
	Developed-Other	11.1	2.5
<b>Total</b>		<b>3,667.9</b>	<b>160.7</b>
<b>Grand Total</b>		<b>3,684.9</b>	<b>167.5</b>
Totals in this table may not sum due to rounding.			

Restoration of the temporary impact areas will occur following construction phases, as described in the Draft Reclamation and Revegetation Plan (Attachment P-4). The Applicant has and will continue to minimize or avoid impacts to high-quality habitat through the microsite considerations described in Section 9.1 and will mitigate for impacts that cannot be avoided as described in the Draft Habitat Mitigation Plan (Attachment P-3). Impacts to state sensitive species are described in Section 8.2. Impacts by habitat category are described below.

### **8.1.1 Category 1 Habitat**

The Applicant has microsituated facilities to avoid impacts to Category 1 habitat. Category 1 habitat in the analysis area includes WAGS colonies plus a 785-foot buffer around each colony in suitable habitat, which is the area required for squirrel survival. The Applicant will continue to avoid Category 1 habitat during final design, including any WAGS Category 1 habitat identified following additional WAGS surveys that are anticipated prior to construction.

### **8.1.2 Category 2 Habitat**

The Applicant has microsituated facilities to avoid most impacts to Category 2 habitat. Of the approximately 18.5 acres of Category 2 habitat within the site boundary, less than 0.1 acre of

Category 2 Shrub-steppe-Rabbitbrush/Snakeweed habitat would be either permanently or temporarily impacted in the layout provided in this Application (Table P-7). The Applicant will avoid these areas in final design; therefore, no impact to Category 2 habitat is anticipated.

### **8.1.3 Category 3 Habitat**

The Applicant has microsituated facilities to minimize permanent impacts to Category 3 habitat. Of the approximately 489.5 acres of Category 3 habitat within the site boundary, 7 acres of Category 3 Grassland-Native Perennial habitat would be permanently impacted in the layout provided in this Application. Approximately 6.5 acres of habitat will be temporarily impacted (Developed-Revegetated or Other Planted Grassland, Grassland-Native Perennial, Shrub-steppe-Rabbitbrush/Snakeweed); no Shrub-steppe/Basin Big Sagebrush habitat will be impacted (Table P-7).

Category 3 Revegetated or Other Planted Grasslands are planted grasslands on previously farmed or other disturbed lands that may be enrolled in the Conservation Reserve Program. This habitat subtype is comprised mainly of native or native-like grasses. Native vegetation in Category 3 Revegetated or Other Planted Grasslands may be sparse and not well-developed and may have a significant component of annual grasses and weeds. State sensitive species with the potential to occur in this habitat include long-billed curlew, burrowing owl, and grasshopper sparrow.

Category 3 Native Perennial Grasslands are dominated by native perennial grasses such as Sandberg bluegrass (*Poa secunda*), bluebunch wheatgrass (*Pseudoroegneria spicata*), Idaho fescue (*Festuca idahoensis*), western needlegrass (*Achnatherum occidentale*), and needle and thread grass (*Hesperostipa comata*). Various native forbs and low shrubs such as gray rabbitbrush (*Ericameria nauseosa*) and, to a lesser extent, green rabbitbrush (*Chrysothamnus viscidiflorus*) are present but are an inconspicuous component. Native vascular plants are diverse and a variety of invertebrates can be found utilizing the plants throughout the growing season. These habitats have been altered through land use or wildfires, and generally contain a significant component of non-native vegetation (broad-leaf weeds and annual grasses). Category 3 Native Perennial Grasslands generally occur on sites with shallow soils and harsh exposures, or in areas that have experienced livestock grazing or frequent fires. Native Perennial Grasslands provide essential foraging habitat to a variety of common resident and migratory birds and common mammals. State sensitive species with the potential to occur in this habitat include long-billed curlew, burrowing owl, and grasshopper sparrow. Native grasses and forbs provide forage for mule deer. Native Perennial Grassland is an ODFW conservation strategy habitat (OCS 2016).

Category 3 Shrub-steppe-Rabbitbrush/Snakeweed are characterized by rubber rabbitbrush and green rabbitbrush and other low-stature plants such as broom snakeweed (*Gutierrezia sarothrae*) and various buckwheat species. The understory is native Sandberg bluegrass, non-native cheatgrass (*Bromus tectorum*), bulbous bluegrass (*Poa bulbosa*), and tumbled mustard (*Sisymbrium altissimum*). Patches of native perennial grasses, such as bluebunch wheatgrass and needle-and-thread grass, are present. This habitat subtype may contain small patches of big basin sagebrush (*Artemisia tridentata*) that are less than one acre in size. Category 3 Rabbitbrush/Snakeweed

Shrub-steppe provides foraging, cover, and/or nesting habitat for grasshopper sparrows, as well as for common species such as horned lark and western meadowlark.

#### **8.1.4 Category 4 Habitat**

The Applicant has microsituated facilities to avoid permanent impacts to Category 4 habitat. Approximately 0.35 acre of Category 4 habitat will be temporarily impacted (approximately 0.1 acre of Grassland-Exotic Annual habitat and 0.25 acres of Shrub-steppe-Rabbitbrush/Snakeweed habitat; Table P-7).

Category 4 Annual Exotic Grassland habitats are non-native grasslands with a very high weed component that occur in disturbed or less nutrient-rich soils. The forb component is composed primarily of non-native weeds, such as cheatgrass, bulbous bluegrass, cereal rye (*Secale cereale*), and tumblemustard, with occasional patches of native bunchgrass, primarily Sandberg bluegrass. Some of these areas support long-billed curlew. Category 4 Exotic Annual Grassland provides important habitat to common species like horned lark, but the dense weed cover and lack of native grasses limit the ability of most wildlife species to use these areas for forage or cover.

Category 4 Shrub-steppe-Rabbitbrush/Snakeweed habitats are similar to Category 3 Shrub-steppe-Rabbitbrush/Snakeweed habitats described above, but with a lower native component and higher non-native annual grass and forb component. This habitat can provide nesting and/or foraging habitat for common species such as horned lark and western meadowlark.

#### **8.1.5 Category 6 Habitat**

Category 6 habitat that will be both permanently and temporarily impacted by the Facility consists of areas of active agriculture (i.e., Developed-Dryland Wheat) as well as Developed-Other areas. Category 6 Dryland Wheat habitat is the largest habitat subtype within the site boundary. It is extensive throughout the region. It consists of agricultural fields that are currently in small grain production or fallow. Swainson's hawks hunt for prey in wheat stubble fields.

Category 6 Other habitat includes farming/ranching home and shop sites, corrals, structures, feedlots, active and inactive gravel quarries, non-irrigated pastures, graveled and paved roads, rights-of-way, and waste areas associated with on-going human activities. Although some areas have deciduous tree landscaping that attracts some native and non-native passerines, these Other Developed areas are not considered to have significant value to wildlife species. Because of the high level of disturbance, no special status/sensitive species are known or expected to occur with regularity in the Category 6 habitats, and these areas have low potential to become essential or important wildlife habitat in the foreseeable future.

### **8.2 Potential Impacts to State Sensitive Species**

This section addresses potential impacts to state sensitive species identified in Section 6.0. Habitat modification resulting from construction activities will occur in permanent impact areas, and the associated impacts will vary by species. A majority of habitat modification would occur in Category

6 agricultural habitat which provides little to no value to state sensitive species. In addition to these habitat-related impacts, potential adverse impacts to sensitive species due to construction and operation may include the introduction of noxious weeds and other non-native invasive species, potential disturbance to foraging, nesting and breeding activities, structure collision, vehicular collision, disturbance related to artificial lighting, and entrapment within open vertical pipes.

### **8.2.1 Mammals**

Five state sensitive bat species have the potential to occur within the analysis area: hoary bats, pallid bats, silver-haired bats, spotted bats, and Townsend's big-eared bats. Two state sensitive species (hoary bat and silver-haired bat) were detected during surveys for adjacent facilities (Wheatridge 2015). The timing and frequency of detections suggest that these species are relatively common and fly through much of the area during the late summer and fall months, concurrent with their migration period. The three additional state-sensitive bat species with the potential to occur in the analysis area – spotted bat (sensitive), pallid bat (sensitive), and Townsend's big-eared bat (sensitive, sensitive-critical) –were not detected during acoustic surveys at adjacent facilities. The Facility is not sited near typical breeding or roosting habitat for these species, and foraging habitat such as wetland and waters do not occur within the site boundary (Table P-4, Table P-5). Additionally, construction activities will typically occur during daylight hours when bats are generally absent, and thus construction activities are not anticipated to disturb foraging bats. As a result, no adverse effects on bat species during their breeding period are anticipated due to the construction and operation of the facility.

Any impacts on bats would most likely occur in late summer and fall, during the migratory period for tree-roosting bats. Three publicly available studies from California sites have reported small numbers of bat carcasses found both during fatality searches and incidentally (WEST 2017). Data from non-photovoltaic solar facilities with higher bat fatalities reported (e.g., a power-trough facility in California) suggest that the timing of potential bat fatalities at solar facilities is primarily in late summer and fall. While cause of mortality in these studies is generally inconclusive based on the condition of the carcasses when found, some of these may be due to collision with facility infrastructure. Insects may be attracted to lighting around structures, which may in turn attract bats to forage near facility infrastructure. Thus, artificial lighting at night may increase the risk of collision fatalities. However, the potential for collision risk due to artificial night lights will be avoided and minimized, as described in Section 9.0. As a result, construction and operation of the Facility are anticipated to have minimal impact on these bat species during their migratory period.

### **8.2.2 Birds**

Avian mortality at the Facility due to collision with infrastructure is possible, although the available data on avian mortality at utility scale solar energy sites suggest mortality at photovoltaic facilities due to collision is low. Walston et al. (2016) compared fatality rates from two power tower solar sites and one photovoltaic facility to other human-caused mortality sources (wind energy, fossil fuel power plants, communication towers, roadway vehicles, buildings and vehicles). Avian

mortality at the three sites (California) collectively overlapped with the low end of the same range as avian fatalities at wind energy facilities. Wind energy developments were found to cause fewer fatalities than any of the other human-caused mortality sources. The mortality rate at the photovoltaic facility was significantly lower than at the two power tower facilities in the study. A more recent analysis provides insight into potential fatalities at photovoltaic facilities specifically. Kosciuch et al. (2020) synthesized results from fatality monitoring studies at 10 photovoltaic solar facilities across the Southwestern U.S. (California and Nevada). Overall, the study reached a similar conclusion as Walston et al. (2016) that avian mortality at photovoltaic utility-scale solar energy facilities was lower than other sources of anthropogenic bird mortality, such as collision with buildings (Loss et al. 2014).

In Oregon, preliminary results of a fatality study at a 56-MW photovoltaic facility near Prineville detected only two fatalities of native birds during 1 year of standardized searches, consisting of a horned lark and a dark-eyed junco (Kosciuch and Hutchinson 2020; ODOE 2020). These results are the first for the region in Oregon and suggest that large fatality events are unlikely at photovoltaic solar facilities in the region but that low numbers of fatalities of common ground-dwelling bird species could occur (Kosciuch and Hutchinson 2020; ODOE 2020).

These findings align with the four potential patterns identified in the Kosciuch et al. (2020) analysis that may provide inference to regions other than those analyzed (California and Nevada):

- 1) the most widely occurring species among site-years have populations in the millions in the BCRs where studies occurred, and 3 of the top 4 species detected are ground-dwelling birds;*
- 2) most detections occurred in fall;*
- 3) there was no evidence of a comparatively large-scale fatality events of nocturnal migrating passerines or migrating water associates or water obligates; and*
- 4) most detections were of unknown cause feather spots.*

The available data for utility scale solar energy sites continue to suggest that mortality at photovoltaic facilities is low; therefore, mortality at the proposed Facility, or any phase of the Facility, is also anticipated to be low. A fatality monitoring program is not anticipated to result in significant findings. Nonetheless, the Applicant will develop a post-construction monitoring program per the request of ODFW. This program will address a wildlife-PV solar interaction research question with the potential for meaningful insight based on Facility-specific circumstances. This program will employ appropriate methods and assumptions according to the best available science. Dryland wheat accounts for 99.2 percent of the anticipated permanent impact area; therefore, impacts to state sensitive species are anticipated to be similar across all phases of the Facility. The results of a post-construction monitoring program conducted at the first phase of the Facility will be representative of all phases. This program will be conducted at the first phase of the Facility only. This program will be developed in consultation with ODOE and ODFW and is described in the Wildlife Monitoring and Mitigation Plan (WMMP [Attachment P-2]).



The Applicant will additionally address potential impacts to sensitive bird species with the potential to occur within the site boundary in terms of habitat impacts, structural collision, vehicular collision, artificial lighting, entrapment within open vertical pipes, and nesting disturbance during construction and operation. Measures described in Section 9.0 will be used to minimize or avoid these and other potential impacts.

Impacts to sensitive avian species detected at the Facility (Brewer's sparrow, grasshopper sparrow, long-billed curlew, and Swainson's hawk) due to the construction and operation of the Facility are habitat disturbance (limited to temporary impacts to approximately 6.5 acres of Category 3 and 4 habitat types, see Table P-7) and potential nest disturbance during construction. No permanent impact to wildlife habitat is anticipated due to the construction or operation of the facility.

- **Brewer's sparrow** (state sensitive). One Brewer's sparrow was observed during 2021 surveys at the Facility (Table P-6, Figure P-4). This species uses shrublands, generally with a canopy height of more than 5 feet. Brewer's sparrows are most closely associated with big sagebrush (*Artemisia tridentata*; OCS 2016, Rotenberry et al. 2020). An area of less than 1 acre of basin big sagebrush habitat is present within the site boundary. No Basin Big Sagebrush habitat will be impacted during construction (Table P-7); therefore, no impact to habitat for this species is anticipated.
- **Long-billed curlew** (state sensitive-critical): Two long-billed curlews were detected at the Facility during surveys in grassland habitats (Table P-6, Figure P-4). Impacts to habitat related to the solar array will be limited primarily to Dryland Wheat habitat, which is sometimes used as nesting and foraging habitat for this species. Impacts to appropriate native breeding habitat include 7 acres of permanent impact and 2 acres of temporary impact to Grassland-Native Perennial habitat (Table P-7). Potential adverse impacts also include potential collision with vehicles intermittently operating on site during the spring and early summer months when this species is present in Oregon.
- **Grasshopper sparrow** (state sensitive): Grasshopper sparrow is the most frequently detected sensitive species at the Facility, with 23 individuals recorded during surveys from 2019-2021 (Table P-6, Figure P-4). Detections have occurred in all grassland habitat subtypes and in Rabbitbrush/Snakeweed Shrub-steppe. Impacts to appropriate habitat for this species during the construction and operation of the facility include permanent impact to approximately 7 acres of Grassland-Native Perennial habitat, and temporary impact to approximately 2.3 acres of native and planted grasslands and 4.6 acres of Shrub-steppe - Rabbitbrush/Snakeweed habitat (Table P-7).
- **Swainson's hawk** (state sensitive): The Swainson's hawk (a sensitive species) nests within the analysis area (Figure P-4) and has been detected six times during surveys at the Facility (Table P-6). Surveys within the analysis area and as reported at nearby facilities indicate this species is a regularly occurring nesting raptor species during the spring, summer, and early fall months when this species is present in Oregon. Heavy construction activities (ground-disturbance) may disturb active breeding attempts if it occurs during the

Swainson's hawk breeding season. The construction the Facility as approved will result in permanent impact to approximately 7 acres of Grassland-Native Perennial habitat and temporary impact to approximately 2.3 acres of native and planted grassland habitat (Table P-7). Temporary (159.9 acres) and permanent (3,664.9 acres) impacts to Dryland Wheat habitat will also occur (Table P-7). Swainson's hawks are more likely to hunt in Dryland Wheat than are most other raptor species (Bechard et al. 2020). Thus, the construction of the Facility may decrease foraging opportunities for these raptors during spring and summer, when they are present on the Columbia Plateau.

### **8.2.3 Reptiles**

No state sensitive reptiles have been documented within the site boundary. Limited suitable habitat exists for the northern sagebrush lizard within the site boundary (Shrub-steppe-Basin Big Sagebrush); however, all impact to this habitat has been avoided in micro-siting. As such, no adverse impacts to state sensitive reptiles or their habitats are expected from construction and operation of the facility.

### **8.2.4 Fish**

No adverse impacts to state sensitive fish or their habitats are expected from construction and operation of the facility.

## **9.0 Avoidance and Mitigation**

*OAR 345-021-0010(1)(p)(G) A description of any measures proposed by the applicant to avoid, reduce, or mitigate the potential adverse impacts described in (F) in accordance with the general fish and wildlife habitat mitigation goals and standards described in OAR 635-415-0025 and a description of any measures proposed by the applicant to avoid, minimize, and provide compensatory mitigation for the potential adverse impacts described in (F) in accordance with the sage-grouse specific habitat mitigation requirements described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through -0025, and a discussion of how the proposed measures would achieve those goals and requirements.*

### **9.1 Avoidance and Minimization**

#### **9.1.1 During Facility Design and Micrositing**

Facility design and micrositing was performed to maximize the placement of facilities in Developed-Dryland Wheat habitat, thereby minimizing impacts to other habitats more suitable for sensitive and other wildlife species, including the ODFW conservation strategy habitats, Basin Big Sagebrush Shrub-steppe and Native Perennial Grassland. This siting effort is expected to minimize impacts to wildlife generally and to sensitive species in particular (Table P-6). Facility design

ensured the avoidance of any identified nests of Swainson's hawk, ferruginous hawk, or other raptor species.

Other design aspects undertaken to minimize impacts to sensitive and other wildlife species and their habitats include:

- Access to solar arrays and associated infrastructure will primarily involve the use and improvement of existing roads.
- Collector lines will be buried to the extent feasible in the temporarily disturbed road shoulders.
- The Applicant designed overhead transmission lines in compliance with Avian Power Line Interaction Committee standards (APLIC 2012). This is expected to minimize the risk of electrocution to eagles and other raptors generally, and to Swainson's hawk and ferruginous hawk in particular.
- The Applicant will implement down-shield lighting for permanent lighting at the substation and operations and maintenance building. Outdoor lighting will be sited, limited in intensity, shielded, and hooded in a manner that prevents the lighting from projecting onto adjacent properties and roadways. This is expected to minimize the risk of avian collision with Facility infrastructure for all birds and bats in general, but to nocturnal migrant species (including Brewer's sparrows and grasshopper sparrows) and to the crepuscular, insectivorous common nighthawk in particular. Down-shield lighting will be in place year-round, mitigating impacts to birds and bats both during migration and while foraging for insects at any time of the year.
- The Applicant will cap or otherwise modify vertical pipes and piles to prevent cavity-dwelling and nesting birds from entering. This also prevents any perching bird from inadvertently falling into pipes. These caps are expected to minimize the risk of fatalities to all birds, as well as small mammals and lizards.

### ***9.1.2 Prior to Construction***

Prior to the construction of the Facility or any phase of the Facility, the Applicant will conduct a final habitat survey to confirm the habitat categories of all areas that will be affected by Facility components, as well as the locations of sensitive resources such as active raptor nests. This mapping will inform final site design and facility layout and ensure habitat impacts and disturbance to nesting raptors and other sensitive resources are avoided, minimized, and mitigated as appropriate.

### ***9.1.3 During Construction***

Measures for avoiding and minimizing impacts to wildlife and plants—including state sensitive species—will be implemented during the construction of the Facility or any phase of the Facility as follows:

- The Applicant will develop and implement a Facility-specific worker environmental training program throughout the construction of the Facility. All employees and contractors working in the field will be required to attend the environmental training session prior to working on-site. Training will include information on sensitive species potentially present onsite, precautions to avoid injuring or destroying wildlife or sensitive wildlife habitat, exclusion areas, permit requirements and other environmental issues.
- During construction within the sensitive period for state-sensitive raptor species (below), the Applicant will implement buffer zones around nest sites of Swainson's hawks and ferruginous hawks, and around the burrows of burrowing owls identified during pre-construction surveys.

<b>Species</b>	<b>Sensitive Period</b>	<b>Early Release Date</b>
Swainson's hawk	April 1 to August 15	May 31
Ferruginous hawk	March 15 to August 15	May 31
Burrowing owl	April 1 to August 15	July 15

- Construction impacts to sensitive species such as long-billed curlew and common nighthawk, and to all wildlife in general, will be further avoided by the implementation of a 20 miles per hour speed limit.
- Sensitive or protected plant and wildlife species will be flagged as restricted work zones prior to construction.

#### ***9.1.4 During Operation***

Following construction of the Facility or any phase of the Facility, measures for avoiding and reducing impacts to wildlife and plants—including state sensitive species—will be implemented as follows:

- After Facility construction, areas where habitat was temporarily disturbed as a result of construction activities will be restored to their original conditions and monitored as necessary according to provisions in the Draft Reclamation and Revegetation Plan (Attachment P-4). The Draft Reclamation and Revegetation Plan will specifically address noxious weeds along solar fence. Measures to minimize the spread of noxious weeds will be developed taking into consideration the fire code requirements and other weed control measures described in Exhibits B and U. The final Reclamation and Revegetation Plan will be approved by ODOE in consultation with Morrow County and ODFW.
- The Applicant shall maintain a 20 miles per hour speed limit on new and improved private access roads.
- A final WMMP will be submitted to and approved by ODOE and ODFW before site construction. Components of the WMMP will include ongoing environmental training for Facility personnel and reporting requirements governing incidental wildlife injuries and

deaths on Facility roads. The WMMP will identify licensed local wildlife rehabilitators capable of responding to the Facility in the event of injured wildlife. Per the request of ODFW (and comments received on the Applicant's Notice of Intent filed June 11, 2021), the WMMP will additionally include raptor nest monitoring for the life of the Facility and post-construction fatality monitoring. A Draft WMMP is provided as Attachment P-2 of this exhibit.

## **9.2 Mitigation**

After avoidance and minimization measures have been implemented, some impacts to wildlife habitat and sensitive species will remain. Permanent habitat loss will be mitigated for according to ODFW Habitat Mitigation Policy goals and standards, as described in the Draft Habitat Mitigation Plan (Attachment P-3). Included in this plan are measures for protecting and enhancing sufficient acreages of wildlife habitat to meet the mitigation goals and standards for those habitat subtypes and categories temporarily and permanently impacted by the Facility or any phase of the Facility. The mitigation will be in place for the duration of the Facility or any phase of the Facility.

## **9.3 Compliance with ODFW Mitigation Goals – OAR 635-415-0025**

Desktop analysis and field studies conducted within the site boundary of the Facility from 2019-2021 led to the identification of several state sensitive bird species (Table P-5) with some use of the site boundary. One listed wildlife species (Washington ground squirrel; see Exhibit Q) has been documented within the analysis area. Some of the identified species—notably Washington ground squirrels (addressed in Exhibit Q) and Swainson's hawk (nests)—affected the siting and micrositeing of the proposed Facility. Areas of use and nest sites of these and other sensitive species were avoided during Facility design, and impacts to these species and their habitats were minimized by siting and micrositeing of Facility components. Further minimization will be accomplished during the construction and operation of the Facility or any phase of the Facility through a variety of practices and constraints, described above, and in the Draft Habitat Mitigation Plan, Draft Reclamation and Revegetation Plan, and Draft Noxious Weed Control Plan (Attachments P-3, P-4, and P-5, respectively). Remaining potential impacts will be mitigated for, as described above and in the WMMP (Attachment P-2). The efforts that have been and will be used at the Facility or any phase of the Facility to avoid, minimize, and mitigate for adverse impacts to sensitive plants, fish, wildlife, and their habitats are expected to provide full compliance with the ODFW mitigation goals of OAR 635-415-0025.

## **10.0 Monitoring Program**

*OAR 345-021-0010(1)(p)(H) A description of the applicant's proposed monitoring plans to evaluate the success of the measures described in (G).*

The Applicant will conduct revegetation monitoring as described in the Draft Reclamation and Revegetation Plan (Attachment P-4). The Applicant will conduct wildlife monitoring as described in

the Draft WMMP (Attachment P-2). Monitoring related to mitigation success is described in the Draft Habitat Mitigation Plan (Attachment P-3).

## 11.0 Conclusion

As part of the Facility siting process, the fish and wildlife habitats within the analysis area were identified and categorized pursuant to OAR 635-415-0025. Based on survey results, facilities were adjusted to avoid all impacts to Category 1 habitat, and to minimize impacts to Category 2, 3 and 4 habitats. Unavoidable habitat impacts will be mitigated consistent with OAR 635-415-0025.

Therefore, based on the information provided in this exhibit, there is sufficient evidence upon which the Council may find that the design, construction, and operation of the Facility, taking into account the proposed mitigation measures, are consistent with the fish and wildlife mitigation goals and standards of OAR 635-415-0025. Accordingly, the Applicant demonstrates compliance with OAR 345-022-0060.

## 12.0 Submittal Requirements and Approval Standards

### 12.1 Submittal Requirements

**Table P-8. Submittal Requirements Matrix**

Requirement	Location
OAR 345-021-0010(1)(p) Information about the fish and wildlife habitat and the fish and wildlife species, other than the species addressed in subsection (q) that could be affected by the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0060. The applicant shall include:	-
(A) A description of biological and botanical surveys performed that support the information in this exhibit, including a discussion of the timing and scope of each survey.	Section 4.0
(B) Identification of all fish and wildlife habitat in the analysis area, classified by the general fish and wildlife habitat categories as set forth in OAR 635-415-0025 and the sage-grouse specific habitats described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through -0025 (core, low density, and general habitats), and a description of the characteristics and condition of that habitat in the analysis area, including a table of the areas of permanent disturbance and temporary disturbance (in acres) in each habitat category and subtype.	Section 5.0
(C) A map showing the locations of the habitat identified in (B).	Figures P-5 and P-6
(D) Based on consultation with the Oregon Department of Fish and Wildlife (ODFW) and appropriate field study and literature review, identification of all State Sensitive Species that might be present in the analysis area and a discussion of any site-specific issues of concern to ODFW.	Section 6.0

Requirement	Location
(E) A baseline survey of the use of habitat in the analysis area by species identified in (D) performed according to a protocol approved by the Department and ODFW.	Section 4.0
(F) A description of the nature, extent and duration of potential adverse impacts on the habitat identified in (B) and species identified in (D) that could result from construction, operation and retirement of the proposed facility.	Section 8.0
(G) A description of any measures proposed by the applicant to avoid, reduce, or mitigate the potential adverse impacts described in (F) in accordance with the general fish and wildlife habitat mitigation goals and standards described in OAR 635-415-0025 and a description of any measures proposed by the applicant to avoid, minimize, and provide compensatory mitigation for the potential adverse impacts described in (F) in accordance with the sage-grouse specific habitat mitigation requirements described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through -0025, and a discussion of how the proposed measures would achieve those goals and requirements.	Section 9.0
(H) A description of the applicant's proposed monitoring plans to evaluate the success of the measures described in (G).	Section 10.0

## 12.2 Approval Standards

**Table P-9. Approval Standard**

Requirement	Location
<b>OAR 345-022-0060 Fish and Wildlife Habitat</b>	–
To issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are consistent with:	–
(1) The general fish and wildlife habitat mitigation goals and standards of OAR 635-415-0025(1) through (6) in effect as of February 24, 2017, and	Section 9.0
(2) For energy facilities that impact sage-grouse habitat, the sage-grouse specific habitat mitigation requirements of the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-415-0025(7) and OAR 635-140-0000 through -0025 in effect as of February 24, 2017.	Section 9.0

## 13.0 References

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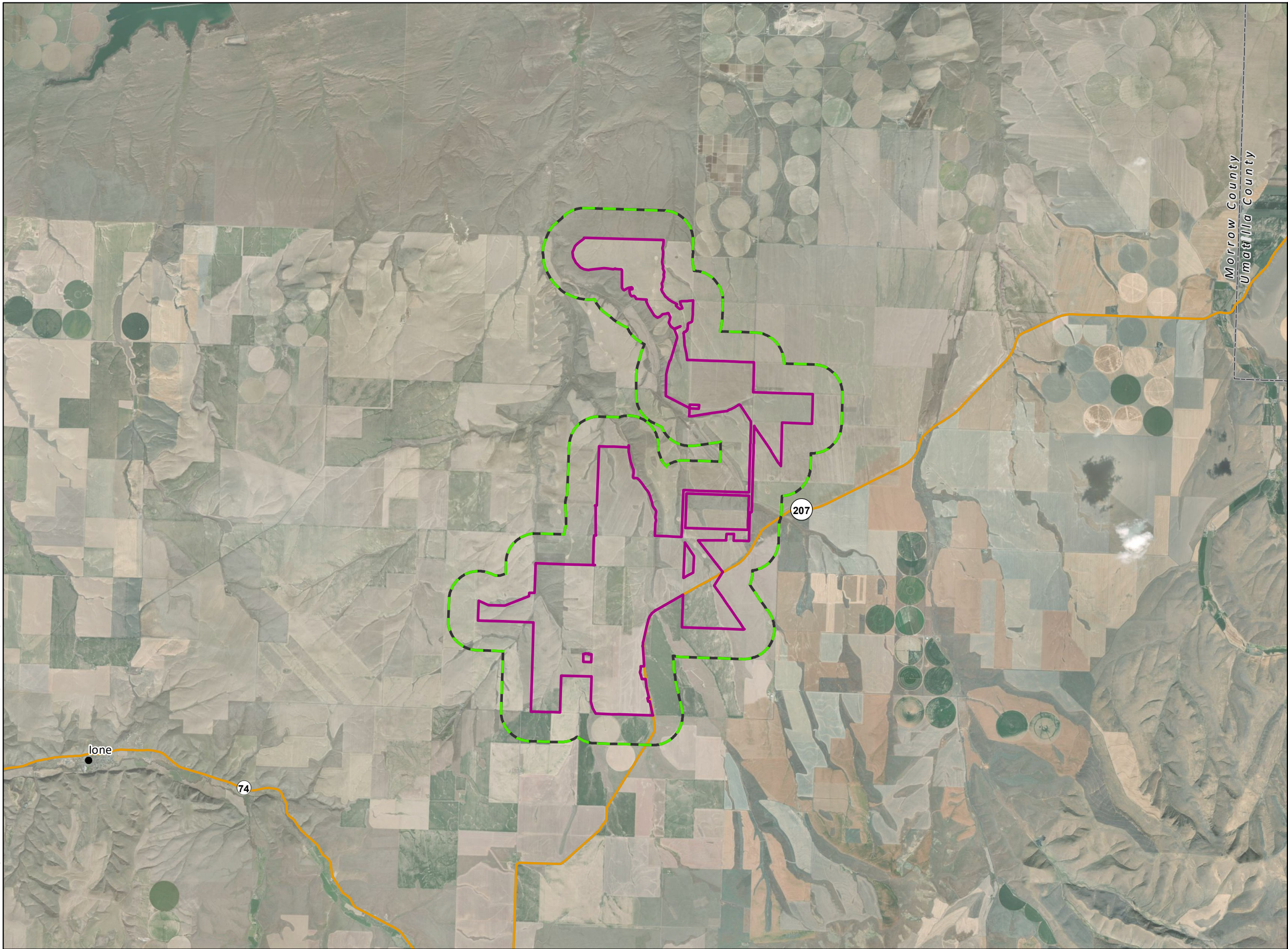
- [https://www.dfw.state.or.us/wildlife/diversity/species/docs/Threatened\\_and\\_Endangered\\_Species.pdf](https://www.dfw.state.or.us/wildlife/diversity/species/docs/Threatened_and_Endangered_Species.pdf). Last accessed July 6, 2021.
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# Figures



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# Wagon Trail Solar Project

**Figure P-1**  
**Analysis Area for Fish**  
**and Wildlife Habitat**

MORROW COUNTY, OREGON

- Site Boundary
- Analysis Area (0.5-mile Buffer)
- City/Town
- State Highway
- County Boundary



Data Sources

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries

Reference Map



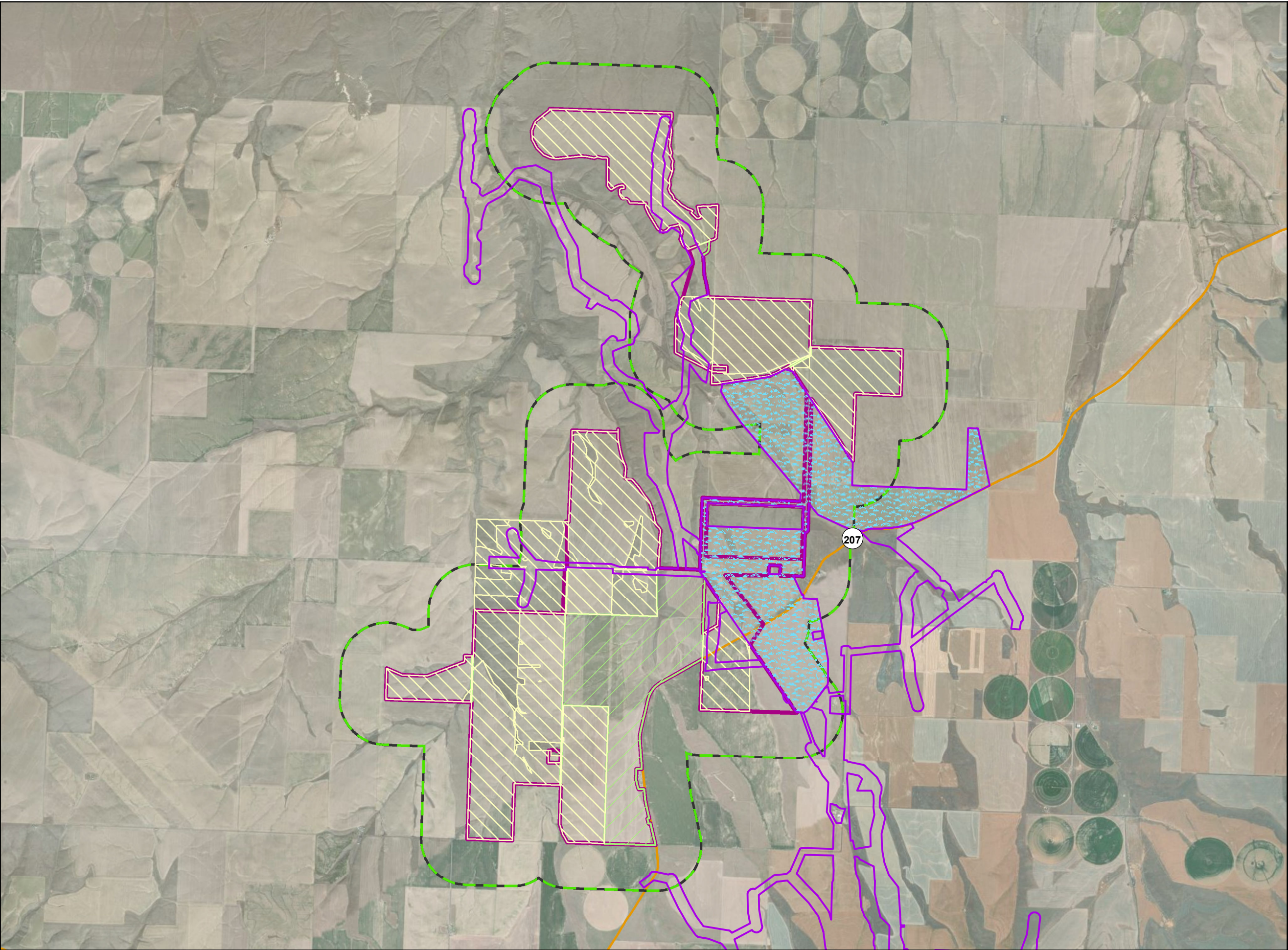
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# Wagon Trail Solar Project

Figure P-2  
Habitat and Special Status  
Wildlife Survey Areas (2019-2021)

MORROW COUNTY, OREGON

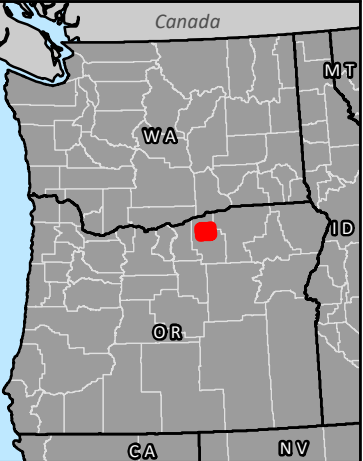
- Site Boundary
- Wheatridge Renewable Energy Facilities I & II Pre-construction Habitat Survey Area (2019)
- Wheatridge Renewable Energy Facility III Pre-construction Habitat Survey Area (2020)
- Wagon Trail Solar Project Habitat and Special Status Wildlife Survey Area (2020)
- Wagon Trail Solar Project Habitat and Special Status Wildlife Survey Area (2021)
- Analysis Area (0.5-mile Buffer)
- State Highway
- County Boundary



Data Sources

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries

Reference Map



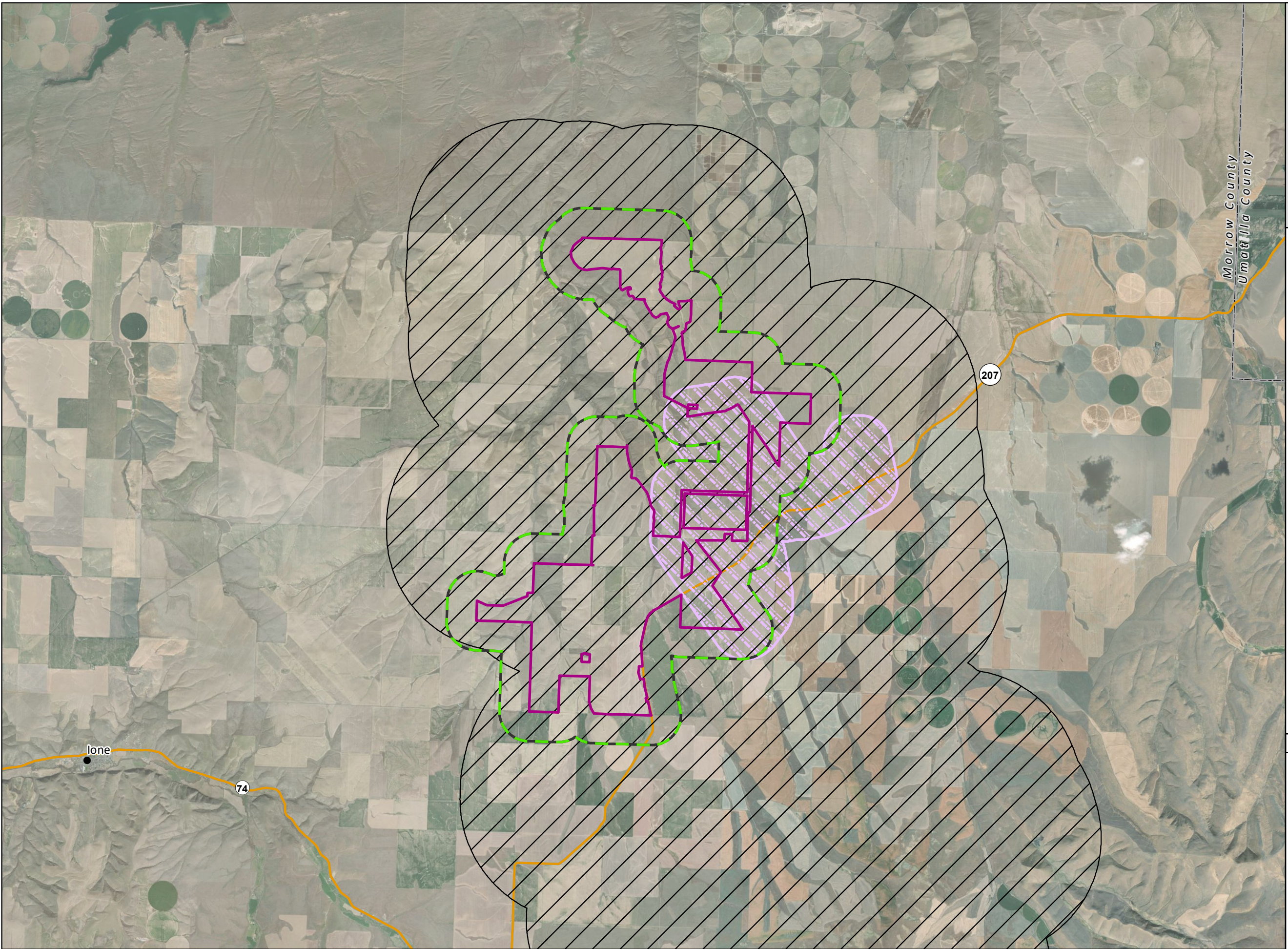
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# Wagon Trail Solar Project

Figure P-3  
Raptor Nest Survey  
Areas (2019-2020)

MORROW COUNTY, OREGON

- Site Boundary
- Analysis Area (0.5-mile Buffer)
- Wheatridge Renewable Energy Facility III Pre-construction Survey Area (2020)
- Wheatridge Renewable Energy Facilities I & II Pre-construction Survey Area (2019)
- City/Town
- State Highway
- County Boundary



Data Sources

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries

Reference Map



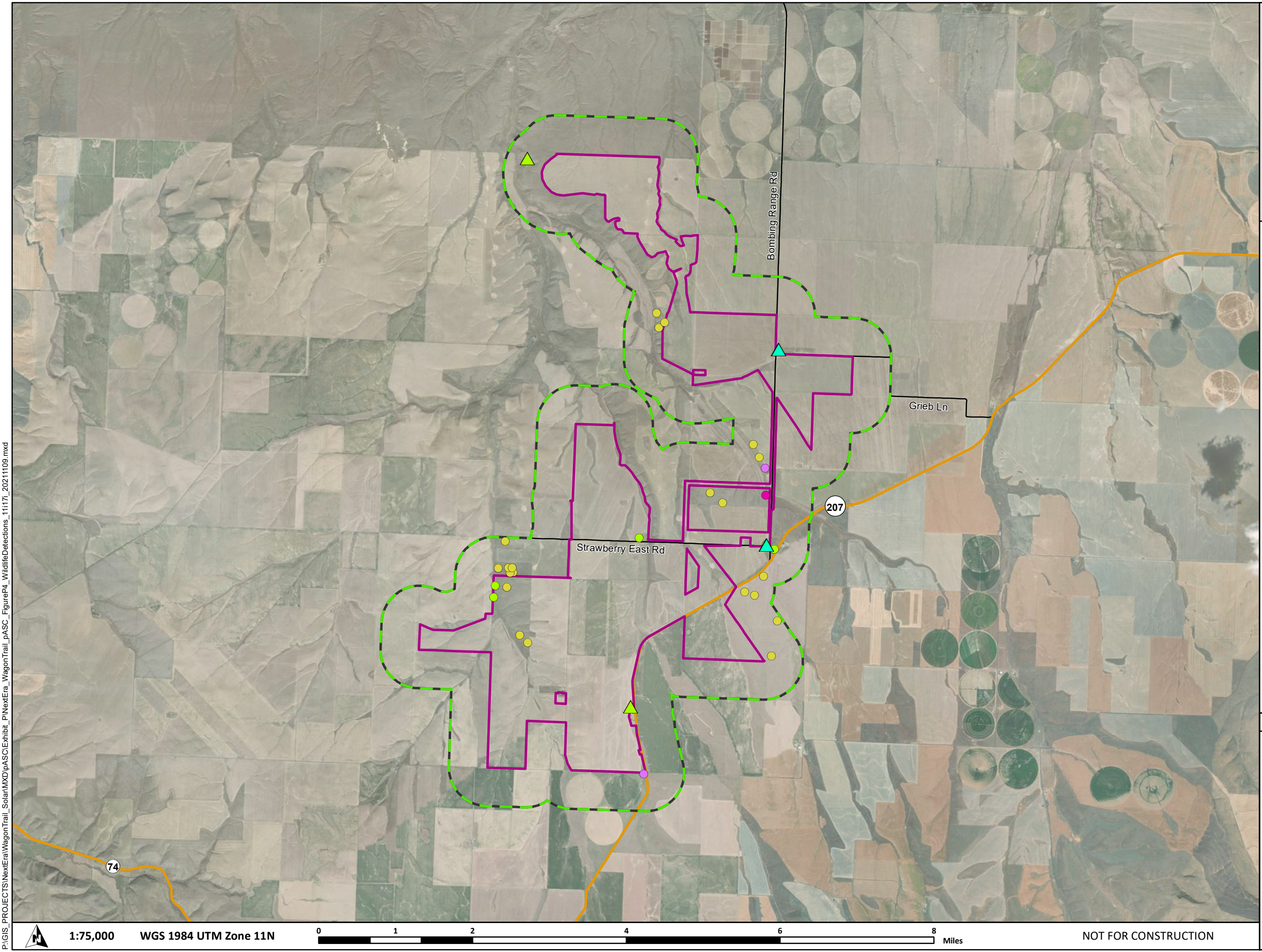
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0 1 2 4 6 8 Miles

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**Wagon Trail  
Solar Project**

**Figure P-4  
Detections of Special Status  
Wildlife Species (2019-2021)**

MORROW COUNTY, OREGON

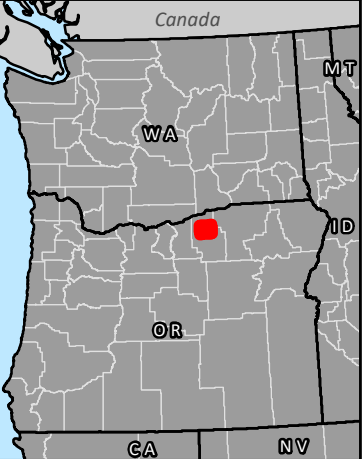
- Site Boundary
  - Analysis Area (0.5-mile Buffer)
  - State Highway
  - Local Road
  - County Boundary
- Active Raptor Nests**
- Swainson's Hawk (2019 and 2020)
  - Swainson's Hawk (2019)
- Incidental Observations**
- Brewers Sparrow
  - Long-billed Curlew
  - Swainson's Hawk
  - Grasshopper Sparrow



Data Sources

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries

Reference Map



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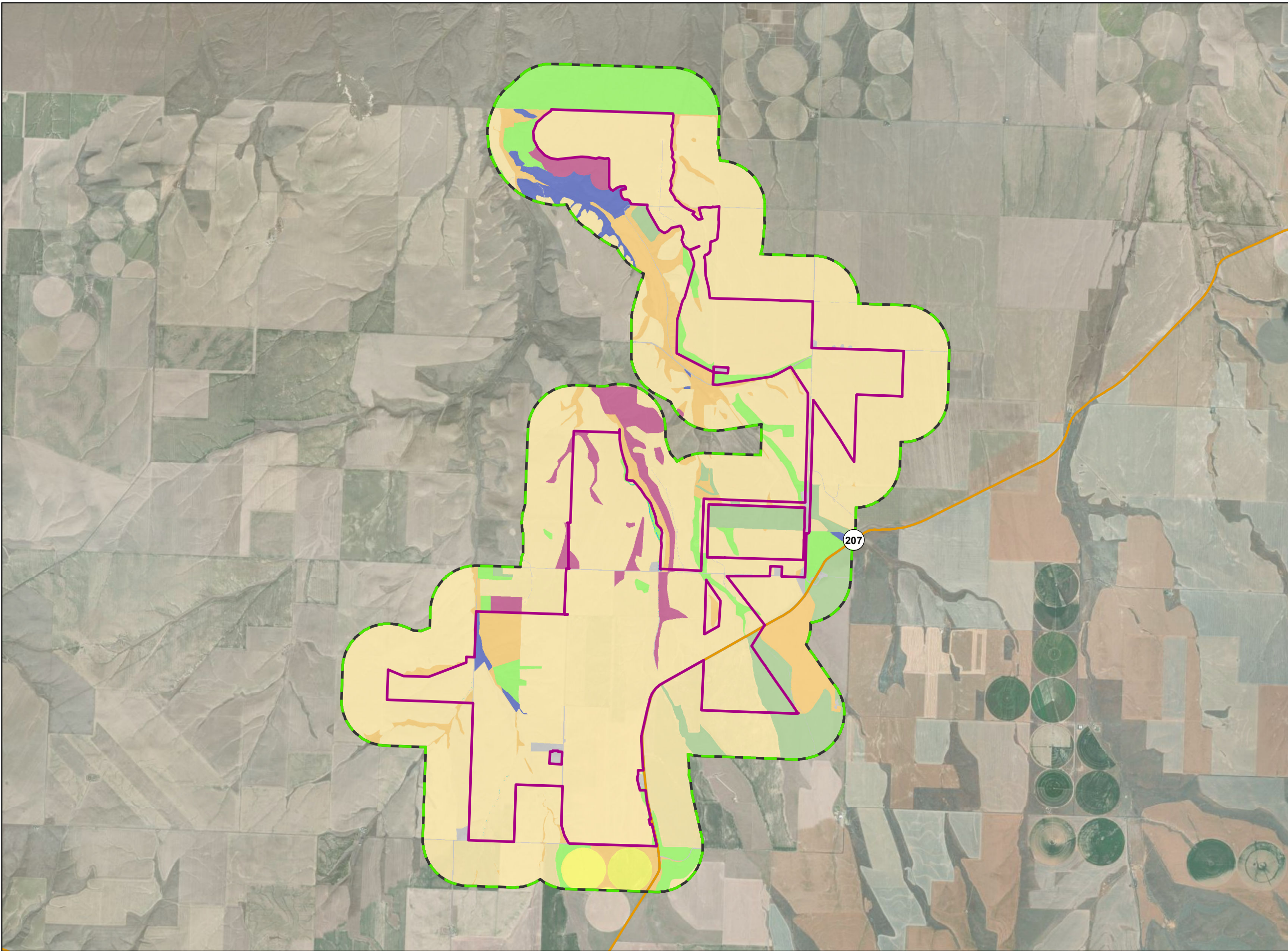
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# Wagon Trail Solar Project

Figure P-5  
Habitat Types  
within the Analysis Area

MORROW COUNTY, OREGON

- Site Boundary
- Analysis Area (0.5-mile Buffer)
- State Highway
- County Boundary
- Habitat Type: Subtype**
  - Developed: Dryland Wheat
  - Developed: Irrigated Agriculture
  - Developed: Other
  - Developed: Revegetated or Other Planted Grassland
  - Grassland: Exotic Annual
  - Grassland: Native Perennial
  - Open Water: Ephemeral Stream
  - Shrub-steppe: Basin Big Sagebrush
  - Shrub-steppe: Rabbitbrush/Snakeweed



Data Sources

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries

Reference Map



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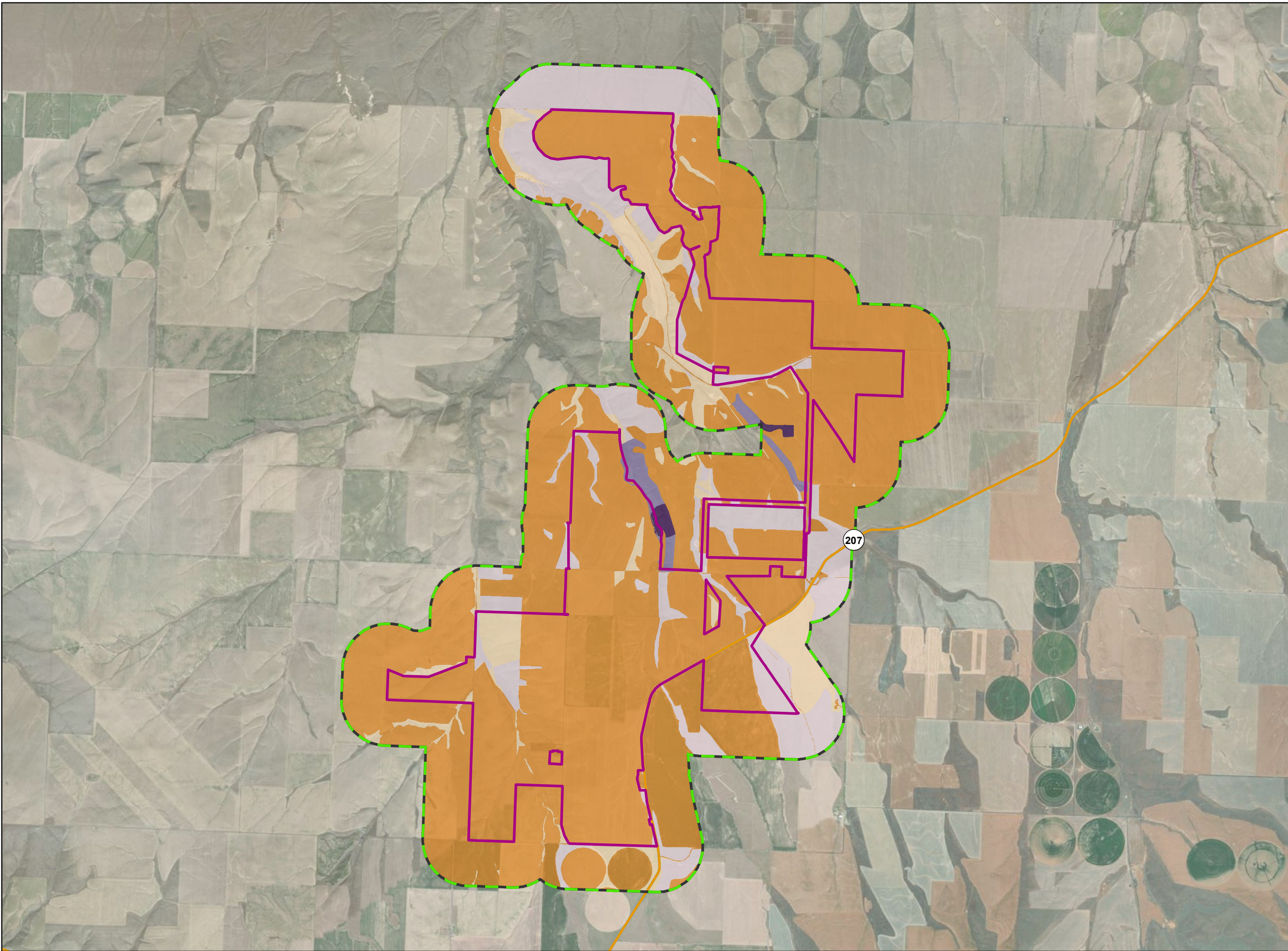
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# Wagon Trail Solar Project

Figure P-6  
Habitat Categories  
within the Analysis Area

MORROW COUNTY, OREGON

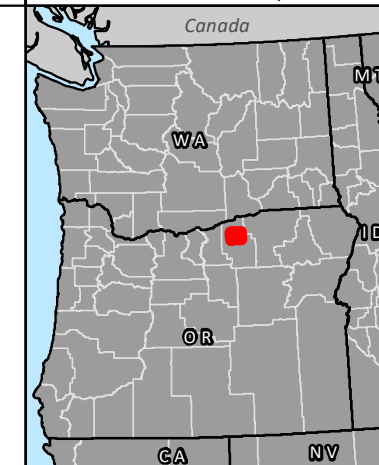
- Site Boundary
  - Analysis Area (0.5-mile Buffer)
  - State Highway
  - County Boundary
- Habitat Category**
- 1
  - 2
  - 3
  - 4
  - 6



Data Sources

Reference Map

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries



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WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION



# **Attachment P-1. Solar Biological Survey Report**

# 2020 Habitat Categorization and Special-Status Wildlife Survey Report

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**Wagon Trail Solar Project  
February 2021**

**Prepared for**



**Prepared by**



**Tetra Tech, Inc.**

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Figure 1: Habitat Categories and Subtypes

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- Attachment 1. Habitat Types and Subtypes Potentially Occurring within the Survey Area
- Attachment 2. Habitat Categorization Datasheet
- Attachment 3. Special-Status Wildlife Species Potentially Occurring within the Survey Area
- Attachment 4. Select Photographs of Habitats Taken during 2020 Surveys
- Attachment 5. Wildlife Species Observed During 2020 Surveys

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## 1.0 Introduction

This survey report presents the methods and results for the 2020 habitat categorization surveys conducted by Tetra Tech, Inc. (Tetra Tech) for the Wagon Trail Solar Project (Project). This survey is in support of Wheatridge East Wind, LLC's (Applicant) anticipated Application for Site Certificate through the Oregon Energy Facility Siting Council. The objective of this survey was to map and classify habitat according to Oregon Department of Fish and Wildlife (ODFW) guidelines set forth in Oregon Administrative Rule 635-415-0025. Special-status wildlife surveys occurred concurrently with the habitat mapping and categorization survey.

## 2.0 Methods

### 2.1 Survey Area

Figure 1 shows an approximately 7,456-acre Proposed Site Boundary under consideration prior to 2020 surveys that includes areas in both Morrow and Umatilla counties. This Proposed Site Boundary (Survey Area) does not include portions of the Project that overlap with areas mapped and categorized in 2019 for pre-construction compliance at the adjacent Wheatridge Renewable Energy Facility I & II projects (Tetra Tech 2020a).

### 2.2 Habitat Categorization

Prior to conducting field surveys, Tetra Tech conducted a desktop assessment of habitat in the Survey Area using aerial photography, topographic maps, surveys performed in the vicinity for other adjacent facilities (Wheatridge 2015, Wheatridge 2019) and ODFW big game winter range data (ODFW 2013). These sources were used to confirm and update as appropriate habitat types within the Survey Area.

In the field, surveyors digitized polygons of relatively homogenous vegetation over aerial photos on Samsung Galaxy tablets that used ArcGIS Collector software and characterized the composition and structure. Inspection of high-resolution aerial photos was used to ensure that surveyors visited areas with unique vegetation or habitat features. In the field, each delineated vegetation polygon was assigned a habitat type, subtype, and habitat quality category guided by the habitat categorization table and recorded on a field datasheet (Attachments 1 and 2). Habitat was classified into one of six quality categories, with Category 1 habitat being the most important to fish and wildlife species and Category 6 being the least important, per the ODFW Habitat Mitigation Policy (OAR 635-415-0025). Data characterizing a particular habitat subtype and quality represented the average condition of all such polygons. A minimum mapping unit of 1 acre was implemented, except for specialized habitat types such as cliffs or rock outcrops.

Habitat categorization surveys were conducted concurrently with Washington ground squirrel (WAGS; *Urocitellus washingtoni*) surveys, which included walking transects spaced approximately 165 to 230 feet (50 to 70 meters) apart on non-cultivated land (Tetra Tech 2021). While walking

these transects, surveyors digitized habitats within these focused corridors, scanned the landscape and digitized habitats within the viewshed to map and categorize the Survey Area. Additional mapping was also conducted by driving roads and digitizing habitat from vantage points that allowed extensive views across the open landscape.

Following field surveys, the digitized habitat boundaries were downloaded and processed in a geographic information system software, and information from the field data were incorporated into the spatial data (Figures 1). Data were reviewed for quality control and processed to incorporate wetlands and waters data. Habitat types and categories for wetlands and waters were derived from 2020 field delineation data (Tetra Tech 2020b).

## **2.3 Special-Status Wildlife**

Prior to conducting field surveys, Tetra Tech conducted a desktop review to identify special-status wildlife species with the potential to occur at the Project. Special-status wildlife include federal and state endangered, threatened, proposed, and candidate species; USFWS species of concern; USFWS birds of conservation concern; ODFW sensitive and sensitive-critical species; and Oregon Conservation Strategy species (Attachment 3; OCS 2016, ODFW 2018, ODFW 2019, ORBIC 2019, USFWS 2008, USFWS 2019). Tetra Tech reviewed habitat and range information for special-status wildlife species known to occur in Morrow and Umatilla Counties and the Columbia Plateau/Columbia Basin to develop the list of species that had the potential to occur at the Project. Species were eliminated from consideration if their habitat was absent from, or their range did not overlap with the Project. The desktop review identified 18 special-status wildlife species with the potential to occur at the Project, including 11 birds, six mammals, and one reptile (Attachment 3).

In the field, surveyors scanned the landscape, the sky, and the ground looking for special-status wildlife species and recognizable sign, focusing on non-cultivated areas likely to support special-status wildlife species. Areas unlikely to support special-status species—cultivated land, developed areas, and recently disturbed areas due to wind facility construction—were surveyed primarily from field vehicles, by driving paved roads, gravel roads and two-tracks. These areas were surveyed on foot if the full extent was not visible from the vehicle, or if areas of potential habitat or nesting opportunities for special-status species were identified. Surveyors recorded the location of special-status wildlife species (or recognizable sign) on Samsung Galaxy tablets that used ArcGIS Collector software, and recorded information on the number of individuals and their behavior. Surveyors also kept a running list of all wildlife species observed during 2020 surveys at the Project and documented special habitats and unique features such as raptor nests, cliffs, rimrock, rock outcrops, and talus slopes if encountered. Following field surveys, the digitized data were downloaded and processed using geographic information system software, and were reviewed for quality control and assurance.



### 3.0 Results

Tetra Tech conducted habitat categorization surveys within the Survey Area between May 25 to 28, 2020. The survey confirmed the habitat types, subtypes, and categories within the Survey Area as shown in Table 1 and Figure 1. Photos of select habitat types and categories are provided in Attachment 4.

**Table 1. Habitat Categories, Types, and Subtypes within the Survey Area**

Habitat Category, Type, and Subtype	Survey Area (acres <sup>1</sup> )
<b>Category 3</b>	
Grasslands: Native Perennial Grassland	217.4
Shrub-Steppe: Rabbitbrush/Snakeweed	152.2
Shrub-Steppe: Basin Big Sagebrush	42.2
Developed: Revegetated or Other Planted Grasslands	16.7
<b>Subtotal Category 3</b>	<b>428.4</b>
<b>Category 4</b>	
Grasslands: Exotic Annual	1478.1
Shrub-Steppe: Rabbitbrush/Snakeweed	87.0
<b>Subtotal Category 4</b>	<b>1,565.1</b>
<b>Category 5</b>	
Open Water: Ephemeral Streams	4.5
<b>Subtotal Category 5</b>	<b>4.5</b>
<b>Category 6</b>	
Developed: Dryland Wheat	5,402.9
Developed: Other	55.1
<b>Subtotal Category 6</b>	<b>5,458.0</b>
<b>Grand Total</b>	<b>7455.9</b>
1. Totals in this table may not be precise due to rounding.	

The Survey Area does not overlap with ODFW big game winter range, and no WAGS colonies were identified during 2020 surveys; therefore, habitat categories were not modified from the field-derived habitat data. Ephemeral Streams identified in the Survey Area were field confirmed during 2020 wetlands and waters surveys (Tetra Tech 2020b).

Special-status wildlife surveys were conducted concurrent with both the WAGS and habitat categorization surveys (March 25-27, March 30-April 1, May 7-9, May 25-28). A total of fourteen grasshopper sparrows, three Swainson's hawks and one long-billed curlew were observed during 2020 surveys (Table 2; Figure 1). No other sensitive resources were observed. A complete list of species observed during all surveys is included as Attachment 5.

**Table 2. Special-Status Wildlife Species Observed During Surveys**

Taxa	Common Name	Scientific Name	Federal <sup>1</sup>	Oregon <sup>2</sup>
Bird	grasshopper sparrow	<i>Ammodramus savannarum</i>	-	S, CSS
Bird	Long-billed curlew	<i>Numenius americanus</i>	BCC	SC, CSS
Bird	Swainson's hawk	<i>Buteo swainsoni</i>	-	S, CSS
<p>Sources: OCS 2016, ODFW 2018, ODFW 2019, USFWS 2008, USFWS 2019</p> <p>1. US Fish and Wildlife Service Federal Status: E = Endangered, T = Threatened, C = Candidate, PT = Proposed Threatened, SOC = Species of Concern, CH = Critical Habitat has been designated for this species, PE = Proposed Endangered, PT = Proposed Threatened, PCH = Critical Habitat has been proposed for this species, BCC = Bird of Conservation Concern (BCR 9, Great Basin Region).</p> <p>2. Oregon Department of Fish and Wildlife Status in the Columbia Plateau: T= Threatened, E = Endangered, S = Sensitive Species, SC = Critical Sensitive Species, CSS = Conservation Strategy Species</p>				

## 4.0 Summary and Conclusion

Approximately 73 percent of the Survey Area is Category 6, Developed Dryland Wheat. Another 20 percent is category 4, Exotic Annual Grasslands. Category 3 grassland and shrub-steppe habitat occurs in the Survey Area, but is limited to the remnant patches of habitat interspersed between areas of agricultural development. No Category 1 or 2 habitat was identified within the Survey Area.

## 5.0 References

- OCS (Oregon Conservation Strategy). 2016. Oregon Department of Fish and Wildlife, Salem, Oregon. Available online at: <http://oregonconservationstrategy.org>. Accessed April 2020.
- ODFW (Oregon Department of Fish and Wildlife). 2013. ODFW Winter Range for Eastern Oregon. GIS dataset available online at: <https://nrimp.dfw.state.or.us/DataClearinghouse/default.aspx?p=202&XMLname=885.xml>
- ODFW. 2018. Threatened, Endangered and Candidate Species in Oregon. Available online at: [https://www.dfw.state.or.us/wildlife/diversity/species/docs/Threatened\\_and\\_Endangered\\_Species.pdf](https://www.dfw.state.or.us/wildlife/diversity/species/docs/Threatened_and_Endangered_Species.pdf). Accessed April 2020.
- ODFW. 2019. Oregon Department of Fish and Wildlife Sensitive Species List. Available online at: [https://www.dfw.state.or.us/wildlife/diversity/species/docs/Sensitive\\_Species\\_List.pdf](https://www.dfw.state.or.us/wildlife/diversity/species/docs/Sensitive_Species_List.pdf). Accessed April 2020.
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Wheatridge. 2019. Wheatridge Wind Energy Facility Request for Amendment #4. Prepared by Tetra Tech, Inc. June 2019.

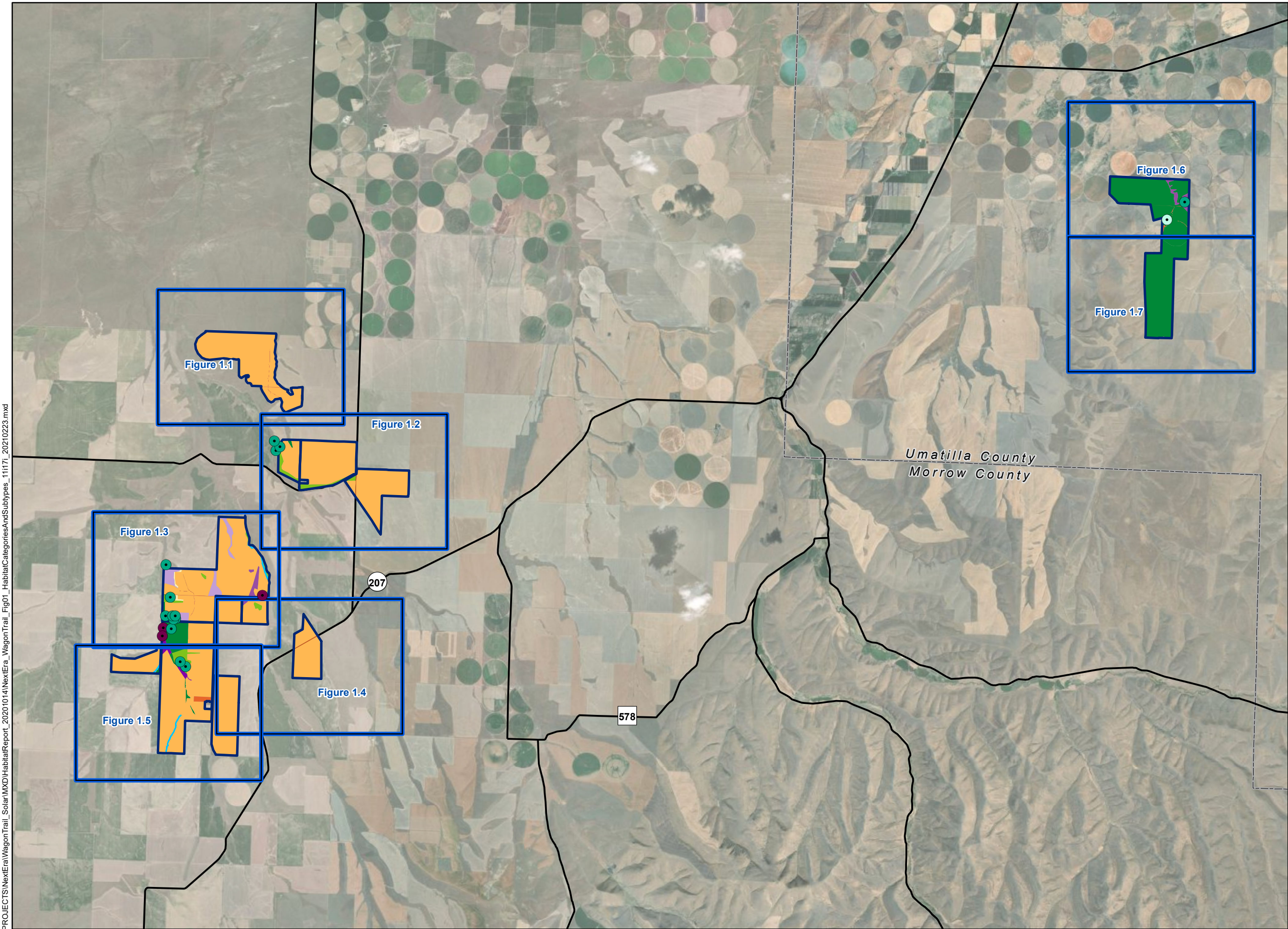
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## Figures

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# Wagon Trail Solar Project

Figure 1  
Habitat Categorization  
Index Map

MORROW AND UMATILLA COUNTIES, OR

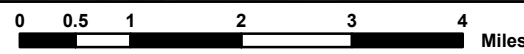
- Map Grid
- Proposed Site Boundary (01/30/2020)
- Secondary Road
- Special-Status Species**
  - Long-billed curlew
  - Grasshopper sparrow
  - Swainson's hawk
- Habitat Type - Category and Subtype**
  - Grassland**
    - 3 - Revegetated or Other Planted Grassland
    - 3 - Native Perennial
    - 4 - Exotic Annual
  - Shrub-Steppe**
    - 3 - Rabbitbrush/Snakeweed
    - 3 - Basin Big Sagebrush
    - 4 - Rabbitbrush/Snakeweed
  - Developed**
    - 3 - Revegetated or Other Planted Grassland
    - 6 - Dryland Wheat
    - 6 - Other
  - Open Water**
    - 5 - Ephemeral Stream



## Reference Map



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Wagon Trail  
Solar Project

Figure 1.1  
Habitat Categories  
& Subtypes

MORROW AND UMATILLA COUNTIES, OR

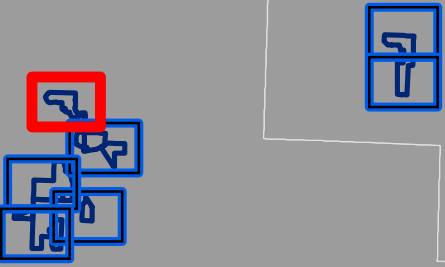
Proposed Site Boundary  
(01/30/2020)

Developed

- 6 - Dryland Wheat
- 6 - Other



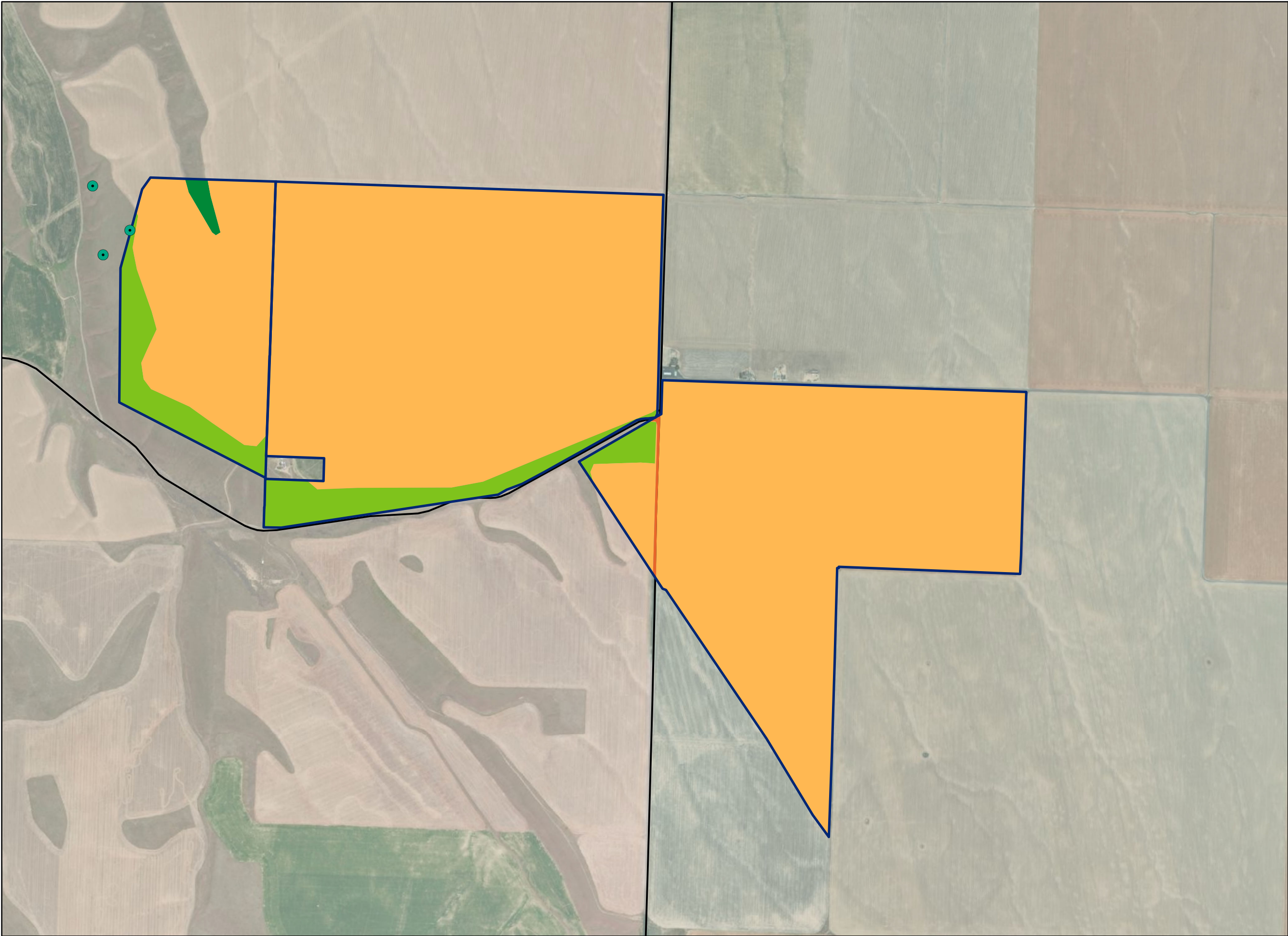
Reference Map



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**Wagon Trail  
Solar Project**

**Figure 1.2  
Habitat Categories  
& Subtypes**

MORROW AND UMATILLA COUNTIES, OR

 Proposed Site Boundary  
(01/30/2020)

 Secondary Road

**Special-Status Species**

 Grasshopper sparrow


**Habitat Type - Category and Subtype**


Grassland

 3 - Native Perennial

 4 - Exotic Annual

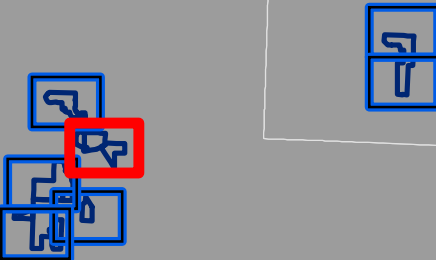
Developed

 6 - Dryland Wheat

 6 - Other



Reference Map



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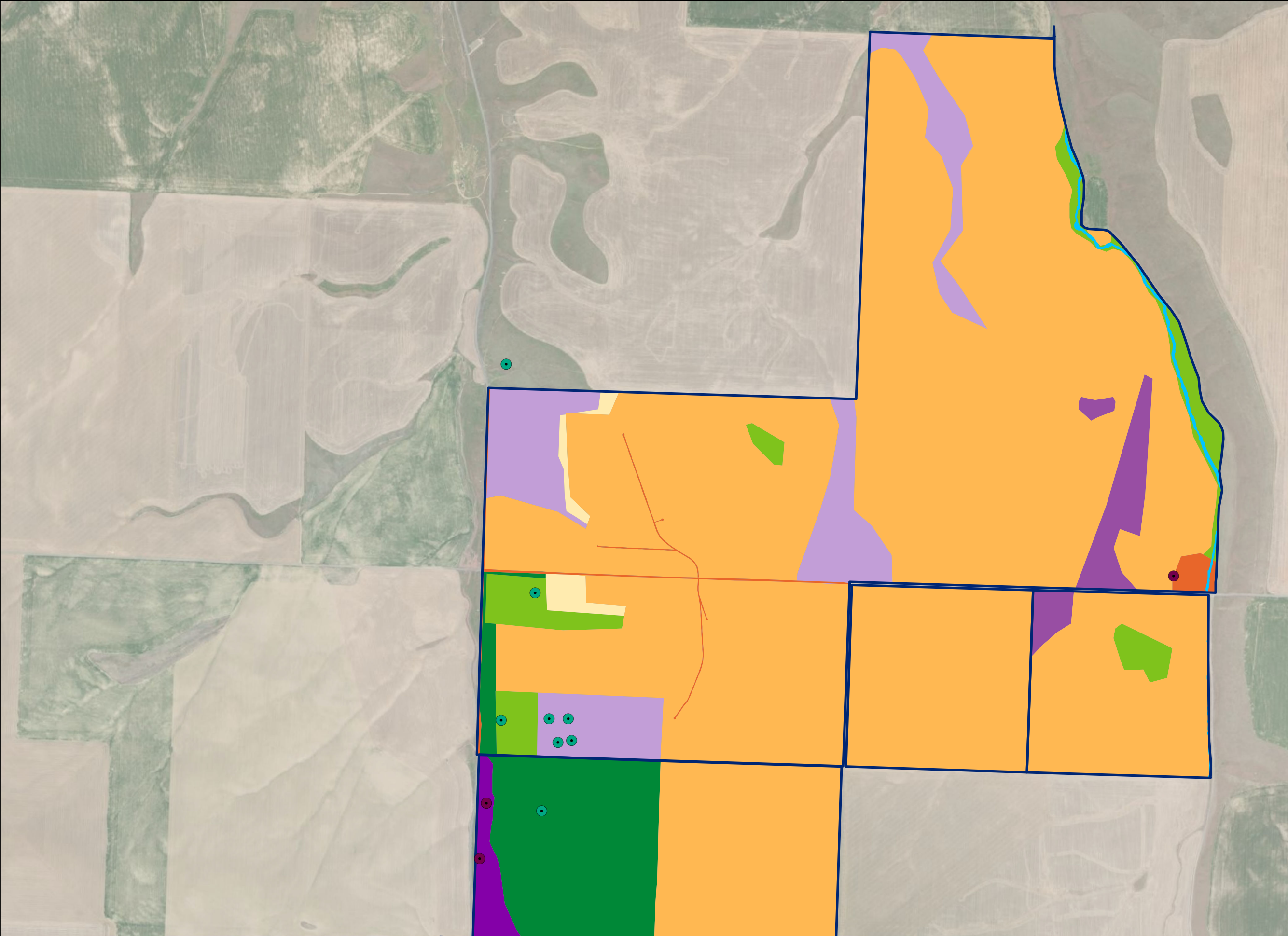
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**Wagon Trail  
Solar Project**

**Figure 1.3  
Habitat Categories  
& Subtypes**

MORROW AND UMATILLA COUNTIES, OR



 Proposed Site Boundary  
(01/30/2020)

**Special-Status Species**




-  Grasshopper sparrow
-  Swainson's hawk

**Habitat Type - Category and Subtype**




**Grassland**

-  3 - Native Perennial
-  4 - Exotic Annual

**Shrub-Steppe**

-  3 - Rabbitbrush/Snakeweed
-  3 - Basin Big Sagebrush
-  4 - Rabbitbrush/Snakeweed

**Developed**

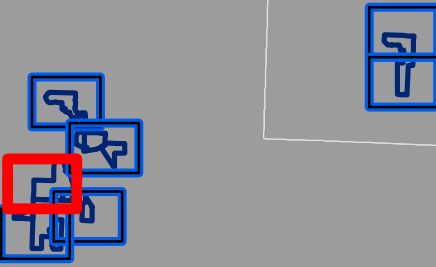
-  3 - Revegetated or Other  
Planted Grassland
-  6 - Dryland Wheat
-  6 - Other

**Open Water**

-  5 - Ephemeral Stream



Reference Map



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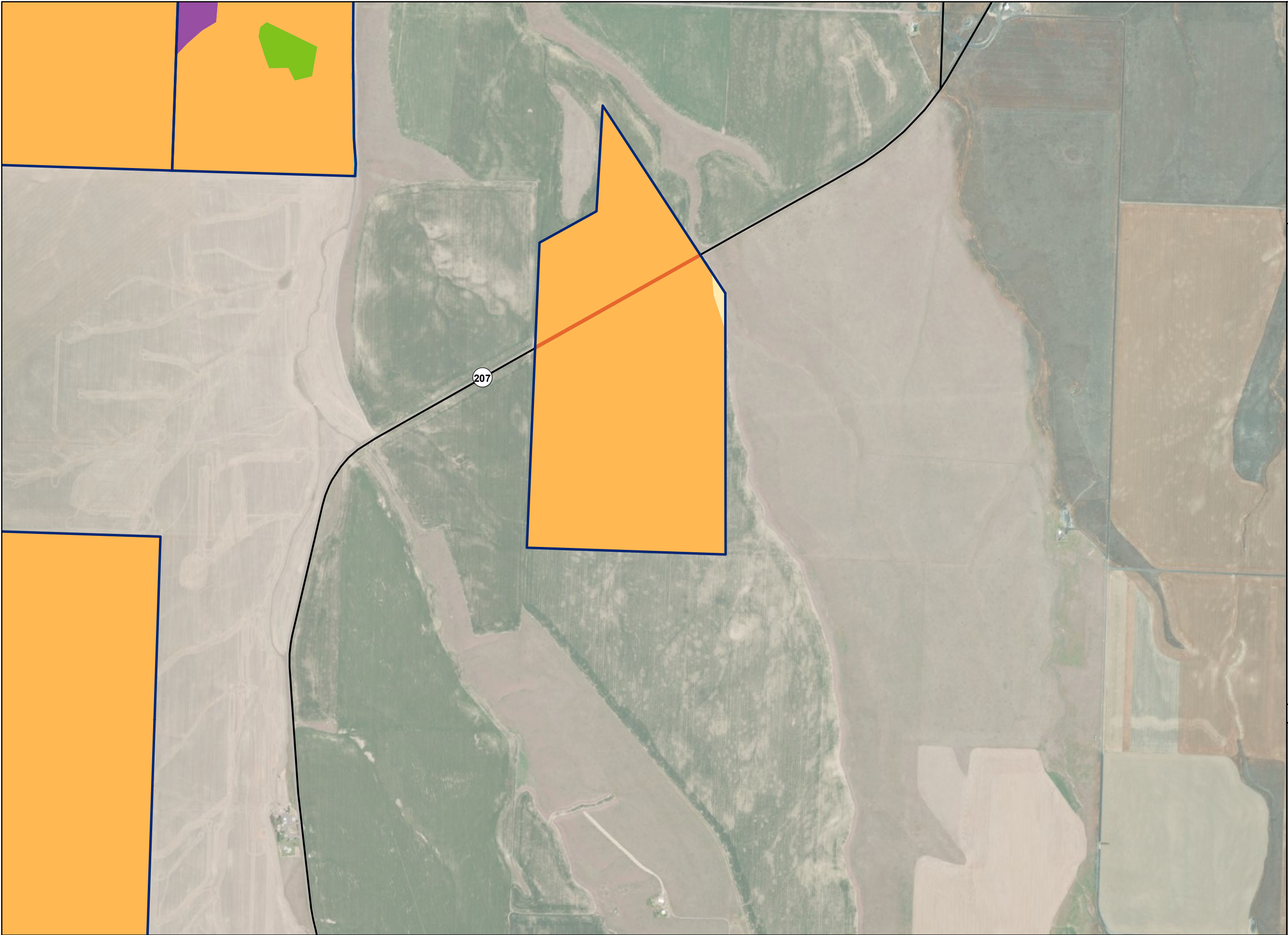
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# Wagon Trail Solar Project

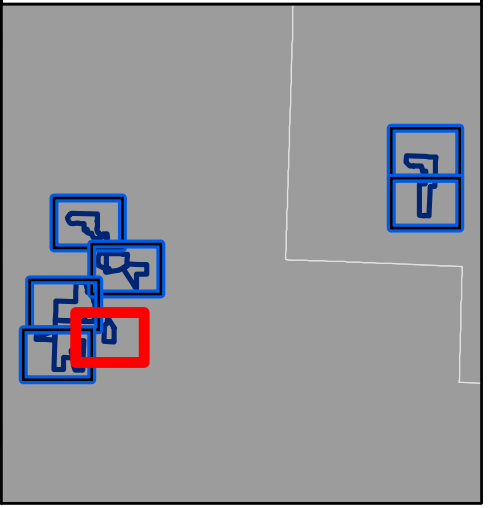
Figure 1.4  
Habitat Categories  
& Subtypes

MORROW AND UMATILLA COUNTIES, OR

-  Proposed Site Boundary (01/30/2020)
-  Secondary Road
- Habitat Type - Category and Subtype**
- Grassland**
-  3 - Native Perennial
- Shrub-Steppe**
-  4 - Rabbitbrush/Snakeweed
- Developed**
-  3 - Revegetated or Other Planted Grassland
-  6 - Dryland Wheat
-  6 - Other
- Open Water**
-  5 - Ephemeral Stream



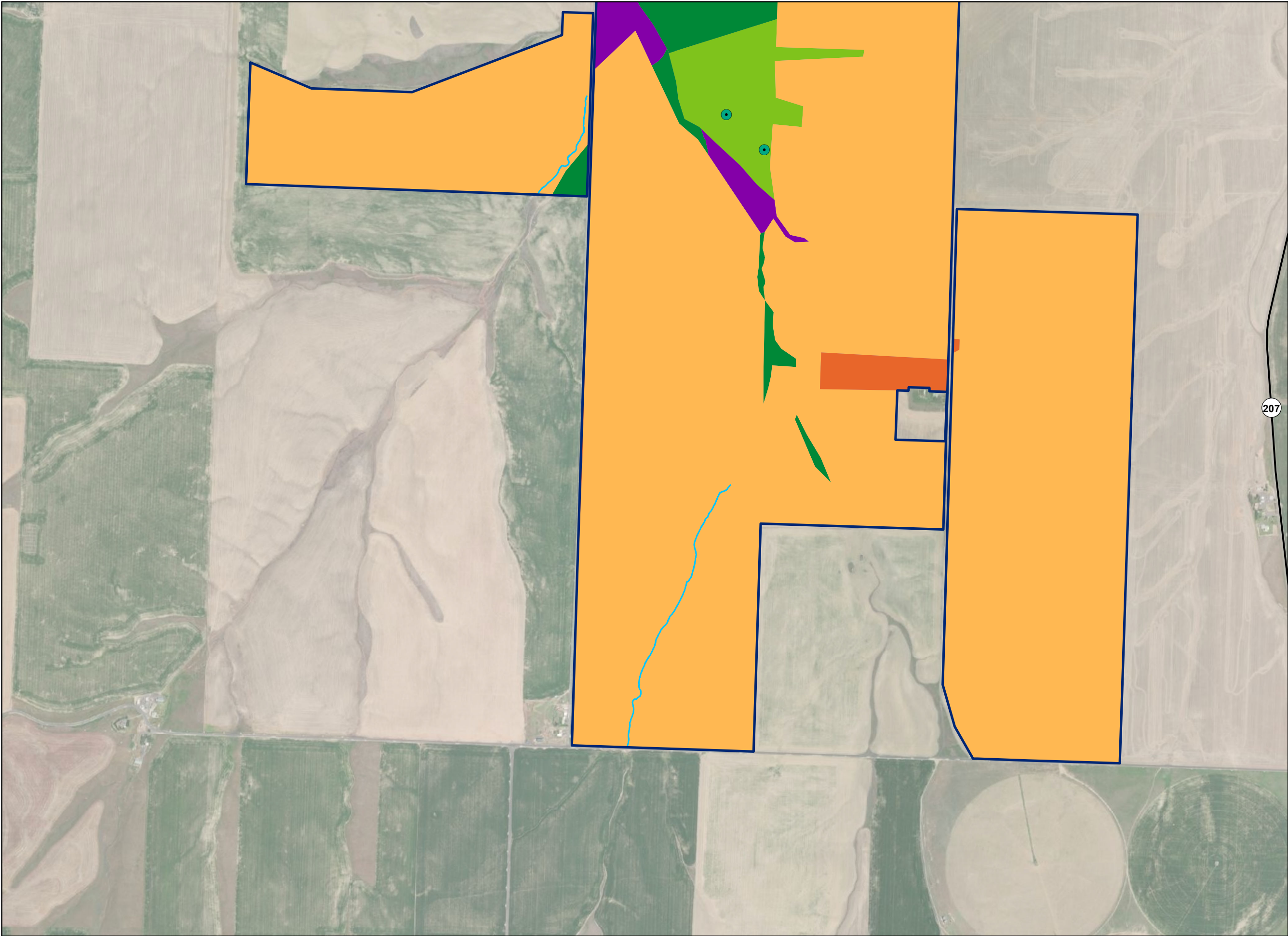
Reference Map



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**Wagon Trail  
Solar Project**

**Figure 1.5  
Habitat Categories  
& Subtypes**

MORROW AND UMATILLA COUNTIES, OR

Proposed Site Boundary  
(01/30/2020)

Secondary Road

**Special-Status Species**

Grasshopper sparrow

**Habitat Type - Category and Subtype**

Grassland

3 - Native Perennial

4 - Exotic Annual

Shrub-Steppe

3 - Basin Big Sagebrush

Developed

6 - Dryland Wheat

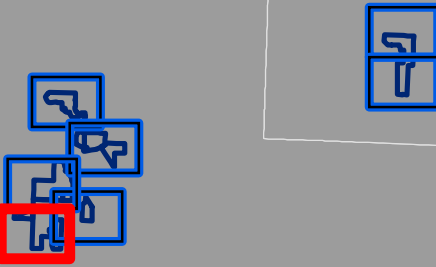
6 - Other

Open Water

5 - Ephemeral Stream



Reference Map



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# Wagon Trail Solar Project

Figure 1.6  
Habitat Categories  
& Subtypes

MORROW AND UMATILLA COUNTIES, OR

 Proposed Site Boundary  
(01/30/2020)

**Special-Status Species**


-  Grasshopper sparrow
-  Long-billed curlew

**Habitat Type - Category and Subtype**


Grassland

 4 - Exotic Annual

Shrub-Steppe

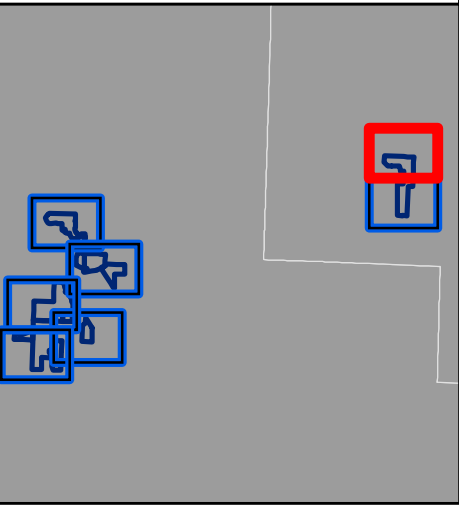
 4 - Rabbitbrush/Snakeweed

Developed

 6 - Other



Reference Map



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**Wagon Trail  
Solar Project**


**Figure 1.7  
Habitat Categories  
& Subtypes**

MORROW AND UMATILLA COUNTIES, OR


 Proposed Site Boundary  
(01/30/2020)

**Habitat Type - Category and Subtype**


**Grassland**

 4 - Exotic Annual

**Shrub-Steppe**

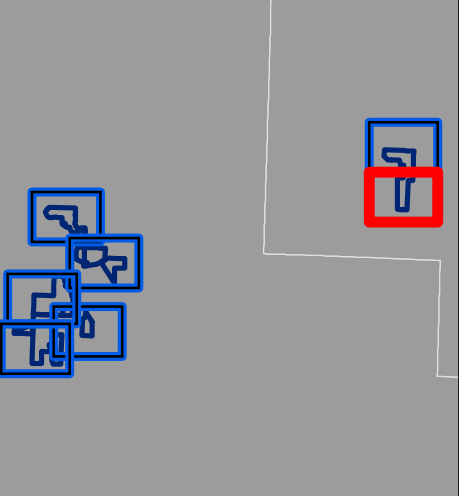
 4 - Rabbitbrush/Snakeweed

**Developed**

 6 - Other



**Reference Map**



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WGS 1984 UTM Zone 11N

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# **Attachment 1. Habitat Types and Subtypes Potentially Occurring within the Proposed Site Boundary**

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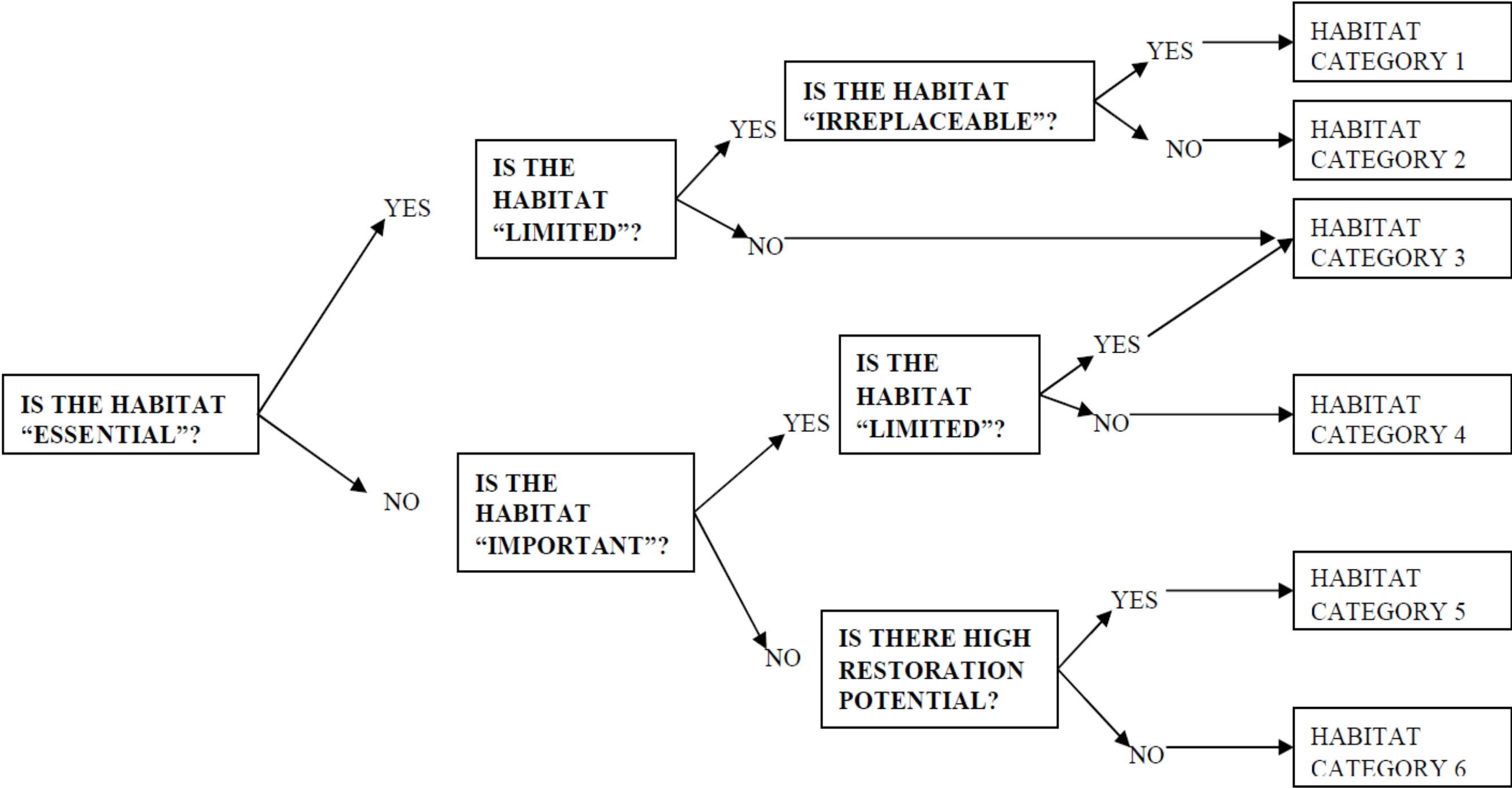


Habitat Type	Habitat Subtype	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6
The First Row is an Overlay That Automatically Assigns Categories, Based on Species Presence, to One or More of the Habitat Types Described Below							
Active WAGS Colony Overlay applies to subtypes Native Grassland, Shrub-steppe and select Revegetated or Other Planted Grasslands		Active Washington ground squirrel colony with a 785-foot buffer in suitable habitat.	Additional 4,136 foot (total of 1.5km) buffer on WAGS Category 1 habitat except where there are habitat barriers to dispersal.	-	-	-	-
Open Water – Lakes, Rivers, Streams	Permanent Ponds/Lakes Open water areas, including natural lakes, reservoirs, stock ponds, beaver ponds	Natural lakes or beaver ponds with high-quality habitat.	Most other open water areas with lower-quality habitat (for example, some habitat requisites missing or bullfrogs abundant).	Highly degraded open water area, dominated by non-native vegetation or no vegetation around margins (for example, highly degraded stock pond).	-	Natural lakes or beaver ponds with high-quality habitat.	-
	Seasonal Ponds Open water areas that contain water part of the year	Seasonal ponds with high quality, mostly native vegetation.	Seasonal ponds with lower-quality habitat that is still dominated by native plant species.	Highly degraded, with a higher proportion of non-native vegetation or no vegetation around margins (for example, a seasonal stock pond).	Habitat almost completely dominated by non-native plant species or otherwise highly degraded.	Seasonal ponds with high quality, mostly native vegetation.	-
	Perennial Streams mapped by USGS having permanent (year-round) flow	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	Fish-bearing natural stream channels that do not support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provide marginal spawning (gravel present in pockets/30% embedded) and/or rearing habitat; or non-fish-bearing natural stream channels which drain into fish-bearing streams based on StreamNet data.	Non-fish-bearing natural stream channels that do not directly drain into fish-bearing streams.	-	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	-
	Intermittent or Ephemeral Streams mapped by USGS as intermittent	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	Fish-bearing natural stream channels that do not support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provide marginal spawning (gravel present in pockets/30% embedded) and/or rearing habitat; or non-fish-bearing natural stream channels which drain into fish-bearing streams based on StreamNet data.	Non-fish-bearing natural stream channels that do not directly drain into fish-bearing streams.	Non-fish-bearing ephemeral streams or excavated channels with high restoration potential; not important habitat.	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	-

Habitat Type	Habitat Subtype	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6
Grassland	Exotic Annual Grassland	-	-	-	Non-native grasslands with a very high weed component and disturbed or less nutrient-rich soils. The forb component is composed primarily of non-native weeds, such as cheatgrass, bulbous bluegrass, cereal rye, tumble-mustard, and Russian thistle, with occasional patches of native bunchgrass, primarily Sandberg bluegrass. The high weed content is primarily due to past fires, which burned native shrubs and bunchgrasses and were followed by heavy grazing and/or wind erosion.	-	-
	Native Grassland	-	-	Dominated by native perennial grasses such as Sandberg bluegrass, bluebunch wheatgrass, Idaho fescue, western needlegrass, and needle-and-thread grass. Various native forbs and low shrubs such as gray rabbitbrush and, to a lesser extent, green rabbitbrush are present but are an inconspicuous component. Native vascular plants are diverse, and a variety of invertebrates can be found utilizing the plants throughout the growing season. These habitats have been altered through land use or wildfires, and generally contain a significant component of non-native vegetation (broad-leaf weeds and annual grasses). Category 3 Native Perennial Grasslands generally occur on sites with shallow soils and harsh exposures, or in areas that have experienced livestock grazing or frequent fires. Provide essential foraging habitat to a variety of common resident and migratory birds and common mammals.	Category 4 Native Perennial Grassland is ecologically similar to Category 3 Native Perennial Grassland but is classified as Category 4 because its small size and isolated nature limit its value to wildlife.	-	-

Habitat Type	Habitat Subtype	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6
Shrub-steppe	Basin Big Sagebrush Shrub-steppe	-	Shrub-steppe habitat with an overstory of mature (large structure) patches of basin big sagebrush. Understory plants consist of a mix of native bunchgrasses and exotic annual grasses depending largely on level of impact from disturbance. Common grasses are Sandberg bluegrass, bluebunch wheatgrass, cheatgrass, and bulbous bluegrass. Category 2 Basin Big Sagebrush Shrub-steppe has a higher shrub density and greater plant health than similar but lesser quality Category 3 Basin Big Sagebrush Shrub-steppe habitat. Category 2 Basin Big Sagebrush Shrub-steppe offers high quality breeding habitat for shrub obligate species including loggerhead shrike and may support Washington ground squirrel. Sagebrush lizard may be found in areas where more sandy soils are present.	Patches of Category 3 Basin Big Sagebrush Shrub-steppe lack the density and plant health of Category 2 Basin Big Sagebrush Shrub-steppe or are in patches of limited size. The overstory sagebrush in this type is often decadent or lacks full foliage. Understory vegetation in Category 3 Basin Big Sagebrush Shrub-steppe often tends toward annual grasses and low weeds. These areas were historically higher quality habitats but are experiencing degradation due to land use practices or frequent fires. However, the mature shrub cover provides escape and resting cover for common wildlife and is limited in the immediate area and the region.	-	-	-
	Rabbitbrush/ Snakeweed Shrub-steppe	-	-	Have been affected by recent fires and are in a relatively early seral stage. Native rabbitbrush and other low-stature plants such as broom snakeweed and various buckwheat species are common. The understory is native Sandberg bluegrass, non-native cheatgrass, bulbous bluegrass, and tumblemustard. Patches of native perennial grasses, such as bluebunch wheatgrass and needle-and-thread grass, are present. Many of these sites contain small patches of sagebrush that are less than one acre (0.4 ha) in size.	Has the same plant species but differs in composition from Category 3 Rabbitbrush/Snakeweed Shrub-steppe in that it has a greater weed and annual grass component than Category 3 Rabbitbrush/Snakeweed Shrub-steppe. While aspect and soils may contribute somewhat to this, disturbances such as livestock grazing and fires likely have a far greater effect.	-	-
Developed	Revegetated or Other Planted Grasslands	-	-	Planted grasslands on previously farmed or other disturbed lands that may be enrolled in the Conservation Reserve Program. This habitat subtype is comprised mainly of native or native-like grasses. Native vegetation in Category 3 Revegetated or Other Planted Grasslands may be sparse and not well-developed and may have a significant component of annual grasses and weeds.	-	-	-
	Dryland Wheat	-	-	-	-	-	Agricultural fields that are currently in small grain production or fallow.
	Irrigated Agriculture	-	-	-	-	-	Agricultural fields that are irrigated.

Habitat Type	Habitat Subtype	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6
	Other	-	-	-	-	-	Includes farming/ranching home and shop sites, corrals, structures, feedlots, active and inactive gravel quarries, non-irrigated pastures, graveled and paved roads, rights-of-way, and waste areas associated with on-going human activities.

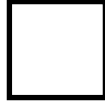


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## **Attachment 2. Habitat Categorization Datasheet**

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**WAGON TRAIL HABITAT CATEGORIZATION****HABITAT CATEGORY**

Date \_\_\_\_\_

Surveyor \_\_\_\_\_

**Site description:****EFSC habitat type/subtype:** (circle one habitat type and one subtype):**Grassland:** Exotic Annual Grassland (GA), Native Perennial (GB),**Shrub-steppe:** Basin Big Sagebrush Shrub-steppe (SSA), Rabbitbrush/Snakeweed Shrub-steppe (SSB)**Developed:** Dryland Wheat (DW), Developed Other (DX), Revegetated or Other Planted Grassland (RVG)

Notes if confusion \_\_\_\_\_

**Detailed vegetation measurements:**\*\*Dominant  $\geq 20\%$ , Subdominant 10-20%***Trees***

Dominant species \_\_\_\_\_

Subdominant species \_\_\_\_\_

Avg. dbh (in.) \_\_\_\_ Canopy closure (%) \_\_\_\_ No. subcanopy layers \_\_\_\_

Percent native cover \_\_\_\_ Percent bare ground or duff \_\_\_\_

Stumps present? Yes No

Snags present? Yes No Snag stage (circle one) 1 2 3 4 5 Abundance \_\_\_\_/ac

Forest phase per Brown: GF SHR OSP CSPA LGSAW OGDD

***Shrubs***

Dominant species \_\_\_\_\_

Subdominant species \_\_\_\_\_

Canopy closure (%) \_\_\_\_ No. subcanopy layers \_\_\_\_

Percent native cover \_\_\_\_ Percent bare ground \_\_\_\_

Percent cryptobiotic crust (if applicable) \_\_\_\_

***Herbs & Grasses***

Dominant species \_\_\_\_\_

Subdominant species \_\_\_\_\_

Canopy closure (%) \_\_\_\_ No. subcanopy layers \_\_\_\_

Percent native cover: \_\_\_\_ Percent bare ground or duff \_\_\_\_

Percent cryptobiotic crust (if applicable) \_\_\_\_

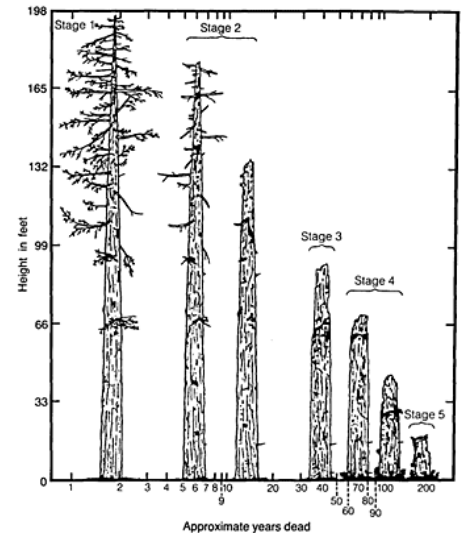


Figure 5.—Five stages of deterioration of Douglas-fir snags (adapted from Cline et al. 1980).

## Other descriptions:

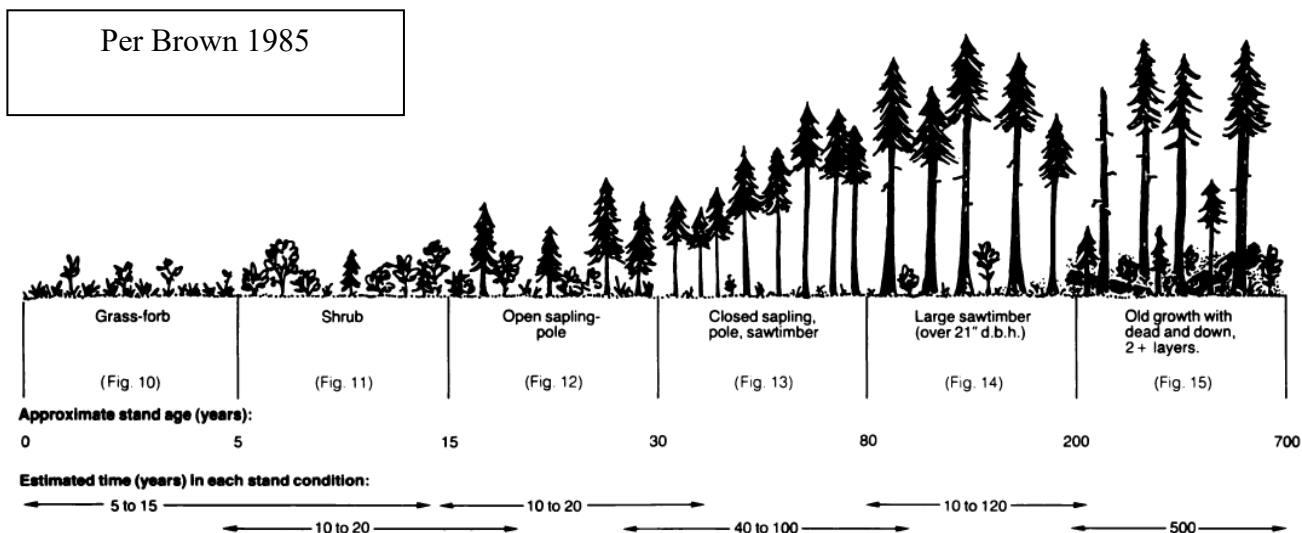
Disturbance type(s), check all that apply within the polygon, and for disturbances outside but in view of the polygon, insert the estimated distance in meters between the polygon edge and the disturbance:

<input type="checkbox"/> Grazing	<input type="checkbox"/> Thinning	<input type="checkbox"/> Wind Farm
<input type="checkbox"/> Invasive plants	<input type="checkbox"/> Quarry	<input type="checkbox"/> Fire
<input type="checkbox"/> Clearcut Logging	<input type="checkbox"/> Residence or Farm	<input type="checkbox"/> Other Building
<input type="checkbox"/> Railroad	<input type="checkbox"/> Communications Tower	<input type="checkbox"/> Campground
<input type="checkbox"/> Dirt Road	<input type="checkbox"/> Gravel Road	<input type="checkbox"/> Asphalt road
<input type="checkbox"/> Row Crop	<input type="checkbox"/> Urban Area	<input type="checkbox"/> Erosion
<input type="checkbox"/> Recreation, if so what kind? _____		Other (please specify) _____

Any sensitive species seen or habitat specifically noted (if yes, please explain)?    Yes    No

Any special features (for example: caves, mine openings, cliffs, rimrock, rock outcrops, talus slopes, abandoned buildings, large snags, abandoned wood bridges, balds and bluffs, wetland habitats (if yes, please explain)?    Yes    No

Any additional notes:



## **Attachment 3. Special-Status Species Potentially Occurring within the Proposed Site Boundary**

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**2020 Habitat Categorization and Special-Status Wildlife Survey Report**  
**Attachment 3. Special-Status Wildlife Species Potentially Occurring within the Survey Area**

Common name	Scientific name	Federal Status <sup>1</sup>	ODFW Status <sup>2</sup> in Columbia Plateau	Occurs in Morrow County per ORBIC 2019	Occurs in Umatilla County per ORBIC 2019
<b>Birds</b>					
bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA, BCC	-	yes	yes
Brewer's sparrow	<i>Spizella breweri</i>	BCC	S, CSS	yes	yes
burrowing owl (Western)	<i>Athene cunicularia hypugaea</i>	SOC	SC, CSS	yes	yes
common nighthawk	<i>Chordeiles minor</i>	-	S, CSS	yes	yes
ferruginous hawk	<i>Buteo regalis</i>	SOC, BCC	SC, CSS	yes	yes
golden eagle	<i>Aquila chrysaetos</i>	BGEPA, BCC	-	yes	yes
grasshopper sparrow	<i>Ammodramus savannarum</i>	-	S, CSS	yes	yes
loggerhead shrike	<i>Lanius ludovicianus</i>	BCC	S, CSS	yes	yes
long-billed curlew	<i>Numenius americanus</i>	BCC	SC, CSS	yes	yes
sagebrush sparrow	<i>Artemisiospiza nevadensis</i>	-	SC, CSS	yes	yes
Swainson's hawk	<i>Buteo swainsoni</i>	-	S, CSS	yes	yes
<b>Mammals</b>					
hoary bat	<i>Lasiurus cinereus</i>	-	S, CSS	no	yes
pallid bat	<i>Antrozous pallidis</i>	-	S, CSS	no	yes
silver-haired bat	<i>Lasionycteris noctivagans</i>	-	S, CSS	no	yes
spotted bat	<i>Euderma maculatum</i>	-	S, CSS	yes	-
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	-	SC, CSS	yes	-
Washington ground squirrel	<i>Urocitellus washingtoni</i>	-	E, CSS	yes	yes
<b>Reptiles</b>					
northern sagebrush lizard	<i>Sceloporus graciosus graciosus</i>	-	S, CSS	yes	yes
Species and status: OCS 2016, ODFW 2018, ODFW 2019, ORBIC 2019, USFWS 2008, USFWS 2019 1. Federal Status: BGEPA=Protected by the Bald and Golden Eagle Protection Act, USFWS Federally Listed Species: E = Endangered, T = Threatened, C = Candidate, PT = Proposed Threatened, SOC = Species of Concern, CH = Critical Habitat has been designated for this species, PE = Proposed Endangered, PT = Proposed Threatened, PCH = Critical Habitat has been proposed for this species, BCC = Bird of Conservation Concern 2. ODFW State Listed and Sensitive Species: E = Endangered, T = Threatened, S=Sensitive, SC = Sensitive Critical, CSS = Conservation Strategy Species					

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## **Attachment 4. Select Photographs of Habitats Taken during 2020 Surveys**

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Photo 1. Category 6, Developed, Other. Active Wind Farm Construction. 5/27/2020 18:32.



Photo 2. Category 4, Grassland, Exotic Annual. 5/25/2020 18:13.



Photo 3. Category 4, Shrub-Steppe, Rabbitbrush. 5/25/2020 18:15.



Photo 4. Category 6, Developed, Dryland Wheat. Active Agriculture Field. 5/26/2020 22:01.





Photo 5. Category 3, Shrub-Steppe, Rabbitbrush. 5/23/2020 22:55.



Photo 6. Category 3, Shrub-Steppe, Big Basin Sagebrush. 5/25/2020 18:26.



Photo 7. Category 3, Grassland, Native Perennial. 5/26/2020 23:10.



Photo 8. Category 3, Developed, Revegetated or Other Planted Grasslands. 5/27/2020 17:05.



## **Attachment 5. Wildlife Species Observed During 2020 Surveys**

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**2020 Habitat Categorization and Special-Status Wildlife Survey Report**  
**Attachment 5. Wildlife Species Observed During 2020 Surveys**

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**Wildlife Species Observed During 2020 Surveys**

Common Name	Scientific Name
<b>BIRDS</b>	
American kestrel	<i>Falco sparverius</i>
bank swallow	<i>Riparia riparia</i>
common raven	<i>Corvus corax</i>
European starling	<i>Sturnus vulgaris</i>
grasshopper sparrow	<i>Ammodramus savannarum</i>
horned lark	<i>Eremophila alpestris</i>
long-billed curlew	<i>Numenius americanus</i>
red-tailed hawk	<i>Buteo jamaicensis</i>
red-winged blackbird	<i>Agelaius phoeniceus</i>
ring-necked pheasant	<i>Phasianus colchicus</i>
rock pigeon	<i>Columba livia</i>
savannah sparrow	<i>Passerculus sandwichensis</i>
Swainson's hawk	<i>Buteo swainsoni</i>
western kingbird	<i>Tyrannus verticalis</i>
western meadowlark	<i>Sturnella neglecta</i>
<b>Mammals</b>	
mule deer	<i>Odocoileus hemionus</i>

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## **Attachment P-2. Draft Wildlife Monitoring and Mitigation Plan**

# **DRAFT**

# **Wildlife Monitoring and Mitigation Plan for the Wagon Trail Solar Project**

**Prepared for**



**Prepared by:**



**January 2022**



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## **Acronyms and Abbreviations**

Applicant	Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC
Council	Oregon Energy Facility Siting Council
Facility	Wagon Trail Solar Project
MW	megawatt
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
SCADA	supervisory control and data acquisition
USFWS	U.S. Fish and Wildlife Service
WMMP	Wildlife Monitoring and Mitigation Plan
WRRS	Wildlife Response and Reporting System

## 1.0 Introduction

Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC (Applicant) proposes to construct and operate the Wagon Trail Solar Project (Facility), a photovoltaic solar energy generation facility with a nominal and average generating capacity of up to 500 megawatts (MW), and related or supporting facilities in Morrow County, Oregon. The Facility will generate electricity using solar panels wired in series and in parallel to form arrays and connected to electrical infrastructure. The Facility will overlap with portions of the Wheatridge Renewable Energy Facilities I, II, and III.

The Facility will be located entirely on private land. The number, size, and actual layout of the Facility infrastructure has yet to be determined. Facility components proposed include:

- A 500-MW battery storage system;
- Collector substations;
- Electrical collection systems connecting the solar arrays;
- 230-kilovolt transmission line connecting to the existing Blue Ridge Substation;
- One operations and maintenance building;
- Meteorological stations and tower;
- New private access and service roads, gates and security fencing;
- Temporary construction areas;
- One supervisory control and data acquisition (SCADA) system.

This Wildlife Monitoring and Mitigation Plan (WMMP) has been prepared for operations of the proposed Facility and will be updated, as necessary, prior to construction.

This WMMP has the following components:

1. Wildlife Response and Reporting System (WRRS),
2. Raptor nest monitoring,
3. Washington ground squirrel monitoring,
4. Post-construction fatality monitoring, and
5. Data reporting.

The Applicant has also prepared a Habitat Mitigation Plan and Reclamation and Revegetation Plan to address effects on wildlife from habitat loss or modification.

## 2.0 Wildlife Response and Reporting System

The Applicant has voluntarily developed a WRRS as a proactive method of monitoring and recording wildlife found incidentally during the operation of the Facility. This system has a specific set of processes, procedures, and training for monitoring, responding to, and reporting bird, bat, or other wildlife species' injuries and fatalities at the Facility. The Applicant has developed a WRRS Manual, which gives details of the program and will guide operations personnel in implementation of the system. The manual's purpose is to standardize the actions in response to any wildlife fatalities or injuries found within the Applicant's facilities, regardless of their cause. The main points of the system are:

- Any livestock or wildlife injury or fatality discovered at the Facility will be documented by operations personnel.
- An incident report will be completed and include photographs.
- The Applicant's wildlife program manager will be notified by the site manager within a reasonable timeframe to determine if further actions are needed, based on the species and circumstances surrounding the incident.
- If a federally endangered or threatened species is found dead or injured at the Facility, the Applicant will immediately notify the U.S. Fish and Wildlife Service (USFWS) Region 1 Field Office of the discovery within 1 business day of the species identification.
- If a state endangered or threatened species is found dead or injured at the Facility, the Applicant will immediately notify the Oregon Department of Fish and Wildlife (ODFW) of the discovery within one business day of species identification.

## 3.0 Raptor Nest Monitoring

The objectives of raptor nest surveys are: (1) to estimate the size of the breeding raptor population in the vicinity of the Facility; (2) to determine nesting success of the following raptor species: burrowing owl (*Athene cunicularia*), ferruginous hawk (*Buteo regalis*) and Swainson's hawk (*Buteo swainsoni*); and 3) to determine whether there are noticeable changes in nesting activity in the local raptor population during the operational life of facility.

The Applicant will monitor raptor nests for the operational life of the Facility as follows. The first year of raptor nest surveys will be performed during the first raptor nesting season after construction of the Facility, and every 5 years thereafter. For example, if the Facility is constructed in 2022, the first monitoring survey would occur in 2023, followed by 2028, 2033, 2038, etc.). The Applicant will hire independent third-party investigators to perform raptor nest surveys.

During each survey year, the investigators will conduct ground surveys within the Facility and a 0.25-mile buffer (survey area). The investigators will conduct two surveys to determine nest occupancy; the first survey will occur in April and the second survey will occur in May. During both

surveys, the investigators will traverse the perimeter of the Facility and visually scan out to 0.25 mile from the Facility. Surveys will monitor the survey area for raptor breeding behavior, search for new raptor nests, and check the status of known nests discovered during pre-construction surveys. All new nests, whether active or inactive, will be given identification numbers that correspond with the Global Positioning System coordinates recorded for each nest. For historical nests, the previously established identification number will be maintained for consistency. Portions of the survey area not visible from the perimeter of the Facility will be searched to the extent possible from public roads.

After the two surveys have been completed to determine occupancy, nest visits will be conducted at occupied nests of burrowing owls, ferruginous hawks and Swainson's hawks to determine nest outcome (i.e., successful, failed, and undetermined) and productivity (number of young fledged). A nesting attempt will be considered successful if at least one young reaches 80 percent of the average actual fledging age (Steenhof and Newton 2007). A minimum of one nest visit will be conducted to determine nest outcome. Once a nest has been determined to be occupied, visits will occur at approximately 2-week intervals until the young have fledged from the nest or the nest fails.

Investigators will make every effort to avoid disturbance to nesting raptors during follow-up visits. Investigators will perform checks from the furthest distance possible using binoculars, high-powered scopes, and cameras to the maximum extent possible. Status checks may be performed on foot to verify status at nests where visibility is limited from a distance. If such visits are made, surveyors will perform on-foot checks as quickly as possible. Access or visual constraints (e.g., leaf out of broadleaf trees) may prohibit some nests being checked for nest success and productivity.

The investigators will follow these survey protocols unless the investigators propose alternative protocols that are approved by the Oregon Department of Energy (ODOE). In developing an alternative protocol, the investigators will consult with ODFW and will take into consideration other raptor nest monitoring efforts in adjacent areas. The Applicant will submit a report after each year of raptor nest surveys. The report will include survey methods and results including the number of occupied raptor nests and the nest outcome of burrowing owl, ferruginous hawk and Swainson's hawk nests. After two survey years of raptor nesting data have been collected, the Applicant will tabulate the number of nesting attempts for each species to analyze whether there are any trends in the nesting activity of the local raptor population during the operational life of the Facility.

## **4.0 Washington Ground Squirrel Monitoring**

Washington ground squirrel (*Uroditellus washingtoni*) pre-construction surveys were performed at the Facility to determine operations monitoring requirements. One active ground squirrel colony was recorded within the 2021 survey area, but the colony was located outside of the Site Boundary. As the colony is outside the Site Boundary no monitoring is planned at this time. However, if new colonies are located during other monitoring activities or incidentally during operations, the Applicant will document and delineate the colonies, and will amend the WMMP with a Washington

ground squirrel monitoring program in consultation with ODOE. Observations of Washington ground squirrels in agricultural habitat will be reported to ODOE, but such observations do not warrant mitigation or monitoring.

## **5.0 Post-construction Fatality Monitoring**

A post-construction fatality monitoring program for the first phase of the Facility will be developed in consultation with ODFW and ODOE. This program will address a wildlife-PV solar interaction research question with the potential for meaningful insight based on Facility-specific circumstances. This program will employ appropriate methods and assumptions according to the best available science.

## **6.0 Data Reporting**

The Applicant will report wildlife monitoring data to ODOE annually. Monitoring data include WRRS data, and if applicable, newly discovered Washington ground squirrel colonies. The Applicant may include the reporting of wildlife monitoring data in the annual report required under Oregon Administrative Rules 345-026-0080 or submit this information as a separate document at the same time the annual report is submitted. In addition, upon request by ODOE, Applicant will provide to ODOE any data or record generated in carrying out this monitoring plan.

The Applicant will notify USFWS and ODFW if any federal or state endangered or threatened species are killed or injured at the Facility site within 1 business day of species identification.

## **7.0 Amendment of the Plan**

This WMMP may be amended by agreement of the Applicant and the Oregon Energy Facility Siting Council (Council). Such amendments may be made without amendment of the site certificate. The Council authorizes ODOE to agree to amendments to this plan. ODOE will notify the Council of all amendments, and the Council retains the authority to approve, reject, or modify any amendment of this plan.

## **8.0 References**

Steenhof, K., and I. Newton. 2007. Assessing nesting success and productivity. Pages 181–192 in D.M. Bird and K.L. Bildstein [Eds.], *Raptor research and management techniques*. Hancock House, Blaine, WA U.S.A.

## **Attachment P-3. Draft Habitat Mitigation Plan**

# **DRAFT**

## **Habitat Mitigation Plan for the Wagon Trail Solar Project**

**Prepared for**



**Prepared by:**



**January 2022**



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## Acronyms and Abbreviations

Applicant	Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC
Council	Oregon Energy Facility Siting Council
Facility	Wagon Trail Solar Project
HMA	Habitat Mitigation Area
HMP	Habitat Mitigation Plan
MW	megawatt
OAR	Oregon Administrative Rule
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
SCADA	supervisory control and data acquisition
WAGS	Washington ground squirrel

## 1.0 Introduction

Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC (Applicant) proposes to construct and operate the Wagon Trail Solar Project (Facility), a photovoltaic solar energy generation facility with a nominal and average generating capacity of up to 500 megawatts (MW), and related or supporting facilities in Morrow County, Oregon. The Facility will generate electricity using solar panels wired in series and in parallel to form arrays and connected to electrical infrastructure. The Facility will overlap with portions of the Wheatridge Renewable Energy Facilities I, II, and III. As described in detail in Exhibit B of the Application for Site Certificate, the Applicant proposes to construct the Facility in phases over several years. This Habitat Mitigation Plan (HMP) addresses a fully built-out scenario, but takes into consideration a phased construction schedule.

The Facility will be located entirely on private land. The number, size, and actual layout of the Facility infrastructure has yet to be determined. Facility components proposed include:

- A 500-MW battery storage system;
- Collector substations;
- Electrical collection systems connecting the solar arrays;
- 230-kilovolt transmission line connecting to the existing Blue Ridge Substation;
- One operations and maintenance building;
- Meteorological stations and tower;
- New private access and service roads, gates and security fencing;
- Temporary construction areas;
- One supervisory control and data acquisition (SCADA) system.

The Applicant conducted habitat categorization surveys and other biological studies to define habitat categorization of the Facility in accordance with the Oregon Department of Fish and Wildlife (ODFW) Fish and Wildlife Habitat Mitigation Policy, Oregon Administrative Rule (OAR) 635-415-0000 through 0025. This HMP was prepared to meet the habitat mitigation requirements for the Facility and thoroughly describes the manner in which the impact of the development action will be reduced or eliminated over time, avoided, and/or minimized. This HMP commits to maintaining, enhancing, and preserving in-kind wildlife habitat in the Columbia Basin Ecoregion to achieve no net loss of Category 2, 3, and 4 habitat quantity or quality and a net benefit in Category 2 habitat. Included in this plan are measures for enhancing and protecting sufficient acreages of wildlife habitat to compensate for those acreages permanently impacted by the Facility or phase of the Facility. This protection will be, at minimum, for the duration of the Facility or phase of the Facility.

## 2.0 Habitat Categories and Habitat Types

In support of OAR 345-021-0010(p)(a)-(e) and described further in Section 2.2 of Exhibit P, the following field-based surveys inform this HMP:

- Habitat surveys in portions of the site boundary during pre-construction compliance surveys for adjacent facilities;
- Raptor nest surveys and nest monitoring efforts performed at adjacent facilities; and
- Wildlife habitat mapping surveys conducted simultaneously with special status wildlife and Washington ground squirrel (*Uroditellus washingtoni*) surveys specific to this Facility;

The ODFW Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0015) provides a framework to categorize habitats based on type, quality, availability, and usefulness/importance to wildlife, and establishes mitigation goals and implementation standards for each. Table 1 defines each of the six habitat category types as presented in the policy.

**Table 1. Habitat Categorization Types**

Category Type	Definition <sup>1</sup>	Mitigation Goal
1	Irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population or unique assemblage.	The mitigation goal for Category 1 habitat is no loss of either habitat quantity or quality.
2	Essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage.	The mitigation goal if impacts are unavoidable is no net loss of either habitat quantity or quality and to provide a net benefit of habitat quantity or quality.
3	Essential habitat for fish and wildlife, or important habitat for fish and wildlife that is limited either on a physiographic province or site-specific basis, depending on the individual species or population.	The mitigation goal is no net loss of either habitat quantity or quality.
4	Important habitat for fish and wildlife species.	The mitigation goal is no net loss of either habitat quantity or quality.
5	Habitat for fish and wildlife having high potential to become either essential or important habitat.	The mitigation goal, if impacts are unavoidable, is to provide a net benefit in habitat quantity or quality.
6	Habitat that has low potential to become essential or important habitat for fish and wildlife.	The mitigation goal is to minimize impacts.
1. Source: OAR 635-415-0025.		

During field surveys, habitat categories and types (vegetation and other characteristics) were identified within the site boundary that met definitions for Category 1, 2, 3, 4, 5, and 6 habitats

(Exhibit P, Section 3.0). Category 1 habitat is associated with suitable habitat within 785 feet of documented Washington ground squirrel (WAGS) (*Urocitellus washingtoni*) colonies. Category 2 habitat is associated with areas of potential WAGS use (within 4,921 feet of WAGS colony). Category 3, 4, 5, and 6 habitats include areas that do not contain WAGS colonies or areas of potential WAGS use and are categorized as such solely due to their vegetation characteristics.

### 3.0 Temporary and Permanent Impacts

The Facility will be confined to the site boundary as shown in Exhibit P, Figure P-1. Impacts from the Facility and associated components may be temporary or permanent. Temporary impacts are those impacts that are limited to the construction period, although recovery of habitat will vary by type. For instance, the recovery period for agricultural areas and annual grasslands that are temporarily disturbed could be as short as 1 to 3 years, while native grasslands generally recover within 3 to 7 years, and shrublands taking as long as 10 to 50 years to recover. Permanent impacts are defined as those impacts that will exist for the life of the Facility. After Facility construction, the Applicant will restore habitat that has been temporarily disturbed by construction activities and monitored according to provisions in the Draft Reclamation and Revegetation Plan (Attachment P-4 of Exhibit P).

It is expected that Category 2 through 6 habitats will be impacted by the Facility. Table 2 shows the acres of temporary and permanent impacts in each habitat category by habitat subtype for the Facility. Figure 1 shows the location of temporary and permanent impacts from the Facility.

**Table 2. Temporary and Permanent Impacts by Habitat Category and Habitat Subtype**

ODFW Habitat Category	Habitat Subtype	Permanent	Temporary
2	Shrub-steppe-Rabbitbrush/Snakeweed	0.0001	0.04
<b>Total</b>		<b>0.0001</b>	<b>0.04</b>
3	Developed-Revegetated or Other Planted Grassland	0.0	0.2
	Grassland-Native Perennial	7.0	2.0
	Shrub-steppe-Rabbitbrush/Snakeweed	0.0	4.3
<b>Total</b>		<b>7.0</b>	<b>6.5</b>
4	Grassland-Exotic Annual	0.0	0.1
	Shrub-steppe-Rabbitbrush/Snakeweed	0.0	0.25
<b>Total</b>		<b>0.0</b>	<b>0.35</b>
5	Wetlands/Waters-Ephemeral Stream	0.0	0.01
<b>Total</b>		<b>0.0</b>	<b>0.1</b>
6	Developed-Dryland Wheat	3,653.9	159.9
	Developed-Other	11.1	2.5
<b>Total</b>		<b>3,667.9</b>	<b>162.6</b>
<b>Grand Total</b>		<b>3,684.9</b>	<b>169.5</b>

The Applicant proposes to begin construction as soon as March 2023 and to construct the Facility in phases. For any phase of construction, the Applicant is only required to comply with the preconstruction conditions applicable to the phase (Oregon Revised Statutes 469.300(6)). The size and construction schedule for each phase (and various solar array areas) will depend on market demand. The impact analysis presented in the Application for Site Certificate and mitigation outlined in this Draft HMP represents the fully built-out scenario of 500 MW. Mitigation will be determined prior to the construction of each phase. If phases are transferred to a new certificate holder, then any mitigation obligations will also be transferred.

## 4.0 Mitigation Calculations

The mitigation area will be determined for each phase of the Facility based on the final design for that phase and actual habitat impacts (i.e., Category 2 vs. Category 6 habitat). Before beginning construction of each phase of the Facility, the Applicant will provide the Oregon Department of Energy (ODOE) with a map showing the final design configuration for that phase of the Facility, and a table showing the estimated acres of permanent and temporary impacts by habitat category (Table 2). Table 3 shows the methods for calculating mitigation for temporary impacts and Table 4 shows the methods for calculating mitigation for permanent impacts. The Applicant is not proposing compensatory mitigation under the ODFW Fish and Wildlife Habitat Mitigation Policy for impacts to Category 6 habitat.

**Table 3. Calculating Mitigation for Temporary Impacts**

Habitat Category	Habitat Subtype	Mitigation Ratio <sup>1</sup>	Mitigation Description
2	Shrub-steppe-Rabbitbrush/Snakeweed	1:1	The mitigation goal for Category 2 habitat is “no net loss” and “net benefit.” All areas of temporary disturbance would be restored at the site of impact to meet the “no net loss” requirement. The proposed mitigation ratio for permanent impacts to grasslands would meet the “net benefit” requirement for all impacts to Category 2 grasslands.
3	Shrub-steppe-Rabbitbrush/Snakeweed	0.5:1	The mitigation goal for Category 3 and Category 4 habitat is “no net loss” in quantity or quality. Depending on the habitat subtype temporarily disturbed, the proposed mitigation ratio would result in an equal or lesser amount of acreage of mitigation than what is impacted by the project. Combined with restoration of
	Grassland-Native Perennial	0	
	Developed-Revegetated or Other Planted Grassland	0	



Habitat Category	Habitat Subtype	Mitigation Ratio <sup>1</sup>	Mitigation Description
4	Shrub-steppe-Rabbitbrush/Snakeweed	0.5:1	temporary disturbances, the proposed mitigation ratio is intended to account for the temporary loss of habitat functionality and meet the “no net loss” goal. Temporary disturbances to Category 3 and Category 4 Grasslands are not mitigated beyond restoration.
	Grassland-Exotic Annual	0	
5	Open Water-Ephemeral Stream	0.5:1	The mitigation goal, if impacts are unavoidable, is to provide a net benefit in habitat quantity or quality. The proposed ratio is to address the net benefit goal, in consideration with restoration.
6	Developed-Dryland Wheat	0:1	The mitigation goal for Category 6 habitat is minimization; no compensatory mitigation is proposed.
	Developed-Other		
1. Acres of mitigation: acres impact.			

Table 4. Calculating Mitigation for Permanent Impacts

Habitat Category	Habitat Subtype	Mitigation Ratio <sup>1</sup>	Mitigation Description
2	Shrub-steppe-Rabbitbrush/Snakeweed	2:1	The mitigation goal for Category 2 habitat is “no net loss” and “net benefit.” Accordingly, mitigation for permanent impacts on Category 2 habitat needs to demonstrate a net benefit in quality or quantity.
3	Shrub-steppe-Rabbitbrush/Snakeweed	1:1	The mitigation goal for Category 3 habitat is “no net loss” in quantity or quality.
	Grassland-Native Perennial		
	Developed-Revegetated or Other Planted Grassland		
4	Shrub-steppe-Rabbitbrush/Snakeweed	1:1	The mitigation goal for Category 4 habitat is “no net loss” in quantity or quality.
	Grassland-Exotic Annual	1:1	
5	Open Water-Ephemeral Stream	1:1	The mitigation goal, if impacts are unavoidable, is to provide a net benefit in habitat quantity or quality. The proposed ratio is to address the net benefit in quality goal.
6	Developed-Dryland Wheat	0:1	The mitigation goal for impacts on Category 6 habitat is minimization; no compensatory mitigation proposed.
	Developed-Other		
1. Acres of mitigation: acres impact.			

## 5.0 Estimated Mitigation for the Facility

Table 5 applies the acres of temporary and permanent impacts shown in Table 2 with the mitigation ratios shown in Table 3 and Table 4 to estimate mitigation requirements for the Facility.

**Table 5. Estimated Mitigation by Habitat Category and Habitat Subtype for the Facility**

Habitat Category	Habitat Subtype	Impact	Acres	Mitigation Ratio <sup>1</sup>	Estimated Mitigation	Mitigation Subtotal by Habitat Category <sub>1</sub>
2	Shrub-steppe-Rabbitbrush/Snakeweed	Temp	0.04	1:1	0.04	0.0402
		Perm	.0001	2:1	0.0002	
3	Shrub-steppe-Rabbitbrush/Snakeweed	Temp	4.3	0.5:1	2.15	9.15
		Perm	0.0	1:1	0	
	Grassland-Native Perennial	Temp	2.0	0:1	0	
		Perm	7.0	1:1	7.0	
	Developed-Revegetated or Other Planted Grassland	Temp	0.2	0:1	0	
		Perm	0.0	1:1	0	
4	Shrub-steppe-Rabbitbrush/Snakeweed	Temp	0.25	0.5:1	0.125	0.125
		Perm	0.0	1:1	0	
	Grassland-Exotic Annual	Temp	0.09	0:1	0	
		Perm	0.0	1:1	0	
5	Open Water-Ephemeral Stream	Temp	0.01	0.5:1	0.005	0.005
		Perm	0.0	1:1	0	
6	Developed-Dryland Wheat	Temp	159.9	0:1	0	0
		Perm	3,653.9	0:1	0	
	Developed-Other	Temp	2.5	0:1	0	
		Perm	11.1	0:1	0	
TOTALS						9.3202
Note: Totals in this table may not be precise due to rounding.						
1. Acres of mitigation: acres impact.						

The mitigation requirements will be determined for each phase of the Facility based on the final design for that phase and actual habitat impacts (i.e., Category 2 vs. Category 6 habitat). Before beginning construction of each phase of the Facility, the Applicant will provide ODOE with a table showing the estimated mitigation by habitat subtype and category for that phase (Table 5).

## 6.0 Habitat Mitigation Area

The Habitat Mitigation Area (HMA) is the area where the Applicant is proposing to perform enhancement and preservation actions to address the estimated mitigation for the Facility (Table 5). The HMA must be large enough and have the characteristics to meet the standards set in OAR 635-415-0025.

According to ODFW standards, areas appropriate for mitigation of Category 2, 3 and 4 habitat impacts must provide reliable “in-kind” mitigation which creates similar structure and function to that being disturbed and also be “in-proximity” to the Facility and have potential for habitat enhancement (OAR 635-415-0025). The Applicant identified privately-owned land that contains native and revegetated uplands of interest and importance for conservation, as well as being located within designated mule deer winter range. The Applicant has secured an agreement for 200 acres that has been placed into a conservation easement where the HMA will be located.

### 6.1 HMA Habitat Assessment

The exact location of the approximately 9.5-acre HMA within the 200-acre conservation easement has yet to be identified. The 200-acre conservation easement contains suitable habitat within 2,100 acres of private land in Gilliam County (Figure 2). A habitat assessment of the conservation easement occurred in 2020 following methods approved by ODFW (Tetra Tech 2020). Primary habitat subtypes were delineated on the parcel by qualified biologists (the private landowners) using an intuitive meandering pedestrian survey. The easement includes two primary habitat subtypes: 1 - Native Perennial Grassland and Shrub-steppe Mosaic; and 2 - Revegetated or Other Planted Grassland (Figure 3). A few rock escarpments also occur within the conservation easement, as well as an intermittent drainage. The Native Perennial Grassland and Shrub-steppe Mosaic includes native perennial grassland areas interspersed with sagebrush, rabbitbrush, and snakeweed.

### 6.2 Habitat Enhancement Actions

Habitat designated within the conservation easement for mitigation will be maintained, enhanced, and protected from alteration for the life of the Facility, or phase of the Facility. Besides legal protection to ensure no development occurs, enhancement actions for the HMA will include the following:

- The Applicant will work with the landowner to monitor and control or eradicate County-designated noxious weeds impacting wildlife habitat quality if found during monitoring. Currently, there are no county-designated noxious weeds on the HMA.
- The Applicant will work with the landowner on HMA wildlife-related projects. Examples of such projects are:
  - Planting sagebrush and/or rabbitbrush on approximately 2.5 acres to account for the temporary disturbance to Category 2, 3, and 4 Shrub-steppe Rabbitbrush/Snakeweed habitat subtype.

- Reduce annual grasses through application of chemical control or increase density of native grasses through seeding. Treatment will occur on approximately 7 acres to account for permanent impacts on native grasslands.

### 6.3 HMA Monitoring

The Applicant will hire a qualified, independent investigator (wildlife biologist, botanist, or revegetation specialist) to conduct wildlife and vegetation monitoring on the HMA to determine the effectiveness of the habitat enhancement actions. Monitoring duration will be for the life of the Facility or phase of the Facility, with annual monitoring occurring over the first 5 years. After Year 5, a long-term habitat monitoring plan will be developed in consultation with ODOE and ODFW. At a minimum, annual monitoring will include assessments of:

- Effectiveness of noxious weed control measures, if applicable;
- Density of shrubs following enhancement actions (belt transect method), with a year-to-date climate data report; and
- Cover and composition of annual grasses and native and/or desirable grasses following enhancement action (quadrat method), with a year-to-date climate data report.

### 6.4 HMA Success Criteria

The goal of the habitat mitigation described herein is to maintain, enhance, and protect a sufficient quantity of habitat to meet ODFW mitigation goals for impacts on Category 2, 3, and 4 habitats. The habitat enhancement actions described herein will be implemented and their progress will be monitored to determine their effectiveness. Table 6 shows the success criteria for the habitat enhancement actions proposed in Section 6.2.

**Table 6. HMA Success Criteria**

Habitat Management Action	Success Criteria
County-designated noxious weed control if found during annual monitoring.	Control of County-designated noxious weeds at the HMA. Photo point monitoring will show that known sites of noxious weeds are not expanding or have been reduced or eliminated. Chemical control is the most likely method to be used; however, mechanical control methods may also be used depending on site-specific conditions.
Shrub planting.	Successful establishment of shrubs on 2.5 acres of the HMA. Photo point monitoring will show successful shrub establishment where planted. The average density or frequency of the shrub component should be at least 50 percent of the reference site (habitat impacted at the Facility site).
7-acre grass treatment	To be determined.



## 7.0 Implementation Schedule

Table 7 includes a schedule for implementation of all mitigation actions for the Facility or for a phase of the Facility, and within the HMA.

**Table 7. Mitigation Implementation Schedule**

Mitigation Action	Schedule	Associated Plan
Revegetation of temporary construction-related impacts at the Facility, or a phase of the Facility.	As soon as possible following construction. Late fall seeding, just before the soil freezes, is typical when seeding grasses in the Columbia basin shrub-steppe ecoregion. Seeding can occur through early spring.	Draft Reclamation and Revegetation Plan
Monitoring weed control within the Facility, or a phase of the Facility.	Conducted annually for the first five years. Early detection is paramount for successful weed control. Reporting on noxious weeds will occur annually.  The Applicant will consult with ODOE and ODFW to design a long-term monitoring schedule.	Draft Noxious Weed Control Plan
Securing the conservation easement establishing the Wagon Trail HMA.	Conservation easement has already been secured.	Draft Habitat Mitigation Plan
Performing habitat management actions on the Wagon Trail HMA.	Concurrently with construction or during the first year of operation of the Facility, or a phase of the Facility.	Draft Habitat Mitigation Plan
Monitoring habitat management actions at the Wagon Trail HMA.	Conducted annually for the first 5 years. Monitoring is to occur in the spring/early-summer or fall. The monitoring report should be available the following spring. The Applicant will consult with ODOE and ODFW to design a long-term habitat management monitoring schedule.	Draft Habitat Mitigation Plan

## 8.0 Amendment of the HMP

This HMP will be amended by the Applicant as each phase of the Facility is built. During pre-construction compliance review for each phase, this HMP will be amended to describe the habitat mitigation requirements that are specific to that phase. Such amendments may be made without

amendment of the site certificate. The Oregon Energy Facility Siting Council (Council) authorizes ODOE to agree to amendments to this plan. ODOE shall notify the Council of all amendments, and the Council retains the authority to approve, reject, or modify any amendment of this plan agreed to by ODOE.

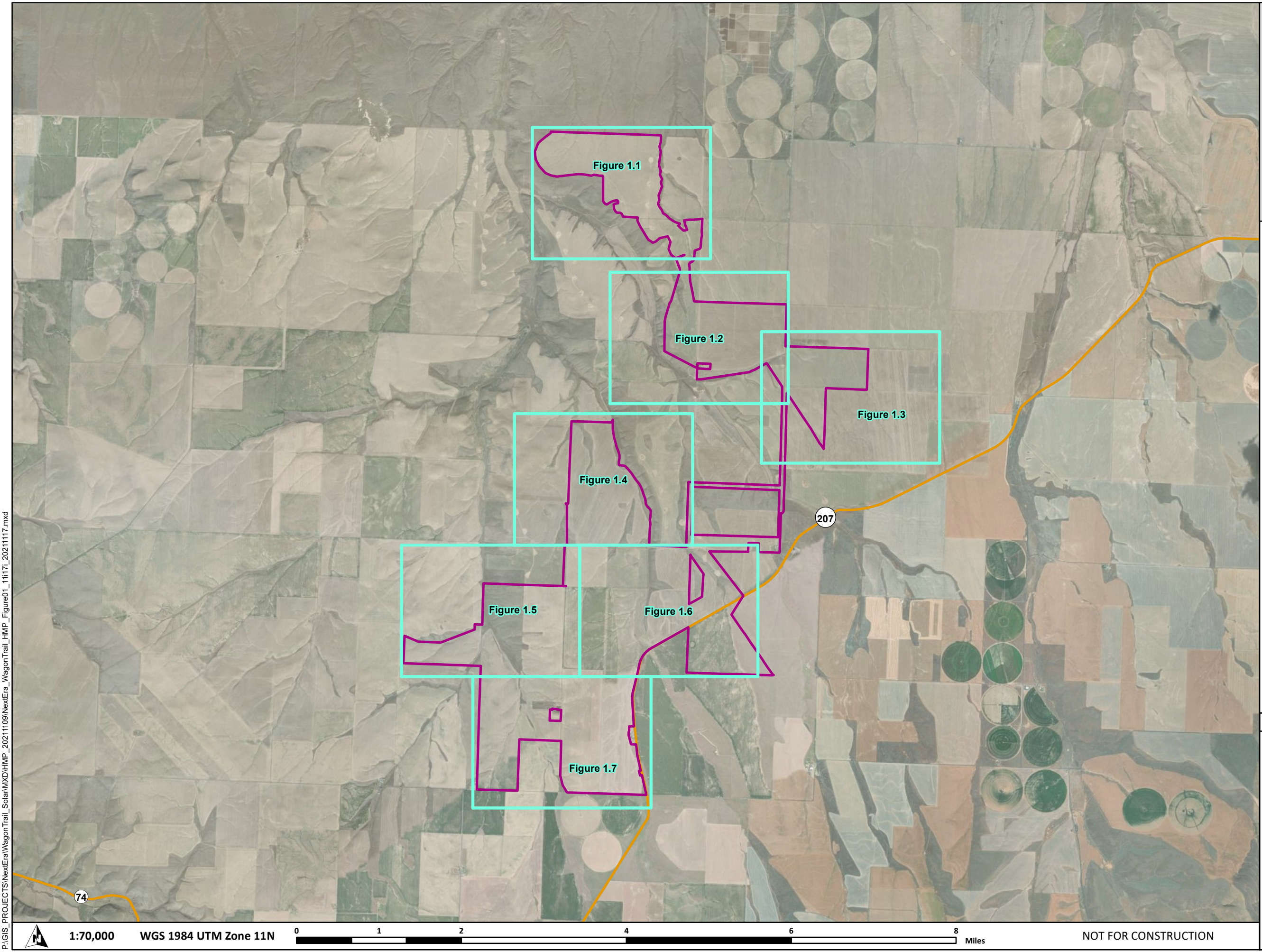
## **9.0 References**

Tetra Tech. 2020. Wheatridge Renewable Energy Facility I and Wheatridge Renewable Energy Facility II Habitat Mitigation Plan. Prepared for Wheatridge Wind Energy, LLC and Wheatridge Wind II, LLC.

# Figures



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# Wagon Trail Solar Project

**Figure 1**  
**Temporary and Permanent**  
**Disturbances by Habitat Category**

MORROW COUNTY, OREGON

- Site Boundary
- Map Grid
- State Highway
- County Boundary



Data Sources

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries

Reference Map

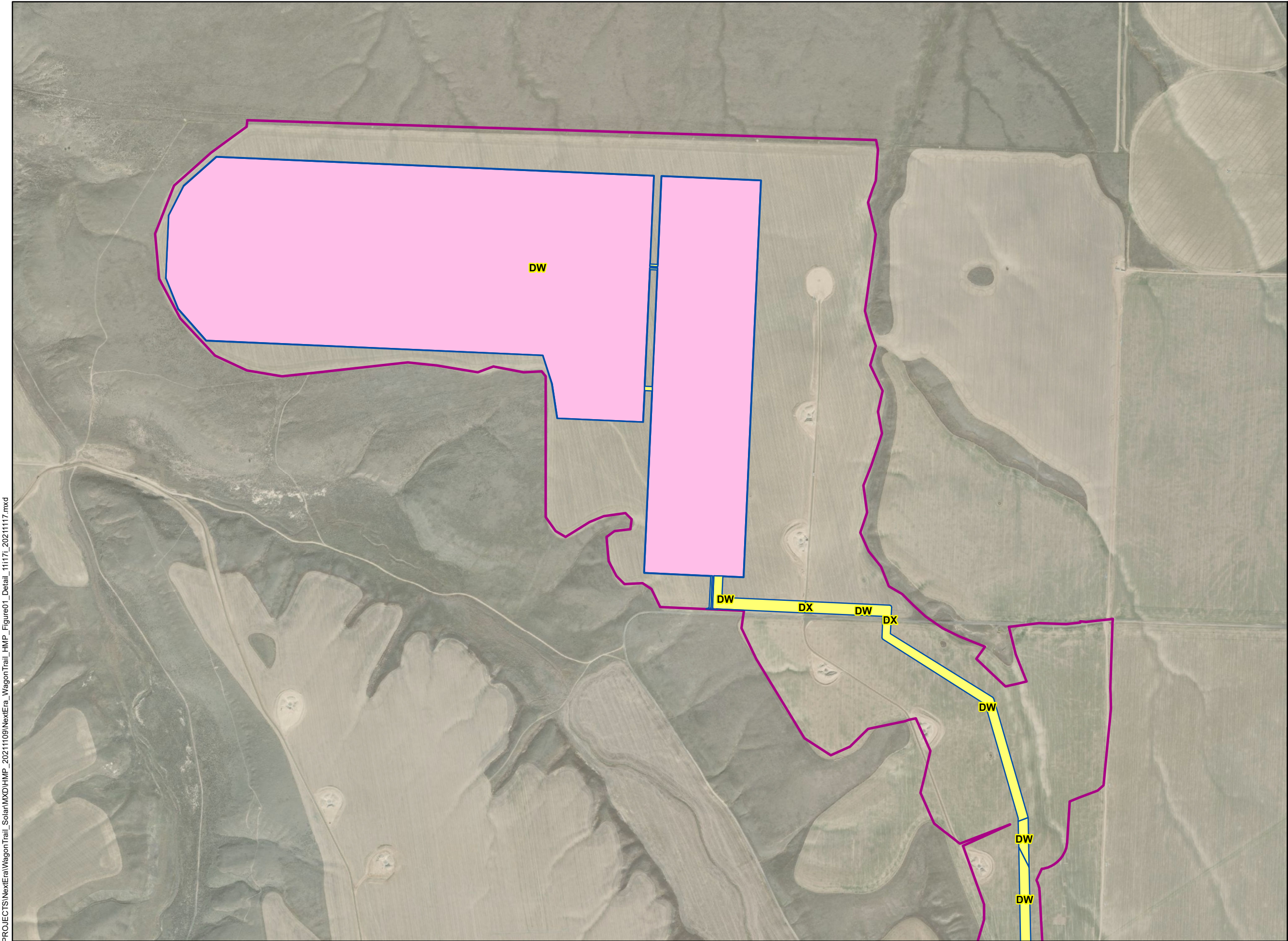


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# Wagon Trail Solar Project

Figure 1.1  
Temporary and Permanent  
Disturbances by Habitat Category

MORROW COUNTY, OREGON

- Site Boundary
- Impact Area
- Impact Type**
- Permanent
- Temporary

**Habitat Categorization**

Category 1 - None Mapped

**Category 2 - Purple**

**Category 3 - Green**

**Category 4 - Orange**

**Category 5 - Pink**

**Category 6 - Yellow**

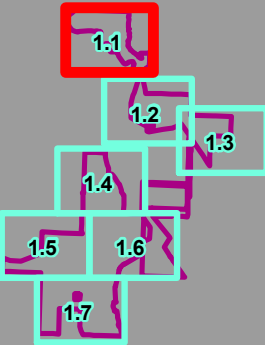
Habitat Code	Habitat Description
DW	Developed - Dryland Wheat
DX	Developed - Other
GA	Grassland - Exotic Annual
GB	Grassland - Native Perennial
IES	Open Water - Intermittent or Ephemeral Stream
RVG	Developed - Revegetated or Other Planted Grassland
SSB	Shrub-steppe- Rabbitbrush/Snakeweed



**Data Sources**

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries

**Reference Map**



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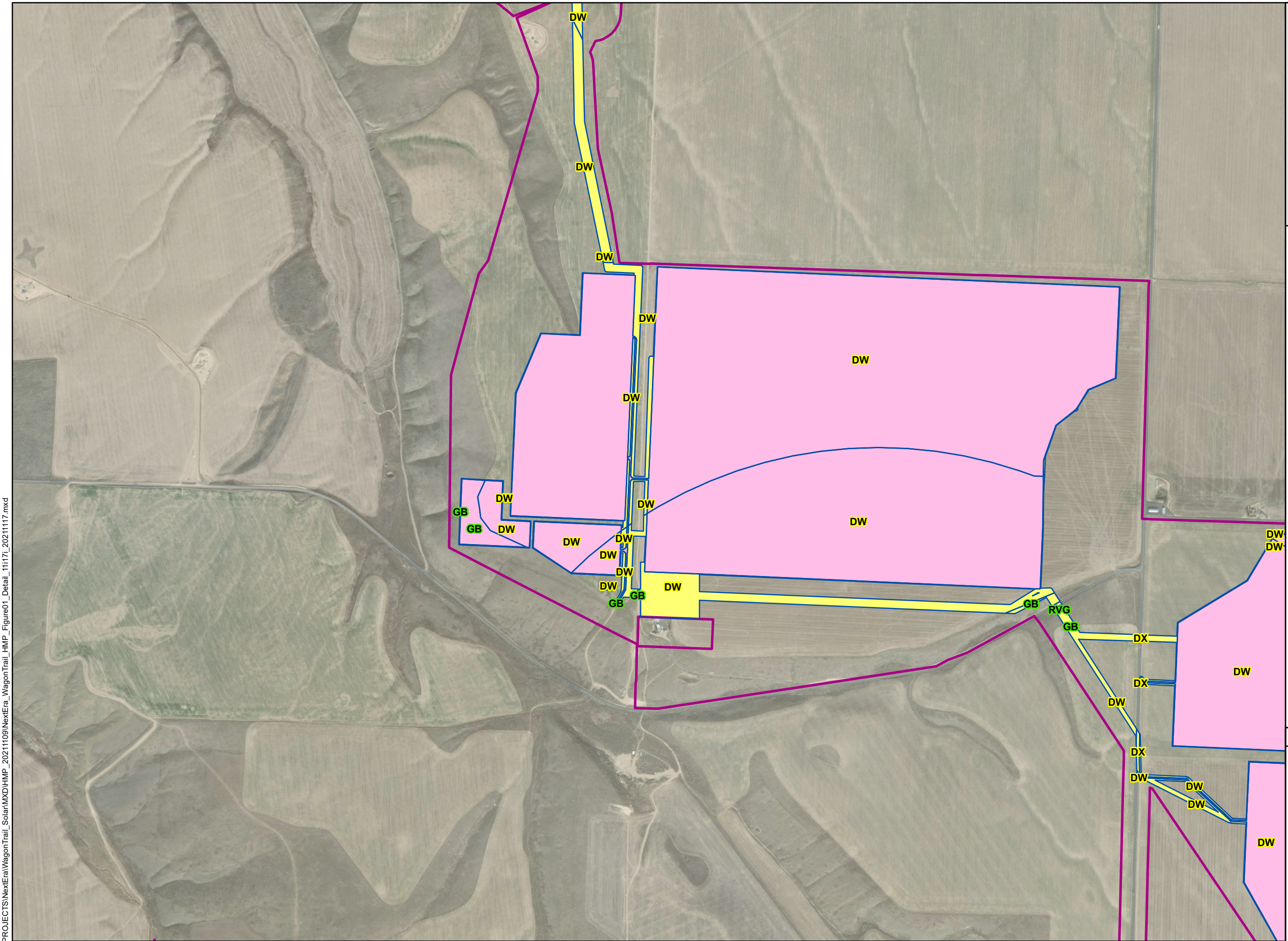
WGS 1984 UTM Zone 11N



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Wagon Trail  
Solar Project

Figure 1.2  
Temporary and Permanent  
Disturbances by Habitat Category

MORROW COUNTY, OREGON

- Site Boundary
- Impact Area
- Impact Type**
- Permanent
- Temporary

Habitat Categorization

Category 1 - None Mapped

Category 2 - Purple

Category 3 - Green

Category 4 - Orange

Category 5 - Pink

Category 6 - Yellow

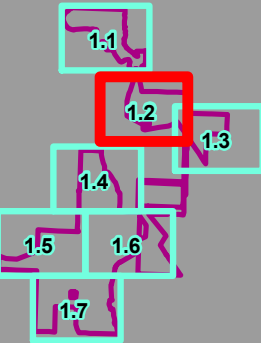
Habitat Code	Habitat Description
DW	Developed - Dryland Wheat
DX	Developed - Other
GA	Grassland - Exotic Annual
GB	Grassland - Native Perennial
IES	Open Water - Intermittent or Ephemeral Stream
RVG	Developed - Revegetated or Other Planted Grassland
SSB	Shrub-steppe- Rabbitbrush/Snakeweed



Data Sources

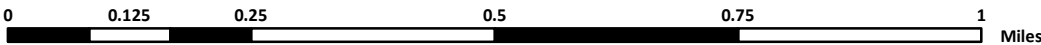
NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries

Reference Map



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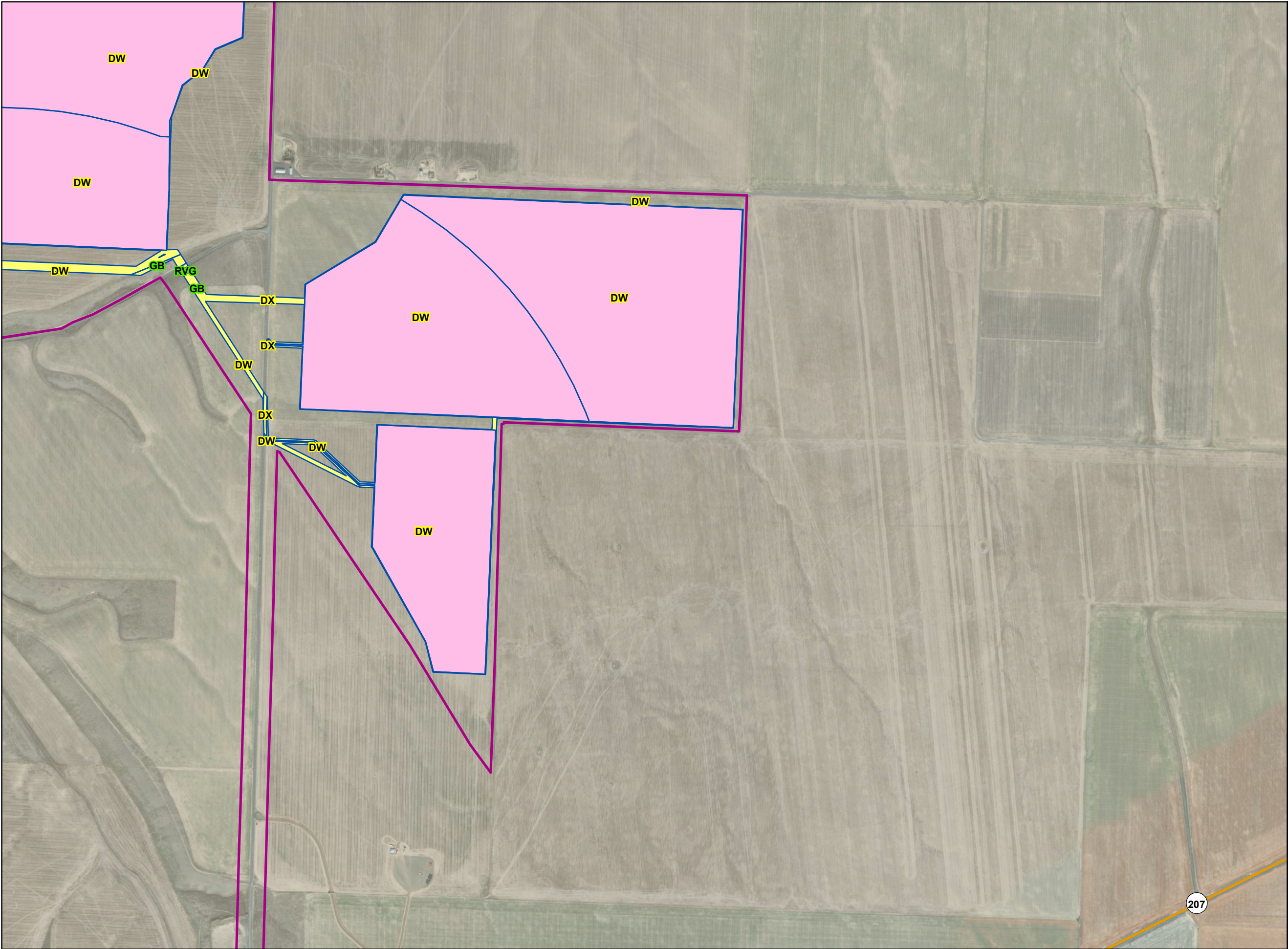
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# Wagon Trail Solar Project

Figure 1.3  
Temporary and Permanent  
Disturbances by Habitat Category

MORROW COUNTY, OREGON

- Site Boundary
- Impact Area
- State Highway
- Impact Type
  - Permanent
  - Temporary

## Habitat Categorization

Category 1 - None Mapped

Category 2 - Purple

Category 3 - Green

Category 4 - Orange

Category 5 - Pink

Category 6 - Yellow

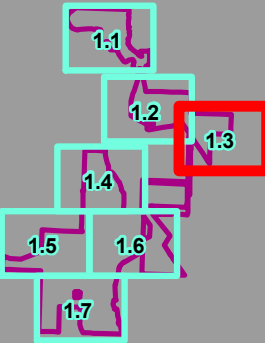
Habitat Code	Habitat Description
DW	Developed - Dryland Wheat
DX	Developed - Other
GA	Grassland - Exotic Annual
GB	Grassland - Native Perennial
IES	Open Water - Intermittent or Ephemeral Stream
RVG	Developed - Revegetated or Other Planted Grassland
SSB	Shrub-steppe- Rabbitbrush/Snakeweed



## Data Sources

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries

## Reference Map



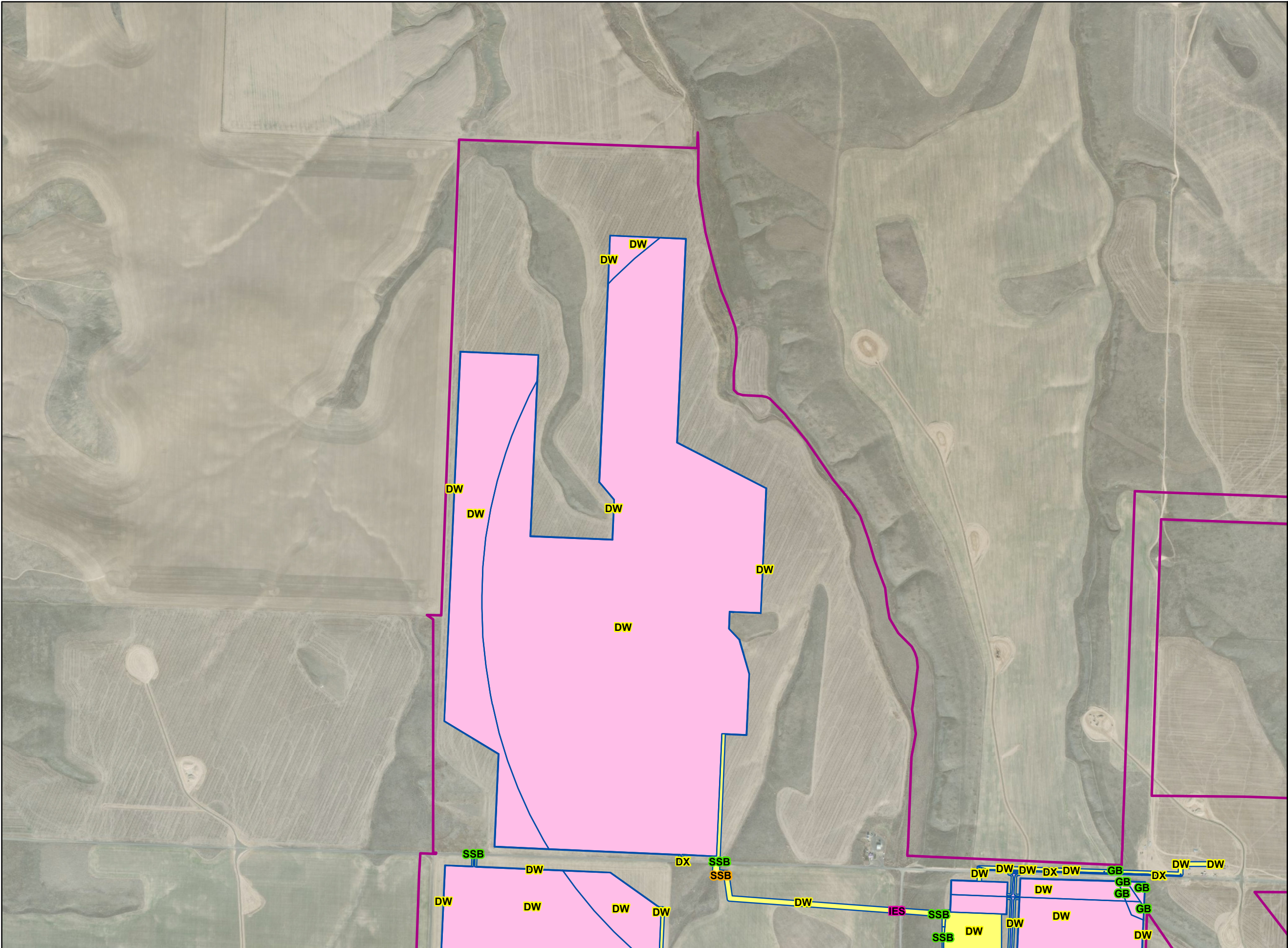
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Wagon Trail  
Solar Project

Figure 1.4  
Temporary and Permanent  
Disturbances by Habitat Category

MORROW COUNTY, OREGON

- Site Boundary
- Impact Area
- Impact Type
- Permanent
- Temporary

Habitat Categorization

Category 1 - None Mapped

Category 2 - Purple

Category 3 - Green

Category 4 - Orange

Category 5 - Pink

Category 6 - Yellow

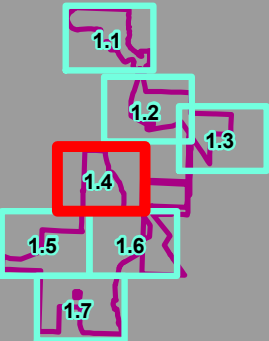
Habitat Code	Habitat Description
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DX	Developed - Other
GA	Grassland - Exotic Annual
GB	Grassland - Native Perennial
IES	Open Water - Intermittent or Ephemeral Stream
RVG	Developed - Revegetated or Other Planted Grassland
SSB	Shrub-steppe- Rabbitbrush/Snakeweed



Data Sources

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESR-  
County Boundaries

Reference Map



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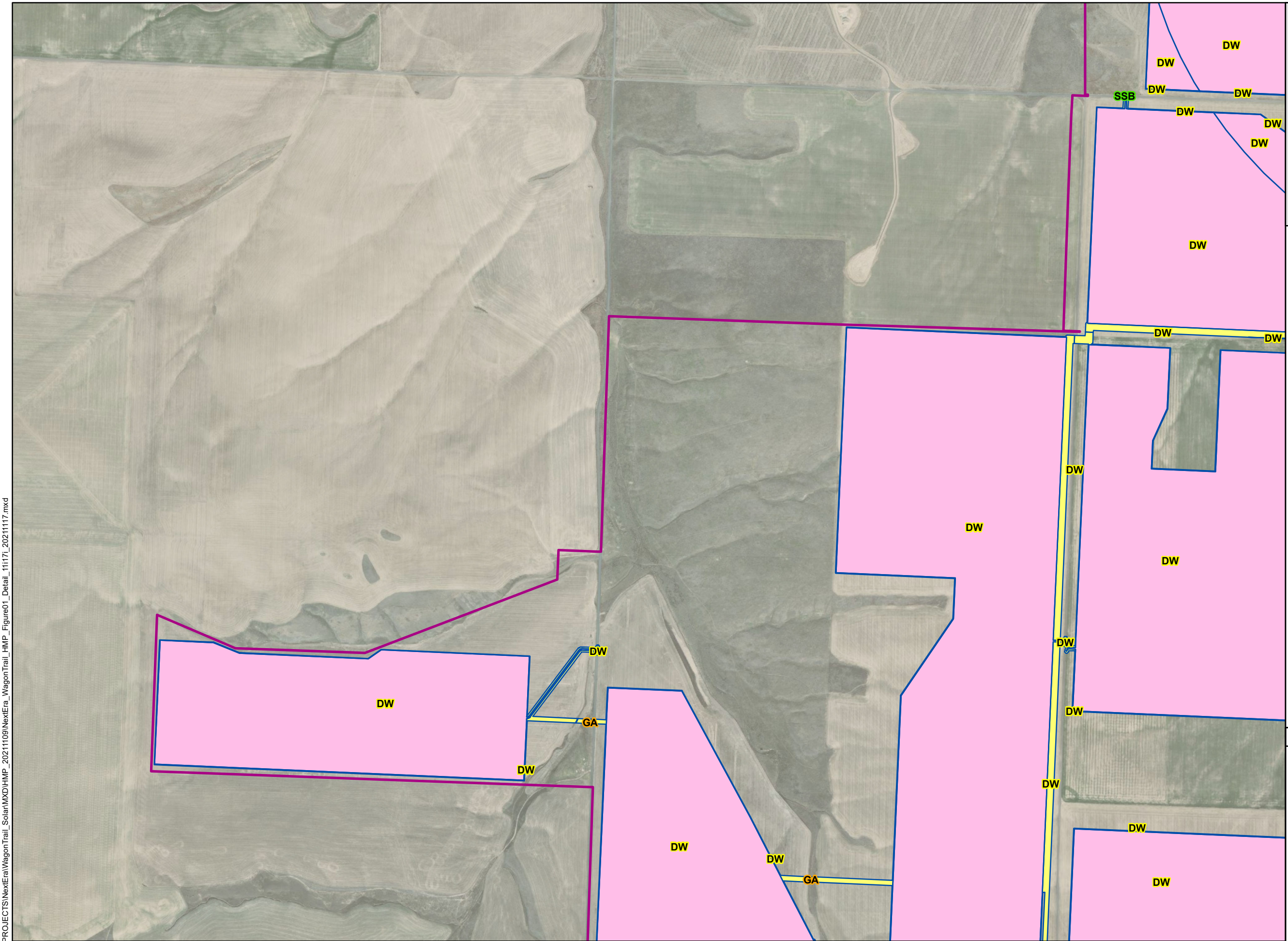
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Wagon Trail  
Solar Project

Figure 1.5  
Temporary and Permanent  
Disturbances by Habitat Category

MORROW COUNTY, OREGON

- Site Boundary
- Impact Area
- Impact Type
- Permanent
  - Temporary

Habitat Categorization

Category 1 - None Mapped

Category 2 - Purple

Category 3 - Green

Category 4 - Orange

Category 5 - Pink

Category 6 - Yellow

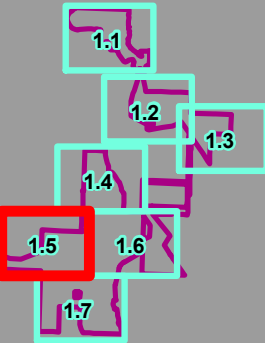
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DX	Developed - Other
GA	Grassland - Exotic Annual
GB	Grassland - Native Perennial
IES	Open Water - Intermittent or Ephemeral Stream
RVG	Developed - Revegetated or Other Planted Grassland
SSB	Shrub-steppe- Rabbitbrush/Snakeweed



Data Sources

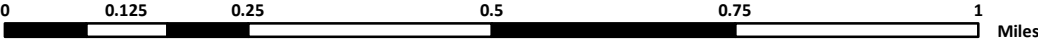
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USDA-Aerial Imagery; ESRI-  
County Boundaries

Reference Map



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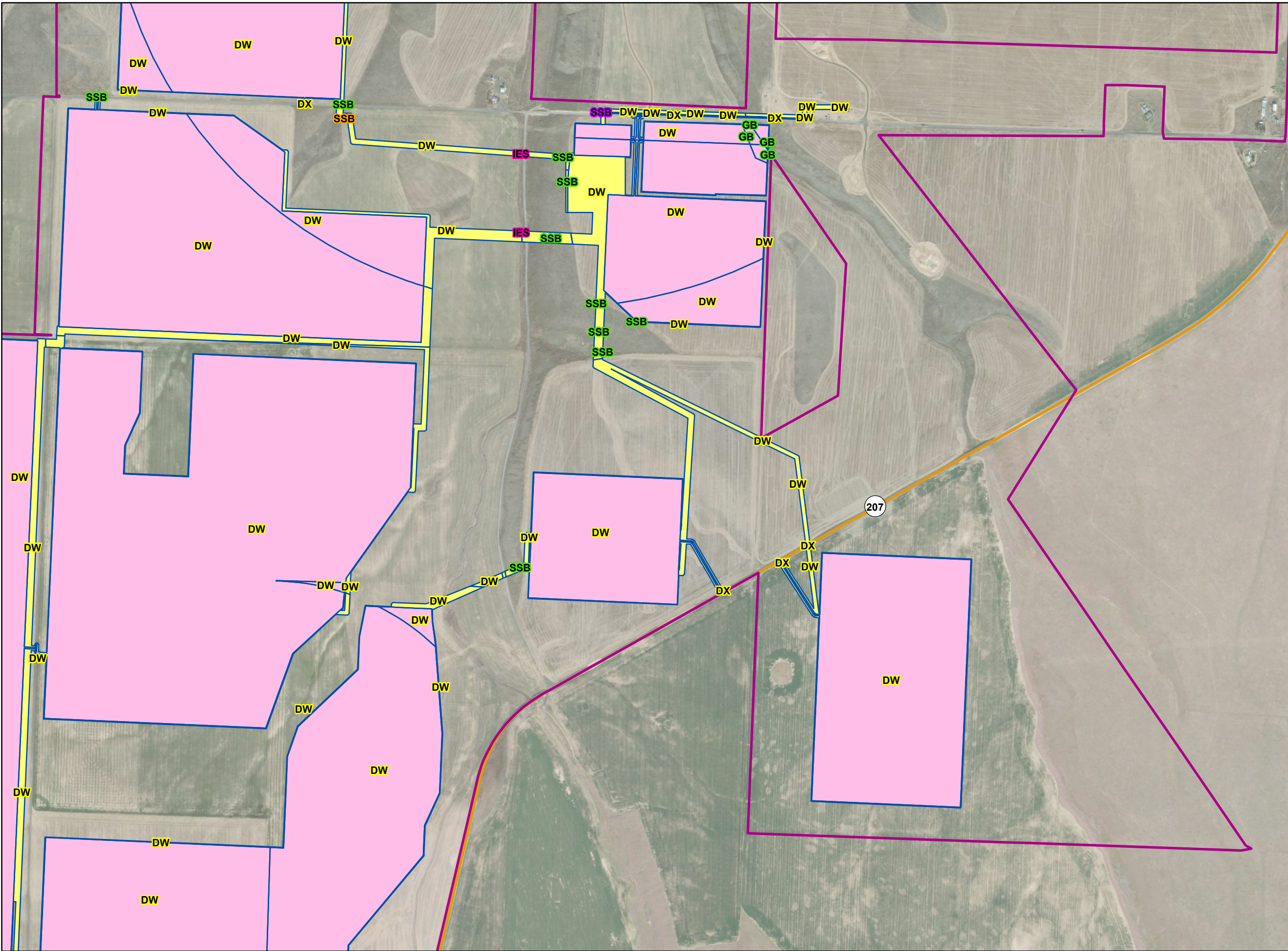
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Wagon Trail  
Solar Project

Figure 1.6  
Temporary and Permanent  
Disturbances by Habitat Category

MORROW COUNTY, OREGON

- Site Boundary
- Impact Area
- State Highway
- Impact Type
- Permanent
- Temporary

Habitat Categorization

Category 1 - None Mapped

Category 2 - Purple

Category 3 - Green

Category 4 - Orange

Category 5 - Pink

Category 6 - Yellow

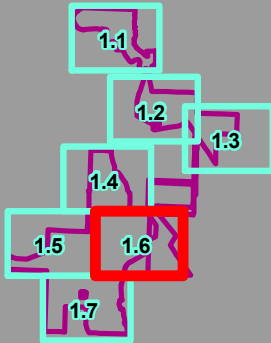
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DX	Developed - Other
GA	Grassland - Exotic Annual
GB	Grassland - Native Perennial
IES	Open Water - Intermittent or Ephemeral Stream
RVG	Developed - Revegetated or Other Planted Grassland
SSB	Shrub-steppe- Rabbitbrush/Snakeweed



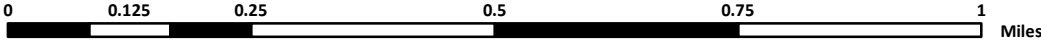
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Reference Map

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries



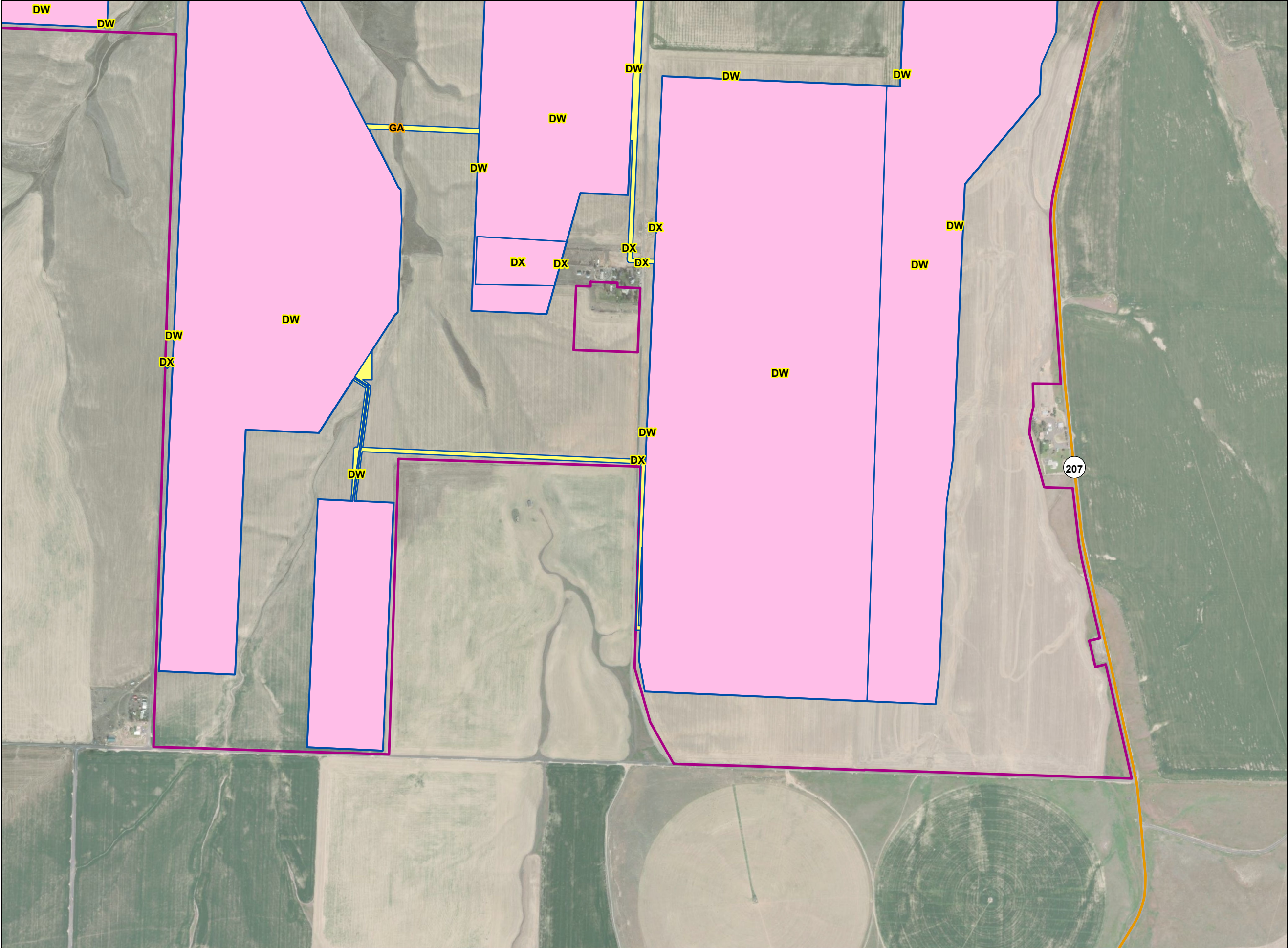
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Wagon Trail  
Solar Project

Figure 1.7  
Temporary and Permanent  
Disturbances by Habitat Category

MORROW COUNTY, OREGON

- Site Boundary  
Impact Area  
State Highway
- Impact Type**  
Permanent  
Temporary

Habitat Categorization

Category 1 - None Mapped

- Category 2 - Purple  
Category 3 - Green  
Category 4 - Orange  
Category 5 - Pink  
Category 6 - Yellow

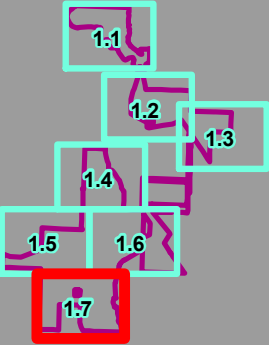
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DX	Developed - Other
GA	Grassland - Exotic Annual
GB	Grassland - Native Perennial
IES	Open Water - Intermittent or Ephemeral Stream
RVG	Developed - Revegetated or Other Planted Grassland
SSB	Shrub-steppe- Rabbitbrush/Snakeweed



Data Sources

Reference Map

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries



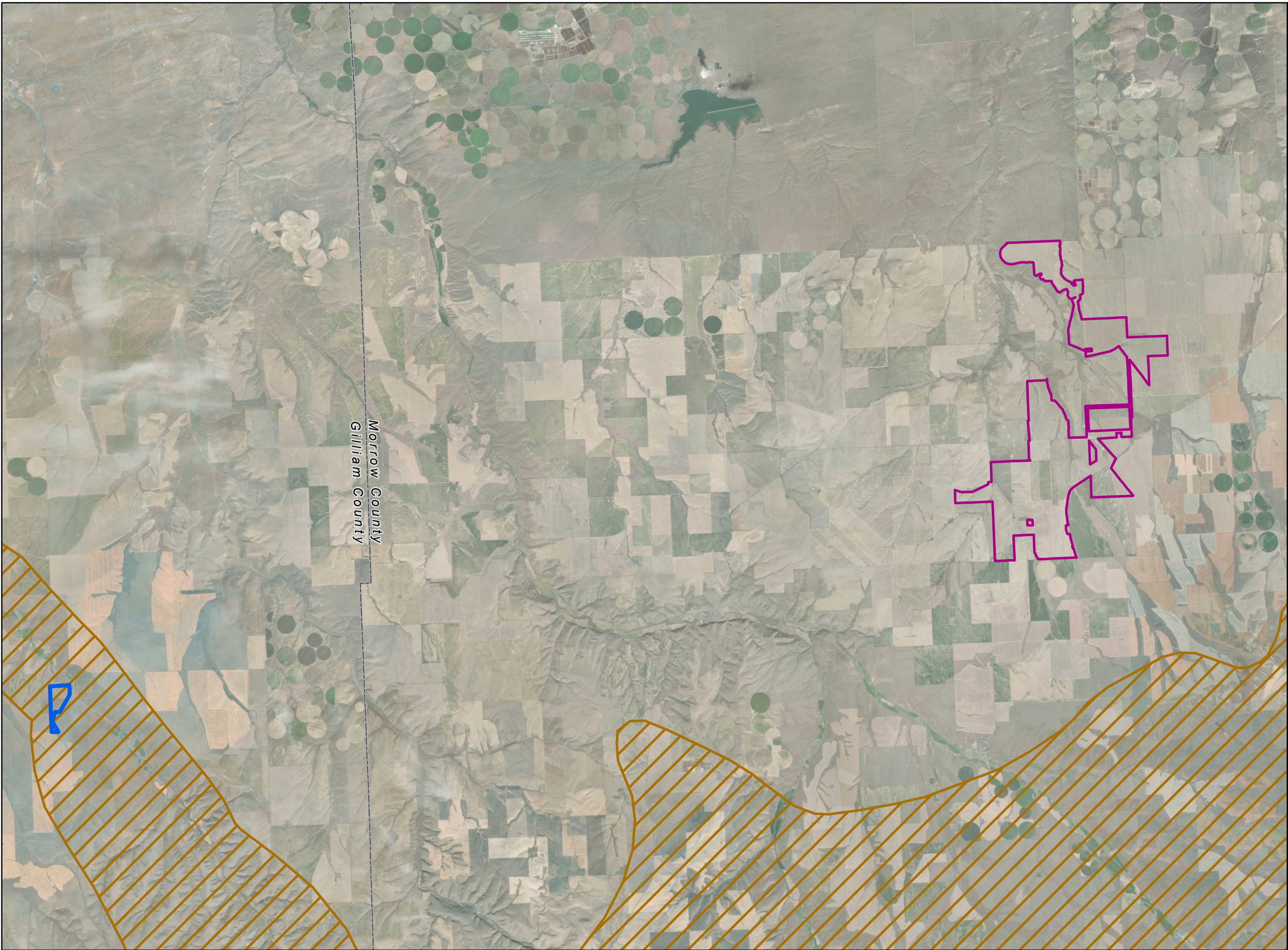
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**Wagon Trail  
Solar Project**

**Figure 2  
Overview:  
Conservation Easement Area**

**MORROW COUNTY, OR**

-  Site Boundary
-  Conservation Easement Boundary
-  ODFW Mule Deer Winter Range
-  County Boundary

 **TETRA TECH**

**NEXTERA**  
ENERGY  
RESOURCES

**Reference Map**



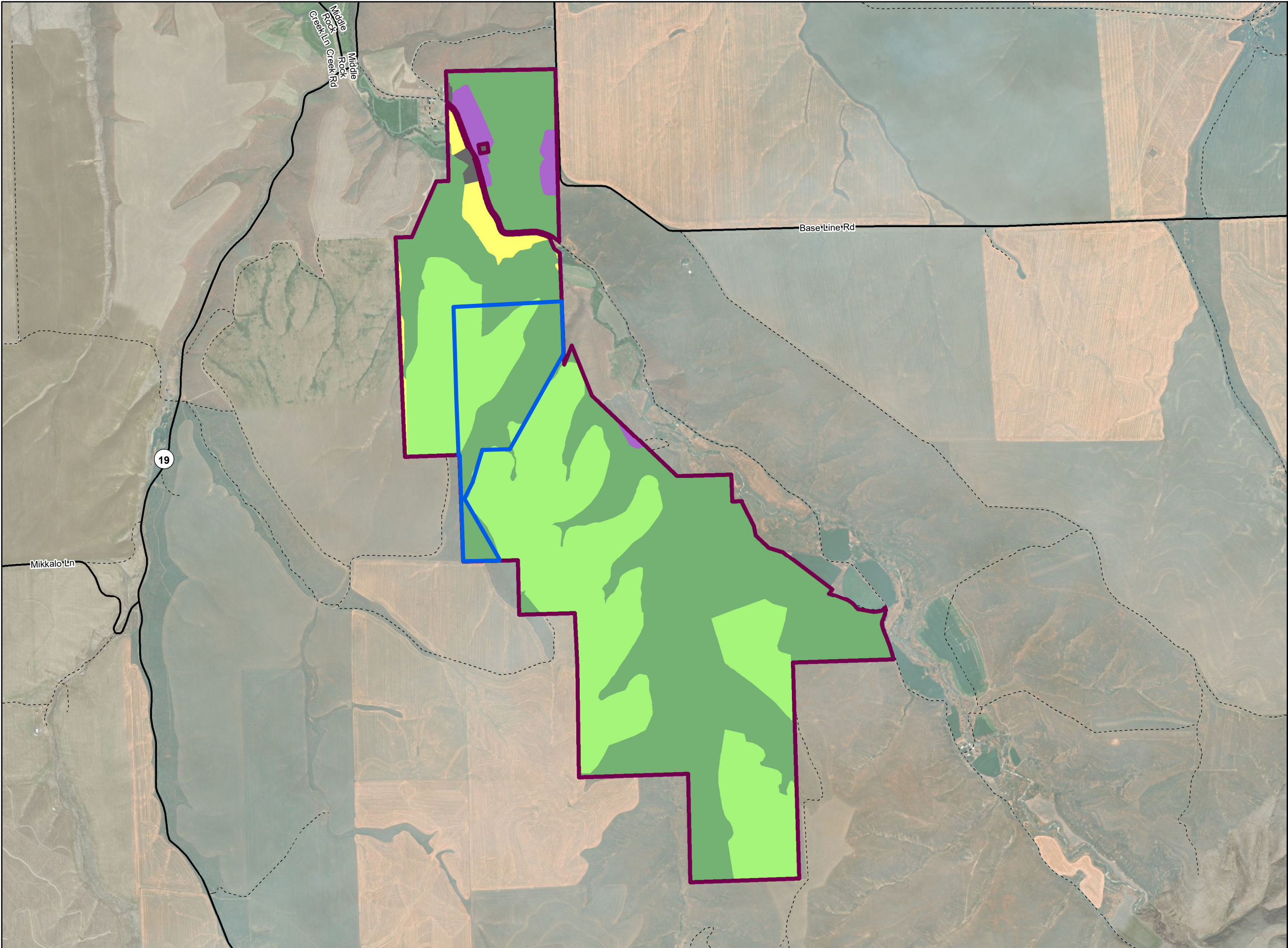
**1:150,000 WGS 1984 UTM Zone 10N**

**0 2.5 5 10 Miles**

**NOT FOR CONSTRUCTION**



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# Wagon Trail Solar Project

Figure 3  
Conservation Easement Area  
with Habitat Subtypes

MORROW COUNTY, OR

- Olex Property Boundary
- Conservation Easement Boundary
- Secondary Road
- Local Road
- County Boundary
- Habitat Subtype**
  - Agriculture
  - Developed
  - Native Perennial Grassland and Shrub-steppe Mosaic
  - Old Field
  - Revegetated or Other Planted Grassland



## Reference Map



1:27,000 WGS 1984 UTM Zone 10N



NOT FOR CONSTRUCTION



## **Attachment P-4. Draft Reclamation and Revegetation Plan**



# **DRAFT**

# **Reclamation and Revegetation Plan for the Wagon Trail Solar Project**

**Prepared for**



**Prepared by**



**January 2022**

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## Acronyms and Abbreviations

Applicant	Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC
Council	Oregon Energy Facility Siting Council
Facility	Wagon Trail Solar Project
HMP	Habitat Mitigation Plan
MW	megawatt
NPDES	National Pollutant Discharge Elimination System
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
Plan	Reclamation and Revegetation Plan



## **1.0 Introduction**

Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC (Applicant) proposes to construct and operate the Wagon Trail Solar Project (Facility), a photovoltaic solar energy generation facility with a nominal and average generating capacity of up to 500 megawatts (MW), and related or supporting facilities in Morrow County, Oregon. The Facility will generate electricity using solar panels wired in series and in parallel to form arrays and connected to electrical infrastructure. The Facility will overlap with portions of the Wheatridge Renewable Energy Facilities I, II, and III.

This Reclamation and Revegetation Plan (Plan) has been prepared to guide restoration of temporarily disturbed areas for the Facility. This Plan will be updated, as necessary, in coordination with the Oregon Department of Energy (ODOE), the Oregon Department of Fish and Wildlife (ODFW), and Morrow County.

Throughout construction and revegetation activities, the Applicant will take appropriate actions to prevent the spread of noxious weeds (Morrow County 2019). A stand-alone Draft Noxious Weed Control Plan has also been prepared (see Exhibit P, Attachment P-5), which contains information on Morrow County listed noxious weeds, noxious weeds observed during surveys, and treatment and monitoring of noxious weeds.

## **2.0 Site Description**

The Facility is located in Morrow County, Oregon. It lies within the Columbia Plateau Ecoregion at elevations from approximately 1,000 to 1,400 feet. The Facility is sited entirely on private land and primarily in agricultural land used for growing dryland wheat. Native vegetation has been modified not only through agricultural conversion, but also through historical and current livestock grazing, by changes in fire regimes, and by the presence of exotic grasses and other vegetation.

Habitats within the Facility include Developed (subtypes include Dryland Wheat, Developed-Other) and Grassland (Exotic Annual). The Draft Habitat Mitigation Plan (HMP; Exhibit P, Attachment P-3) details the acres of each habitat subtype that will be temporarily and permanently disturbed during construction and operation of the Facility. All areas within the solar array fence line are considered a permanent impact and will be mitigated as such in the HMP. However, the Applicant will maintain the portions of the solar arrays that will be graded as a low-growing mix of grasses. The site will be mowed as needed for fire safety requirements and to keep vegetation from interfering with operations and maintenance activities. Areas replanted within the solar array fence line are not monitored under this Plan, as they are considered a permanent impact and mitigated appropriately in the Draft HMP. However, the areas within the fence line will be monitored for noxious weeds per the stand-alone Draft Noxious Weed Control Plan (Exhibit P, Attachment P-5).

For purposes of this Plan, Developed-Dryland Wheat and Developed-Other habitat subtypes are grouped together. Developed-Other habitat subtypes include farm and ranch homes and related

infrastructure, roads, quarries, livestock facilities, and other areas associated with human activity. All other habitat subtypes are collectively referred to as wildlife habitat.

## 2.1 Temporary Disturbance to Dryland Wheat and Developed-Other

Temporary disturbance to areas identified as Developed-Wheat and Developed-Other habitat subtypes are shown in Table 1. Figures depicting the location of these temporary disturbances are available in the HMP (Attachment P-3). Restoration of Developed-Other habitat subtypes will be determined on a case-by-case basis and is not covered further in this Plan. Temporary disturbances to Developed-Dryland Wheat will be restored as described in Section 4.3.

**Table 1. Summary of Temporary Disturbances to Category 6 Habitat**

Habitat Subtype (Category 6 Habitat)	Temporary Disturbance (Acres)
Dryland Wheat	158.2
Developed-Other	2.5
<b>TOTAL</b>	<b>160.7</b>

## 2.2 Temporary Impacts to Wildlife Habitat

Temporary disturbance to areas identified as wildlife habitat are shown in Table 2. Figures depicting the locations of these temporary disturbances are available in the HMP (Attachment P-3). These temporary disturbances will be restored as described in Section 3.4.

**Table 2. Summary of Temporary Disturbances to Wildlife Habitat**

ODFW Habitat Category	Habitat Subtype	Temporary Disturbance (Acres)
2	Shrub-steppe-Rabbitbrush/Snakeweed	0.4
<b>Total</b>		<b>0.4</b>
3	Developed-Revegetated or Other Planted Grassland	0.2
	Grassland-Native Perennial	2.0
	Shrub-steppe-Rabbitbrush/Snakeweed	4.3
<b>Total</b>		<b>6.5</b>
4	Grassland-Exotic Annual	0.1
	Shrub-steppe-Rabbitbrush/Snakeweed	0.25
<b>Total</b>		<b>0.4</b>
<b>GRAND TOTAL</b>		<b>7.3</b>

## 3.0 Reclamation and Revegetation Methods

This Plan addresses reclamation and revegetation methods for both Dryland Wheat and wildlife habitat. Revegetation will begin as soon as feasible after Facility construction. Seeding and planting

will be done in a timely manner and in the appropriate season. Reclamation and revegetation of Dryland Wheat habitat will be designed in consultation with the landowner.

### **3.1 Roles and Responsibilities**

The construction contractor will be responsible for implementing the measures in the National Pollutant Discharge Elimination System (NPDES) 1200-C permit including interim stabilization measures that may or may not include seeding activities. The seed mixes presented in this Plan are intended for final site stabilization. The construction contractor will be responsible for implementing the reclamation and revegetation activities discussed herein during and immediately after construction. A qualified botanist or revegetation specialist will be responsible for monitoring and reporting on revegetation success. Remedial revegetation actions, if needed during the operations phase, will be performed by a qualified contractor. The Applicant will be responsible for ensuring that all contractors perform work in accordance with permit requirements and all agreed-upon methods for revegetation.

### **3.2 Soil Reclamation**

In areas where soil is removed during construction, the following measures will be taken where appropriate:

- The topsoil will be stockpiled separately from the subsurface soils.
- The conserved soil will be put back in place as topsoil prior to revegetation activities.
- Soil preparation will involve standard, commonly used methods (i.e. tracking, decompaction, and tilling), and will consider all relevant site-specific factors, including slope, size of area, and erosion potential.
- Regrade severe machine or vehicle tracking that would hinder seeding success and are unnecessary for soil stabilization.
- Topsoil and other soils from noxious weed infested areas will not be moved outside of the infested areas and will be returned to its previous location during reclamation activities.
- Soils from weed-infested areas may be treated with a pre-emergent herbicide prior to initiation of revegetation efforts, depending on site-specific conditions.
- Prior to final regrade and revegetation efforts any weeds that have grown during periods of construction dormancy should be removed mechanically or treated with an herbicide in consultation with the Morrow County Weed Department.
- Movement of topsoil and other soils from non-infested areas will be limited to eliminate the transport of weed seeds, roots, or rhizomes.
- The construction contractor may use appropriate erosion and sediment control practices (i.e., unseeded hydromulch, tackifier, weed-free erosion control blankets, weed-free or locally sourced straw mulch) to maintain topsoil during construction. In general, the soil needs to be prepared into a firm, moderately textured soil bed that is relatively free of debris before seeding or planting. Shallow tilling with a disc, followed by a harrow or drag if

necessary, can typically achieve this. If replaced soil is too soft and fine, then seeds may be buried too deep to properly germinate or may be washed away by rain events. A roller or culti-packer with water should be used to lightly pack down the soil to regain appropriate soil structure.

- Prior to seeding in Dryland Wheat, soils will be prepared to facilitate success. Soil compaction is a concern for restoring agricultural soils to their pre-construction productivity. During construction of temporary facilities, the Applicant will excavate and store soils by soil horizon, so that soils could be replaced and restored appropriately, including replacing topsoil. During post-construction restoration of temporary impacts to agricultural areas, the Applicant will loosen agricultural soil by mechanical scarification (tilling or ripping the soil) to an appropriate depth to reduce the potential effects of compaction. Soil amendment, by addition of organic matter (compost), may also be necessary to alleviate compaction.

### **3.3 Revegetation of Cropland**

Croplands will be reseeded with the appropriate crop or maintained as fallow in consultation with the landowner or farm operator. The construction contractor will also consult with the landowner or farm operator to determine seed mix, application methods, and rates for seed and fertilizer. Success of cropland revegetation will be achieved when production of the revegetated area is comparable to that of adjacent, non-disturbed croplands of the same type. Success determination will involve consultation with the landowner or farm operator, and the Applicant will report to ODOE on the success of cropland revegetation efforts. Noxious weed control is necessary for successful revegetation of croplands and will be implemented per the methods described in the Draft Noxious Weed Control Plan (Attachment P-5).

### **3.4 Revegetation of Habitat**

All wildlife habitat will be reseeded with either 1) a mix of native or non-invasive, non-persistent non-native grasses; or 2) a mix of native or non-invasive, non-persistent, non-native grasses and shrubs. The seed mixes and application rates will be developed in consultation with ODOE and ODFW prior to construction. The application methods considered for seed application include broadcast seeding, hydroseeding, and drill seeding. These methods are further described in the following subsections. The agency-approved seed mixes will be obtained from a reputable supplier in compliance with the Oregon Seed Law (Oregon Administrative Rule 603-056).

The methods used and timing of planting will be appropriate to the seed mixes, weather conditions, and site conditions (including area size, slope, and erosion potential). Preparation of disturbed ground may include replacing lost topsoil or implementing chemical or mechanical weed control per the Draft Noxious Weed Control Plan (Attachment P-5). Following soil preparation (Section 3.2), seed mixes in non-cropland areas will be applied through broadcast or drill seeding.

During construction, the construction contractor will implement site stabilization measures, including seeding of temporarily disturbed areas according to the Applicant's NPDES 1200-C permit. Approximately 6 months prior to commercial operation, the Applicant and construction



contractor will meet with ODFW, ODOE, and Morrow County Weed Control Authority personnel to review the conditions of temporarily impacted areas and confirm the revegetation methods to be implemented.

### ***3.4.1 Broadcast Seeding***

In this method, the seed mix is typically broadcast at a rate of 20 to 24 pounds per acre; this rate may be adjusted depending on the recommendations of the actual seed supplier and agency recommendations. Broadcasting should not be utilized when winds exceed 5 miles per hour. If feasible, half of the seed mix will be broadcast in one direction, with the other half broadcast perpendicularly to the first half. A tracking dye may be added to facilitate uniform application. Certified weed-free straw will be applied at a rate of approximately 2 tons per acre immediately after seeding. This straw will either be crimped into the ground or applied with a tackifier. If certified weed-free straw is not available, the construction contractor will source local straw from land near the Facility and will notify ODOE, ODFW, and Morrow County of the source of the straw.

### ***3.4.2 Hydroseeding***

Hydroseeding is a method of hydraulically applying seeds, stabilizers, and soil amendments to the surface of the soil. Hydroseeding is often used when other seeding methods, such as cut and fill slopes, are impractical.

### ***3.4.3 Drill Seeding***

Drill seeding plants seeds using an agricultural or range seed drill at a rate of 12 to 14 pounds per acre, per discussions with a seed supplier and ODFW. The rate may be adjusted depending on the recommendations of the actual seed supplier.

### ***3.4.4 Seed Mix***

The seed mix will be determined in consultation with ODOE and ODFW prior to construction. The seed mix will be a grass-only mix to maximize flexibility for weed control. Planting or seeding of shrubs may be proposed for revegetation of temporarily disturbed shrub-steppe habitats.

## **4.0 Monitoring**

### **4.1 Noxious Weed Monitoring**

A qualified investigator will be employed to annually assess noxious weed presence during the first 5 years after construction and to make recommendations on noxious weed control measures. Reports will be submitted to ODOE and to ODFW following each annual inspection. Details regarding known noxious weed occurrences at the Facility, proposed noxious weed monitoring, and control of noxious weeds are available in a separate Draft Noxious Weed Control Plan (Attachment P-3).

## **4.2 Soil Reclamation Monitoring**

The Applicant will develop soil reclamation monitoring methods and success criteria to measure the successful reclamation of disturbed soils. Soil reclamation monitoring methods and success criteria will be developed in consultation with ODOE.

## **4.3 Cropland Revegetation Monitoring**

Records will be kept of revegetation efforts in cropland. Records will include:

- Date construction was completed;
- Description of the affected area;
- Date revegetation was initiated;
- Description of the revegetation effort; and
- Confirmation from the landowner that temporary disturbances in cropland have been satisfactorily restored.

The Applicant will update these records periodically as revegetation work occurs, and will provide ODOE with copies of these records along with submission of a summary in the first annual report following construction.

## **4.4 Habitat Revegetation Monitoring**

To determine if the revegetation of habitat is meeting success criteria, paired monitoring and reference sites will be established. Monitoring and reference sites will be established in each of the habitat subtypes that will be temporarily disturbed by construction (Table 2).

Reference sites are intended to represent target conditions for the revegetation effort. Vegetation within monitoring plots in revegetation areas will be compared with those in the associated reference sites to measure success of the required revegetation activities.

### ***4.4.1 Reference Sites***

Prior to Facility operation, reference sites—areas of habitat quality similar to those found prior to disturbance at the areas to be revegetated—will be identified in consultation with ODOE and ODFW. Reference sites will be chosen with consideration to land use patterns, soil types, terrain, and presence of noxious weeds. Alternate reference sites may be chosen in consultation with ODOE and ODFW if land use changes, wildfire, or other disturbance makes a chosen reference site no longer representative of target conditions.

The number of reference sites will be determined prior to construction and will represent the range of temporarily disturbed wildlife habitat areas for which revegetation is required (Table 2).

Proposed reference sites will be chosen based on review of:

- Aerial imagery (Google Earth 2021);
- Information from previous vegetation surveys conducted for the Project;

- Local knowledge of the site; and
- Soil survey data (NRCS 2019).

Final selection of proposed reference sites will include a site visit conducted at the appropriate time of year to evaluate baseline conditions. These site visits will document the following:

- Vascular plant species present;
- Native/non-native status of species present;
- Approximate percent cover of dominant species;
- Approximate percent cover of state and county listed noxious weeds; and
- Evidence of ongoing, recent, or past disturbance.

Monitoring methods will be determined in consultation with ODOE and ODFW prior to construction.

#### ***4.4.2 Monitoring Sites***

Per ODFW recommendations on other projects, a minimum of one monitoring plot will be placed within habitats where temporary disturbances will be less than 5 acres in size. For habitats where the impacts will be greater than 5 acres, the number of monitoring plots will be chosen to represent 5 percent of the total temporary disturbance area by habitat subtype and category or a maximum of 10 monitoring plots.

The number of monitoring plots for habitat subtypes where impacts will be greater than 5 acres will be determined first by multiplying the impact acreage by 5 percent and then converting the acreages into square feet. The square footage is then divided by 5,000, which represents the number of square feet within a proposed sample plot (50 feet by 100 feet).

Monitoring sites within each habitat subtype will be selected using a stratified randomization process based on existing habitat mapping. Additional monitoring locations will be chosen, through the stratified randomization process, as alternative locations in case one of the original monitoring locations is deemed unacceptable during the first revegetation monitoring effort. Data collected during the first year of monitoring will serve as pilot data to determine if the chosen number of monitoring sites will provide robust results. Additional monitoring sites will be added if analysis of the first year's data indicates additional monitoring plots are needed. Monitoring methods will be determined in consultation with ODOE and ODFW prior to construction.

#### ***4.4.3 Monitoring Procedures***

In the first growing season after planting in revegetation areas, a qualified botanist or revegetation specialist will inspect each monitoring site to assess the success of revegetation measures. These assessments will be done annually for the first 5 years. Monitoring reports will be submitted along with annual monitoring requirements for the Facility. Assessments will address whether, based on evaluation of monitoring and reference sites, revegetation is trending toward meeting the success criteria described in Section 4.4.4.

During each assessment, revegetated monitoring sites will be compared to reference sites based on the success criteria defined in Section 4.4.4. Monitoring will not be required for areas that have been converted by the landowner to land uses that preclude meeting revegetation success criteria.

Based on the fifth annual assessment, a long-term monitoring plan will be developed in coordination with ODOE and ODFW. This may include remedial actions and/or additional monitoring for areas that have been determined by ODOE, in consultation with ODFW, not to have met the success criteria. Revegetation efforts may in some cases be deemed to have failed, and additional mitigation may be proposed in such cases to compensate for loss of wildlife habitat, while revegetation and weed control would continue to apply but without application of success criteria.

#### **4.4.4 Success Criteria**

Each monitoring report will involve assessing the progress of each area of wildlife habitat disturbed during construction toward meeting revegetation objectives. Habitat quality shall be evaluated based on the success criteria listed below. Final determination of whether the Applicant has met the revegetation obligations will be made by ODOE, in consultation with ODFW.

- **Native Forbs:** No success criteria are applied to the Facility because forbs are not anticipated to be included in the approved revegetation seed mix due to concerns regarding noxious weed control.<sup>1</sup>
- **Native Shrubs:** The average density or frequency of the shrub component should be at least 50 percent of the reference site within 5 years. At least 15 percent of the shrub density or frequency should be the dominant species found on the reference site. The diversity of shrub species within the revegetated areas should at least equal the shrub species diversity measured on the reference site.
- **Native and Desirable Grasses (i.e., species included in the seed mix used for revegetation and natural recruitment of native species):** Revegetated sites should maintain grass species diversity and density that is at least 85 percent similar to reference sites. Native bunchgrasses should be given preference. Native or desirable grasses are to be planted at rates sufficient to achieve abundance and diversity characteristics of the grass component at the reference site.
- **Non-Native Weeds:** Every attempt should be made to prevent and control all species listed on county, state, and federal noxious weed lists. Revegetation sites should not contain a higher percentage of non-native weed cover than the reference site. All state and federal laws pertaining to noxious weeds must be followed. Highly competitive invasive species

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<sup>1</sup> ODFW's recommended success criterion for native forbs is that the average density or frequency of desirable forbs (typically native, with some site-specific exceptions) should be a minimum of 75 percent of the reference site within 5 years. Diversity of forbs on a reclaimed site should at least equal the diversity measured on the reference site within 5 years.



such as cheatgrass and other weedy brome grasses are prohibited in seed mixtures and should be actively controlled if any are found in the reclaimed areas.

#### **4.5 Remedial Action**

Remedial action options will be identified in cases where reclamation and revegetation success criteria are not met. Remedial actions may include soil amendments, reseeding, or other measures. The investigator will make recommendations for remedial actions after each monitoring visit, and appropriate measures will be taken to meet the restoration objectives. The recommendations for remedial actions will be described in the annual monitoring report. ODOE may require reseeding or other remedial actions in cases where revegetation objectives have not been met.

### **5.0 Plan Amendment**

This Plan may be amended by agreement of the Applicant and the Oregon Energy Facility Siting Council (Council). Such amendments may be made without amendment of a site certificate. The Council authorizes ODOE to agree to amendments to this Plan. ODOE shall notify the Council of all amendments, and the Council retains the authority to approve, reject, or modify any amendment of this Plan agreed to by ODOE.

### **6.0 References**

Google Earth. 2021. Google Earth Pro Aerial Imagery. Accessed December 2021

Morrow County. 2019. Morrow Country Code Enforcement Ordinance. May 2019.

[https://www.co.morrow.or.us/sites/default/files/fileattachments/planning/page/11881/2019\\_code\\_enforcement\\_final .pdf](https://www.co.morrow.or.us/sites/default/files/fileattachments/planning/page/11881/2019_code_enforcement_final.pdf). Accessed July 2019.

NRCS (Natural Resources Conservation Service). 2019. Web Soil Survey. U.S. Department of Agriculture, Natural Resources Conservation Service.

<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

## **Attachment P-5. Draft Noxious Weed Control Plan**

# **DRAFT**

# **Noxious Weed Control Plan for the Wagon Trail Solar Project**

**Prepared for**



**Prepared by**



**January 2022**

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## Acronyms and Abbreviations

Applicant	Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC
EPA	U.S. Environmental Protection Agency
Facility	Wagon Trail Solar Project
MW	megawatt
ODA	Oregon Department of Agriculture
ODOE	Oregon Department of Energy
ORS	Oregon Revised Statutes
OSWB	Oregon State Weed Board
Plan	Noxious Weed Plan

## 1.0 Introduction

Wheatridge East Wind, LLC c/o NextEra Energy Resources, LLC (Applicant) proposes to construct and operate the Wagon Trail Solar Project (Facility), a photovoltaic solar energy generation facility with a nominal and average generating capacity of up to 500 megawatts (MW), and related or supporting facilities in Morrow County, Oregon. The Facility will generate electricity using solar panels wired in series and in parallel to form arrays and connected to electrical infrastructure. The Facility will overlap with portions of the Wheatridge Renewable Energy Facilities I, II and III.

The Facility will be located entirely on private land. The number, size, and actual layout of the Facility infrastructure has yet to be determined. Facility components proposed include:

- A 500-MW battery storage system;
- Collector substations;
- Electrical collection systems connecting the solar arrays;
- 230-kilovolt transmission line connecting to the existing Blue Ridge Substation;
- One operations and maintenance building;
- Meteorological stations and tower;
- New private access and service roads, gates and security fencing;
- Temporary construction areas;
- One supervisory control and data acquisition system.

This Draft Noxious Weed Plan (Plan) has been prepared for the Facility. Noxious weed species can adversely affect the structure, composition, and success of revegetation efforts associated with construction-related temporary disturbances. The intent of this Plan is to provide clear methods to prevent the introduction and spread of designated noxious weeds from the construction and operation of the Facility, to control existing populations of noxious weeds within construction areas, and to monitor efforts to prevent and control noxious weeds. The Applicant and its contractors will be responsible for implementing the methods detailed in this Plan. This Draft Plan will be finalized in coordination with the Oregon Department of Energy (ODOE), the Oregon Department of Fish and Wildlife (ODFW), and Morrow County; it will be updated for future phases of construction, as necessary.

## 2.0 Regulatory Framework

### 2.1 State of Oregon

In Oregon, noxious weeds are defined under Oregon Revised Statutes (ORS) 569.175 as “terrestrial, aquatic, or marine plants designated by the Oregon State Weed Board (OSWB) under ORS 569.615 as among those representing the greatest public menace and as a top priority for action by weed

control programs.” Noxious weeds have been declared by ORS 569.350 as a menace to public welfare, and control of these plants is the responsibility of private landowners and operators, as well as county, state, and federal governments.

The OSWB was established under ORS 561.650. It provides direction to control noxious weeds at the state level and develops and maintains the State Noxious Weed List. OSWB and the Oregon Department of Agriculture (ODA) classify noxious weeds in Oregon in accordance with the ODA Noxious Weed Classification System (ODA 2020). There are three designations under the State’s system:

- **Class A State Listed Noxious Weed:** A weed of known economic importance which occurs in the state in small enough infestations to make eradication or /containment possible; or is not known to occur in Oregon, but its presence in neighboring states makes future occurrence seem imminent.
  - **Recommended Action:** Infestations are subject to eradication or intensive control when and where found.
- **Class B State Listed Noxious Weed:** A weed of economic importance that is regionally abundant but may have limited distribution in some counties.
  - **Recommended Action:** Limited to intensive control at the state, county, or regional level as determined on a site-specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method.
- **Class T Designated State Noxious Weeds:** Priority noxious weed species selected and designated by the OSWB as the focus of prevention and control actions by the Noxious Weed Control Program. T-designated noxious weeds are selected annually from either the A or B list and the ODA is directed to develop and implement a statewide management plan for these species.

## 2.2 Morrow County

The Morrow County Code Enforcement Ordinance (Morrow County 2021) establishes procedures for enforcing Morrow County Code through the authority granted to general law counties by ORS Chapter 203. Section 11 of the county ordinance establishes Morrow County as a weed control district, defines what is considered a noxious weed or weed of economic importance, identifies the responsibility of private landowners to control weeds, and outlines the authority of the weed control district and the Morrow County Weed Coordinator to enforce the ordinance.

Morrow County has its own weed classification system that differs from the state. Per the county ordinance, Morrow County defines two classifications of weeds:

- **Noxious Weed:** Any plant which determined by the County Board of Commissioners to be injurious to public health, crops, livestock, land, or property.

- **Weeds of Economic Importance:** Weeds which result in economic impact and which are identified by the County Weed Advisory Board and approved by the County Board of Commissioners as appropriate targets for intensive control or eradication as feasible.

### 3.0 ODA and Morrow County Weeds Lists

The ODA lists 46 Class A species and 94 Class B species for the state (ODA 2020). Morrow County specifically recognizes 17 species of noxious weeds and 20 weeds of economic importance (Table 1; Morrow County 2021). Although not all of the Morrow County listed noxious weeds noted in Table 1 occur within or near the Facility, the Applicant and its contractors should be aware of the entire list while monitoring and controlling weeds. Noxious weeds known to occur within or near the Facility are discussed in Section 4.0.

**Table 1. Morrow County Weed Department Weed Lists and Classifications**

Scientific Name	Common Name
<b>Noxious Weeds</b>	
<i>Butomus umbellatus</i>	flowering rush
<i>Cardaria (Lepidium) draba</i>	whitetop (hoary cress)
<i>Carduus acanthoides</i>	plumeless thistle
<i>Carduus nutans</i>	musk thistle
<i>Centaurea solstitialis</i>	yellow starthistle
<i>Centromadia (Hemizonia) pungens</i>	common spikeweed
<i>Chondrilla juncea</i>	rush skeletonweed
<i>Crupina vulgaris</i>	common crupina
<i>Cynoglossum officinale</i>	houndstongue
<i>Euphorbia esula</i>	leafy spurge
<i>Iris pseudacorus</i>	yellow flag iris
<i>Linaria dalmatica</i>	dalmatian toadflax
<i>Linaria vulgaris</i>	yellow toadflax
<i>Lythrum salicaria</i>	purple loosestrife
<i>Onopordum acanthium</i>	Scotch thistle
<i>Salvia aethiopis</i>	Mediterranean sage
<i>Senecio jacobaea</i>	tansy ragwort
<b>Weeds of Economic Importance</b>	
<i>Acroptilon repens</i>	Russian knapweed
<i>Aegilops cylindrica</i>	jointed goatgrass
<i>Avena fatua</i>	wild oats
<i>Bassia (Kochia) scoparia</i>	kochia



Scientific Name	Common Name
<i>Centaurea diffusa</i>	diffuse knapweed
<i>Centaurea stoebe</i> subsp. <i>micranthos</i>	spotted knapweed
<i>Cicuta douglasii</i>	water hemlock
<i>Cirsium arvense</i>	Canada thistle
<i>Conium maculatum</i>	poison hemlock
<i>Convolvulus arvensis</i>	field bindweed
<i>Cuscuta</i> spp.	field dodder
<i>Euphorbia myrsinites</i>	myrtle spurge
<i>Hypericum perforatum</i>	St. Johnswort
<i>Lepidium latifolium</i>	perennial pepperweed
<i>Secale cereale</i>	cereal rye
<i>Sonchus arvensis</i>	perennial sowthistle
<i>Sorghum halepense</i>	johnsongrass
<i>Taeniatherum caput-medusae</i>	medusahead rye
<i>Tribulus terrestris</i>	puncturevine
<i>Ventenata dubia</i>	ventenata

## 4.0 Noxious Weeds Identified at the Facility

Field surveys for the state-listed threatened plant species Laurent's milkvetch (*Astragalus collinus* var. *laurentii*) were conducted for Wheatridge Wind (Wheatridge Renewable Energy Facility I and Wheatridge Renewable Energy Facility II) June 29 – July 2, 2019 and July 17 – 18, 2019 (Tetra Tech 2019), and for the Facility from July 13-15, 2020 and June 22, 2021 (Tetra Tech 2021a). Noxious weeds were also recorded during these surveys. The Survey Area for these surveys included all lands within the site boundary, with the exception of active agricultural lands, as well as 9.5 acres of land where right of entry was not permitted at the time of surveys.

Table 2 identifies both state and county listed noxious weed species observed within the Facility Survey Area during pre-construction surveys, and their estimated frequency of occurrence. The locations of these noxious weeds are shown in Figure 1.

Table 2. Noxious Weeds Identified During Surveys at the Facility

Scientific Name	Common Name	State Status (ODA) <sup>1</sup>	Morrow County Status	Frequency
<i>Acroptilon repens</i>	Russian knapweed	B	Weed of Economic Importance	Two observations within the northern portion of the Facility Survey Area
<i>Aegilops cylindrica</i>	jointed goatgrass	B	Weed of Economic Importance	Two observations within the Facility Survey Area; one in the northeast and one in the southeast
<i>Bassia (Kochia) scoparia</i>	kochia	B	Weed of Economic Importance	Commonly observed within the Facility Survey Area
<i>Centaurea diffusa</i>	diffuse knapweed	B	Weed of Economic Importance	Abundant within of the Facility Survey Area
<i>Centaurea solstitialis</i>	yellow starthistle	B	Noxious Weed	Commonly observed in the central-eastern and southeastern portions of the Facility Survey Area
<i>Centromadia (Hemizonia) pungens</i>	common spikeweed	B	Noxious Weed	One observation in the central-eastern portion of the Facility Survey Area
<i>Chondrilla juncea</i>	rush skeletonweed	B/T	Noxious Weed	Observed in three locations in the south-central portion of the Facility Survey Area
<i>Convolvulus arvensis</i>	field bindweed	B	Weed of Economic Importance	One observation within the central portion of the Facility Survey Area
<i>Lepidium latifolium</i>	perennial pepperweed	B/T	Weed of Economic Importance	One observation within the north-central portion of the Facility Survey Area
<i>Onopordium acanthium</i>	Scotch thistle	B	Noxious Weed	One observation in central-eastern portion of the Facility Survey Area
<i>Secale cereale</i>	cereal rye	Not listed	Weed of Economic Importance	Commonly observed in scattered locations of the Facility Survey Area; most abundant in southwestern portion of Survey Area
Sources: Morrow County 2021, ODA 2020.				
1. ODA: B = A weed of economic importance that is regionally abundant, but that may have limited distribution in some counties. T = priority targets for control.				

## 5.0 Weed Management

This section of the Plan describes the steps the Applicant will take to prevent and control the establishment and spread of noxious weed species during both construction and operation of the Facility. Noxious weed control methods for the Facility described in this Plan have been developed utilizing information from the ODA Noxious Weed Control Program and the Morrow County Weed Control Program.

The management of noxious weeds will be considered throughout all stages of construction and operation of the Facility and will include:

- **Education and Personnel Requirements:** Educating all construction personnel regarding known locations of noxious weed infestations, identification of noxious weed species, and the importance of preventive measures and treatment methods.
- **Prevention:** Implementing measures to prevent the spread of noxious weeds during construction, operation, and maintenance activities.
- **Treatment:** Treating noxious weed infestations with appropriate control methods within the most effective timeframe.

The Applicant's objective is to prevent the introduction of new weed populations and the spread of existing noxious weed populations. The methods described below will be implemented to minimize the spread of noxious weeds during construction activities. New noxious weeds detected post-construction will be considered a result of construction activities and will be controlled accordingly.

### 5.1 Education and Personnel Requirements

Prior to construction, all construction personnel will be instructed on the importance of controlling noxious weeds. As part of start-up activities, and to help facilitate the avoidance of existing infestations and identification of new infestations, the Applicant or their construction contractor will provide information and training to all construction personnel regarding noxious weed identification and management. Operations and maintenance personnel will be similarly informed. The importance of preventing the spread of noxious weeds in areas not currently infested and controlling the proliferation of noxious weeds already present within or near the Facility, will be emphasized.

### 5.2 Prevention

Implementation of the following best management practices are intended to prevent the spread of noxious weeds during construction activities, revegetation efforts, and operation and maintenance activities.

- Prior to construction, areas of noxious weed infestations will be flagged to alert construction personnel to their presence;

- Limiting vehicle access to designated routes, whether existing roads or newly constructed roads, and the outer limits of construction disturbances per the final design for the Facility;
- Limiting vehicle traffic in noxious weed-infested areas;
- Cleaning construction vehicles prior to entering the Facility for the first time. Regularly cleaning or removing mud and debris that can transport noxious weeds from vehicles during the construction period. Upon completion of work at the Facility, construction vehicles should be cleaned before leaving Morrow County. Cleaning of vehicles during construction activities should occur at a wash station at a designated location at the Facility or by a mobile wash station. A public car wash in the vicinity of the Facility can be used as construction vehicles arrive on site for the first time and as those vehicles leave Morrow County;
- Cleaning vehicles and equipment associated with ground disturbance and movement of topsoil after performing work in noxious weed-infested areas and prior to performing work in non-infested areas utilizing a mobile wash station;
- Topsoil and other soils from noxious weed infested areas will not be moved outside of the infested areas and will be returned to its previous location during reclamation activities;
- Soils from infested areas may be treated with a pre-emergent herbicide prior to initiation of revegetation efforts, depending on site-specific conditions;
- Movement of topsoil and other soils from non-infested areas will be limited to eliminate the transport of weed seeds, roots, or rhizomes.
- Providing information regarding target noxious weed species at the operations and maintenance buildings;
- Treating noxious weeds via mechanical or chemical control (see Section 5.3);
- Preventing conditions favorable for noxious weed germination and spread by revegetating temporarily disturbed areas as soon as possible;
- Monitoring areas of disturbance for noxious weeds after construction (see Section 6.0), during the normal course of revegetation maintenance of temporary work spaces, and implementing control measures as appropriate;
- Revegetating the site with appropriate, local native seed or native plants; when these are not available, non-invasive and non-persistent non-native species may be used; and
- Inspecting and certifying that the seed and straw mulch used for site rehabilitation and revegetation are free of noxious weed seed and propagules.

### 5.3 Treatment

Control of noxious weeds will be implemented through mechanical or chemical control measures. The Applicant will be responsible for hiring a qualified contractor to implement the treatment of



noxious weeds. The Applicant will ensure that noxious weed management actions will be carried out by specialists with the following qualifications:

- Experience in native plant, non-native and invasive plants, and noxious weed identification;
- Experience in noxious weed mapping;
- If chemical control is used, specialists must possess a Commercial or Public Pesticide Applicator License from the ODA or possess an Immediately Supervised Pesticide Trainee License and be supervised by a licensed applicator;
- Training in noxious weed management or Integrated Pest Management with an emphasis in noxious weeds; and
- Experience in coordination with agency and private landowners.

Existing noxious weed populations should be prevented from expanding in size and density and should not be spread to new sites. Where possible, existing populations of noxious weeds should be eradicated. If it is determined that noxious weeds have invaded areas immediately adjacent to the Facility (e.g., areas visible just beyond the outer limits of construction disturbances associated with the Facility or along access roads) as a result of construction, the Applicant will contact the landowner and seek approval to treat those noxious weed populations.

Long-term weed control methods will be described in a long-term monitoring plan as described in Section 6.0. The main factor in long-term weed control is successful revegetation with non-weedy species as described in the Reclamation and Revegetation Plan (Tetra Tech 2021b). As noted above, short-term noxious weed control will be done through mechanical or chemical treatment. However, it will be important to ensure that the short-term treatment does not affect the establishment of the native perennial cover that will help provide the long-term control. Additionally, early detection and control of small noxious weed populations before they can expand into larger populations is extremely important for successful weed control efforts.

### ***5.3.1 Mechanical Treatment***

Mechanical control methods rely on removal of plants, seed heads, and/or cutting roots with a shovel or other hand tools or equipment that can be used to remove, mow, or disc noxious weed populations. Hand removal of plants is also included under this treatment method. Mechanical methods are useful for smaller, isolated populations of noxious weeds). Some rhizomatous plants can spread by discing or tillage; therefore, implementation of discing will be species specific. If such a method is used in areas to be reclaimed, subsequent seeding will be conducted to re-establish desirable vegetative cover that will stabilize the soils and slow the potential re-invasion of noxious weeds. Discing or other mechanical treatments that disturb the soil surface within native habitats will be avoided in favor of herbicide application (see Section 5.3.2), which is an effective means of reducing the size of noxious weed populations as well as preventing the establishment of new infestations.

### 5.3.2 Chemical Treatments

Chemical control can effectively remove noxious weeds through use of selective herbicides. The recommended chemical treatment and timing of chemical application for noxious weeds that have been identified during surveys at the Facility (Table 2) are presented in Table 3. The herbicides used and the timing of application will differ depending on whether the species are (1) perennial, broad-leaved, or dicot weeds (e.g., thistle and knapweeds) or (2) annual grasses or monocots (e.g., jointed goatgrass), as appropriate herbicides differ substantially between dicots and monocots.

All herbicides included in Table 3 are currently approved for use by the U.S. Environmental Protection Agency (EPA) and ODA; however, the status of herbicide approval and specific herbicide products should be checked annually. Prior to construction and every fall season during facility operation, the Applicant or its contractor shall consult with the Morrow County Weed Supervisor on timing, method and application rates for each identified weed species of concern, to allow for adaptive weed management given changes in weed control effectiveness from noxious weed species tolerance to herbicide treatment over time. Results of the consultation shall be reported in the Applicant's annual weed monitoring report. Any alternative control methods can be proposed by the Applicant or its contractors, after consulting with the Morrow County Weed Supervisor, and included in the Applicant's annual weed monitoring report.

**Table 3. Recommended Timing and Method of Control**

Noxious Weed Species	Method and Timing of Control	Application Rate
<i>Acroptilon repens</i> (Russian knapweed)	<b>2,4-D</b> – Apply at the early stage of flower stem elongation (late April to early May).	1 to 2 lb ae/a
	<b>Aminocyclopyrachlor + chlorsulfuron</b> – Apply to actively growing plants in spring.	1.8 to 3.2 oz/a aminocyclopyrachlor + 0.7 to 1.3 oz/a chlorsulfuron (4.5 to 8 oz/a of product)
	<b>Aminopyralid</b> – Consult label for optimum timing. Diffuse and spotted knapweed: apply to actively growing plants in fall or in spring from rosette to bolting growth stages.	1 to 1.75 oz ae/a
	<b>Clopyralid</b> – Up to the bud stage of knapweeds.	0.25 to 0.5 lb ae/a (0.66 to 1.33 pints/a)
	<b>Clopyralid + 2,4-D amine (Curtail)</b> – Apply after most rosettes emerge but before flower stem elongates.	2 to 4 quarts/a Curtail
	<b>Glyphosate</b> – Apply to actively growing knapweed when most plants are at bud stage.	3 lb ae/a
	<b>Triclopyr + clopyralid</b> – Apply from rosette to early bolt stage when weeds are actively growing.	1.5 to 2 pints/a
<i>Aegilops cylindrica</i>	<b>Glyphosate</b> – Apply to actively growing plants emerged before bolt stage (i.e., stage of growth	0.38 to 0.75 lb ae/a

Noxious Weed Species	Method and Timing of Control	Application Rate
(jointed goatgrass)	where growth is focused on seed development versus leaf development).	
	<b>Imazapic</b> – Apply pre-emergence in fall. Due to the residual effect of this herbicide, it will not be used in areas to be revegetated.	0.063 to 0.188 lb/a
	<b>Sulfometuron</b> – Apply in fall or in late winter before jointed goatgrass is 3 inches tall.	1 to 1.5 oz ai/a (1.33 to 2 oz/a)
<i>Bassia (Kochia) scoparia</i> (Kochia)	<b>Aminocyclopyrachlor + chlorsulfuron</b> – Apply either pre-emergence (late winter/early spring) or post-emergence. Postemergence is most effective on seedlings.	4.75 to 8 oz/a
	<b>Chlorsulfuron</b> – Apply pre-emergence (late winter/early spring), or post-emergence from seedling to bolting stage of growth.	0.75 oz ai/a (1 oz/a)
	<b>Fluroxypyr</b> – Apply in spring from seedling to bolting stage of growth.	2.1 to 7.7 oz ae/a (6 to 22 o/a)
	<b>Glyphosate</b> – Apply in spring from seedling to flowering stage of growth.	1.1 to 1.7 lb ae/a
	<b>Hexazinone</b> – Apply pre-emergence in the early spring.	0.5 to 1.5 lb ai/a (2 to 6 pints/a)
	<b>Imazapyr</b> – Apply pre-emergence (late winter/early spring) or post-emergence to actively growing kochia.	0.5 to 1.5 lb ae/a (2 to 4 pints/a)
	<b>Metsulfuron</b> – Apply in spring from seedling to flowering stage of growth.	0.6 to 1.2 oz ai/a (1 to 2 oz/a)
	<b>Rimsulfuron</b> – Apply pre-emergence (late winter/early spring) or post-emergence to kochia seedlings.	1 oz ai/a (4 oz/a)
<i>Centaurea diffusa</i> (diffuse knapweed)	See Russian knapweed ( <i>Acroptilon repens</i> )	
<i>Centaurea solstitialis</i> (yellow starthistle)	<b>2,4-D LV ester or 2,4-D amine</b> – Apply before flowering.	1 lb ae/a in 50 gallons of water
	<b>Aminocyclopyrachlor + chlorsulfuron</b> – Apply to actively growing plants.	1.2 to 1.8 oz/a aminocyclopyrachlor + 0.5 to 0.7 oz/a chlorsulfuron (3 to 4.5 oz/a of product)
	<b>Aminopyralid (Milestone)</b> – Apply to plants at the rosette through bolting stages.	0.75 to 1.25 oz ae/a (3 to 5 fluid oz/a Milestone)
	<b>Chlorsulfuron</b> – For best results apply to young, actively growing plants.	1.125 oz ai/a (1.5 oz/a)
	<b>Clopyralid</b> – After most rosettes have emerged but before bud formation.	0.09 to 0.375 lb ae/a (0.25 to 1 pint/a)

Noxious Weed Species	Method and Timing of Control	Application Rate
	<b>Clopyralid + 2,4-D amine (Curtail)</b> – Apply after most rosettes have emerged but before bud formation.	1 to 5 quarts/a Curtail
	<b>Triclopyr + clopyralid</b> – Apply from rosette to early bolt stage when starthistle is actively growing.	1.5 to 2.5 pints/a
<i>Centromadia (Hemizonia) pungens</i> (common spikeweed)	<b>2,4-D</b> – Apply post-emergence when plants are in rosette stage in winter or early spring.	1.4 lb ae/a
	<b>Aminocyclopyrachlor + chlorsulfuron (Perspective)</b> – Apply pre-emergence or early post-emergence before bolting.	1.75 to 2.75 oz/a of product
	<b>Chlorsulfuron</b> – Apply pre-emergence or post-emergence to plants in rosette stage.	0.375 to 0.75 oz ai/a
<i>Chondrilla juncea</i> (rush skeletonweed)	<b>2,4-D or MCPA</b> – Apply to rosettes in the spring immediately before or during bolting.	2 lb ae/a
	<b>Aminocyclopyrachlor + chlorsulfuron</b> – Apply to actively growing plants in spring.	1.8 to 3.2 oz/a aminocyclopyrachlor + 0.7 to 1.3 oz/a chlorsulfuron
	<b>Aminopyralid (Milestone)</b> – Spring or fall when rosettes are present.	1.75 oz ae/a (7 fluid oz/a Milestone)
	<b>Clopyralid</b> – Apply to rosettes in fall or up to early bolting in spring.	0.25 to 0.375 lb ae/a (0.66 to 1 pint/a)
<i>Convolvulus arvensis</i> (field bindweed)	<b>2,4-D amine</b> – Apply at bud growth stage or at summer fallow stage in early August	2 to 3 lb ae/a
	<b>Aminocyclopyrachlor + chlorsulfuron</b> – Apply to actively growing plants in spring.	1.8 to 3.2 oz/a aminocyclopyrachlor + 0.7 to 1.3 oz/a chlorsulfuron
	<b>Glyphosate + 2,4-D</b> – Apply when bindweed runners are at least 10 inches long. Tilling after treatment may improve control.	Broadcast: 0.378 to 0.67 lb ae/a. Spot treatment: 1 to 2% solution.
	<b>Imazapic</b> – Apply after 25% of plants are blooming through fall.	0.125 to 0.188 lb ai/a
	<b>Metsulfuron</b> – Apply to actively growing bindweed in bloomstage.	0.6 to 1.2 oz ai/a
	<b>Quinclorac (Paramount)</b> – Apply to actively growing bindweed in bloomstage.	6 oz ai/a (8 oz/a)
<i>Lepidium latifolium</i> (perennial pepperweed)	<b>2,4-D amine</b> – Apply at bud stage of growth.	4 lb ae/a
	<b>Aminocyclopyrachlor + chlorsulfuron</b> – Apply to actively growing plants in spring.	1.8 to 3.2 oz/a aminocyclopyrachlor + 0.7 to 1.3 oz/a chlorsulfuron
	<b>Chlorsulfuron</b> – Apply in fall or spring up through bloom stage.	0.75 oz ai/a
	<b>Imazapic</b> – Apply after flowers open (full bloom) until plants desiccate. Fall rosettes may also be treated if moisture permits.	0.125 to 0.188 lbs. ai/acre



Noxious Weed Species	Method and Timing of Control	Application Rate
	<b>Metsulfuron</b> – Apply to actively growing plants.	0.6 to 1.2 ounces ai/acre
<i>Onopordum acanthium</i> (Scotch thistle)	<b>2,4-D</b> – spring or fall.	1.5 to 2 lbs. ae/acre
	<b>Aminocyclopyrachlor + chlorsulfuron</b> – Apply to actively growing plants in spring.	1.8 to 3.2 ounces/acre aminocyclopyrachlor + 0.7 to 1.3 ounces/acre chlorsulfuron (4.5 to 8 ounces/acre of product)
	<b>Aminopyralid (Milestone)</b> – Apply in spring or early summer to rosettes or bolting plants or in fall to seedlings and rosettes.	0.75 to 1.25 oz ae/a (3 to 5 fluid ounces/acre Milestone)
	<b>Chlorsulfuron</b> – Apply to young, actively growing plants.	0.75 oz ai/a (1 ounces/acre)
	<b>Clopyralid + 2,4-D amine (Curtail)</b> – Apply to actively growing thistle after most basal leaves emerge but before bud stage.	1 to 5 quarts/acre Curtail
	<b>Clopyralid</b> – Apply up to the bud stage.	0.09 to 0.375 lb ae/acre (0.25 to 1 pint/acre)
	<b>Glyphosate + 2,4-D</b> – Apply to plants in rosette stage of growth in spring or before freeze-up in fall.	Broadcast: 16 to 32 fluid ounces/acre. Spot treatment: 1 to 2% solution.
	<b>Metsulfuron (Escort and others)</b> – Apply post-emergence to actively growing plants.	Escort: 0.6 oz ai/a (1 ounces/acre)
	<b>Triclopyr + clopyralid</b> – Apply to actively growing plants from rosette to early bolt stage.	1.5 to 2 pints/acre
<i>Secale cereale</i> (cereal rye)	Consult with Morrow County Weed Supervisor. Glyphosate applied post-emergence in spring provides good (80-95% control); however, does not provide residual weed control. Rimsulfuron applied in early fall or in the spring provides good (80-95%) control.	
Sources: DiTomaso et al. 2013; Kyser et al. 2014; Prather et al. 2019. Notes: a = acre; ae = acid equivalent; ai = active ingredient; lb= pound; oz = ounces.		

Herbicides will be applied to identified, treatable, noxious weed infestations. The Applicant or their contractors will coordinate with the Morrow County Weed Control Supervisor to determine which populations are treatable and will notify landowners of proposed herbicide use on their lands prior to application. If a noxious weed population is deemed to be untreatable (e.g., too widespread and established in an area to successfully control), the Applicant will implement the prevention measures discussed in Section 5.2, except for treatment with herbicides.

### *5.3.2.1 Herbicide Application and Handling*

Herbicide application will adhere to EPA and ODA standards. Only those herbicides that are approved by the EPA and ODA will be used. In general, application of herbicides will not occur when the following conditions exist:

- Wind velocity exceeds 15 miles per hour for granular application, or exceeds 10 miles per hour for liquid applications;
- Snow or ice covers the foliage of target species; or
- Adverse weather conditions are forecasted within the next few days.

Hand application methods (e.g., backpack spraying) may be used in roadless areas or in rough terrain. Vehicle-mounted sprayers (e.g., handgun, boom and injector) will be used mainly in open areas that are readily accessible by vehicle. Calibration checks of equipment will be conducted prior to spraying activities, as well as periodically throughout use, to ensure that appropriate application rates are achieved.

Herbicides will be transported to the Facility daily with the following stipulations:

- Only the quantity needed for that day's work will be transported.
- Concentrate will be transported in approved containers only, and in a manner that will prevent spilling, stored separately from food, clothing, and safety equipment.
- Mixing will be done off site and at a distance greater than 200 feet from open or flowing water, wetlands, or other sensitive species' habitat. No herbicides will be applied at these areas unless authorized by the appropriate regulatory agencies.
- All herbicide equipment and containers will be inspected daily for leaks.
- Herbicides use will be in accordance with all manufacture's label recommendations and warnings.

### *5.3.2.2 Herbicide Spills and Cleanups*

All appropriate precautions will be taken to avoid herbicide spills. In the event of a spill, cleanup will be immediate. Contractors will keep spill kits in their vehicles and in an appropriate storage shed to allow for quick and effective response to spills. Items included in the spill kit will be:

- Protective clothing and gloves;
- Adsorptive clay, "kitty litter," or other commercial adsorbent;
- Plastic bags and a bucket;
- A shovel;
- A fiber brush and screw-in handle;
- A dust pan;

- Caution tape;
- Highway flares (use on existing hard-top roads only); and
- Detergent.

Response to an herbicide spill will vary with the size and location of the spill, but general procedures include:

- Stopping the leak;
- Containing the spilled material;
- Traffic control;
- Dressing the clean-up team in protective clothing;
- Cleaning up and removing the spilled herbicide, as well as the contaminated adsorptive material and soil; and
- Transporting the spilled herbicide and contaminated material to an authorized disposal site.

#### *5.3.2.3 Herbicide Spill Reporting*

All herbicide contractors will have readily available copies of the appropriate material safety data sheets for the herbicides used at their disposal and will keep copies of the material safety data sheets in the application vehicle. All herbicide spills will be reported in accordance with applicable laws and requirements. If a spill occurs, the appropriate agency and spill coordinators will be notified promptly. In case of a spill into wetlands and waterbodies, the appropriate federal, state, and county agencies will be notified immediately.

#### *5.3.2.4 Special Considerations*

The Applicant will provide special consideration to intermittent and ephemeral streams/draws during treatment activities. No herbicide will be sprayed where the drift can enter standing water or saturated soil. It will be the herbicide applicators' responsibility to ensure that no herbicide or drift enters standing water, regardless of the season when the herbicide is applied. Similar considerations will be made when in proximity to agricultural fields.

## **6.0 Monitoring**

During the construction phase of the Facility, construction staff will conduct periodic monitoring of noxious weeds. Noxious weeds observed during construction will be treated with mechanical or chemical treatments (Section 5.3) or other best management practices, as applicable. Following construction, a qualified investigator will be employed to assess noxious weed presence annually for the first five years to inform noxious weed control measures. Reports will be submitted to the Applicant, to ODOE, ODFW, and Morrow County following each annual inspection.

Annual noxious weed inspections will occur across the entire Facility site, including under the solar arrays, along both sides of the fence line, along Facility roads that extend outside the Facility boundary through visual inspection of the site while driving and/or walking. These inspections will be used to inform ongoing noxious weed control efforts. The Applicant will be responsible for treating all noxious weeds observed across the site during these annual inspections.

Based on the success of noxious weed control efforts after the fifth year of annual monitoring, the Applicant will consult with ODOE and ODFW to design a long-term weed control plan. The Applicant may propose remedial actions and/or additional monitoring for noxious weed populations where weed control efforts have not resulted in successful control of noxious weeds.

The Applicant will maintain ongoing communication with individual landowners, the Morrow County Weed Control Supervisor, and ODOE regarding noxious weeds within the Facility. Landowners may also contact the Applicant directly to report the presence of noxious weeds related to Facility activity. The Applicant will control the noxious weeds on a case-by-case basis and prepare a summary of measures taken for that landowner.

The following contact information for the Morrow County Weed Control Supervisor will be used and updated as needed:

Dave Pranger, Weed Control Supervisor  
Morrow County Public Works  
365 West Highway 74  
Lexington, OR 97839  
(541) 989.9502  
[mcweed@co.morrow.or.us](mailto:mcweed@co.morrow.or.us)

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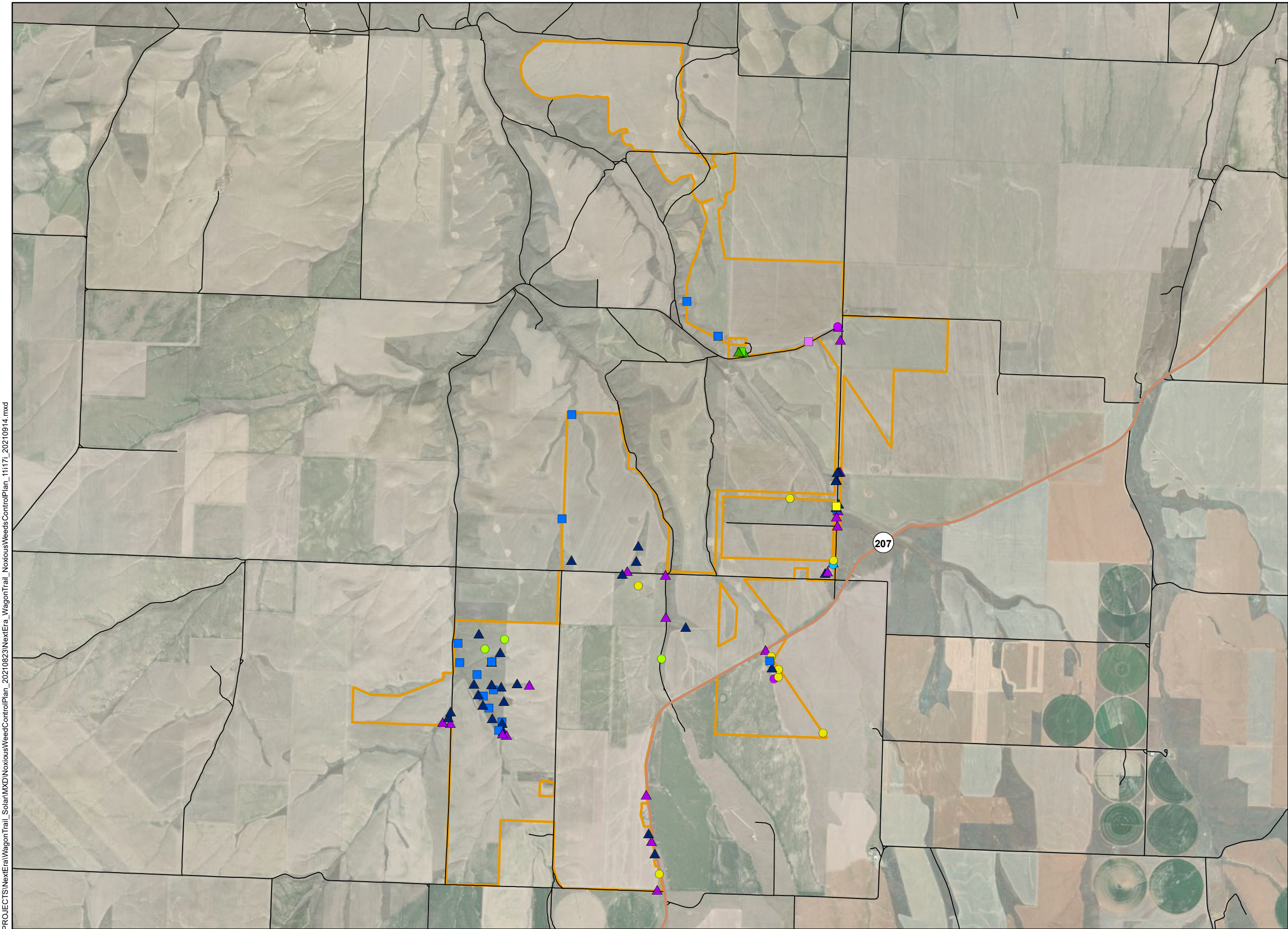
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# Figures



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**Wagon Trail  
Solar Project**

**Figure 1  
Noxious Weed Locations**

MORROW COUNTY, OR

- Wagon Trail Solar Project  
Site Boundary (7-27-2021)
- State Highway
- Local Road
- Noxious Weeds**
- Cereal Rye
  - Common Spikeweed
  - Diffuse Knapweed
  - Field bindweed
  - Jointed Goatgrass
  - Kochia
  - Perennial Pepperweed
  - Rush Skeletonweed
  - Russian Knapweed
  - Scotch Thistle
  - Yellow Starthistle



Reference Map



1:55,000

WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION