Soil Protection Exhibit

PREPARED FOR

DATE
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REFERENCE
Oregon Energy Facility Siting Council

CONTENTS

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

Acronym	Description
Applicant	DECH bn, LLC
BESS	Battery energy storage system
BMP	Best Management Practices
BrightNight	BrightNight, LLC
ESCP	Erosion and Sediment Control Plan
Facility	Solar photovoltaic power generation facility and related or supporting facilities in Wasco County, Oregon
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service
O&M	Operation and Maintenance
OAR	Oregon Administrative Rules
ODEQ	Oregon Department of Environmental Quality
SPCC	Spill Prevention, Control, and Countermeasure

1. INTRODUCTION

DECH bn, LLC (Applicant) plans to construct a solar photovoltaic power generation facility and related or supporting facilities in Wasco County, Oregon (Facility). The Facility will include up to 1,000 megawatts of solar capacity and a battery energy storage system (BESS) with up to 4,000 megawatt hours storage capacity. This Soil Protection Exhibit has been prepared to meet the requirements in OAR 345-022-0022.

The Facility will use solar photovoltaic modules to generate electricity. The type and output of individual modules are subject to final selection based on availability, technological advancements, and micrositing considerations, and may be in flux until late in the design and development process. These modules are designed to be inert, ensuring they will not release hazardous materials into the environment. The solar panels will be mounted on tracking systems supported by steel posts, and additional infrastructure will include overhead and underground conduits, inverters, combiners (or load break disconnects), and transformers, all essential for the operation of the Facility.

Rock, gravel, water, concrete, steel, and various electrical components will be required for Facility construction. The estimated water use during construction is described in the State and Local Laws and Regulations Exhibit and the management of solid waste is described in the Waste Minimization Exhibit.

2. MATERIALS ANALYSIS

2.1 CONSTRUCTION MATERIALS INVENTORY

OAR 345-022-0022(2)(a) A materials analysis, including:
(A) An inventory of substantial quantities of industrial materials flowing into and out of the proposed facility during construction and operation.

Construction materials will include rock and gravel, water, concrete, steel, and other materials listed in Table 1. Details about specific materials are provided in the sections below. Future advancements in technology may allow for reduced impacts by the time the Facility is constructed; for example, increased PV efficiency or output may result in fewer required modules. The quantities presented reflect theoretical maximum impacts based on currently available technology.

TABLE 1 INVENTORY OF CONSTRUCTION MATERIALS

Material	Quantity/Units	Ultimate Disposition
Solar modules	2,160,600	Throughout each solar module string
Solar modules per string	28 modules	Throughout each solar module string
Aggregate (rock and gravel)	227,918 tons total	See below by location

Material	Quantity/Units	Ultimate Disposition
• Battery storage	15,000 tons	Graveled area within site boundary
• Access roads	185,856 tons	Graveled area within site boundary
• Substation	7,000 tons	Graveled area within site boundary
• O&M building	62 tons	Graveled area within site boundary
• Staging areas	20,000 tons	Graveled area within site boundary
Concrete	16,278 cubic yards total	See below by location
• Battery storage[1]	375,000 cubic feet/ 13,888 cubic yards	Foundation
• Substation	2,250 cubic yards	Foundation
• O&M building	140 cubic yards	Foundation
Steel		See below by location
• Tracker posts	32,480 tons	322,225 post supporting trackers
• Battery containers[2]	1,593 tons	Battery storage system, including 1,062 containers – with augmentation
• Substation components	410 tons	Inclusive of structures and masts
• Gen-tie support structures	130,000 pounds	Steel lattice support structures for 0.5 mile line between collector substation and BPA's existing 500-kilovolt Buckley-Marion transmission line
Combiner boxes or load break disconnects	2,572 boxes (if load break disconnects are used, the total number will be lower)	Aboveground throughout each solar
Collector lines (overhead [OH] and underground [UG])	32 miles OH 288 miles UG	Between solar array and substation, buried underground or aboveground structure
Combined Inverter/transformer stations	271 stations	Aboveground throughout solar array
Fencing	343,000 feet	Will remain around solar area

Notes: O&M = Operations and Maintenance
[1]Battery storage containers may have pile driven foundations instead of concrete foundations; therefore, the concrete estimate is conservative.
[2]Conservative estimate based on current technology.

2.1.1 ROCK AND GRAVEL

Rock and gravel aggregate will be required during construction to create new access roads, upgrade existing routes, and provide surface cover for key operational areas. The contractor will source the rock and gravel locally, from approved, existing or newly established commercial gravel pits. Graveled areas include the BESS, the collector substation, the operations and maintenance

(O&M) buildings, and temporary staging areas. Estimated quantities of gravel for each area are listed in Table 1.

Once construction is complete, gravel in the temporary staging areas will be removed – or the temporary staging area will become permanent areas of the site (e.g., the graveled area around the collector substation).

2.1.2 CONCRETE

The collector substation and O&M building will require concrete foundations. The BESS may have concrete foundations or may have a driven pile foundation, depending on the final design. Estimated concrete quantities for these foundations are summarized in Table 1. The tracker system posts throughout the solar array will most likely be driven piles or ground screws and will not require concrete foundations.

2.1.3 WATER

Construction activities will require water to manage dust, compact roads, and support worker needs (e.g., drinking water and sanitation facilities). It is also possible that water will be required to produce concrete mixtures for the foundations described above in Section 2.1.2 if there is an on-site concrete batch plant. Alternatively, the concrete may be mixed off site by a vendor and brought to the site by a truck. The amount of water needed will depend on the weather during the construction and the Facility's final design specifications. The State and Local Laws and Regulations Exhibit describes anticipated water quantities, underlying assumptions, and planned water sources for construction activities.

2.1.4 STEEL

Steel is required for the solar array and BESS, as well as in components to support the substation, switchyard and gen-tie. The solar array will have approximately 322,225 steel posts to support the solar module tracking system, each approximately 12 feet long. The total estimated weight of steel required for trackers is around 64,960,560 pounds (or 32,480 tons). The BESS will require approximately 1,062 steel containers, each requiring approximately 3,000 tons of steel. The substation will use steel for its structures and masts totaling approximately 410 tons of steel. The gen-tie pole structures will also be steel and will use approximately 130,000 pounds of steel. Table 1 lists the steel required for the solar array, BESS, substation and gen-tie poles.

2.1.5 OTHER TYPICAL CONSTRUCTION MATERIALS

Construction will require other materials listed in Table 1. The solar array infrastructure will incorporate electrical cables and combiner boxes or load break disconnects to establish connections between solar strings and route power to the collector substation. The solar array will be built using prefabricated solar modules, featuring either mono- or poly-crystalline cells, mounted on a support system made of galvanized steel and aluminum. The BESS will include fire suppression equipment and battery units, with specific components depending on the selected battery technology.

Grid connection will be via a half-mile aboveground gen-tie line, which will connect to BPA's existing 500-kilovolts Marion-Buckley transmission line in the southern portion of the site boundary. Throughout the solar array, up to 271 combined inverter and transformer stations will be installed on pile foundations. The solar array area will be developed in blocks that will be secured by wildlife-friendly fencing, expected to be woven wire supported by steel posts. Site layout information is provided in the Background Information Exhibit.

2.2 OPERATIONAL MATERIALS INVENTORY

Operational materials will include battery components and transformer oil. Additional operational materials for maintenance will not be stored on-site but will be brought to the site as needed for maintenance, approximately one to two times per year. During Facility operation, industrial material movement will be minimal, primarily limited to maintenance of the solar components and electrical systems and part replacement, if needed. The specific materials and quantities estimated for Facility operation are described in Table 2.

TABLE 2 INVENTORY OF OPERATIONAL MATERIALS

Material	Quantity/Units	Ultimate Disposition
Lithium-ion batteries	Up to 4,248 racks	Disposed of at approved facility
Transformer oil	Substation transformers: 13,000 gallons per transformer Solar array transformers: 1,000 gallons each	Within transformer boxes for cooling. No extra oil stored outside of transformers. Additional oil is only required due to failure, provided on an as needed basis.

Note: The number of battery racks is a conservative estimate based on current technology.

2.2.1 SOLAR ARRAY

Solar modules are maintained through regular cleaning to combat accumulation of dust and dirt that can reduce power generation. The O&M plan calls for annual cleaning of all modules, with each cleaning using approximately 432,120 gallons of water per year. The cleaning process uses water and cleaning equipment; no cleaning agents will be used. Water used to wash the modules will naturally dissipate through evaporation and ground absorption. More information on water use is provided in the State and Local Laws and Regulations Exhibit.

2.2.2 BATTERY STORAGE SYSTEM

Lithium-ion systems require periodic battery augmentation due to degradation, and battery augmentation frequency depends on use. Batteries that are charged and discharged frequently will deteriorate more quickly than those used less frequently. This application assumes daily full discharge cycles and battery augmentation approximately every four years. This estimate is conservative, since battery augmentation will vary; typically, batteries need to be augmented less frequently earlier in the Facility's life. The 4,000 megawatt hours BESS would require 1,062 BESS enclosures with 4 racks per enclosure for a total of 4,248 battery racks (with each rack containing

multiple battery cells) over the operational period when accounting for augmentation. A total of 868 BESS enclosures are expected during year one of operation and the remainder of enclosures will be added during augmentation. These estimated quantities are informed by current available equipment specifications, however, advancements in technology may occur. Quantities presented here represent the maximum impact based on existing conditions.

2.3 HAZARDOUS SUBSTANCES

345-022-0022(2)(a)(B) The applicant's plans to manage hazardous substances during construction and operation, including measures to prevent and contain spills.

2.3.1 CONSTRUCTION MATERIALS

During construction, several potentially hazardous materials will be present on site, including paint, solvents, and vehicle/equipment-related fluids and components (e.g., used oil, hydraulic fluids, oily rags, and spent batteries). Fuel storage, if required, will be in secondary containment in designated areas within temporary staging areas. Storage protocols and refueling procedures will be established in the contractor's Spill Prevention, Control, and Countermeasure (SPCC) Plan. Vehicle maintenance will occur off-site.

Potentially hazardous materials will be managed following strict protocols to safeguard human health and the environment, meeting all applicable local, state, and federal regulations. Risk mitigation measures to prevent accidental releases of materials to the environment will be detailed in the SPCC Plan. Should a hazardous material release occur, the spill will be contained and cleaned immediately, following procedures outlined in the SPCC Plan. Any contaminated materials will be disposed of following SPCC Plan guidelines. Construction areas where potentially hazardous materials are used will be equipped with spill kits containing absorbents, pads, socks, and disposal bags. Any spills meeting reporting thresholds will be reported to Oregon's Emergency Response System, following OAR Chapter 340 Division 142 requirements. The Background Information Exhibit provides a complete list of applicable regulations.

2.3.2 OPERATIONAL MATERIALS

During operation, limited quantities of potentially hazardous materials will be present on site, limited to maintenance materials like lubricants, degreasers, and herbicides, which will be properly stored in the O&M building. All potentially hazardous materials will be managed to protect human health and the environment. Materials will also be managed following all applicable regulatory requirements and manufacturer guidelines. No underground storage tanks will be installed, and the Facility will not handle extremely hazardous materials as defined by federal regulations (40 Code of Federal Regulations 355).

Batteries that are properly maintained and used according to manufacturer specifications are classified as non-hazardous. The lithium-ion batteries will also have cooling systems due to flammability risks. All battery systems will incorporate comprehensive safety features, including performance monitoring, malfunction detection, and automated response mechanisms. Batteries

will be housed in purpose-built, leak-proof enclosures and will be inspected regularly by O&M personnel.

An operational SPCC Plan will guide spill response procedures. Any accidental releases will trigger immediate cleanup actions, with proper disposal of contaminated materials following applicable regulations detailed in the Background Information Exhibit. The Facility will report qualifying spills to Oregon's Emergency Response System as required by OAR Chapter 340 Division 142.

Battery augmentation activities will comply with Department of Transportation regulations (49 Code of Federal Regulations 173.185). For lithium-ion battery transport, this will include measures to prevent heat buildup, short circuits, and terminal damage. Licensed third-party suppliers will transport the batteries and will comply with all relevant regulations.

2.4 NON-HAZARDOUS WASTE MATERIALS

345-022-0022(2)(a)(C) The applicant's plans to manage non-hazardous waste materials during construction and operation.

2.4.1 CONSTRUCTION MATERIALS

Facility construction will generate waste materials including steel scraps, wood, concrete, and packaging materials, with detailed information provided in the Waste Minimization Exhibit. Standard waste management practices will be employed, including using conventional construction waste bins that will be serviced by licensed waste haulers. Excess excavated soil will be repurposed within the site boundary for ground contouring and fill requirements.

Dust control will primarily rely on water application. Dust palliatives, while rare, are mostly used on roads during construction where water application is impractical such as on graded slopes, fence lines, site perimeters, and inactive or idle areas with little traffic where the binder "crust" stays intact. Their use is expected to be minimal, if at all, and will be determined by the construction contractor.

Concrete waste will be managed to properly handle washout water containing concrete solids. The contractor will determine specific washout procedures, which may occur at their batch plants (if required) or designated washout areas within the site boundary. To minimize waste, excess concrete will be incorporated into foundations rather than disposed of off-site. No hardened concrete waste will be disposed of within the site boundary.

During construction, the construction contractor, or a licensed third-party will manage sewage waste by properly maintaining portable toilets with regular pumping and cleaning.

2.4.2 OPERATIONAL MATERIALS

Facility operation will produce minimal solid waste. Sanitation needs for the Facility will be managed through the O&M building, which will have a septic system. Office-generated waste from administrative activities will be recycled or landfilled at the Wasco County Landfill. Waste disposal will be managed by a properly licensed local waste contractor.

Panel washing activities will generate wash water, that will evaporate infiltrate on the ground where the cleaning occurs. The solar array operations will not produce any additional wastewater.

3. SOILS

3.1 ANALYSIS AREA

The analysis area for soil protection is the site boundary, see Attachment 1, Figure 1.

3.2 IDENTIFICATION AND DESCRIPTION OF SOIL TYPES

OAR 345-022-0022(2)(b) Information from reasonably available sources regarding soil conditions and uses in the analysis area, providing evidence to support findings by the Council as required by OAR 345-022-0022, including:
(A) *Identification and description of the major soil types in the analysis area.*

According to the Natural Resources Conservation Service (NRCS) web-based soil survey (NRCS, 2019), there are 34 major soil types within the site boundary which are grouped into soil series (Table 3 and Attachment 1, Figure 1). These soil types include varying amounts of silt, gravel, and cobbles, derived from weathered basalt with occasional andesite or sandstone. As described in more detail below, soils within the site boundary have moderate to very slow infiltration rates, moderate to slow rates of water transmission, and moderate to high runoff potential. Generally, the site soils offer poor water retention, and most soils within the site boundary are not classified as prime farmland. Two types of soil make up most of the site boundary: the Bakeoven-Watama complex, found across approximately 36 percent of the site boundary on 0 to 12 percent slopes and the Watama-Wapinitia silt loams found across approximately 29 percent of the site boundary on 0 to 5 percent slopes. Generally, depth to bedrock within the site boundary is shallow, ranging from 2.2 to 8.5 feet below ground.

Soil hydrologic groups, designated A, B, C, or D, indicate the amount of runoff to be expected from the soil when saturated:

- Group A - high infiltration rates, high rates of water transmission (greater than 0.30 inches /hour), and low runoff potential.
- Group B - moderate infiltration rates and moderate rates of water transmission (0.15 to 0.30 inches/hour).
- Group C - slow infiltration rates and slow rates of water transmission (0.05 to 0.15 inches/hour).
- Group D - very slow infiltration rates, slow rates of water transmission (0 to 0.05 inches/hour), and high runoff potential.

Most soils (i.e., 98 percent) within the site boundary are categorized as Group C or Group D, and the remaining 2 percent of soils within the site boundary are Group B. This indicates that the soils within the site boundary have moderate to very slow infiltration rates, moderate to slow rates of water transmission, and moderate to high runoff potential. Full agricultural analysis of soils is included in the Land Use Exhibit.

A unitless erosion factor (or K factor) is used to characterize the susceptibility of a soil to sheet and rill erosion by water. This factor can range from 0.02 to 0.69, with higher values corresponding to higher susceptibility to erosion. Soils within the site boundary have a K factor[1] that ranges from 0.10 to 0.43, which is considered low to moderate erodible[2] (NRCS, 2019). Though soils within the site boundary are considered low to moderate erodible, precipitation within the site boundary is limited, which limits erosion. Average annual precipitation in Wasco County is 11.70 inches, with monthly averages ranging from 0.21 inches to 1.87 inches (Western Regional Climate Center, 2015). November through February are the wettest months, so precipitation may fall as rain or as snow. Full NRCS soil reports are included in Attachment 1.

[1] The K factor for soils within the site boundary was based on whole soil, including rock components.
[2] Microsoft Word - RUSLE2 Hanbook.doc

TABLE 3 GENERAL DESCRIPTION OF MAPPED SOIL UNITS IN THE ANALYSIS AREA

Map Unit Symbol	Soil Series	Setting Within Site Boundary (percent slopes)	Formation Setting	Hydrologic Group	Percent of Site Boundary	K Factor
2D	Bakeoven very cobbly loam	2 to 20	Loess and residuum weathered from basalt	Very Slow (D)	4.2	0.10 (low)
3D	Bakeoven-Condon complex	2 to 20	Loess and residuum weathered from basalt	Very Slow (D)	0.0	0.10 (low)
4C	Bakeoven-Maupin complex	0 to 12	Loess and residuum weathered from basalt	Very Slow (D)	5.1	0.10 (low)
5C	Bakeoven-Watama complex	0 to 12	Loess and residuum weathered from basalt	Very Slow (D)	36.0	0.10 (low)
6E	Bald cobbly loam	5 to 45	Loess and volcanic ash over colluvium derived from basalt	Slow (C)	3.2	-
10E	Bodell cobbly loam	5 to 45	Loess and volcanic ash over colluvium derived from basalt	Very Slow (D)	3.6	0.17 (low)
12	Bodell very cobbly loam	30 to 55	Volcanic ash over colluvium and residuum weathered from basalt	Very Slow (D)	0.0	0.15 (low)
11F		45 to 75		Very Slow (D)	0.3	0.17 (low)
28E	Hesslan-Skyline complex	5 to 40	Loess, volcanic ash, and colluvium derived from sandstone	Slow (C)	0.5	0.20 (low)
57	Jorn-Bodell complex	30 to 55	Colluvium residuum weathered from sedimentary rock with influence of volcanic ash	Very Slow (D)	0.0	0.32 (moderate)
29E	Ketchly loam	3 to 30	Loess, volcanic ash, and colluvium derived from andesite	Slow (C)	0.7	0.32 (moderate)
29F		30 to 65		Slow (C)	0.2	-

Map Unit Symbol	Soil Series	Setting Within Site Boundary (percent slopes)	Formation Setting	Hydrologic Group	Percent of Site Boundary	K Factor
30E	Lickskillet very stony loam	15 to 40	Stony colluvium consisting of a mixture of loess and residuum weathered from basalt	Very Slow (D)	0.2	0.24 (low)
32A	Maupin loam	0 to 5	Loess and volcanic ash	Slow (C)	2.8	0.24 (low)
58E	Mutton gravelly loam	12 to 30	Colluvium residuum weathered from tuff rock with influence of volcanic ash	Moderate (B)	0.7	-
58F		30 to 55		Moderate (B)	1.0	-
85		12 to 30		Moderate (B)	0.0	-
86		30 to 55		Moderate (B)	0.0	-
35	Pedigo silt loam	-	Alluvium derived from loess and volcanic ash	Slow (C)	0.4	0.43 (moderate)
59D	Rockly extremely gravelly silt loam	2 to 20	Colluvium weathered from basalt rock with influence of loess in upper part	Very Slow (D)	1.3	0.15 (low)
113		2 to 20		Very Slow (D)	0.1	0.15 (low)
40E	Sherar cobbly loam	5 to 45	Loess and gravelly colluvium	Slow (C)	0.7	0.17 (low)
42F	Sinamox silt loam	45 to 70	Loess and gravelly colluvium	Slow (C)	0.6	0.37 (moderate)
44	Tygh fine sandy loam	-	Alluvium derived from volcanic ash, loess, and weathered sedimentary rock	Moderate (B)	0.3	0.24 (low)
49B	Wamic loam	1 to 5		Slow (C)	0.9	0.28 (moderate)

Map Unit Symbol	Soil Series	Setting Within Site Boundary (percent slopes)	Formation Setting	Hydrologic Group	Percent of Site Boundary	K Factor
49C		5 to 12	Volcanic ash and loess over alluvium or colluvium derived from basalt or andesite	Slow (C)	0.0	0.28 (moderate)
50E		20 to 40		Slow (C)	0.0	0.28 (moderate)
51D	Wamic-Skyline complex	2 to 20	Volcanic ash and loess over alluvium or colluvium derived from basalt or andesite	Slow (C)	0.2	0.28 (moderate)
52B	Wapinitia variant silt loam	1 to 7	Loess and volcanic ash	Slow (C)	7.8	0.28 (moderate)
54B	Watama-Wapinitia silt loams	0 to 5	Loess and volcanic ash	Slow (C)	28.5	0.37 (moderate)
54C		5 to 12		Slow (C)	0.3	0.37 (moderate)
54D		12 to 20		Slow (C)	0.1	0.37 (moderate)
54E		20 to 35		Slow (C)	0.0	0.37 (moderate)
57F	Wrentham-Rock outcrop complex	35 to 70	Loess and colluvium derived from basalt	Slow (C)	0.2	0.28 (moderate)

"-" Indicates no data available.
Data from Natural Resources Conservation Service (NRCS). 2019. Web Soil Survey.
"Area of Interest" is the site boundary.
Percent of site boundary may differ slightly for certain map unit symbols in the Land Use Exhibit due to different tools used in analysis.

Land capability classifications describe the suitability of soils for most kinds of field crops, excluding crops that require special management. Soils are grouped according to limitations for field crops, risk of damage if they are used for crops, and how they respond to management. Capability classes range from 1 to 8, with higher designations indicating greater limitations and narrower choices for practical use. Capability classes are defined as follows:

- Class 1: Slight limitations that restrict use.
- Class 2: Moderate limitations that restrict the choice of plants or require moderate conservation practices.
- Class 3: Severe limitations that restrict the choice of plants and/or require special conservation practices.
- Class 4: Very severe limitations that restrict the choice of plants and/or require very careful management.
- Class 5: Subject to little or no erosion but have other limitations, impractical to remove and have use restricted mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class 6: Severe limitations that render them generally unsuitable for cultivation and that restrict their use mainly to pasture, forestland, rangeland, or wildlife habitat.
- Class 7: Very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to forestland, grazing, or wildlife habitat.
- Class 8: Limitations that preclude commercial plant production and restricted use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses further describe a soil's physical characteristics, used by adding the following letters to the end of a class:

- e: Risk of erosion is the main hazard, unless close-growing plant cover is maintained.
- w: Water in or on the soil interferes with plant growth or cultivation.
- s: Soil is limited mainly because it is shallow, stony, or droughty.
- c: Climate is very cold or very dry, limiting soil use.

The soils within the site boundary range in land capability class from 2 to 8. For non-irrigated soils, the Bakeoven-Watama complex, found across approximately 36 percent of the site boundary, ranges in class from 4e to 7s, with most of the Bakeoven-Watama complex (65 percent) designated as 7s. For irrigated soils, the Watama portion of the complex is designated as 3e, and there is no soil class provided for irrigated soils in the Bakeoven portion of the complex. The Watama-Wapinitia silt loams (0 to 5 percent slopes) found across approximately 29 percent of the site boundary range from 2c to 4s for non-irrigated soil. The Watama portion (60 percent of the unit) is assigned 4s, and the Wapinitia portion (25 percent of the unit) is assigned 2c. For irrigated soil, classes range from 2e to 3s, with Watama and Wapinitia assigned 3s and 2e, respectively.

To summarize, most of the soils within the site boundary (roughly 65 percent) have moderate to severe agricultural use limitations, and hazards include erosion, water in or on the soil, and

shallow, droughty, or stony soils. This information is summarized in Table 4 and included in Attachment 1.

TABLE 4 LAND CAPABILITY CLASSIFICATIONS OF MAPPED SOIL UNITS IN THE ANALYSIS AREA

Map Unit Symbol	Soil Series	Setting Within Site Boundary (percent slopes)	Percent of Site Boundary	Land Capability Class (Nonirrigated)	Land Capability Class (Irrigated)
2D	Bakeoven very cobbly loam	2 to 20	4.2	7s	-
3D	Bakeoven-Condon complex	2 to 20	0.0	3e to 7s	3e (Condon)
4C	Bakeoven-Maupin complex	0 to 12	5.1	3e to 7s	3e (Condon)
5C	Bakeoven-Watama complex	0 to 12	36.0	4e to 7s	3e (Watama)
6E	Bald cobbly loam	5 to 45	3.2	6s	-
10E	Bodell cobbly loam	5 to 45	3.6	7e	-
12	Bodell very cobbly loam	30 to 55	0.0	7s	-
11F		45 to 75	0.3	7s	-
28E	Hesslan-Skyline complex	5 to 40	0.5	4e to 7s	-
57	Jorn-Bodell complex	30 to 55	0.0	6e to 7s	-
29E	Ketchly loam	3 to 30	0.7	6e	-
29F		30 to 65	0.2	7e	-
30E	Lickskillet very stony loam	15 to 40	0.2	7s	-
32A	Maupin loam	0 to 5	2.8	2c	2e
58E	Mutton gravelly loam	12 to 30	0.7	6e	-

Map Unit Symbol	Soil Series	Setting Within Site Boundary (percent slopes)	Percent of Site Boundary	Land Capability Class (Nonirrigated)	Land Capability Class (Irrigated)
58F		30 to 55	1.0	6e	-
85		12 to 30	0.0	6e	-
86		30 to 55	0.0	6e	-
35	Pedigo silt loam	-	0.4	4w	4w
59D	Rockly extremely gravelly silt loam	2 to 20	1.3	7s	-
113		2 to 20	0.1	7s	-
40E	Sherar cobbly loam	5 to 45	0.7	6e	-
42F	Sinamox silt loam	45 to 70	0.6	7e	-
44	Tygh fine sandy loam	-	0.3	3w	3w
49B	Wamic loam	1 to 5	0.9	3e	-
49C		5 to 12	0.0	4e	-
50E		20 to 40	0.0	6e	-
51D	Wamic-Skyline complex	2 to 20	0.2	4e to 7s	-
52B	Wapinitia variant silt loam	1 to 7	7.8	3e	-
54B	Watama-Wapinitia silt loams	0 to 5	28.5	2c to 4s	2e to 3s
54C		5 to 12	0.3	3e to 4e	3e

Map Unit Symbol	Soil Series	Setting Within Site Boundary (percent slopes)	Percent of Site Boundary	Land Capability Class (Nonirrigated)	Land Capability Class (Irrigated)
54D		12 to 20	0.1	3e to 6e	3e (Wapinitia)
54E		20 to 35	0.0	4e to 6e	-
57F	Wrentham-Rock outcrop complex	35 to 70	0.2	7s to 8	-
113	Rockly extremely gravelly silt loam	2 to 20 percent slopes	0.1	7s	-

"-" Indicates no data available
Data from Natural Resources Conservation Service (NRCS). 2019. Web Soil Survey.
No irrigability classification indicates that the soils cannot be sustainably farmed with irrigation.
Percent of site boundary may differ slightly for certain map unit symbols in the Land Use Exhibit due to different tools used in analysis.

3.3 CURRENT LAND USE WITHIN THE ANALYSIS AREA

(B) *Identification and description of current land uses in the analysis area, such as growing crops, that require or depend on productive soils.*

The analysis area for soils is the site boundary which encompasses 14,418 acres of private land. Most land within the analysis area is zoned as Exclusive Farm Use (EFU), except for two small areas along the western boundary zoned as Rural Residential and Rural Industrial.

Most of the land cover within analysis area is classified as shrub/scrub and grassland/herbaceous land, with limited cropland land interspersed throughout. According to consultation with the Wasco County Soil and Water Conservation District[2], public data sources, and landowner survey response, there is limited cropland within the site boundary, which currently supports hay, grass, barley and wheat production. These crops are primarily used as crop feed for livestock. Much of the remaining land consists of grassland/herbaceous cover, approximately 5,590 acres of which is used as rangeland for livestock, including cattle and sheep. The limited crop land within the analysis area is because the soils within the site boundary are not suitable for cultivation with moderate to very slow infiltration rates, moderate to slow rates of water transmission, and moderate to high runoff potential, as described in Section 3.2 above. The soil types and descriptions identified in Section 3.2 above are consistent with how landowners describe their soils in surveys, which is rocky and shallow with limited agriculture potential. Landowner survey responses detailing current agricultural practices and landowners descriptions of their soils are included in the Land Use Exhibit. Please also refer to the Land Use Exhibit for a full review of current land use, agricultural practices and cultivated areas within the site boundary. The Land Use Exhibit additionally summarizes land use in the 0.5-mile area that surrounds the site boundary.

3.4 PROJECT SOIL IMPACTS

(C) *Identification and assessment of significant potential adverse impact to soils from construction, operation and retirement of the facility, including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills.*

3.4.1 CONSTRUCTION

Because the land within the site boundary where the Facility will be built is relatively flat, very little grading is anticipated; however, some construction activities may temporarily disturb soils. Examples include:

- Constructing, grading, and/or widening access roads.
- Clearing vegetation for temporary construction areas and for Facility components.

[2] The Applicant consulted with the Wasco County Soil and Water Conservation District on 17 November 2025 and the Wasco County Soil and Water Conservation District concurred with the Applicant's descriptions of land use.

- Excavating soils for subsurface construction (e.g., trenching for subsurface utilities, excavating for substation foundations).

Where there is grading in the site boundary, the earthwork will target a balanced site design (i.e., cut will be approximately equal to fill) to minimize waste production. Vegetation clearing methods will depend on the density of vegetation and terrain. Mowers will be used for surface clearing on sparce and low-lying vegetation in flat areas. Blading techniques will be used for deeper root, bulb, and stump removal (grubbing) on higher density areas followed by ground compaction to mitigate any topsoil disturbance.

Acres of temporary and permanent disturbance by disturbance type are discussed in the Background Information Exhibit. Any impacts to soil, such as erosion and compaction, resulting from construction activities will be limited by the following practices:

- Following the Construction Vegetation and Soil Management Plan (Attachment 2) and the Dust Control Plan (Section 2.2 of Attachment 2).
- Planning construction to minimize vegetation and ground disturbance to the extent possible, especially in sensitive areas (e.g., existing trees and shrubs along OR 216, and elsewhere across the site boundary will be left in place, where possible).
- Avoiding unnecessary compaction of undisturbed soil by limiting vehicle travel to designated access routes (whether existing roads or newly constructed roads) and to the outer limits of construction disturbances (per the final design for the Facility), as well as by limiting heavy equipment use during periods of high soil saturation.
- Sequencing construction activities to limit the total amount of exposed soils present within the site boundary at a given time and stabilizing each disturbed area prior to starting construction in a new area.
- Following erosion and sediment control best management practices (BMPs), included in the contractor's Erosion and Sediment Control Plan (ESCP) as required by the Oregon Department of Environmental Quality (ODEQ) National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Discharge General Permit 1200-C.
- Following a Spill Prevention, Control, and Countermeasures Plan (SPCC Plan).
- Following appropriate site restoration practices during and after construction, as described in the contractor's ESCP and in Section 4 of the Construction Vegetation and Soil Management Plan (Attachment 2).

In accordance with the Construction Vegetation and Soil Management Plan, an Environmental Inspector will be on site during construction to ensure adherence to recommended BMPs and other soil management requirements. Further assessment of potential adverse impacts and mitigation plans for adverse impacts to soils during Facility construction is in the attached Construction Vegetation and Soil Management Plan (Attachment 2) and Dust Control Plan (Section 2.2 of Attachment 2).

Any waste generated during construction will have a minimal impact on the site and will be collected and disposed of appropriately. The Waste Minimization Exhibit includes an inventory of

industrial materials and waste materials during construction, their anticipated quantities, and methods of disposal.

3.4.2 OPERATION

Facility operation is not expected to impact soil because most operational activities will occur on graveled laydown areas and access roads. Following construction, the Facility will be revegetated, which will promote long-term soil stability; additional details are provided in Section 4 of the Construction Vegetation and Soil Management Plan (Attachment 2) and the Operation Vegetation and Soil Management Plan (Attachment 3). Panels will be sited in areas where there are invasive species and noxious weeds. These areas will be restored through revegetation with a native seed mix (which has been reviewed with the landowners) which will further promote soil quality. For example, native grassland restoration is known to decrease soil bulk density, increase carbon storage in roots, and increase carbon mineralization rates in soils over time (Baer et al. 2002). Significant positive changes in ecological function attributes, such as microbial biomass, arbuscular mycorrhizal fungi biomass, and carbon mineralization, are detectable within four years after revegetation compared to cultivated soils (Bach et al. 2012).

To further minimize any potential impacts to soils, the Facility's transformers, inverters, and BESS will be held in completely contained, leak-proof modules atop pads as described in the Background Information Exhibit. Operation and maintenance staff will routinely inspect the equipment according to the manufacturer's recommendations. Underground posts and components will be designed to minimize corrosion and leaching material into soil (Structural Standard Exhibit). Additionally, an SPCC Plan will be implemented to manage, prevent, and control potential releases and provide instructions for quick and safe cleanup of hazardous materials that may be stored on site.

Any waste generated during construction will have a minimal impact on the soil within the site boundary and will be collected and disposed of appropriately. The Waste Minimization Exhibit includes an inventory of industrial materials and waste materials during operation, their anticipated quantities, and methods of disposal.

3.4.3 DECOMMISSIONING

When the Facility is decommissioned, the potential erosion effects will be like those that may occur during construction. BMPs used during construction and operation will also be used during decommissioning to prevent and control erosion, prevent spills, and to revegetate disturbed areas.

3.5 MITIGATION MEASURES

(D) *A description of any measures the applicant proposes to avoid or mitigate adverse impact to soils.*

The Applicant has developed several mitigation measures in consultation with the landowners, the Wasco County Weed Department, Oregon Department of Fish and Wildlife, and the Wasco County

Soil and Water Conservation District[3], which will avoid or minimize negative impacts to soils. These measures include:

- Preserving existing vegetation where possible. Where vegetation clearing is required, root systems will be conserved, if possible.
- Utilizing BMPs as outlined in the contractor's ESCP and the contractor's Construction Stormwater NPDES General Permit 1200-C.
- Managing soils and dust according to the Construction Vegetation and Soil Management Plan (Attachment 2), Dust Control Plan (Section 2.2 of Attachment 2), and Operation Vegetation and Soil Management Plan (Attachment 3).
- Reseeding areas disturbed by construction activities and monitoring their restoration according to the Facility Revegetation Plan (Section 4 of Attachment 2).
- Preventing and/or minimizing potential releases of chemicals to soil during construction and operation by following the requirements of the SPCC plans that will be prepared for the Facility.
- Properly storing chemicals in secondary containment as described in the Background Information Exhibit.
- Managing waste as described in the Waste Minimization Exhibit.

With the limited chemicals stored on site in secondary containment and listed avoidance and minimization measures prescribed, a monitoring program for soil contamination will not be necessary. A spill response plan will also be in place.

3.6 MONITORING PROGRAM

(E) *The applicant's proposed monitoring program, if any, for adverse impact to soils during construction and operation.*

Erosion and sediment control measures will be maintained and regularly inspected during construction as required by the ODEQ NPDES Construction Stormwater Discharge General Permit 1200-C. Additionally, the Applicant will monitor restoration of temporarily disturbed areas during construction according to the Construction Vegetation and Soil Management Plan (Section 4 of Attachment 2) and the contractor's ESCP. No soil monitoring is planned during Facility operation because no negative impacts to soil are expected during operation.

3.7 CONCLUSIONS

This Soil Protection Exhibit was prepared to meet the requirements in OAR 345-022-0022; the Facility is not expected to have significant adverse impacts on soils within the site boundary. During construction, potential impacts to soils are anticipated to be limited and will be addressed through soil protection and erosion-control measures as discussed above and will be described in

[3] The Wasco County Soil and Water Conservation District was provided copies of the draft Construction and Operation Vegetation and Soil Management Plans on 18 November 2025. The Applicant will incorporate any feedback provided by Wasco County Soil and Water Conservation District into revised plans, to be submitted prior to issuance of the final Application for Site Certificate.

the contractor's ESCP as required by the NPDES Construction Stormwater Discharge General Permit 1200-C. Soil impacts will be minimized by following the measures outlined in the Construction Vegetation and Soil Management Plan (Attachment 2), Dust Control Plan (Section 2.2 of Attachment 2), and Operation Vegetation and Soil Management Plan (Attachment 3). Disturbed areas within the site boundary will be revegetated (Section 4 of Attachment 2) which will promote long-term soil stability during Facility operation.

4. APPROVAL STANDARDS

The Applicant has satisfied the Approval Standards of OAR 345-022-0022(2), summarized in Table 5.

TABLE 5 APPROVAL STANDARDS MATRIX

Approval Standard	Handling
OAR 345-022-0022 Soil Protection	-
(1) To issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are not likely to result in a significant adverse impact to soils including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills.	Sections 3.4 through 3.7
OAR 345-022-0022(2)(a) A materials analysis including:	
(A) An inventory of substantial quantities of industrial materials flowing into and out of the proposed facility during construction and operation.	Sections 2.1 and 2.2
(B) The applicant's plans to manage hazardous substances during construction and operation, including measures to prevent and contain spills.	Section 2.3
(C) The applicant's plans to manage non-hazardous waste materials during construction and operation.	Section 2.4
(b) Information from reasonably available sources regarding soil conditions and uses in the analysis area, providing evidence to support findings by the Council as required by OAR 345-022-0022, including:	-
(A) Identification and description of the major soil types in the analysis area.	Section 3.2
(B) Identification and description of current land uses in the analysis area, such as growing crops, that require or depend on productive soils.	Section 3.3
(C) Identification and assessment of significant potential adverse impact to soils from construction, operation and retirement of the facility, including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills.	Section 3.4
(D) A description of any measures the applicant proposes to avoid or mitigate adverse impact to soils.	Section 3.5

Approval Standard	Handling
(E) The applicant's proposed monitoring program, if any, for adverse impact to soils during construction and operation.	Section 3.6

5. REFERENCES

Bach, Elizabeth M., Sara G. Baer, and Johan Six. 2012. Plant and Soil Responses to High and Low Diversity Grassland Restoration Practices. Environmental Management 49(2):412-24.

Baer, S. G., D. J. Kitchen, J. M. Blair, and C. W. Rice. 2002. Changes in ecosystem structure and function along a chronosequence of restored grasslands. Ecological Applications 12(6):1688-1701.

Natural Resources Conservation Service (NRCS). 2019. Web Soil Survey.

https://websoilsurvey.nrcs.usda.gov/app/

Western Regional Climate Center, Desert Research Institute. 2015. Wasco, Oregon Period of

Record Monthly Climate Summary https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?or9068

ATTACHMENT 1 NCRS SOIL TYPES AND REPORTS

Figure 1 – NRCS Soil Types

NRCS Soil Reports

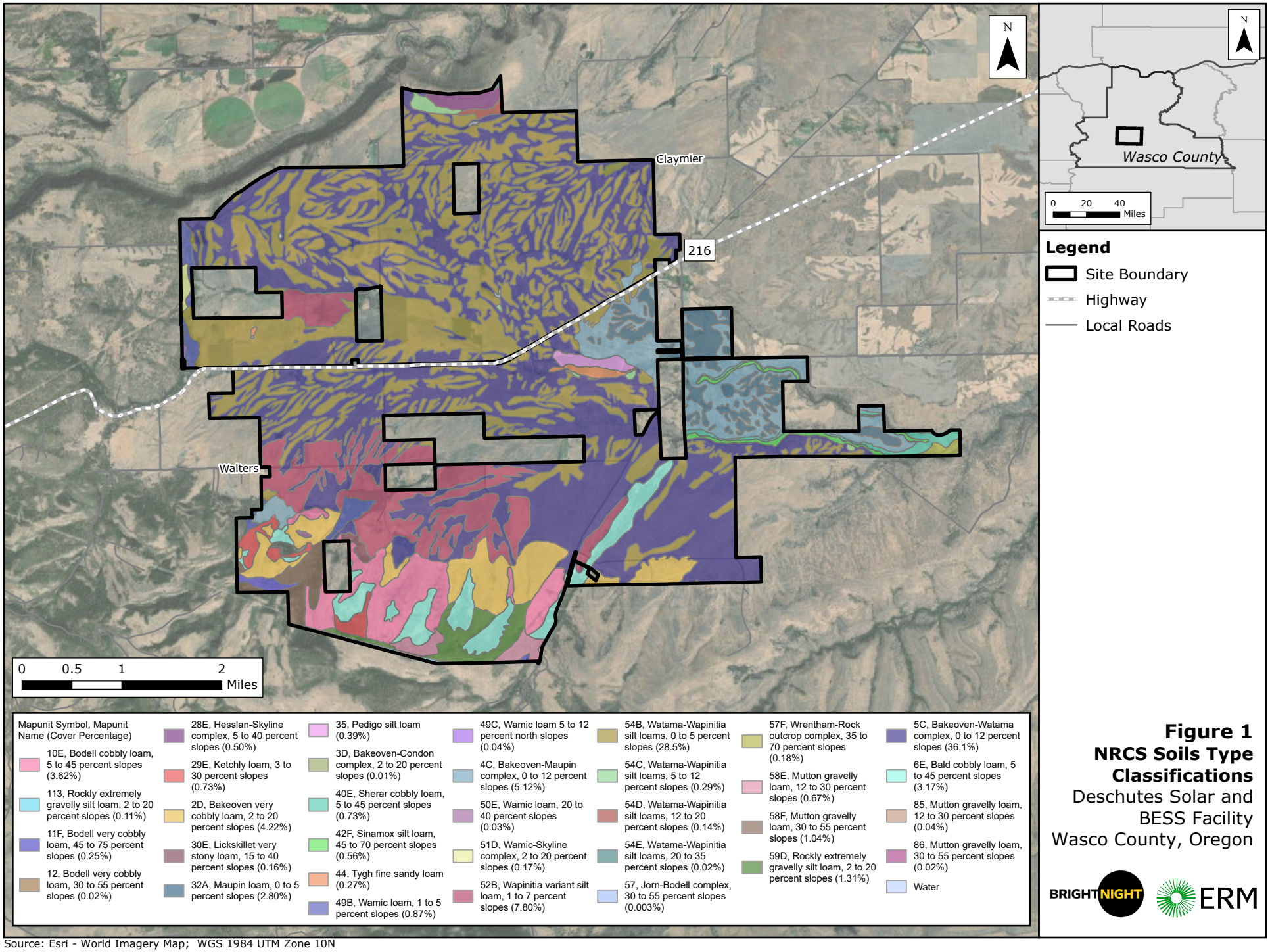
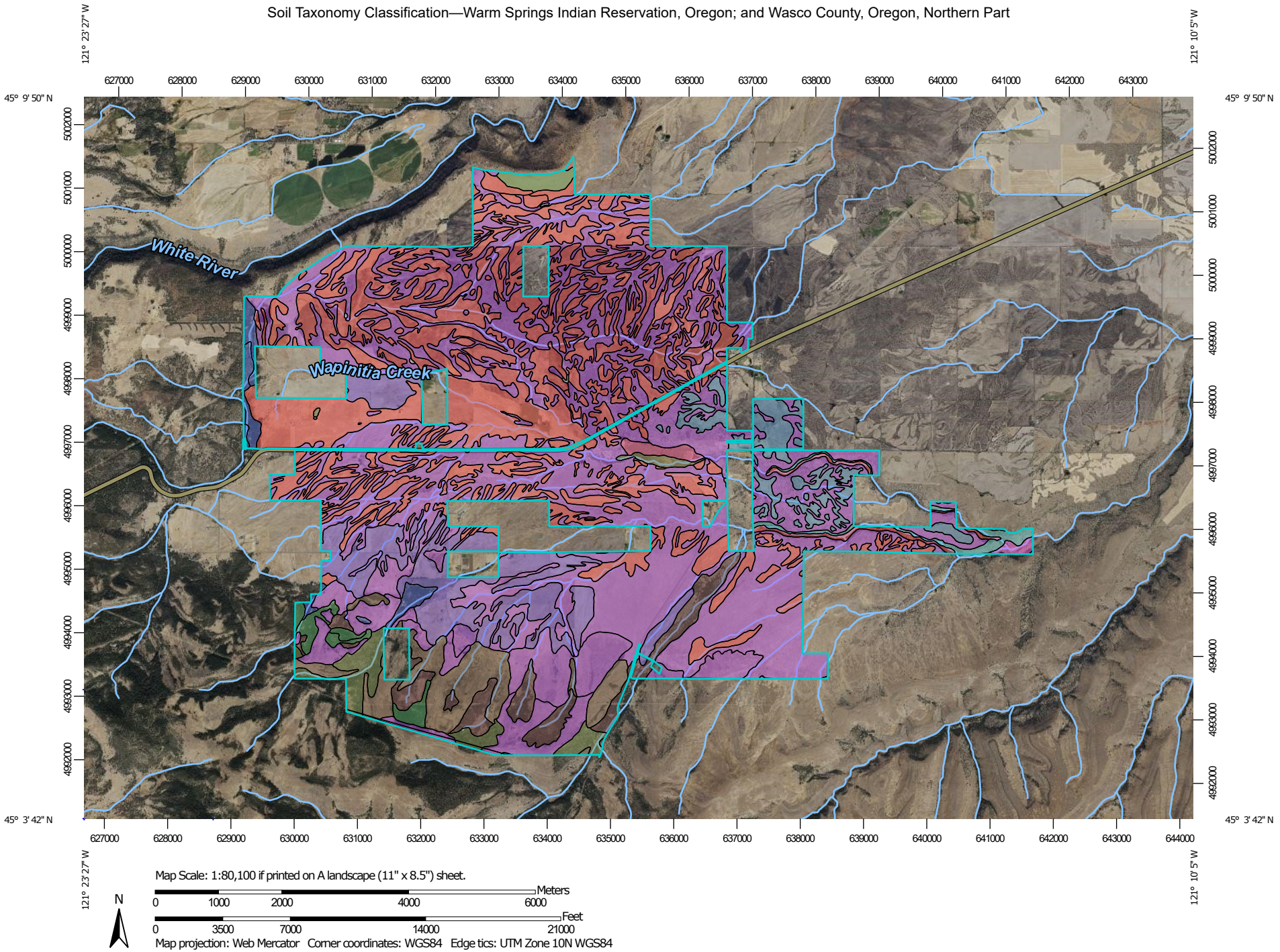


Figure 1
NRCS Soils Type Classifications
Deschutes Solar and BESS Facility
Wasco County, Oregon

Source: Esri - World Imagery Map; WGS 1984 UTM Zone 10N


121° 23' 27" W
121° 10' 5" W
45° 9' 50" N
45° 3' 42" N
627000
628000
629000
630000
631000
632000
633000
634000
635000
636000
637000
638000
639000
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641000
642000
643000
644000
5002000
5001000
5000000
4999000
4998000
4997000
4996000
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4994000
4993000
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White River
Wapinitia Creek
Map Scale: 1:80,100 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
1000
2000
4000
6000
Feet
0
3500
7000
14000
21000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Ashy-skeletal, mesic Vitrandic Haploxeralfs
- Coarse-loamy, mixed, mesic Fluvaquentic Haploxerolls
- Coarse-loamy, mixed, mesic Typic Haploxerolls
- Coarse-silty, mixed, mesic Cumulic Haploxerolls
- Fine, montmorillonitic, mesic Vitrandic Argixerolls
- Fine, smectitic, mesic Aridic Argixerolls
- Fine, smectitic, mesic Pachic Argixerolls
- Fine-loamy, mixed, frigid Ultic Haploxeralfs
- Fine-loamy, mixed, mesic Orthidic Durixerolls
- Fine-loamy, mixed, mesic Pachic Haploxerolls
- Fine-loamy, mixed, mesic Typic Xerochrepts
- Loamy-skeletal, mixed, mesic Lithic Haploxerolls
- Loamy-skeletal, mixed, mesic Pachic Haploxerolls
- Loamy-skeletal, mixed, mesic Ultic Haploxerolls
- Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
- Not rated or not available

Soil Rating Lines

- Ashy-skeletal, mesic Vitrandic Haploxeralfs
- Coarse-loamy, mixed, mesic Fluvaquentic Haploxerolls
- Coarse-loamy, mixed, mesic Typic Haploxerolls
- Coarse-silty, mixed, mesic Cumulic Haploxerolls
- Fine, montmorillonitic, mesic Vitrandic Argixerolls
- Fine, smectitic, mesic Aridic Argixerolls
- Fine, smectitic, mesic Pachic Argixerolls
- Fine-loamy, mixed, frigid Ultic Haploxeralfs
- Fine-loamy, mixed, mesic Orthidic Durixerolls
- Fine-loamy, mixed, mesic Pachic Haploxerolls
- Fine-loamy, mixed, mesic Typic Xerochrepts
- Loamy-skeletal, mixed, mesic Lithic Haploxerolls
- Loamy-skeletal, mixed, mesic Pachic Haploxerolls
- Loamy-skeletal, mixed, mesic Ultic Haploxerolls
- Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
- Not rated or not available

Soil Rating Points

- Ashy-skeletal, mesic Vitrandic Haploxeralfs
- Coarse-loamy, mixed, mesic Fluvaquentic Haploxerolls
- Coarse-loamy, mixed, mesic Typic Haploxerolls
- Coarse-silty, mixed, mesic Cumulic Haploxerolls
- Fine, montmorillonitic, mesic Vitrandic Argixerolls
- Fine, smectitic, mesic Aridic Argixerolls
- Fine, smectitic, mesic Pachic Argixerolls
- Fine-loamy, mixed, frigid Ultic Haploxeralfs
- Fine-loamy, mixed, mesic Orthidic Durixerolls
- Fine-loamy, mixed, mesic Pachic Haploxerolls
- Fine-loamy, mixed, mesic Typic Xerochrepts
- Loamy-skeletal, mixed, mesic Lithic Haploxerolls
- Loamy-skeletal, mixed, mesic Pachic Haploxerolls
- Loamy-skeletal, mixed, mesic Ultic Haploxerolls
- Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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

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

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

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

Soil Survey Area: Warm Springs Indian Reservation, Oregon
Survey Area Data: Version 19, Aug 30, 2024

Soil Survey Area: Wasco County, Oregon, Northern Part
Survey Area Data: Version 19, Aug 30, 2024

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Sep 16, 2022—Sep 26, 2022

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

Soil Taxonomy Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
12	Bodell very cobbly loam, 30 to 55 percent slopes	Loamy-skeletal, mixed, mesic Lithic Haploxerolls	2.7	0.0%
57	Jorn-Bodell complex, 30 to 55 percent slopes	Fine, montmorillonitic, mesic Vitrandic Argixerolls	0.5	0.0%
85	Mutton gravelly loam, 12 to 30 percent slopes	Ashy-skeletal, mesic Vitrandic Haploxeralfs	5.5	0.0%
86	Mutton gravelly loam, 30 to 55 percent slopes	Ashy-skeletal, mesic Vitrandic Haploxeralfs	2.4	0.0%
113	Rockly extremely gravelly silt loam, 2 to 20 percent slopes	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls	16.7	0.1%
Subtotals for Soil Survey Area			**27.7**	**0.2%**
Totals for Area of Interest			**14,423.2**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
2D	Bakeoven very cobbly loam, 2 to 20 percent slopes	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls	608.6	4.2%
3D	Bakeoven-Condon complex, 2 to 20 percent slopes	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls	1.2	0.0%
4C	Bakeoven-Maupin complex, 0 to 12 percent slopes	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls	738.5	5.1%
5C	Bakeoven-Watama complex, 0 to 12 percent slopes	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls	5,197.8	36.0%
6E	Bald cobbly loam, 5 to 45 percent slopes	Loamy-skeletal, mixed, mesic Ultic Haploxerolls	457.9	3.2%
10E	Bodell cobbly loam, 5 to 45 percent slopes	Loamy-skeletal, mixed, mesic Lithic Haploxerolls	522.5	3.6%
11F	Bodell very cobbly loam, 45 to 75 percent slopes	Loamy-skeletal, mixed, mesic Lithic Haploxerolls	36.1	0.3%
28E	Hesslan-Skyline complex, 5 to 40 percent slopes	Coarse-loamy, mixed, mesic Typic Haploxerolls	72.1	0.5%
29E	Ketchly loam, 3 to 30 percent slopes	Fine-loamy, mixed, frigid Ultic Haploxeralfs	104.5	0.7%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
29F	Ketchly loam, 30 to 65 percent slopes	Fine-loamy, mixed, frigid Ultic Haploxeralfs	27.8	0.2%
30E	Lickskillet very stony loam, 15 to 40 percent slopes	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls	23.0	0.2%
32A	Maupin loam, 0 to 5 percent slopes	Fine-loamy, mixed, mesic Orthidic Durixerolls	404.4	2.8%
35	Pedigo silt loam	Coarse-silty, mixed, mesic Cumulic Haploxerolls	56.2	0.4%
40E	Sherar cobbly loam, 5 to 45 percent slopes	Fine, smectitic, mesic Aridic Argixerolls	104.7	0.7%
42F	Sinamox silt loam, 45 to 70 percent slopes	Fine-loamy, mixed, mesic Pachic Haploxerolls	80.3	0.6%
44	Tygh fine sandy loam	Coarse-loamy, mixed, mesic Fluvaquentic Haploxerolls	38.5	0.3%
49B	Wamic loam, 1 to 5 percent slopes	Fine-loamy, mixed, mesic Typic Xerochrepts	125.8	0.9%
49C	Wamic loam 5 to 12 percent north slopes	Fine-loamy, mixed, mesic Typic Xerochrepts	6.1	0.0%
50E	Wamic loam, 20 to 40 percent slopes	Fine-loamy, mixed, mesic Typic Xerochrepts	3.9	0.0%
51D	Wamic-Skyline complex, 2 to 20 percent slopes	Fine-loamy, mixed, mesic Typic Xerochrepts	23.8	0.2%
52B	Wapinitia variant silt loam, 1 to 7 percent slopes	Fine, smectitic, mesic Pachic Argixerolls	1,124.9	7.8%
54B	Watama-Wapinitia silt loams, 0 to 5 percent slopes	Fine-loamy, mixed, mesic Pachic Haploxerolls	4,105.1	28.5%
54C	Watama-Wapinitia silt loams, 5 to 12 percent slopes	Fine-loamy, mixed, mesic Pachic Haploxerolls	42.2	0.3%
54D	Watama-Wapinitia silt loams, 12 to 20 percent slopes	Fine-loamy, mixed, mesic Pachic Haploxerolls	20.2	0.1%
54E	Watama-Wapinitia silt loams, 20 to 35 percent slopes	Fine-loamy, mixed, mesic Pachic Haploxerolls	3.2	0.0%
57F	Wrentham-Rock outcrop complex, 35 to 70 percent slopes	Loamy-skeletal, mixed, mesic Pachic Haploxerolls	25.8	0.2%
58E	Mutton gravelly loam, 12 to 30 percent slopes	Ashy-skeletal, mesic Vitrandic Haploxeralfs	96.8	0.7%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
58F	Mutton gravelly loam, 30 to 55 percent slopes	Ashy-skeletal, mesic Vitrandic Haploxeralfs	149.4	1.0%
59D	Rockly extremely gravelly silt loam, 2 to 20 percent slopes	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls	188.4	1.3%
W	Water		5.8	0.0%
Subtotals for Soil Survey Area			**14,395.5**	**99.8%**
Totals for Area of Interest			**14,423.2**	**100.0%**

Description

This rating presents the taxonomic classification based on Soil Taxonomy.

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. This table shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in sol. An example is Alfisols.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalfs (Ud, meaning humid, plus alfs, from Alfisols).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (Hapl, meaning minimal horizonation, plus udalfs, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective Typic identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, active, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

References:

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

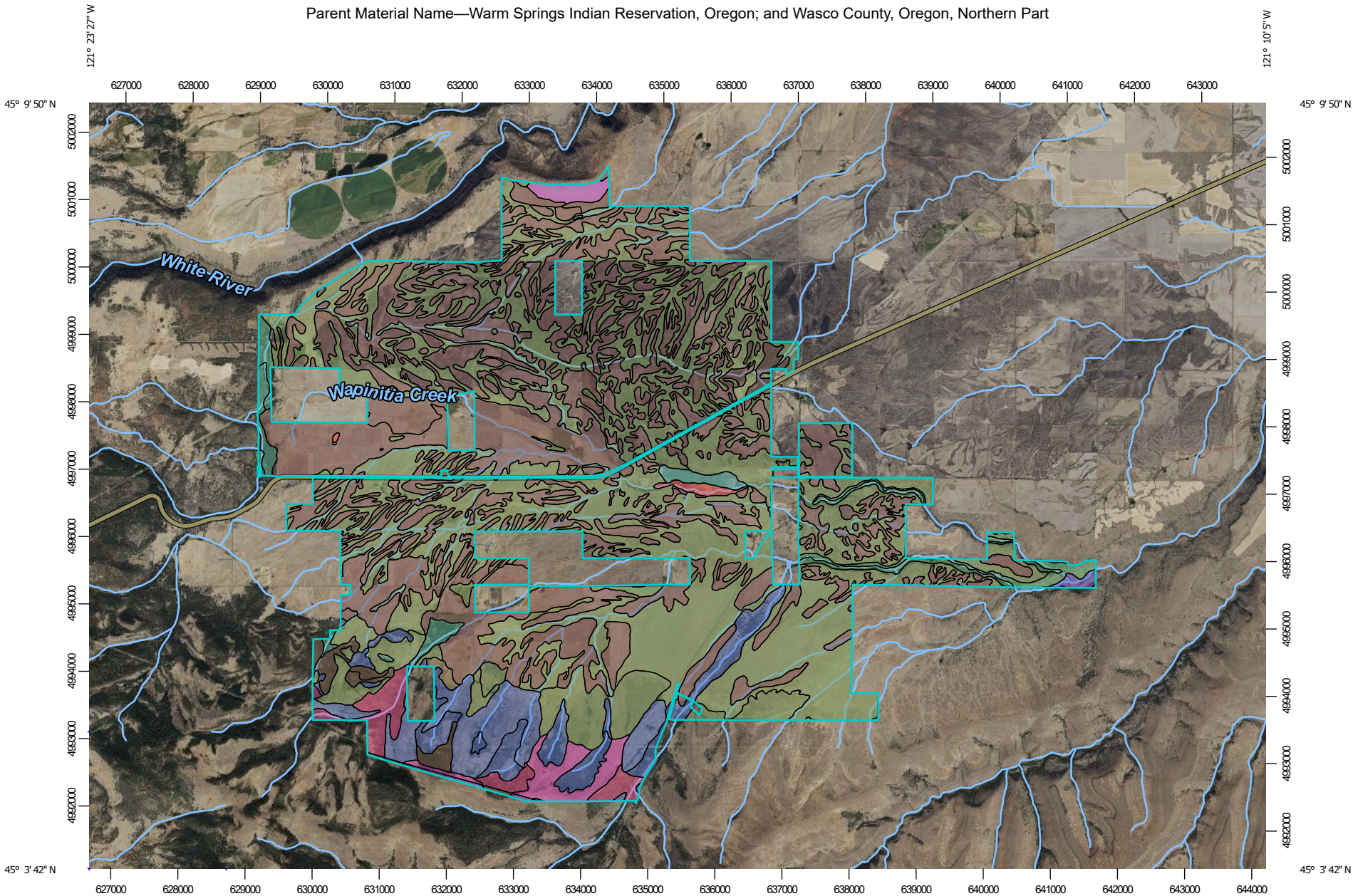
Soil Survey Staff. 2022. Keys to soil taxonomy. 13th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. (The soils in a given survey area may have been classified according to earlier editions of this publication.)

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower



Map Scale: 1:80,100 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 1000 2000 4000 6000

Feet
0 3500 7000 14000 21000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- alluvium derived from loess and volcanic ash
- alluvium derived from volcanic ash, loess, and weathered sedimentary rock
- colluvium derived from basalt mixed with loess
- colluvium residuum weathered from sedimentary rock with influence of volcanic ash
- colluvium residuum weathered from tuff rock with influence of volcanic ash
- colluvium weathered from basalt rock with influence of loess in upper part
- loess and colluvium derived from basalt
- loess and gravelly colluvium
- loess and residuum weathered from basalt
- loess and volcanic ash
- loess and volcanic ash over colluvium derived from basalt
- loess, volcanic ash, and colluvium derived from andesite
- loess, volcanic ash, and colluvium derived from sandstone
- residuum and colluvium derived from tuff, mixed with volcanic ash
- stony colluvium consisting of a mixture of loess and residuum weathered from basalt
- volcanic ash and loess over alluvium or colluvium derived from basalt or andesite
- volcanic ash over colluvium and residuum weathered from basalt
- Not rated or not available

Soil Rating Lines

- alluvium derived from loess and volcanic ash
- alluvium derived from volcanic ash, loess, and weathered sedimentary rock
- colluvium derived from basalt mixed with loess
- colluvium residuum weathered from sedimentary rock with influence of volcanic ash
- colluvium residuum weathered from tuff rock with influence of volcanic ash
- colluvium weathered from basalt rock with influence of loess in upper part
- loess and colluvium derived from basalt
- loess and gravelly colluvium
- loess and residuum weathered from basalt
- loess and volcanic ash
- loess and volcanic ash over colluvium derived from basalt
- loess, volcanic ash, and colluvium derived from andesite
- loess, volcanic ash, and colluvium derived from sandstone
- residuum and colluvium derived from tuff, mixed with volcanic ash
- stony colluvium consisting of a mixture of loess and residuum weathered from basalt
- volcanic ash and loess over alluvium or colluvium derived from basalt or andesite
- volcanic ash over colluvium and residuum weathered from basalt
- Not rated or not available

Soil Rating Points

- alluvium derived from loess and volcanic ash
- alluvium derived from volcanic ash, loess, and weathered sedimentary rock
- colluvium derived from basalt mixed with loess
- colluvium residuum weathered from sedimentary rock with influence of volcanic ash
- colluvium residuum weathered from tuff rock with influence of volcanic ash
- colluvium weathered from basalt rock with influence of loess in upper part
- loess and colluvium derived from basalt
- loess and gravelly colluvium
- loess and residuum weathered from basalt
- loess and volcanic ash

MAP INFORMATION

- loess and volcanic ash over colluvium derived from basalt
- loess, volcanic ash, and colluvium derived from andesite
- loess, volcanic ash, and colluvium derived from sandstone
- residuum and colluvium derived from tuff, mixed with volcanic ash
- stony colluvium consisting of a mixture of loess and residuum weathered from basalt
- volcanic ash and loess over alluvium or colluvium derived from basalt or andesite
- volcanic ash over colluvium and residuum weathered from basalt
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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

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

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

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

Soil Survey Area: Warm Springs Indian Reservation, Oregon
Survey Area Data: Version 19, Aug 30, 2024

Soil Survey Area: Wasco County, Oregon, Northern Part
Survey Area Data: Version 19, Aug 30, 2024

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Sep 16, 2022—Sep 26, 2022

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

Parent Material Name

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
12	Bodell very cobbly loam, 30 to 55 percent slopes	volcanic ash over colluvium and residuum weathered from basalt	2.7	0.0%
57	Jorn-Bodell complex, 30 to 55 percent slopes	colluvium residuum weathered from sedimentary rock with influence of volcanic ash	0.5	0.0%
85	Mutton gravelly loam, 12 to 30 percent slopes	colluvium residuum weathered from tuff rock with influence of volcanic ash	5.5	0.0%
86	Mutton gravelly loam, 30 to 55 percent slopes	colluvium residuum weathered from tuff rock with influence of volcanic ash	2.4	0.0%
113	Rockly extremely gravelly silt loam, 2 to 20 percent slopes	colluvium weathered from basalt rock with influence of loess in upper part	16.7	0.1%
Subtotals for Soil Survey Area			**27.7**	**0.2%**
Totals for Area of Interest			**14,423.2**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
2D	Bakeoven very cobbly loam, 2 to 20 percent slopes	loess and residuum weathered from basalt	608.6	4.2%
3D	Bakeoven-Condon complex, 2 to 20 percent slopes	loess and residuum weathered from basalt	1.2	0.0%
4C	Bakeoven-Maupin complex, 0 to 12 percent slopes	loess and residuum weathered from basalt	738.5	5.1%
5C	Bakeoven-Watama complex, 0 to 12 percent slopes	loess and residuum weathered from basalt	5,197.8	36.0%
6E	Bald cobbly loam, 5 to 45 percent slopes	loess and volcanic ash over colluvium derived from basalt	457.9	3.2%
10E	Bodell cobbly loam, 5 to 45 percent slopes	loess and volcanic ash over colluvium derived from basalt	522.5	3.6%
11F	Bodell very cobbly loam, 45 to 75 percent slopes	loess and volcanic ash over colluvium derived from basalt	36.1	0.3%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
28E	Hesslan-Skyline complex, 5 to 40 percent slopes	loess, volcanic ash, and colluvium derived from sandstone	72.1	0.5%
29E	Ketchly loam, 3 to 30 percent slopes	loess, volcanic ash, and colluvium derived from andesite	104.5	0.7%
29F	Ketchly loam, 30 to 65 percent slopes	loess, volcanic ash, and colluvium derived from andesite	27.8	0.2%
30E	Lickskillet very stony loam, 15 to 40 percent slopes	stony colluvium consisting of a mixture of loess and residuum weathered from basalt	23.0	0.2%
32A	Maupin loam, 0 to 5 percent slopes	loess and volcanic ash	404.4	2.8%
35	Pedigo silt loam	alluvium derived from loess and volcanic ash	56.2	0.4%
40E	Sherar cobbly loam, 5 to 45 percent slopes	loess and gravelly colluvium	104.7	0.7%
42F	Sinamox silt loam, 45 to 70 percent slopes	loess and gravelly colluvium	80.3	0.6%
44	Tygh fine sandy loam	alluvium derived from volcanic ash, loess, and weathered sedimentary rock	38.5	0.3%
49B	Wamic loam, 1 to 5 percent slopes	volcanic ash and loess over alluvium or colluvium derived from basalt or andesite	125.8	0.9%
49C	Wamic loam 5 to 12 percent north slopes	volcanic ash and loess over alluvium or colluvium derived from basalt or andesite	6.1	0.0%
50E	Wamic loam, 20 to 40 percent slopes	volcanic ash and loess over alluvium or colluvium derived from basalt or andesite	3.9	0.0%
51D	Wamic-Skyline complex, 2 to 20 percent slopes	volcanic ash and loess over alluvium or colluvium derived from basalt or andesite	23.8	0.2%
52B	Wapinitia variant silt loam, 1 to 7 percent slopes	loess and volcanic ash	1,124.9	7.8%
54B	Watama-Wapinitia silt loams, 0 to 5 percent slopes	loess and volcanic ash	4,105.1	28.5%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
54C	Watama-Wapinitia silt loams, 5 to 12 percent slopes	loess and volcanic ash	42.2	0.3%
54D	Watama-Wapinitia silt loams, 12 to 20 percent slopes	loess and volcanic ash	20.2	0.1%
54E	Watama-Wapinitia silt loams, 20 to 35 percent slopes	loess and volcanic ash	3.2	0.0%
57F	Wrentham-Rock outcrop complex, 35 to 70 percent slopes	loess and colluvium derived from basalt	25.8	0.2%
58E	Mutton gravelly loam, 12 to 30 percent slopes	residuum and colluvium derived from tuff, mixed with volcanic ash	96.8	0.7%
58F	Mutton gravelly loam, 30 to 55 percent slopes	residuum and colluvium derived from tuff, mixed with volcanic ash	149.4	1.0%
59D	Rockly extremely gravelly silt loam, 2 to 20 percent slopes	colluvium derived from basalt mixed with loess	188.4	1.3%
W	Water		5.8	0.0%
Subtotals for Soil Survey Area			**14,395.5**	**99.8%**
Totals for Area of Interest			**14,423.2**	**100.0%**

Description

Parent material name is a term for the general physical, chemical, and mineralogical composition of the unconsolidated material, mineral or organic, in which the soil forms. Mode of deposition and/or weathering may be implied by the name.

The soil surveyor uses parent material to develop a model used for soil mapping. Soil scientists and specialists in other disciplines use parent material to help interpret soil boundaries and project performance of the material below the soil. Many soil properties relate to parent material. Among these properties are proportions of sand, silt, and clay; chemical content; bulk density; structure; and the kinds and amounts of rock fragments. These properties affect interpretations and may be criteria used to separate soil series. Soil properties and landscape information may imply the kind of parent material.

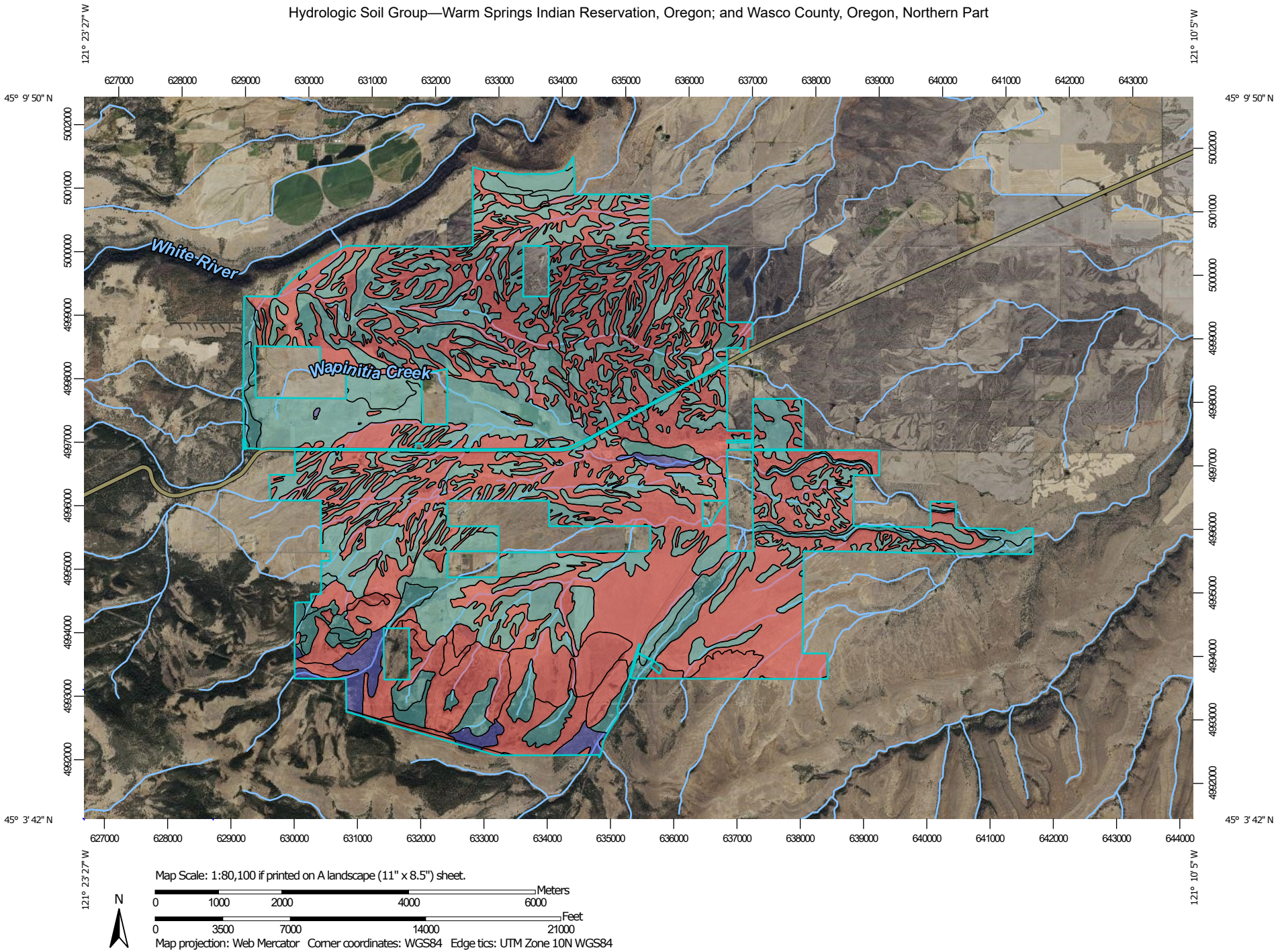
For each soil in the database, one or more parent materials may be identified. One is marked as the representative or most commonly occurring. The representative parent material name is presented here.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower


121° 23' 27" W
121° 10' 5" W
45° 9' 50" N
45° 3' 42" N
627000
628000
629000
630000
631000
632000
633000
634000
635000
636000
637000
638000
639000
640000
641000
642000
643000
644000
5002000
5001000
5000000
4999000
4998000
4997000
4996000
4995000
4994000
4993000
4992000
White River
Wapinitia Creek
Map Scale: 1:80,100 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
1000
2000
4000
6000
Feet
0
3500
7000
14000
21000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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

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

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Soil Survey Area: Warm Springs Indian Reservation, Oregon
Survey Area Data: Version 19, Aug 30, 2024

Soil Survey Area: Wasco County, Oregon, Northern Part
Survey Area Data: Version 19, Aug 30, 2024

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Sep 16, 2022—Sep 26, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
12	Bodell very cobbly loam, 30 to 55 percent slopes	D	2.7	0.0%
57	Jorn-Bodell complex, 30 to 55 percent slopes	D	0.5	0.0%
85	Mutton gravelly loam, 12 to 30 percent slopes	B	5.5	0.0%
86	Mutton gravelly loam, 30 to 55 percent slopes	B	2.4	0.0%
113	Rockly extremely gravelly silt loam, 2 to 20 percent slopes	D	16.7	0.1%
Subtotals for Soil Survey Area			**27.7**	**0.2%**
Totals for Area of Interest			**14,423.2**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
2D	Bakeoven very cobbly loam, 2 to 20 percent slopes	D	608.6	4.2%
3D	Bakeoven-Condon complex, 2 to 20 percent slopes	D	1.2	0.0%
4C	Bakeoven-Maupin complex, 0 to 12 percent slopes	D	738.5	5.1%
5C	Bakeoven-Watama complex, 0 to 12 percent slopes	D	5,197.8	36.0%
6E	Bald cobbly loam, 5 to 45 percent slopes	C	457.9	3.2%
10E	Bodell cobbly loam, 5 to 45 percent slopes	D	522.5	3.6%
11F	Bodell very cobbly loam, 45 to 75 percent slopes	D	36.1	0.3%
28E	Hesslan-Skyline complex, 5 to 40 percent slopes	C	72.1	0.5%
29E	Ketchly loam, 3 to 30 percent slopes	C	104.5	0.7%
29F	Ketchly loam, 30 to 65 percent slopes	C	27.8	0.2%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
30E	Lickskillet very stony loam, 15 to 40 percent slopes	D	23.0	0.2%
32A	Maupin loam, 0 to 5 percent slopes	C	404.4	2.8%
35	Pedigo silt loam	C	56.2	0.4%
40E	Sherar cobbly loam, 5 to 45 percent slopes	C	104.7	0.7%
42F	Sinamox silt loam, 45 to 70 percent slopes	C	80.3	0.6%
44	Tygh fine sandy loam	B	38.5	0.3%
49B	Wamic loam, 1 to 5 percent slopes	C	125.8	0.9%
49C	Wamic loam 5 to 12 percent north slopes	C	6.1	0.0%
50E	Wamic loam, 20 to 40 percent slopes	C	3.9	0.0%
51D	Wamic-Skyline complex, 2 to 20 percent slopes	C	23.8	0.2%
52B	Wapinitia variant silt loam, 1 to 7 percent slopes	C	1,124.9	7.8%
54B	Watama-Wapinitia silt loams, 0 to 5 percent slopes	C	4,105.1	28.5%
54C	Watama-Wapinitia silt loams, 5 to 12 percent slopes	C	42.2	0.3%
54D	Watama-Wapinitia silt loams, 12 to 20 percent slopes	C	20.2	0.1%
54E	Watama-Wapinitia silt loams, 20 to 35 percent slopes	C	3.2	0.0%
57F	Wrentham-Rock outcrop complex, 35 to 70 percent slopes	C	25.8	0.2%
58E	Mutton gravelly loam, 12 to 30 percent slopes	B	96.8	0.7%
58F	Mutton gravelly loam, 30 to 55 percent slopes	B	149.4	1.0%
59D	Rockly extremely gravelly silt loam, 2 to 20 percent slopes	D	188.4	1.3%
W	Water		5.8	0.0%
Subtotals for Soil Survey Area			**14,395.5**	**99.8%**
Totals for Area of Interest			**14,423.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

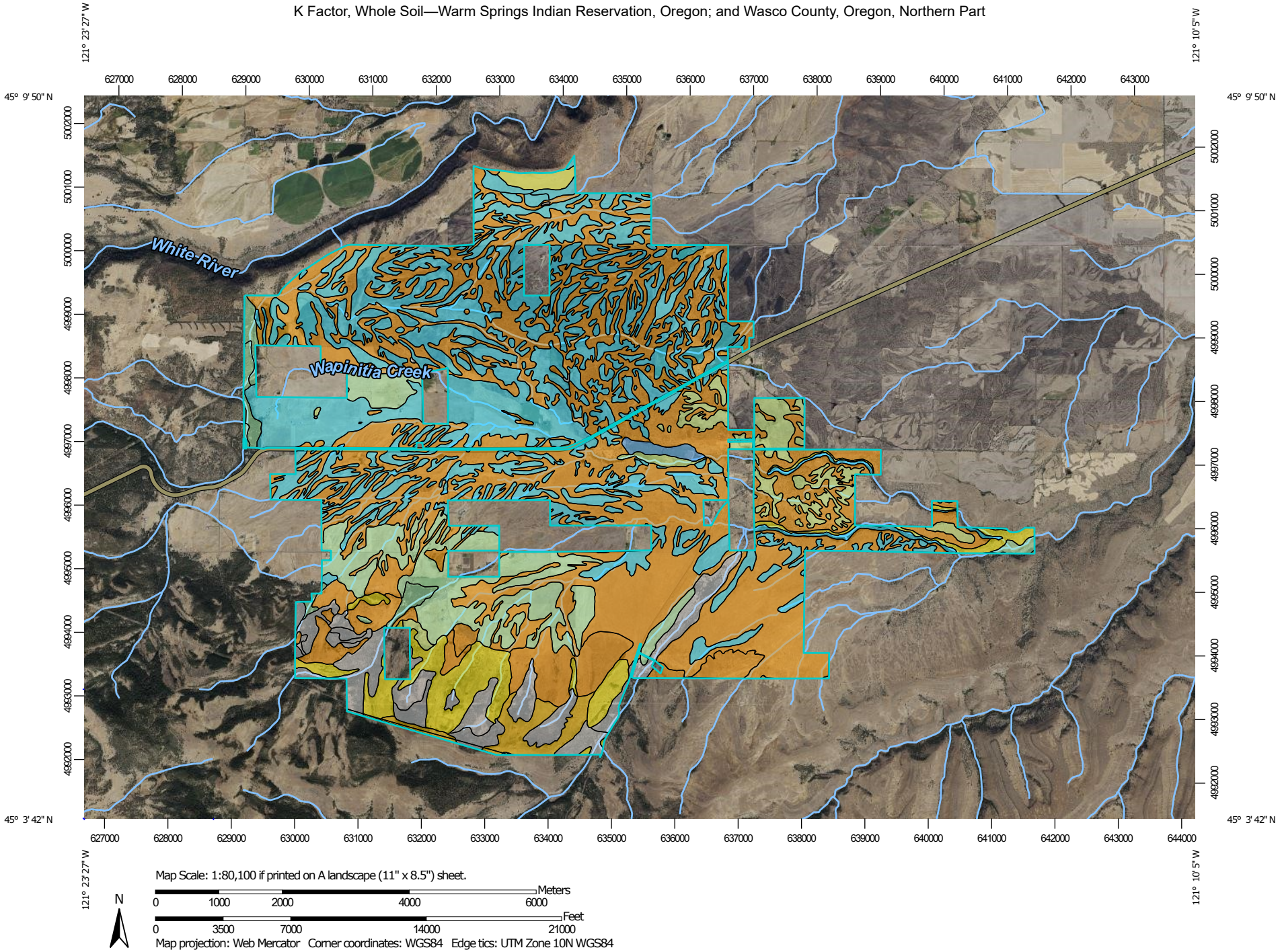
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

K Factor, Whole Soil—Warm Springs Indian Reservation, Oregon; and Wasco County, Oregon, Northern Part



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Lines

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Points

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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

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

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Soil Survey Area: Warm Springs Indian Reservation, Oregon
Survey Area Data: Version 19, Aug 30, 2024

Soil Survey Area: Wasco County, Oregon, Northern Part
Survey Area Data: Version 19, Aug 30, 2024

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Sep 16, 2022—Sep 26, 2022

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

K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
12	Bodell very cobbly loam, 30 to 55 percent slopes	.15	2.7	0.0%
57	Jorn-Bodell complex, 30 to 55 percent slopes	.32	0.5	0.0%
85	Mutton gravelly loam, 12 to 30 percent slopes		5.5	0.0%
86	Mutton gravelly loam, 30 to 55 percent slopes		2.4	0.0%
113	Rockly extremely gravelly silt loam, 2 to 20 percent slopes	.15	16.7	0.1%
Subtotals for Soil Survey Area			**27.7**	**0.2%**
Totals for Area of Interest			**14,423.2**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
2D	Bakeoven very cobbly loam, 2 to 20 percent slopes	.10	608.6	4.2%
3D	Bakeoven-Condon complex, 2 to 20 percent slopes	.10	1.2	0.0%
4C	Bakeoven-Maupin complex, 0 to 12 percent slopes	.10	738.5	5.1%
5C	Bakeoven-Watama complex, 0 to 12 percent slopes	.10	5,197.8	36.0%
6E	Bald cobbly loam, 5 to 45 percent slopes		457.9	3.2%
10E	Bodell cobbly loam, 5 to 45 percent slopes	.17	522.5	3.6%
11F	Bodell very cobbly loam, 45 to 75 percent slopes	.17	36.1	0.3%
28E	Hesslan-Skyline complex, 5 to 40 percent slopes	.20	72.1	0.5%
29E	Ketchly loam, 3 to 30 percent slopes		104.5	0.7%
29F	Ketchly loam, 30 to 65 percent slopes		27.8	0.2%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
30E	Lickskillet very stony loam, 15 to 40 percent slopes	.24	23.0	0.2%
32A	Maupin loam, 0 to 5 percent slopes	.24	404.4	2.8%
35	Pedigo silt loam	.43	56.2	0.4%
40E	Sherar cobbly loam, 5 to 45 percent slopes	.17	104.7	0.7%
42F	Sinamox silt loam, 45 to 70 percent slopes	.37	80.3	0.6%
44	Tygh fine sandy loam	.24	38.5	0.3%
49B	Wamic loam, 1 to 5 percent slopes	.28	125.8	0.9%
49C	Wamic loam 5 to 12 percent north slopes	.28	6.1	0.0%
50E	Wamic loam, 20 to 40 percent slopes	.28	3.9	0.0%
51D	Wamic-Skyline complex, 2 to 20 percent slopes	.28	23.8	0.2%
52B	Wapinitia variant silt loam, 1 to 7 percent slopes	.28	1,124.9	7.8%
54B	Watama-Wapinitia silt loams, 0 to 5 percent slopes	.37	4,105.1	28.5%
54C	Watama-Wapinitia silt loams, 5 to 12 percent slopes	.37	42.2	0.3%
54D	Watama-Wapinitia silt loams, 12 to 20 percent slopes	.37	20.2	0.1%
54E	Watama-Wapinitia silt loams, 20 to 35 percent slopes	.37	3.2	0.0%
57F	Wrentham-Rock outcrop complex, 35 to 70 percent slopes	.28	25.8	0.2%
58E	Mutton gravelly loam, 12 to 30 percent slopes		96.8	0.7%
58F	Mutton gravelly loam, 30 to 55 percent slopes		149.4	1.0%
59D	Rockly extremely gravelly silt loam, 2 to 20 percent slopes	.15	188.4	1.3%
W	Water		5.8	0.0%
Subtotals for Soil Survey Area			**14,395.5**	**99.8%**
Totals for Area of Interest			**14,423.2**	**100.0%**

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Land Capability Classification

The land capability classification of map units in the survey area is shown in this table. This classification shows, in a general way, the suitability of soils for most kinds of field crops (United States Department of Agriculture, Soil Conservation Service, 1961). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

- Class 1 soils have slight limitations that restrict their use.
- Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.
- Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.
- Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.
- Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.
- Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion.

Report—Land Capability Classification

Land Capability Classification–Warm Springs Indian Reservation, Oregon				
Map unit symbol and name	Pct. of map unit	Component name	Land Capability Subclass	
			Nonirrigated	Irrigated
12—Bodell very cobbly loam, 30 to 55 percent slopes				
	85	Bodell	7s	—
57—Jorn-Bodell complex, 30 to 55 percent slopes				
	50	Jorn	6e	—
	35	Bodell	7s	—
85—Mutton gravelly loam, 12 to 30 percent slopes				
	80	Mutton	6e	—
86—Mutton gravelly loam, 30 to 55 percent slopes				
	85	Mutton	6e	—
113—Rockly extremely gravelly silt loam, 2 to 20 percent slopes				
	90	Rockly	7s	—

Land Capability Classification–Wasco County, Oregon, Northern Part				
Map unit symbol and name	Pct. of map unit	Component name	Land Capability Subclass	
			Nonirrigated	Irrigated
2D—Bakeoven very cobbly loam, 2 to 20 percent slopes				
	85	Bakeoven	7s	—
3D—Bakeoven-Condon complex, 2 to 20 percent slopes				
	65	Bakeoven	7s	—
	20	Condon	3e	3e
4C—Bakeoven-Maupin complex, 0 to 12 percent slopes				
	65	Bakeoven	7s	—
	20	Maupin	3e	3e

Land Capability Classification–Wasco County, Oregon, Northern Part				
Map unit symbol and name	Pct. of map unit	Component name	Land Capability Subclass	
			Nonirrigated	Irrigated
5C—Bakeoven-Watama complex, 0 to 12 percent slopes				
	65	Bakeoven	7s	—
	20	Watama	4e	3e
6E—Bald cobbly loam, 5 to 45 percent slopes				
	85	Bald	6s	—
10E—Bodell cobbly loam, 5 to 45 percent slopes				
	85	Bodell	7e	—
11F—Bodell very cobbly loam, 45 to 75 percent slopes				
	85	Bodell	7s	—
28E—Hesslan-Skyline complex, 5 to 40 percent slopes				
	45	Hesslan	4e	—
	35	Skyline	7s	—
29E—Ketchly loam, 3 to 30 percent slopes				
	85	Ketchly	6e	—
29F—Ketchly loam, 30 to 65 percent slopes				
	85	Ketchly	7e	—
30E—Lickskillet very stony loam, 15 to 40 percent slopes				
	85	Lickskillet	7s	—
32A—Maupin loam, 0 to 5 percent slopes				
	90	Maupin	2c	2e
35—Pedigo silt loam				
	90	Pedigo	4w	4w
40E—Sherar cobbly loam, 5 to 45 percent slopes				
	85	Sherar	6e	—
42F—Sinamox silt loam, 45 to 70 percent slopes				
	85	Sinamox	7e	—
44—Tygh fine sandy loam				
	90	Tygh	3w	3w
49B—Wamic loam, 1 to 5 percent slopes				
	95	Wamic	3e	—

Land Capability Classification–Wasco County, Oregon, Northern Part				
Map unit symbol and name	Pct. of map unit	Component name	Land Capability Subclass	
			Nonirrigated	Irrigated
49C—Wamic loam 5 to 12 percent north slopes				
	90	Wamic, north	4e	—
50E—Wamic loam, 20 to 40 percent slopes				
	90	Wamic	6e	—
51D—Wamic-Skyline complex, 2 to 20 percent slopes				
	60	Wamic	4e	—
	20	Skyline	7s	—
52B—Wapinitia variant silt loam, 1 to 7 percent slopes				
	90	Wapinitia, variant	3e	—
54B—Watama-Wapinitia silt loams, 0 to 5 percent slopes				
	60	Watama	4s	3s
	25	Wapinitia	2c	2e
54C—Watama-Wapinitia silt loams, 5 to 12 percent slopes				
	60	Watama	4e	3e
	25	Wapinitia	3e	3e
54D—Watama-Wapinitia silt loams, 12 to 20 percent slopes				
	60	Watama	6e	—
	25	Wapinitia	3e	3e
54E—Watama-Wapinitia silt loams, 20 to 35 percent slopes				
	60	Watama	6e	—
	25	Wapinitia	4e	—
57F—Wrentham-Rock outcrop complex, 35 to 70 percent slopes				
	65	Wrentham	7s	—
	20	Rock outcrop	8	—
58E—Mutton gravelly loam, 12 to 30 percent slopes				
	100	Mutton	6e	—
58F—Mutton gravelly loam, 30 to 55 percent slopes				
	100	Mutton	6e	—

Land Capability Classification–Wasco County, Oregon, Northern Part				
Map unit symbol and name	Pct. of map unit	Component name	Land Capability Subclass	
			Nonirrigated	Irrigated
59D—Rockly extremely gravelly silt loam, 2 to 20 percent slopes				
	100	Rockly	7s	—
W—Water				
	100	Water	—	—

Data Source Information

Soil Survey Area: Warm Springs Indian Reservation, Oregon
Survey Area Data: Version 19, Aug 30, 2024

Soil Survey Area: Wasco County, Oregon, Northern Part
Survey Area Data: Version 19, Aug 30, 2024

ATTACHMENT 2 CONSTRUCTION VEGETATION AND SOIL MANAGEMENT PLAN

Draft Construction Vegetation and Soil Management Plan

PREPARED FOR
DECH bn, LLC

DATE
December 2025

REFERENCE
Oregon Energy Facility Siting Council

CONTENTS

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ACRONYMS AND ABBREVIATIONS

Acronym	Description
Certificate Holder	DECH bn, LLC (a subsidiary of BrightNight Power, LLC)
BESS	Battery storage system
BMPs	Best management practices
EFSC	Oregon Energy Facility Siting Council
ERM	Environmental Resources Management, Inc.
Facility	Solar photovoltaic power generation facility and related or supporting facilities in Wasco County, Oregon
NPDES	National Pollutant Discharge Elimination System
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ORS	Oregon Revised Statutes
Project	Deschutes Solar and Battery Energy Storage System Facility
WCWPD	Wasco County Weed and Pest Department

1. INTRODUCTION

DECH bn, LLC (a subsidiary of BrightNight U.S., LLC) (Applicant or Certificate Holder) plans to construct a solar photovoltaic power generation facility and related or supporting facilities in Wasco County, Oregon (Facility). The Facility will consist of up to 1,000 MW of solar generation and include a battery storage system (BESS) capable of storing up to 4,000 MWh of energy.

This Construction Vegetation and Soil Management Plan (Plan) outlines the procedures and best management practices (BMPs) that will be followed before, during, and after Facility construction to minimize adverse impacts to soil and vegetation. The goal is to increase the probability of revegetation success, reduce early weed establishment, reduce erosion and dust pollution, protect topsoil in permanent impact areas, and ensure no loss of habitat quality for temporary disturbances to wildlife habitat. This Plan addresses the following: Soils and Fugitive Dust Control (Section 2), Noxious Weeds (Section 3), and Revegetation and Reclamation (Section 4). This Plan will be implemented, maintained, and adaptively managed by the Certificate Holder's Environmental Inspector and/or selected contractor throughout all sequences of construction.

2. SOILS AND FUGITIVE DUST CONTROL

Soil and fugitive dust control measures were developed to comply with OAR 345-022-0022 and OAR 340-208-0210. The performance criteria and suggested management measures for soils and fugitive dust control are minimums, and the Environmental Inspector and/or selected contractor will identify and implement additional management measures as needed.

During construction, the certificate holder will implement the measures described below, including seeding all disturbed areas according to the NPDES 1200-C permit. To manage fugitive dust from construction, the certificate holder and its contractors will generally follow the following Dust Control Plan Flow Chart provided as Figure 1, below.

2.1 BASELINE SOIL CONDITIONS

Baseline soil compaction measurements will be taken prior to construction, using a soil penetrometer or other appropriate test. This test will measure resistance at 3-inch intervals until the meter goes above 300 psi, which is the level of soil compaction most roots cannot penetrate. For this test, compaction will be measured at 3, 6, 9, and 12 inches if the soil allows.

Baseline and post-construction soil compaction measurements and testing must be done in conditions favorable to soil testing (e.g. non-saturated or frozen soils).

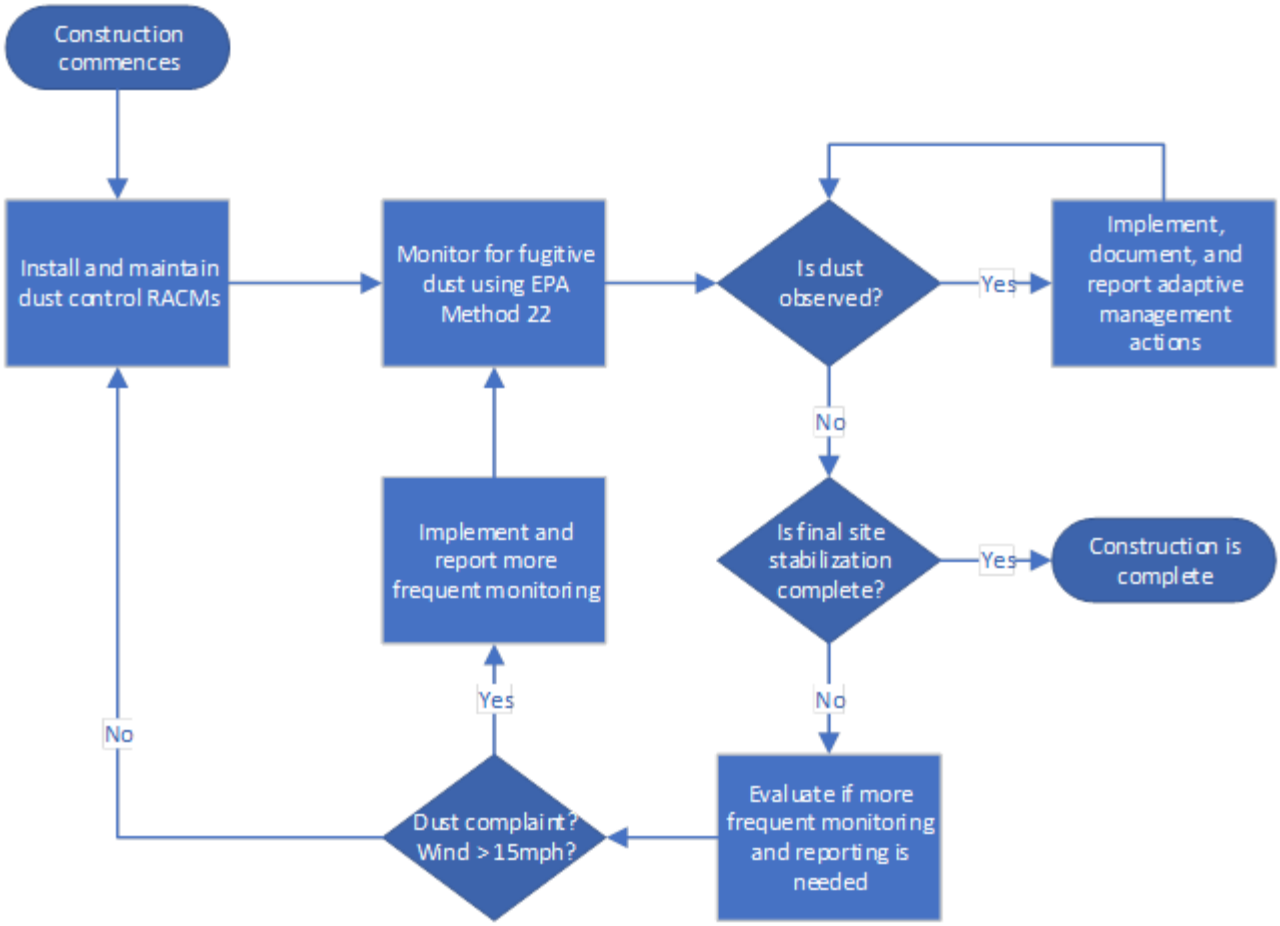
1. Baseline soil compaction measurements will be documented and established by using the above protocol, or other protocol as approved by Oregon Department of Energy (ODOE), to establish baseline soil conditions within temporary impact areas.
2. Recordation of the baseline soil plots must be represented on a map based on final Facility design.
3. Prior to construction completion at the Facility site and prior to the initiation of revegetation activities, soil compaction testing following the above protocols must be completed.

4. If soil measurements demonstrate that the soils within the work areas are more than 10 percent compacted relative to the baseline plot, then remediation activities must be completed prior to initiation of revegetation activities (see Section 4.8).

If warranted, the Certificate Holder may also complete other types of soil compaction tests, which may include the following.

- Soil physical observations and estimations: these tests involve describing the physical characteristics of the soil, including describing the soil profile and determining aggregate size. Soil pits up to 36 inches will be dug in the sampling area. Soils will then be described by their topsoil depths, Munsell Color, and aggregate size. Topsoil depth is important for water storage and nutrient supply for plant growth. Generally, removal of the topsoil will result in loss of soil fertility, water-holding capacity, soil organic carbon content, and productivity. Soil structure is the arrangement and organization of particles in the soil. Soil structure affects the retention and transmission of water and air in the soil as well as the mechanical properties of the soil. This test only needs to be done once, prior to construction, because these characteristics will not change unless there are additional disturbances to the soil.
- Infiltration rate test: this test measures the rate at which water enters the soil, which depends on the soil type; soil structure, or amount of aggregation; and the soil water content (Lowery et al. 1996). This test will show the effects of compaction from construction; compacted soils will have less pore space, resulting in lower infiltration rates. Lower infiltration rates will result in more runoff (creating erosion issues) and less available water for plants.
- Nutrient test: this test will measure organic matter content and pH to determine the plant available nutrients in the soil which is an indicator for plant productivity. The organic matter content measurement gives the amount of stored nutrients, including organic carbon, in the soils that can be made available to plants based on the health of the soil microorganisms. Soil pH is a measure of the acidity or alkalinity of a soil, which affects the availability of plant nutrients, activity of microorganisms, and the solubility of soil minerals.

FIGURE 1: DUST CONTROL PLAN FLOW CHART



2.2 ROLES AND RESPONSIBILITIES

The Certificate Holder will designate an Environmental Inspector who will be responsible for implementation of the Plan.

The Environmental Inspector will be responsible for ensuring that the measures in this Plan are implemented, monitored, and adaptively managed, and that any exceedances are immediately reported to the Certificate Holder for corrective action. Specifically, the Environmental Inspector will:

- Have an active CESCL (Certified Erosion and Sediment Control Lead) certification.
- Always retain a copy of the Plan at the Facility during construction.
- Establish a Dust Control Hotline.
- Develop and maintain maps of water truck routes and water supply locations within and surrounding the construction area. Such documents should be available to inspectors and other agencies upon request.
- Implement the Plan and ensure that all employees, workers, and subcontractors know their responsibilities regarding dust control.

- Monitor construction activity to ensure compliance with the Plan.
- Identify when reasonably available and best available control measures are not adequate.
- Direct water trucks, direct civil activities, and direct road maintenance.

2.3 FUGITIVE DUST MONITORING AND REASONABLE AVAILABLE CONTROL MEASURES (RACMS)

The visual monitoring required by the NPDES 1200-C permit must occur at least once every 14 calendar days. However, because OAR 340-208-0210 restricts visible fugitive emissions on a continuous standard to a maximum of **18 seconds in any 6-minute period**, and because fugitive dust emissions may provide an immediate public safety concern, this Plan requires that fugitive dust be monitored and controlled on an ongoing basis.

Monitoring for fugitive dust emissions will include:

- Use EPA Method 22 (ODEQ 2019) as specified in OAR 340-208-0210, **at least once per day during the summer, during peak construction activities**.
- Make observations during peak construction activity at the downwind site boundary.
- Record observations in a fugitive dust inspection log that is kept on site and digitally, described below.

Triggers for additional, more frequent monitoring will include:

- Observation of visible fugitive dust emissions by the Environmental Inspector, contractor(s), agency, or certificate holder staff.
- Wind speeds or gusts greater than 20 miles per hour.
- Receipt of complaints or concerns through the Dust Control Hotline or other means.

Fugitive dust sources and RACMs are provided in Table 1.

TABLE 1: FUGITIVE DUST SOURCES AND RACMS

Construction Sequence	RACM(s)	Supplemental RACM(s)
All Sequences of Construction	Daily fugitive dust monitoring and record keeping.	Increase frequency of monitoring.
	Prominent display of Dust Control Hotline signs, providing direct access to the Environmental Inspector.	If established, proactive engagement with Community Action Council.
	Worker Environmental Awareness Program training for all construction employees.	Additional trainings and refreshers for employees.
	Maintain stockpile of BMPs on site, including sufficient water or other palliatives for a single treatment of all site access roads and sufficient palliatives, mulch, and/or hydromulch for a	Increase stockpile of palliatives, mulch, and/or hydromulch and add additional BMPs.

Construction Sequence	RACM(s)	Supplemental RACM(s)
	minimum of 25 percent of the total disturbed area, and machinery for application.	
Site Access	Documentation and reporting of adaptive management actions.	Development and submittal of revised Fugitive Dust Control Plan.
	Install and maintain stabilized construction entrances at ingress/egress locations and restrict traffic to these locations.	Add additional construction entrance BMPs (e.g., wheel wash).
	Daily sweeping up of sediment from paved surfaces utilizing vacuum sweeper with HEPA filtration.	Increase sweeper frequency.
	Access roads shall be graveled.	Road maintenance and reapplication of gravel.
	Access roads will be stabilized with water or palliative sufficient to eliminate visible and sustained dust from vehicular travel and wind erosion. Reapply stabilization as necessary to maintain dust-free condition.	If water is unavailable or ineffective, or if water use is limited by any agency or regulation, access roads will be stabilized with longer-lasting palliatives.
	Restrict construction traffic to established and stabilized access routes.	Install fencing or barricades to prevent traffic outside of established routes.
	Limit traffic speeds to 15 miles per hour on stabilized unpaved roads within the site as long as such speeds do not create significant visible dust emissions. Traffic speed signs shall be displayed prominently at all site entrances and exits.	Limit traffic speeds within the site to 5 or 10 miles per hour.
	Minimize disturbance areas and soil exposure to the maximum extent feasible.	Limit work to a portion of the disturbed area until all disturbed areas receive temporary or final stabilization.
	When wind speeds or gusts exceed 15 miles per hour, minimize new disturbances to the extent possible and/or mobilize additional water trucks or palliatives to minimize fugitive dust from exposed surfaces.	Stop all ground disturbing activities and apply additional dust control measures until measures are effective or wind speeds slow and fugitive emissions stop.
	Separate and cover or otherwise stabilize topsoil to preserve it	Increase maintenance frequency for topsoil cover/stabilization.

Construction Sequence	RACM(s)	Supplemental RACM(s)
	until it is replaced during revegetation.	Combine methods, such as mulch plus tackifier.
	Stabilize exposed soils within the timeframes established in the 1200-C permit. Stabilize exposed soils in stages based on site conditions and weather.	Stabilize exposed soils more frequently, even if additional work is anticipated within the timeframe established in the 1200-C permit. Reapply stabilization measures following any additional disturbances.
	Temporarily stabilize exposed surfaces to prohibit significant and sustained visible fugitive dust from wind erosion. Utilize BMPs such as mulch, hydromulch with or without seeds, tackifier, spreading stone or gravel, and trackwalking.	Combine stabilization methods, such as mulch plus tackifier, or trackwalking plus hydromulch. Increase frequency of maintenance of stabilization.
	Seed exposed surfaces during the appropriate season with approved temporary or permanent seed mixes.	Reapply seed to newly disturbed areas or areas with poor germination. Use temporary seeding even if additional work is anticipated before final stabilization. Use irrigation to enhance seeding success.
Removing and Hauling Sand, Soil, or other Loose Materials	Gate seals should be tight on dump trucks. Soil load shall be kept below 6 inches of the freeboard of the truck. Drop heights shall be minimized when loaders dump soil into trucks. Gate seals will be checked and tight on dump trucks. All trucks on highways must be fully covered and secured.	Cover haul trucks with a tarp or other suitable cover.

2.3.1 TRAINING AND QUALIFICATIONS

EPA Method 22 (ODEQ 2019) does not require a specific certification, but the person responsible for observations completed by this method must be knowledgeable with respect to the general procedures for determining the presence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training is to be obtained from written materials found in the references cited in EPA Method 22 or from the lecture portion of the EPA Method 9 certification course. The Environmental Inspector shall document in the inspection log how the person responsible for observations meets this requirement.

Construction workers will attend a Worker Environmental Awareness Program training prior to conducting construction activities. This training will include a summary of fugitive dust control

measures included in this Plan and the responsibilities of personnel working on the Facility related to fugitive dust control.

2.3.2 FUGITIVE DUST REPORTING

A dust inspection log shall be completed after each dust inspection. Log records shall be kept digitally and included in construction monitoring reports. This log shall include all information required in EPA Method 22. Photos and/or video taken during the observation period to document conditions shall be available digitally to ODOE upon request. Any documented exceedance events shall include a detailed explanation of RACMs implemented for corrective action and the results of subsequent monitoring demonstrating fugitive dust has returned to below exceedance thresholds.

2.3.3 IMPLEMENTATION OF FUGITIVE DUST PREVENTION AND MANAGEMENT

As shown in the flow chart in Figure 1, if fugitive dust emissions more than the ODEQ criteria of **18 seconds in a 6-minute period** occur, the Environmental Inspector shall:

- Implement adaptive management actions, including altering work operations, implementing supplemental RACMs, and/or pausing work until the fugitive dust emissions are controlled.
- Document that fugitive dust emissions have been controlled, including monitoring with EPA Method 22 and RACMs implemented.
- In addition to any reporting requirements required in the NPDES 1200-C permit, report noncompliance incidents and adaptive management actions taken to ODOE within 24 hours of occurrence.

The Certificate Holder's contractor shall maintain and implement dust control during all sequences of construction at the direction of the Environmental Inspector. The Certificate Holder is responsible for ensuring their contractor complies with dust control requirements. Table 1 provides suggested RACMs for anticipated fugitive dust sources based on industry-standard BMPs and reasonable precautions specified in the Oregon 1200-C permit, ODEQ's Construction Stormwater Best Management Practices Manual (ODEQ 2021), and OAR 340-208-0210. Supplemental RACMs are identified in the table in case initial RACMs are not effective in controlling fugitive dust or are not feasible to implement.

The Environmental Inspector shall identify and implement additional RACMs as needed to control fugitive dust emissions. Additionally, the Environmental Inspector may propose alternative approaches and RACMs for controlling fugitive dust. This proposal shall be made in writing and is subject to the approval of the Certificate Holder.

3. NOXIOUS WEEDS

This section prescribes methods to prevent and control the spread of noxious weeds during and following construction. The goals are to implement preventative measures to control the spread of weeds during construction and prevent, to the extent possible, the invasion of weeds from surrounding lands. The Certificate Holder will conduct monitoring during construction and operation of the Facility to help achieve these goals.

Pursuant to Oregon Revised Statutes (ORS) § 569.390, Oregon law requires that measures be taken to control the effects and spread of noxious weeds. Noxious weeds have the potential to invade areas disturbed by construction and may spread along the edges of construction areas and access roads. Soil disturbance may also allow noxious weed seeds already present to germinate and grow.

Invasive plants are broadly defined as non-native aggressive plants that have the potential to cause ecological, societal, or economic damage (James et al. 1991). A noxious weed is a subset of invasive plants that is defined as any plant legally designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife, or property (Sheley et al. 1999). ORS § 569.390 requires all landowners to control the seeding of noxious weeds on their land. Violations of ORS § 569.390 may result in a County Weed Inspector employing necessary measures to destroy noxious weed infestations. Under ORS § 569.615, the Oregon Department of Agriculture (ODA) has the power to identify and list noxious weed species in the state that represent the greatest public menace. ODA has listed 133 noxious weed species of economic importance within the state. These listed weeds are divided into Class A weeds (45) and Class B weeds (88). Of the Class B listed weeds, 19 are T-Designated weeds.

- **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.

The Facility is in Wasco County and falls within the jurisdiction of the Wasco County Weed and Pest Department (WCWPD). In parallel to the 133 noxious weeds listed by ODA, Wasco County lists 45 noxious weeds species, which are designated as A Pests (12), B Pests (9), C Pests (22), and Q Pests (2) (Table 2; WCWPD 2008). Two species, Canada thistle (*Cirsium arvense*) and yellow starthistle (*Centaurea solstitialis*), are considered as both B Pests and C Pests depending on their location within the County. WCWPD designates weeds as follows:

- **A Pests:** Weeds of known economic importance that occur in the County in small enough infestations that eradication is practical.
- **B Pests:** Weeds of known economic importance with limited distributions within the County and are subject to intensive control or eradication within the County, where feasible.
- **C Pests:** Weeds of known economic importance but that are more widespread within the County and are subject to control in certain conditions that warrant special attention.
- **Q Pests:** Weeds with little, no, or undetermined economic importance that are to be monitored and subject to control within the County if they pose an economic threat.

TABLE 2: WASCO COUNTY DESIGNATED WEEDS

Common Name	Scientific Name
A Pests	
Dyers woad	*Isatis tinctoria*
Houndstongue	*Cynoglossum officinale*
Kudzu	*Pueraria montana var. lobata*
Leafy spurge	*Euphorbia esula*
Meadow knapweed	*Centaurea x gerstlaueri*
Mediterranean sage	*Salvia aethiopis*
Musk thistle	*Carduus nutans*
Purple loosestrife	*Lythrum salicaria*
Spotted knapweed	*Centaurea stoebe*
Tansy ragwort	*Jacobaea vulgaris* (*Senecio jacobaea*)
Western water hemlock	*Cicuta douglasii*
Yellow flag iris	*Iris pseudacorus*
B Pests	
Canada thistle (outside forest)	*Cirsium arvense*

Dalmatian toadflax	*Linaria dalmatica*
Diffuse snapweed	*Centaurea diffusa*
Kochia	*Bassia scoparia* (*Kochia scoparia*)
Rush skeletonweed	*Chondrilla juncea*
Russian knapweed	*Rhaponticum repens* (*Acroptilon repens*)
Scotch broom	*Cytisus scoparius*
Whitetop	*Cardaria draba*
Yellow starthistle (outside Fifteenmile Canyon)	*Centaurea solstitialis*
C Pests	
Buffalobur	*Solanum rostratum*
Canada thistle (inside forest)	*Cirsium arvense*
California spikeweed	Centromadia pungens
Dogbane	*Apocynum cannabinum*
Field bindweed	*Convolvulus arvensis*
Goatgrass	*Aegilops cylindrica*
Horned-head buttercup	Ceratocephala testiculata (Ranunculus testiculatus)
Horsetail rush	*Equisetum sp.*
Jimsonweed	*Datura stramonium*
Knapweed complex	includes multiple *Centaurea* spp.
Perennial pepperweed	*Lepidium latifolium*
Perennial sowthistle	*Sonchus arvensis*
Poison hemlock	*Conium maculatum*
Puncturevine	*Tribulus terrestris*
Quackgrass	*Elymus repens* (*Agropyron repens*)
Russian thistle	*Salsola tragus* (*Kali tragus*)
Sandbur	*Cenchrus sp.*

Showy milkweed	*Asclepias speciosa*
Spiney cocklebur	*Xanthium spinosum*
St. John's wort	*Hypericum perforatum*
Wild oats	*Avena fatua*
Yellow starthistle (inside Fifteenmile Canyon)	*Centaurea solstitialis*
Q Pests	
Common mullein	*Verbascum thapsus*
Horseweed	*Erigeron canadensis (Conyza canadensis)*

Revegetation and weed control measures will follow applicable guidelines and best management practices as recommended by the WCWPD, *Guidelines For Rehabilitating Landscapes After Fires* (ODFW 2017), *Oregon & Washington Guide for Conservation Seedings and Plantings* (NRCS 2000), *Revegetation Guidelines for the Great Basin: Considering Invasive Weeds* (Mangold et al. 2005), and *Shrub-Steppe and Grassland Restoration Manual for the Columbia River Basin* (Benson et al. 2011).

3.1 BASELINE NOXIOUS WEED CONDITIONS

The survey area for noxious weeds included all lands within the 12,532-acre micrositing area except active agricultural lands and the transmission line route. Surveys were conducted by ERM from 5 June to 6 July and 26 August to 13 September 2024 and from 8 April to 2 May, 20 to 22 May, 8 to 10 July, and 14 to 15 July 2025.

A total of 17 noxious weed species were observed in the survey area during 2024 and 2025 biological surveys (Table 3). Of these, 15 are ODA list B weeds. All 17 of these species are considered target species for management by the Certificate Holder. Additionally, kochia (*Bassia scoparia*) was not observed within the survey area, but was recommended as a watchlist species by the WCWPD. With the addition of kochia, there are 18 target noxious weed species for the Facility.

TABLE 3: TARGET NOXIOUS WEEDS

Scientific Name	Common Name	State Status (ODA)	Wasco County Status (WCWPD)	Frequency/Location
Aegilops cylindrica	Goatgrass	B	C	Present in disturbed roadsides, railroads, and agricultural fields.
Bassia scoparia	Kochia	B	B	Not present on site, but important

Scientific Name	Common Name	State Status (ODA)	Wasco County Status (WCWPD)	Frequency/Location
				watchlist species per WCWPD consultation.
Centaurea diffusa	Diffuse knapweed	B	B	Loosely distributed within disturbed pastures throughout the survey area.
Chondrilla juncea	Rush skeletonweed	B/T	B	Loosely distributed within disturbed pastures throughout the survey area.
Cirsium arvense	Canada thistle	B	B (outside forest), C (inside forest)	Present in disturbed wetlands/riparian areas and around stock ponds.
Cirsium vulgare	Bull thistle	B	N/A	Loosely distributed throughout the survey area, though primarily associated with roadsides and areas of intensive cattle use.
Convolvulus arvensis	Field bindweed	B	C	Loosely distributed within disturbed pastures throughout the survey area.
Cynoglossum officinale	Houndstongue	B	A	One observation in a disturbed oak woodland in the southeastern portion of the survey area.
Hypericum perforatum	Common St. John's wort	B	C	Prevalent within disturbed pastures throughout the survey area.
Lepidium draba	Whitetop	B	B	One observation surrounding a barn in the central portion of the survey area
Onopordium acanthium	Scotch thistle	B	N/A	One observation in a disturbed oak woodland in the southeastern portion of the survey area.
Potentilla recta	Sulphur cinquefoil	B	N/A	Loosely present within the riparian zones of the Wapinitia Creek and Rice Creek

Scientific Name	Common Name	State Status (ODA)	Wasco County Status (WCWPD)	Frequency/Location
				Canyons on the eastern edge of the survey area.
Rosa canina	Dog rose	B	N/A	Thickets present in mesic portions of pastures throughout the survey area.
Rubus armeniacus	Himalayan blackberry	B	N/A	Thickets loosely distributed in disturbed pastures throughout the survey area.
Salsola tragus	Prickly Russian thistle	N/A	C	Loosely distributed within disturbed pastures throughout the survey area.
Taeniatherum caput-medusae	Medusahead	B	N/A	Prevalent within disturbed pastures throughout the survey area.
Ventenata dubia	Ventenata	B	N/A	Prevalent near and in vernal pools and wetlands across the study area.
Verbascum thapsus	Common mullein	N/A	Q	Loosely distributed throughout the survey area, though primarily associated with roadsides and areas of intensive cattle use.

ODA = Oregon Department of Agriculture, WCWPD = Wasco County Weed and Pest Department, N/A = not applicable

3.2 WEED TREATMENT PRIOR TO CONSTRUCTION

Prior to construction, vegetation removal, and ground disturbing activities, weeds will be managed using methods described in Section 3.3.

- Construction will be coordinated and sequenced with landowners to maintain land in current land use until just prior to construction.
- In the spring, fall or winter of the year prior to when construction would occur, areas of high erosion risk will be seeded with a non-invasive, non-persistent cover crop such as triticale to demonstrate soil stabilization.
- Prior to construction, areas of noxious weed infestations will be flagged to alert construction personnel to their presence.

Compliance Deliverable: Provide evidence that existing noxious weed infestations have been identified and treated in a manner consistent with this Plan.

3.3 PREVENTATIVE METHODS

The Certificate Holder will use the following preventive measures to prevent the spread of target weeds from outside of the site boundary and from one area inside the site boundary to another:

- Before construction, areas of known noxious weed infestation will be marked using color-coded flagging, staking, and/or signs to alert construction personnel to implement weed control measures during construction.
- Machinery and other equipment will be cleaned before use to remove seeds and prevent new noxious weed introductions. Cleaning will occur before equipment transfer on and off the site and before movement from one side of the site to another. Cleaning on-site will happen at a cleaning station located inside the Facility at vehicle ingress/egress points
- Construction planning will minimize vegetation and ground disturbance to the extent possible, especially in sensitive areas.
- Vehicle access will be limited to designated routes, whether existing roads or newly constructed roads, and the outer limits of construction disturbances per the final design for the Facility.
- Vehicle traffic will be limited in noxious weed-infested areas.
- Noxious weeds will be treated via biological, mechanical or chemical control designated in this Plan
- Existing or new populations of A listed noxious weeds will be documented in a noxious weed log and eliminated on an ongoing basis. The noxious weed log will describe the weed treatment methods and timing.

After the site has been prepared for installation of Facility components (i.e., grading is complete), but prior to installation, all areas with less than 70 percent vegetative cover shall be seeded with a non-invasive, non-persistent cover crop (e.g., triticale). Establishment of a cover crop at this stage of construction will stabilize soils and suppress noxious weed infestations to reduce erosion and facilitate revegetation of desired plant species.

Following the completion of each construction sequence, permanent impact areas will be reseeded with a mix of native or non-invasive, non-native grasses and forbs as appropriate based on disturbance level and actual site conditions. All seeds will be obtained from a reputable supplier in compliance with the Oregon Seed Law (OAR 603-056). The final seed mix for areas within the solar array fenced area will include lower-growing grasses and pollinator-friendly forbs compatible with desired vegetation conditions under the solar arrays (i.e., species whose mature height would not interfere with or shade the solar array). Post-construction revegetation and the proposed seed mix is discussed in Section 4.6.

3.4 TREATMENT METHODS

The Certificate Holder will implement the following noxious weed treatment measures in areas where target weed infestations are identified:

- Prior to clearing and grading operations, pre-treatment of noxious weed infestations will be conducted. The weed control measures implemented at these locations may include the application of herbicides or mechanical measures. The weed control measure chosen will be the best method available for the time, location, and species of weed, and as recommended by the WCWPD.
- The site will be revegetated after ground disturbing activities conclude. The seed mix will limit the ability of noxious/invasive species to grow once the native community is established. As discussed above, site-stabilization revegetation may be utilized immediately following construction to decrease erosion potential and limit spread of noxious weeds. If such site-stabilization methods are utilized, the revegetation will follow a phased approach in which the initial seed mix may contain mostly rapidly establishing, non-invasive, non-native species, and subsequent seeding(s) will contain native species.
- Noxious weed infestations will be marked for immediate treatment or removal.

3.4.1 HERBICIDE TREATMENT

The Certificate Holder will select herbicides, if used, based on information gathered from the WCWPD and/or the ODA.

Prior to herbicide application, the Certificate Holder's contractor will obtain any required permits or approvals from the WCWPD and the ODA. A licensed contractor will perform the chemical application in accordance with all applicable laws and regulations, strictly adhering to herbicide label instructions and manufacturer's guidelines. For example, manufacturer's guidelines recommend that herbicides only be applied under appropriate weather conditions (e.g., periods of low wind speeds, when precipitation is not imminent, etc.), that application sprayers be mounted low to the ground, and that sprayer booms incorporate specialized nozzles designed to produce large droplet sizes with limited drift potential. Adherence to these specifications and manufacturer label directions would minimize the potential for drift or transport of herbicides to off-site areas.

Vehicle-mounted sprayers (e.g., handgun, boom, and injector) may be used primarily in open areas that are readily accessible by vehicle. Hand application methods (e.g., backpack spraying) that target individual plants will be used to treat small, scattered weed populations in rough terrain. Calibration checks of equipment will be conducted at the beginning of spraying and periodically thereafter to ensure proper application rates are achieved.

Herbicides will be transported daily to the site with the following provisions:

- Herbicides will be premixed and delivered in returnable/refillable containers and transferred by closed system to application tanks to limit worker and environmental exposure and eliminate the need for disposal of herbicide containers in area landfills.
- Herbicides will be transported in a manner that will prevent tipping or spilling.

- Mixing of surfactants or other additives with water or other carriers and refilling of containers will typically be conducted at road crossings, and no mixing or filling will occur within 100 feet of open or flowing water, wetlands, or other sensitive resources; within 200 feet of private wells; or within 400 feet of public wells.
- Mixing and application procedures will be supervised by a licensed commercial applicator and monitoring will be conducted to ensure that proper mixing, application, cleanup, personal protection, and safety procedures are followed.
- All herbicide equipment and containers will be inspected daily for leaks.

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 exists:

- Wind velocity exceeds 20 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.

The construction contractor will develop a Spill Prevention, Control, and Countermeasure Plan that incorporates reasonable precautions to be taken to avoid spills of potentially hazardous materials. In the event of a spill, cleanup will be immediate. Herbicide contractors will be responsible for keeping spill kits in their vehicles and in herbicide storage areas to allow for quick and effective response to spills. Herbicide spills will be managed according to Facility Spill Prevention, Control, and Countermeasure Plan.

Response to an herbicide spill will vary depending on the material spilled and the size/location of the spill. The order of priorities after discovering a spill are first to protect the safety of personnel and the public, second to minimize damage to the environment, and last to conduct cleanup and remediation activities.

Herbicide contractors will obtain and have readily available copies of the appropriate Safety Data Sheets and the product labels for the herbicides used. Herbicide spills will be reported in accordance with applicable laws and requirements. Further information regarding spill response and reporting will be provided in the Facility Spill Prevention, Control, and Countermeasure Plan.

The certificate holder 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.

3.4.2 MECHANICAL TREATMENT

Mechanical control methods are based on physical removal of plant material rather than treatment with a chemical. Mechanical methods can include activities such as mowing, disking, hand cutting, pulling, and digging. Mechanical methods are often utilized for small populations of weeds or in sensitive areas in which non-target effects of herbicide are of concern. For weed populations within sensitive areas, selective mechanical treatment can help control populations of noxious weeds with minimal impacts to native species. Some rhizomatous plants can be spread using mechanical methods; therefore, implementation will be species specific.

3.4.3 SPECIES-SPECIFIC TREATMENTS

The following weed management and treatment standards (timing, method, and application rates for each identified weed species of concern) have been established between WCWD, Certificate Holder, and ODOE.

TABLE 4: SPECIES-SPECIFIC TREATMENTS

Noxious Weed Species	Method and Timing of Control	Application Rate
Aegilops cylindrica (jointed goatgrass)	**Glyphosate** – Apply to actively growing plants emerged before bolt stage (i.e., stage of growth where growth is focused on seed development versus leaf development).	0.38 to 0.75 lb acid equivalent/ac
	Sulfometuron – Apply in fall or in late winter before jointed goatgrass is 3 inches tall.	1.33 to 2 oz/ac
Centaurea diffusa (diffuse knapweed)	**Picloram (Tordon 22k)** – Optimum time for application is from rosette to mid-bolting stage or when applied to fall regrowth. Under favorable growing conditions, application in summer can be effective if higher application volumes are used.	1 to 2 pt/ac
	Aminopyralid (Milestone) – apply when plants are actively growing, with the optimum time of application occurring from rosette to the bolting stages of development or in the fall.	5 to 7 fl oz/ac
Cirsium arvense (Canada thistle)	**Aminopyralid (Milestone)** – apply in spring to plants in the pre-bud stage or in the fall	5 to 7 fl oz/ac
	2,4-D + Fluroxypyr + Dicamba (E-2) – Apply to young, actively growing plants.	2 to 5 pt/ac (broadcast) 2.25 oz/gal (spot)

Noxious Weed Species	Method and Timing of Control	Application Rate
Cirsium vulgare (bull thistle)	**Aminopyralid (Milestone)** – apply in spring to plants in the pre-bud stage or in the fall	3 to 5 fl oz/ac
	2,4-D – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
Chondrilla juncea (rush skeletonweed)	**2,4-D** – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
	Aminopyralid (Milestone) – Spring or fall when rosettes are present.	5 to 7 fl oz oz/ac
	Clopyralid – Apply to rosettes in fall or up to early bolting in spring.	0.66 to 1 pt/ac
Convolvulus arvensis (field bindweed)	**2,4-D** – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
	Picloram (Tordon 22k) – apply during active growth. Annual retreatment will be required at rates at low end of rate range	2 to 4 pt/ac
Cynoglossum officinale (houndstongue)	**Picloram (Tordon 22k)** – apply during active growth. Annual retreatment will be required at rates at low end of rate range	2 to 4 pt/ac
	Aminopyralid + Metsulfuron (Chaparral) – apply in either rosette or bolt stage. Application rates will vary based on life stage	2.5 oz/ac (rosette) 3.0 to 3.3 oz/ac (bolt)
	2,4-D – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
Hypericum perforatum (St. John's wort)	**2,4-D** – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
	Aminopyralid (Milestone) – Apply when plants are rapidly growing prior to bloom.	5 to 7 fl oz oz/ac
	Picloram (Tordon 22k) – apply during active growth. Annual retreatment will be required at rates at low end of	2 to 4 pt/ac

Noxious Weed Species	Method and Timing of Control	Application Rate
	rate range	
Lepidium draba (whitetop)	**2,4-D** – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
	Aminopyralid (Milestone) – Apply in spring or early summer to rosettes or bolting plants or in fall to seedlings and rosettes.	3 to 5 fl oz/ac
Onopordum acanthium (Scotch thistle)	**2,4-D** – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
	Aminopyralid (Milestone) – Apply in spring or early summer to rosettes or bolting plants or in fall to seedlings and rosettes.	5 to 7 fl oz/ac
	2,4-D + Fluroxypyr + Dicamba (E-2) – Apply to young, actively growing plants.	2 to 5 pt/ac (broadcast) 2.25 oz/gal (spot)
Potentilla recta (sulphur cinquefoil)	**Picloram (Tordon 22k)** – Apply during active growth or fall regrowth	1 pt/ac
	Aminopyralid (Milestone) – Apply to plants in pre-bud stage.	4 to 6 fl oz/ac
Rosa canina (dog rose)	**Triclopyr ester (Garlon 4 Ultra)** – Apply when plants are actively growing	1 to 8 qt/ac
	Glyphosate – Apply when plants are actively growing	2 to 5 qt/ac
Rubus armeniacus (Himalayan blackberry)	**Triclopyr ester (Garlon 4 Ultra)** – Apply when plants are actively growing	1 to 8 qt/ac
	Glyphosate – Apply when plants are actively growing	2 to 5 qt/ac
Salsola tragus (Russian thistle)	**Aminopyralid (Milestone)** – Apply when plants are actively growing	7 fl oz/ac
	Triclopyr ester (Garlon 4 Ultra) – Apply when plants are actively growing	1 to 8 qt/ac
	2,4-D – Apply when plants are actively growing	2 to 4 pt/ac

Noxious Weed Species	Method and Timing of Control	Application Rate
Taeniatherum caput-medusae (medusahead)	**Imazapic (Plateau) –** Apply to areas with known infestations in early spring prior to spring germination of seed back (per-emergence)	2 to 12 oz/ac
	Indaziflam (Rejuvra) – Apply to areas with known infestations in early spring prior to spring germination of seed back (per-emergence)	3.5 – 7 oz/ac
Ventenata dubia (Ventenata)	**Imazapic (Plateau) –** Apply to areas with known infestations in early spring prior to spring germination of seed back (per-emergence)	2 to 12 oz/ac
	Indaziflam (Rejuvra) – Apply to areas with known infestations in early spring prior to spring germination of seed back (per-emergence)	3.5 – 7 oz/ac
Verbascum thapsus (common mullein)	**Aminopyralid (Milestone) + 2,4-D** – Apply at rosette stage with surfactant	1 to 1.5 pt Tordon 22K + 1 lb a.e. 2,4-D per acre
	2,4-D + Fluroxypyr + Dicamba (E-2) – Apply to young, actively growing plants.	2 to 5 pt/ac (broadcast) 2.25 oz/gal (spot)

lb = pound, pt = pint, oz = ounce, ac = acre, gal = gallon, fl = fluid, qt = quart, N/A = not applicable, K = thousand

3.5 WEEDS MONITORING

During and following construction, the Certificate Holder will monitor weed infestations as part of restoration activities. The Certificate Holder's operations staff will monitor and treat target noxious weeds following state regulations and WCWPD requirements/recommendations. Weed monitoring is described further in Section 4.8, below.

Weed control measures will be implemented where noxious weed populations are present. The Certificate Holder may implement post-construction application of herbicides or mechanical measures to control noxious weeds. The weed control measure chosen will be the best method available for the time, location, and species of weed.

Herbicide application is an effective means of reducing the size of weed populations. Herbicide application and handling methods are described in Section 3.4 above. Mechanical methods, such as mowing or disking, will be conducted prior to seed maturation if needed. In addition, subsequent reseeding will be conducted, where necessary, to re-establish a desirable vegetative cover that will stabilize the soil and slow the potential of reinvasion of noxious weeds.

Where appropriate, the Certificate Holder will further consult with the WCWPD regarding the use of biological and other alternate noxious weed control methods. The alternate methods may be implemented after consultation with and approval of WCWPD and the ODA.

3.6 WEED DEPARTMENT SUPERVISOR REVIEW

Merle Keys, Weed Department Supervisor, provided input during the development of this Plan. Mr. Keys was provided with a copy of this Plan for review in August 2025. This Plan has been updated based on comments from Mr. Keys.

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4. REVEGETATION AND RECLAMATION

4.1 BASELINE VEGETATION

Baseline vegetation is not intended to create success criteria for habitat, but to inform seed mixtures and the types of vegetation that successfully grow in the area.

The site is composed of a diverse assortment of vegetation communities and habitat types and can be described generally as matrix of low, rocky swales containing seasonal wetlands and vernal pools with higher, upland areas containing grasslands, shrublands, shrubsteppe, woodlands, and forests. Overall, 37 different major vegetation communities were observed within the micrositing corridor (Table 6). Further details are provided in the Threatened and Endangered Species Exhibit and the Fish and Wildlife Habitat Exhibit.

4.2 ROLES AND RESPONSIBILITIES

A construction contractor qualified to perform restoration and revegetation will be responsible for implementing the measures in the contractor's NPDES 1200-C permit, as well as the revegetation activities discussed in this section. A qualified botanist or revegetation specialist will be responsible for monitoring and reporting on revegetation success. Remedial revegetation actions, as needed during the operation, will be performed by a qualified contractor. The Certificate Holder will be responsible for ensuring that all contractors perform work in accordance with permit requirements and all agreed upon methods for revegetation.

The Certificate Holder will ensure that the contractor selected for revegetation will be a qualified restoration and seeding contractor with demonstrated experience in the Columbia Plateau. Options for contracting and managing this work include:

- Having the construction contractor subcontract the revegetation work out to a qualified restoration and seeding contractor. The contract will stipulate the Certificate Holder's right to dictate the timing, methods, and management of revegetation.
- Contracting directly with the qualified restoration and seeding contractor, with the power to contractually enforce revegetation timing and methods.
- Having the environmental contractor contract with the qualified restoration and seeding contractor, with the power to contractually enforce revegetation timing and methods.

The restoration and seeding contractor's qualifications and scope of work will be provided as a submittal to ODOE prior to construction. Additionally, a crosswalk of the final version of this Plan will be prepared for use by the restoration contractor prior to initiation of revegetation to facilitate Plan implementation. A kick-off meeting with the Certificate Holder, their environmental contractor, restoration contractor, and ODOE will be held at least 14 days prior to initiation of restoration activities. A copy of the Plan crosswalk will be provided to ODOE staff prior to the kick-off meeting date. Staff from either the Certificate Holder or their environmental contractor will field-verify seeding methods and timing requirements are followed appropriately and will document any variances and the justifications for those variances. Monitoring and follow-up will be

provided as described in Section 4.8 to ensure oversight and increase the probability of revegetation success.

4.3 DESCRIPTION OF IMPACTS

All areas disturbed within the solar array fence line area are considered a permanent impact and will be revegetated for the purposes of site stabilization to reduce erosion, dust pollution, and topsoil depletion, and to reduce potential for invasion by noxious and invasive plants. The area within the solar array fence line will be retained and/or revegetated and will be reclaimed upon Facility retirement. Maintaining vegetation within the solar array fence line is intended to preserve and maintain soil integrity for the life of the Facility pursuant to the Soil Protection Standard (OAR 345-022-0022).

Temporary impacts are defined as areas outside the solar array fence line area that will be disturbed during construction activities, but which will not be occupied by permanent facilities. Examples of temporary disturbance include ground disturbance associated with the construction of aboveground and/or underground collector and transmission lines, creation of temporary staging areas, and construction of the perimeter fence line.

Prior to construction, a crosswalk of the final version of this Plan will be prepared for use by the construction contractor prior to construction to facilitate Plan implementation and ensure ground disturbance is minimized to the extent practicable. A kick-off meeting with the Certificate Holder, their environmental contractor, construction contractor, and ODOE will be held at least 14 days prior to construction. A copy of the Plan crosswalk will be provided to ODOE staff prior to the kick-off meeting date. Staff from either the Certificate Holder or their environmental contractor will field-verify anticipated disturbance levels are followed to the extent possible and will document any variances and the justifications for those variances for ODOE review.

4.4 DISTURBANCE LEVELS

Revegetation needs will be determined by a combination of disturbance level and existing vegetative cover. Disturbance levels will primarily be determined by site conditions such as slope, gradient, and existing vegetation. Disturbance levels are defined as follows:

Level 1 - Mowing: Mowing is used to conserve vegetation within a large area. Vegetation is mowed to a height of generally 12 inches, but no less than approximately 6 inches during construction. Depending on site objectives, vegetation can be allowed to reach a normal height or kept trimmed to a height between 6 inches and the plant's full height potential. Crushing of vegetation will be minimal and this disturbance level is designed to have a minimal impact on existing vegetation. This method is least likely to result in invasions of undesirable plant species.

Level 2 – Overland Drive and Crush: Overland drive and crush is disturbance caused without significantly modifying the landscape. Vegetation is crushed but not cropped. No surface soil is removed. Even though vegetation may be damaged and even destroyed, the surface soil and seed bank remain in place. Some crushed vegetation will likely sprout after disturbance ceases. These activities would result in minimal to moderate disturbance. This type of disturbance will result in the

fastest recovery time for vegetation. Soil seed banks remain largely in place, perennial vegetation can grow back, and minimal external efforts are necessary. This method is less likely to result in invasions of undesirable plant species.

Level 3 – Clear and Cut: Clear and cut is disturbance caused by having to remove all vegetation to improve or provide suitable access for other equipment. All vegetation is removed, soil is compacted, but no surface soil is removed. Clear and cut activities would result in moderate disturbance. This type of disturbance will result in moderate recovery times for vegetation. This method has a moderate risk for invasion of undesirable plant species. An example is imprinting to crush vegetation down into the soil.

Level 4 – Clear and Cut with Soil Removal: Clear and cut with soil removal is disturbance caused by removing all vegetation in the impact zone, the soils are compacted, and the surface soil is displaced. For Facility components requiring underground installation (e.g., collector lines), the subsurface soils are displaced as well. These activities result in heavy disturbance. This type of disturbance results in an extensive recovery time for vegetation and is most likely to lead to invasions of undesirable plant species, which can result in lengthy and expensive control efforts. This method includes disc-and-roll construction, and other traditional construction methods where no vegetation is left intact.

4.5 FACILITY DISTURBANCE

To the maximum extent practicable, Level 1 and Level 2 disturbance will be used. Existing vegetation root systems (e.g., crop stubble, fallow vegetation) will be left intact during construction, although construction vehicles driving across the site may affect these existing root systems. Grading within solar arrays will be limited to areas where the slope and gradient are outside of panel and racking tolerances (10 percent maximum on north facing slopes and 15 percent maximum in other directions). Areas where the slope and gradient are within the solar panel and racking tolerances will receive minimal grading, with grading in those areas limited to the roads, inverter, and energy storage footprints only. This preservation of existing root systems will minimize soil erosion, providing both improved compliance with stormwater and dust management requirements, facilitate revegetation success, and preserve soil productivity for future agricultural use.

Level 3 and Level 4 construction will be sequenced to limit the total amount of exposed soils present on the site at a given time. Ground disturbance will generally occur in sections, and each section will be stabilized prior to initiating construction in a new section.

Construction will be coordinated and sequenced with landowners to maintain land in current production and weed control until just prior to construction. This will avoid land being left unmanaged and will minimize weed issues that can complicate revegetation.

Prior to construction, the Certificate Holder will provide maps and shapefiles showing anticipated construction disturbance levels at the Facility, along with the total acreage and major activities associated with each level. For Level 3 and Level 4 disturbance areas, Certificate Holder will also provide maps and schedule of ground disturbance sequencing. This will serve to demonstrate the

Certificate Holder's avoidance and minimization of ground disturbing activities to the extent practicable.

Table 5 presents the estimated maximum acreage of temporary and permanent impacts to Oregon Department of Fish and Wildlife (ODFW) habitat categories associated with Facility construction and operation. Table 5 will be updated prior to construction to reflect the final impact acreage by habitat type for the final layout.

TABLE 5: MAXIMUM TEMPORARY AND PERMANENT IMPACTS BY HABITAT TYPE

Final Habitat Category	Mapped ODFW Habitats	Observed Habitats	Total Area of Impacts (acreage)	Temporary Impacts (acres)	Permanent Impacts (acres)
1	None	Tygh Valley Milkvetch Habitat	0	0	0
2	Big Game Winter Range[1]	Big Sagebrush Shrubsteppe Oregon White Oak Forest Rigid Sagebrush Shrubsteppe Riparian Corridor Three-tip Sagebrush Scabland	800	97	703
3	PWCA Regions and Connectors[2]	Antelope Bitterbrush Shrubsteppe and Shrubland Basalt Talus Cottonwood Stand Non-isolated Palustrine Emergent Wetlands Palustrine Forested Wetland Palustrine scrub-shrub wetland Perennial Streams Riparian Trees and Shrubs	2,646	273	2,373
4	None	Burned Antelope Bitterbrush Shrubland Gray Horsebrush Shrubsteppe Intermittent Streams Isolated Palustrine Emergent Wetlands Open Western Juniper Woodland Partially Burned Juniper Stand Pearhip Rose Thicket Permanent and Seasonal Ponds	482	71	411

Final Habitat Category	Mapped ODFW Habitats	Observed Habitats	Total Area of Impacts (acreage)	Temporary Impacts (acres)	Permanent Impacts (acres)
		Rubber Rabbitbrush Shrubsteppe and Shrubland Vernal Pool Community Western Juniper Forest Wet Meadow			
5	None	Cultivated Ponderosa Pine Cultivated Rye Field Dog Rose Thicket Ephemeral Streams Himalayan Blackberry Thicket Native Bunchgrass Grassland Non-Native Perennial Grassland Non-Native Annual Grassland Rocky Swales with Mima Mounds Tumble Mustard Thicket	2,114	237	1,877
6	None	Agricultural Ditch Developed, Ruderal, and Disturbed Agricultural Field Hay Field	91	76	15
		Totals	**6,137**	**695**	**5,442**

Note: Totals in this table are rounded to the nearest whole acre.
[1]Only 405 acres of Category 2 habitat was observed within the micrositing corridor, with the overlay of the modeled ODFW Big Game Winter Range, approximately 800 acres of Category 2 habitat are expected to be impacted and will require mitigation.
[2]Only 238 acres of Category 3 habitat was observed within the micorsiting corridor, with the overlay of the modeled ODFW PWCA, approximately 2,646 acres of Category 3 habitat are expected to be impacted and will require mitigation. No compensatory mitigation will be provided for impacts to Category 6 habitat.

4.6 RECLAMATION AND REVEGETATION METHODS

This Plan addresses revegetation methods for temporary impacts to non-agriculture and non-developed (i.e., Urban and Mixed Environs habitat subtype) habitat types, as well as revegetation and vegetation management of lands within the solar array fence line area. Restoration of temporarily disturbed developed habitat (i.e., Urban and Mixed Environs habitat subtype) will be determined on a case-by-case basis and is not covered further in this Plan. Temporary disturbances to agricultural habitat (i.e., wheat fields or other row crops habitat subtype) will be restored as described in Section 4.6.4. The Certificate Holder will restore temporarily disturbed

areas by re-establishing slope, surface stability, and drainage features, as needed, followed by soil preparation and seeding. Soil preparation and seeding techniques are described below.

Revegetation will begin as soon as feasible after completion of each sequence of ground disturbance. Seeding and planting will be done in a timely manner and in the appropriate season to facilitate germination and establishment of seeded species.

Prior to construction, final revegetation methods will be developed for each disturbance level in consultation with ODOE, ODA, ODFW, and the WCWD and will be incorporated as an amendment to this Plan upon ODOE approval.

4.6.1 SOIL RECLAMATION

Baseline soil conditions will be measured as described in Section 2.1. In addition, in areas where soil is removed during construction, the following measures will be taken where appropriate:

- During construction, excavated soils will be stockpiled by soil horizon, so that they can be replaced in proper order with the topsoil on the surface, preventing mixing of topsoil and subsoils and maintaining soil productivity. 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.
- Topsoil and other soils from target noxious weed infested areas will not be moved outside of the infested areas and will be returned to their previous location during reclamation activities to eliminate the transport of weed seeds, roots, or rhizomes.
- Soils from weed-infested areas will be treated with a non-persistent, 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.
- The construction contractor will 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 both temporary and permanent impact areas.

4.6.2 SITE PREPARATION

Existing vegetation root systems (e.g., crop stubble, fallow vegetation) will be left intact during construction to the maximum extent practicable. Areas where the slope and gradient are within the solar panel and racking tolerances will receive minimal grading, with grading in those areas limited to the roads, inverter, and energy storage footprints only. In areas where soil is removed during construction, the Certificate Holder will demonstrate adequate soil stabilization to prevent erosion and dust pollution. The following measures will be taken where appropriate:

- Site preparation will involve standard, commonly used methods, and will consider all relevant site-specific factors, including slope, size of area, and erosion potential.

- Areas of severe machine or vehicle tracking that would hinder seeding success and are unnecessary for soil stabilization will be regraded.
- The topsoil, if removed, will be stockpiled separately from the subsurface soils as available and necessary.
- Topsoil and other soils from target noxious weed infested areas will not be moved outside of the infested areas and will be returned to its previous location after construction activities are completed.
- Areas of target noxious weed infestations will be flagged to alert construction personnel to their presence.
- In the spring, fall or winter of the year prior to when construction would occur, areas of high erosion risk (e.g., slopes, areas with low vegetative cover) should be seeded with a non-invasive, non-persistent cover crop such as triticale to demonstrate soil stabilization.
- Prior to seeding and/or planting of revegetation areas, soils will be prepared to facilitate revegetation success.
- Soils from weed infested areas may be treated with a pre-emergent herbicide prior to initiation of revegetation efforts, depending on site-specific conditions.
- Existing vegetation root systems (e.g., crop stubble, fallow vegetation) will be left intact during construction to the maximum extent practicable.
- Vegetation maintained on site shall not exceed 10-12 inches. Mowing must be done in advance of fire season or in accordance with any fire restrictions.
- Any vegetation removed from the site will be disposed of and not stored onsite. Certificate holder and contractors will prevent the accumulation of combustible “burn piles” on site.
- The contractor(s) will be responsible for identifying and marking paths for all off-road vehicle travel. All off-road vehicle travel will be required to stay on the identified paths. No off-road vehicle travel will be permitted while working alone. Travel off road or parking in vegetated areas will be restricted during fire season.
- If soils are not suitable, soil amendments may be required. Any imported topsoil, if required, will be demonstrated to be suitable for vegetative success.
- Where applicable, soils will be mechanically scarified (e.g., tilling or ripping the soil) to an appropriate depth to reduce the potential effects of compaction, to maintain soil productivity, and reduce the potential for erosion on compacted soils.
- In general, the soil needs to be prepared into a firm, fine-textured seedbed 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, then seeds may be buried too deep to properly germinate; a roller or culti-packer should be used to pack down the soil.
- In non-cropland temporary disturbance areas, site complexity will be considered during soil preparation. For instance, it may be desirable to purposely create an uneven, patchy site that allows for depressions and other microsites that result in small variations in aspect and moisture holding to promote complexity.

- Seeded areas will be temporarily stabilized to facilitate establishment. This can be accomplished by application of seedless, certified weed-free hydromulch containing a tackifier. Alternate methods such as? may be proposed by the revegetation contractor but may require prior written approval by ODOE and must provide demonstrated success in sites with similar wind and soil conditions.
- The Certificate Holder or a designated construction contractor will use mulching and other appropriate practices, as required by the anticipated NPDES 1200-C permit, to control erosion and sediment during construction and revegetation work.

4.6.3 SOIL PREPARATION

Prior to reseeding for site stabilization, soils will be prepared for successful stabilization, including:

- Ensure that soils from weed infested areas are treated with a pre-emergent herbicide prior to initiation of revegetation efforts, depending on site-specific conditions.
- Loosen soils by mechanical scarification (tilling or ripping the soil) to an appropriate depth to reduce the potential effects of compaction, if needed. Soil amendment, by addition of organic matter (compost), may also be necessary to alleviate compaction.
- Prepared soils into a firm, fine-textured seedbed 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, then seeds may be buried too deep to properly germinate; a roller or culti-packer should be used to pack down the soil.
- Replace topsoil stockpiled separately from the subsurface soils.

Prior to construction completion and before revegetation, soils should be evaluated to determine whether soils within disturbance areas are more than 10 percent compacted relative to the baseline plot (See Section 2.1). If results show soils are more than 10 percent compacted relative to the baseline plot then remediation activities must be completed before revegetation activities can begin.

4.6.4 REVEGETATION OF PERMANENT IMPACT AREAS

During construction, the Certificate Holder will implement site stabilization measures, including seeding all disturbed areas according to the contractor's NPDES 1200-C permit. Approximately 6 months prior to commercial operation, the Certificate Holder will meet with ODFW, ODOE, and WCWD to review the actual extent and conditions of impacted areas and confirm the revegetation methods to be implemented.

After the site has been prepared for installation of Facility components (i.e., grading is complete), but prior to installation, all areas with less than 70 percent vegetative cover shall be seeded with a non-invasive, non-persistent cover crop (e.g., triticale). Establishment of a cover crop at this stage of construction will stabilize soils and suppress noxious weed infestations to reduce erosion and facilitate revegetation of desired plant species.

Following the completion of each construction sequence, permanent impact areas will be reseeded with a mix of native or non-invasive, non-native grasses and forbs as appropriate based on

disturbance level and actual site conditions. All seeds will be obtained from a reputable supplier in compliance with the Oregon Seed Law (OAR 603-056). The final seed mix for areas within the solar array fence line area will include lower growing grasses and pollinator-friendly forbs compatible with desired vegetation conditions under the solar arrays (i.e., species whose mature height would not interfere with or shade the solar array). The proposed seed mix, which has been reviewed with landowners, is provided in Table 6. Given the extensive area of revegetation required for this project, if designated quantities of specified native seeds cannot be sourced, the quantity deficit can be filled with other introduced forage species included in Table 6.

TABLE 6: PROPOSED REVEGETATION SEED MIX

Plant Type	Nativity [a]	Common Name	Scientific Name	Percent of Mix
Grasses	N	Bluebunch wheatgrass	*Pseudoroegneria spicata*	15
	N	Idaho fescue	*Festuca idahoensis*	5
	N	Sandberg's bluegrass	*Poa secunda*	10
	N	Bottlebrush squirreltail	*Elymus elymoides*	5
	N	Prairie Junegrass	*Koeleria macrantha*	5
	I	Siberian wheatgrass	*Agropyron fragile*	10
	I	Crested wheatgrass	*Agropyron cristatum*	40 [b]
	I	Intermediate wheatgrass	*Thinopyrum intermedium*	
	N	Thickspike wheatgrass	*Elymus lanceolatus*	
	N	Slender wheatgrass	*Elymus trachycaulus*	
	I	Sheep Fescue	*Festuca ovina*	10
Forbs [c]	N	Oregon sunshine	*Eriophyllum lanatum*	1
	N	Large-flowered collomia	*Collomia grandiflora*	1
	N	Yarrow	*Achillea millefolium*	2
	N	Deltoid balsamroot	*Balsamorhiza deltoidei*	1 [b]
	N	Arrow-leaf balsamroot	*Balsamorhiza sagittata*	

[a] N = native to central Oregon; I = introduced forage species popular for conservation seeding
[b] Combine species from this set as necessary based on supply to meet specified percentage of total mix
[c] Forb seed supply is unlikely to be large enough to contribute significantly to the seed mix. Forb seed should be sourced and added to the seed mix to the extent possible.

4.6.5 RESTORATION OF TEMPORARY DISTURBANCE AREAS

4.6.5.1 AGRICULTURAL LANDS

Temporarily disturbed agricultural lands will be reseeded with the appropriate crop or maintained as fallow in consultation with the landowner. The Certificate Holder will also consult with the

landowner to determine seed mix, application methods, and rates for seed and fertilizer. Success of cropland revegetation will have been achieved when production of the revegetated area is comparable to that of adjacent, non-disturbed croplands of the same type.

Dryland croplands will be reseeded to match the timing of the crop rotation on adjacent cropland to facilitate easy harvest and re-establish the appropriate crop rotation on that land. Dryland cropland that will be seeded in the year that construction is complete can be temporarily hydromulched or otherwise stabilized until seeding can occur in the fall; dryland cropland that will be fallow for a year (i.e., fallow rather than reseeded the year construction is complete) will be planted with a cover crop (dependent on timing of construction closeout) or have continued stabilization with hydromulch or other best management practices (BMPs) through the fallow year.

Soil compaction because of construction activity is a concern for restoring agricultural soils to their pre-construction productivity. Within temporary disturbance areas, the Certificate Holder will excavate and store soils by soil horizon, so that soils are replaced and restored appropriately, including replacing topsoil as available. During post-construction restoration of temporary impacts to agricultural areas, the Certificate Holder 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.

Success determination will involve consultation with the landowner, and the Certificate Holder will report to ODOE on the success of cropland restoration efforts. Noxious weed control is necessary for successful revegetation of croplands and will be implemented per the methods described in Section 3.

4.6.5.2 WILDLIFE HABITAT

Following each construction sequence, all areas, except for temporarily disturbed agricultural lands, will be reseeded with a mix of native or non-invasive, non-native grasses and forbs (see Section 3.4). All seeds will be obtained from a reputable supplier in compliance with the Oregon Seed Law (OAR 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) based upon consultation with ODOE, ODFW, ODA, and WCWD.

The seed mixes may include species selected to enhance soil health, such as nitrogen-fixing species, if determined to be appropriate based on coordination with ODOE, ODA, and ODFW. Including these species in the seed mix would help the other plant species thrive and increase long-term survival of desired species. Additionally, the seed mixes include species intended to provide broader ecosystem benefits, such as pollinator species, that will benefit the surrounding landscape. The seed mix for temporarily disturbed areas outside of the solar array fence line area will include taller native species of grasses and pollinator-friendly forbs to increase overall site biodiversity and increase benefits to wildlife and pollinators.

4.6.6 SEEDING METHODS

The seeding methods and timing of planting will be appropriate to the seed mixes, weather conditions (e.g., precipitation, wind speed, temperature, etc.), and site conditions (including area size, slope, and erosion potential) and will be informed by consultation with ODOE, ODA, ODFW, WCWD, and the seed supplier. Seeding between late-fall and late-winter/early-spring is typically recommended; however, the Certificate Holder will consult with ODOE, ODA, and/or the seed supplier to determine the optimal timing for seed application based on climatic conditions of the particular year when construction and revegetation efforts are implemented.

The three common seed application methods that may be used for revegetation are broadcast seeding, drill seeding, and hydroseeding; each of these are discussed further below. Other seeding methods may be proposed for review and approval prior to revegetation efforts.

4.6.6.1 BROADCAST SEEDING

Broadcast seeding is the application of seed directly to the ground surface. This method may be chosen for areas with shallow and rocky soils. The type of broadcast spreader would depend on the size of the area to be seeded and the terrain.

In this method, the seed mix would be broadcast using at least the application rates specified by the seed supplier for broadcast seeding. When feasible, due to the seasonality of when planting can occur, the entire area will be seeded after grading is complete but before placement of Facility components, providing more flexibility in seed application. In those instances where seeding occurs prior to installation of components, follow-up seeding will occur in areas temporarily disturbed by installation and any areas that are deficient in vegetation from the first round of seeding. Immediately following seed application, hydromulch or certified weed-free straw would be applied. Broadcast seeding will not be employed if winds exceed 5 miles per hour. If certified weed-free straw is unavailable, the Certificate Holder or a designated construction contractor will identify a local source of straw. The local source of the straw will be approved by WCWD and ODFW prior to purchase. This straw will either be crimped into the ground or applied with a tackifier.

4.6.6.2 DRILL SEEDING

Drill seeding can be used for larger areas with deeper soil and moderate to gentle terrain to accommodate mechanical equipment. This method provides the advantage of planting the seed at a uniform depth and may provide better soil to seed contact. Using a range seed drill, seeds will be sown according to the application rates recommended by the seed supplier. Drill seeding will be difficult after Facility components have been installed so it will primarily be used if seeding occurs after grading is complete but before components are installed or in areas that were temporarily disturbed during construction that do not have any permanent infrastructure (e.g., temporary laydown areas).

4.6.6.3 HYDROSEEDING

Hydroseeding is most applicable for areas drill or broadcast seeding machinery cannot access, this usually includes steeper sloped or narrow terrain but can be used in all terrains. Soil bed preparation is also crucial for growth success and frequently includes tracking perpendicular to the slope to create micro conditions for seeds. Flat grading and compaction are not recommended. Seeding rates increase by 30 to 50 percent of broadcast seeding rates or single applications per consultation with the seed supplier and ODFW. Prior to hydroseeding the tackifier and fertilizer, if included, will be reviewed and approved in consultation with ODOE.

4.7 REVEGETATION DOCUMENTATION

Records will be kept of revegetation efforts in all temporary and permanent impact areas. Records will include:

- Date construction phase was completed;
- Acreage of each disturbance level;
- Description and photos of the affected area;
- Date revegetation was initiated;
- Description of the revegetation effort, including methods and timing;
- Supporting figures representing the location, acres affected, and pre-disturbance condition of the revegetation area; and
- Confirmation from the landowner that temporary disturbances in cropland have been satisfactorily restored.

The Certificate Holder will meet with ODOE at least 14 days prior to initiation of revegetation efforts. The Certificate Holder will update ODOE with these records monthly as revegetation work occurs and will provide ODOE with copies of these records along with submission of the monitoring report that is required by the Site Certificate.

4.8 REVEGETATION MONITORING

4.8.1 MONITORING OF PERMANENT IMPACTS

In accordance with the contractor's NPDES 1200-C permit, all areas within the solar array fence line area must be revegetated to stabilize soils for the purposes of erosion and dust pollution control. Pursuant to OAR 345-022-0022, construction and operation of the Facility must not result in significant adverse impacts to soils, including but not limited to erosion. Pursuant to MCZO 3.010.K.3.f.(3), construction or maintenance activities shall not result in the unabated introduction or spread of noxious weeds and other undesirable weed species. Therefore, monitoring is required to demonstrate compliance with the above site stabilization and weed control requirements. The Certificate Holder will conduct monitoring within permanent impact areas to assess the following:

- Dominant species composition;
- Relative cover of desirable and undesirable forbs and grasses;

- Percent cover of bare soil;
- Degree of erosion;
- Presence of target noxious weeds; and
- Qualitative assessment of overall vigor of vegetation within revegetated areas.

Monitoring methods will be determined in consultation with ODOE prior to construction and will be incorporated as an amendment to this plan upon ODOE approval. Monitoring will be conducted by a qualified botanist or revegetation specialist and will begin within 60 days of the completion of the initial site restoration effort. Monitoring will be conducted at least once per season during the first year following construction. After the first complete year of monitoring, the Certificate Holder will consult with ODOE to determine if the monitoring cycle can be reduced based on revegetation progress. After five years of monitoring, the Certificate Holder will design a long-term monitoring plan in consultation with ODOE.

Success criteria outlined below will demonstrate compliance with the soil protection standard (OAR 345-022-0022); NPDES 1200-C permit requirements; and the requirements of MCZO 3.010.K.3.f.(4):

- Establish uniform (i.e., evenly distributed, without large bare areas) perennial, non-invasive vegetation that provides 70 percent or more cover on all exposed areas.

Requirements of the soil protection standard and MCZO 3.010.K.3.f.(4) apply to the construction and operation of the Facility. Therefore, the Certificate Holder shall maintain compliance with the revegetation success criteria for all areas within the solar array fence line for the life of the Facility. In each monitoring report, the Certificate Holder will include an assessment of whether the area within the solar array fence line is meeting or trending toward meeting the revegetation success criteria. Final determination of whether the Certificate Holder is in compliance with the revegetation obligations will be made by ODOE. Remedial actions and/or additional monitoring of areas may be required in areas that have been determined by ODOE not to have met the success criteria.

4.8.2 MONITORING OF TEMPORARY DISTURBANCE AREAS

Following implementation of revegetation efforts, the Certificate Holder will monitor the temporarily disturbed areas that have been revegetated as described in this section, unless the landowner has converted the area to land uses that preclude meeting revegetation success criteria. Monitoring will be conducted by a qualified botanist or revegetation specialist and will begin within 60 days of the completion of the initial site restoration effort. Monitoring will be conducted at least once per season during the first year following construction. After the first complete year of monitoring, the Certificate Holder will consult with ODOE to determine if the monitoring cycle can be reduced based on revegetation progress. After five years of monitoring, the Certificate Holder will design a long-term monitoring plan in consultation with ODOE. Monitoring methods will be determined in consultation with ODOE and ODFW prior to construction and will be incorporated as an amendment to this plan upon ODOE approval.

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.

To determine if the revegetation of temporarily disturbed areas are meeting success criteria, paired monitoring and reference sites will be established in each of the habitat subtypes that will be temporarily disturbed by construction (except for agricultural land). Reference sites are intended to represent target conditions for the revegetation effort. Vegetation within monitoring sites in revegetation areas will be compared with those in the associated reference sites to measure success of the revegetation activities. During each assessment, revegetated areas will be compared to reference sites based on the success criteria. Reference and monitoring site locations will be established during the growing season to capture representative site conditions. A minimum of one monitoring site will be located within habitats where temporary disturbances will be less than 5 acres in size.

In each monitoring report, the Certificate Holder will include an assessment of whether the temporarily disturbed revegetated areas are meeting or trending toward meeting the success criteria. Revegetation areas would be deemed successfully revegetated when the success criteria outlined below are met. Final determination of whether the Certificate Holder has met the revegetation obligations will be made by ODOE, in consultation with ODFW and ODA.

Temporarily disturbed areas will be deemed successfully revegetated when the habitat quality at a monitoring site is equal to or surpasses the habitat quality at the associated reference site, as follows:

- Native Forbs: Cover of native and desirable (i.e., species included in seed mixes and/or native species that have naturally colonized) forbs will be at least 75 percent of the reference site within 5 years. Richness of native and desirable forbs will be at least equal to the richness of native forbs measured on the reference site within 5 years.
- Native and Desirable Grasses: Cover and richness of native and desirable (i.e., species included in seed mixes and/or native species that have naturally colonized) grass species will be at least 85 percent of the reference site within 5 years.
- Noxious Weeds: Presence and cover of noxious weeds is 75 percent or less than that of the reference site.

4.8.3 REMEDIAL ACTION IN REVEGETATION AREAS

After each revegetation monitoring visit in either temporary or permanent disturbance areas, the Certificate Holder's qualified investigator will report to the Certificate Holder regarding the revegetation progress of each revegetation area. If applicable, the investigator will make recommendations to the Certificate Holder for reseeding, weed control, or other remedial measures for areas that are not showing progress toward achieving revegetation success. The investigator will provide a description of factors that may be contributing to the lack of revegetation success. The Certificate Holder will include the investigator's recommendations for remedial actions and the measures taken in the next monitoring report. ODOE may require reseeding or other remedial measures in cases where success criteria have not been met.

If a revegetation area is damaged by wildfire during the first 5 years following initial seeding, the Certificate Holder will amend this plan, subject to ODOE approval, to restore the damaged area. The Certificate Holder will continue to monitor and report on revegetation progress during the remainder of the 5-year period. The Certificate Holder will report to ODOE and ODFW the area impacted by the fire (with a map or figure) within 72 hours of discovery.

4.8.4 REPORTING

Monitoring reports will be prepared and submitted to ODOE once per season during the first year following construction. After the first year of monitoring is complete, the reporting cycle will be modified to align with the new monitoring cycle determined in consultation with ODOE.

Monitoring reports will include:

- A detailed description and timeline of site restoration methods that were implemented including species, amounts, and locations of the seed applications and dates restoration work was performed (first monitoring report only);
- GIS maps of revegetation areas and disturbance levels;
- Monitoring methods;
- Local climatic data (i.e., precipitation, temperature) for the monitoring month and year and percent deviation from the historical average;
- The results of the monitoring efforts;
- The investigator's assessment of whether the revegetated areas are trending toward meeting the success criteria;
- Assessments of factors impacting the ability of the revegetated area to trend towards meeting the success criteria; and
- Recommendations of remedial actions, if any.

4.9 RECLAMATION AND REVEGETATION PLAN AMENDMENT

This Plan may be amended from time to time by agreement of the Certificate Holder and ODOE. Such amendments may be made without amendment of the site certificate. EFSC authorizes ODOE to agree to amendments to this plan. ODOE shall notify EFSC of all amendments, and EFSC retains the authority to approve, reject, or modify any amendment of this plan agreed to by ODOE.

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ATTACHMENT 3 OPERATION VEGETATION AND SOIL MANAGEMENT PLAN

Draft Operations Vegetation and Soil Management Plan

PREPARED FOR
DECH bn, LLC

DATE
December 2025

REFERENCE
Oregon Energy Facility Siting Council

CONTENTS

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

Acronym	Description
Certificate Holder	DECH bn, LLC (a subsidiary of BrightNight U.S., LLC)
BESS	Battery storage system
BMPs	Best management practices
EFSC	Oregon Energy Facility Siting Council
ERM	Environmental Resources Management, Inc.
Facility	Solar photovoltaic power generation facility and related or supporting facilities in Wasco County, Oregon
NPDES	National Pollutant Discharge Elimination System
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ORS	Oregon Revised Statutes
Project	Deschutes Solar and Battery Energy Storage System Facility
WCWPD	Wasco County Weed and Pest Department

1. INTRODUCTION

DECH bn, LLC (a subsidiary of BrightNight U.S., LLC) (Certificate Holder) plans to construct a solar photovoltaic power generation facility and related or supporting facilities in Wasco County, Oregon (Facility). The Facility will consist of up to 1,000 MW of solar generation and include a battery storage system (BESS) capable of storing up to 4,000 MWh of energy.

Baseline site conditions, including vegetation, and required soil measurements to be taken prior to Facility construction are described in the Construction Vegetation and Soil Management Plan, which outlines the procedures and best management practices (BMPs) that will be followed before, during, and immediately after Facility construction to minimize adverse impacts to soil and vegetation. This Operations Vegetation and Soil Management Plan (Plan) supplements the Construction Vegetation and Soil Management Plan and applies to Facility operation. This Plan describes required Monitoring and Reporting (Section 2), requirements to prevent and control the spread of noxious weeds (Section 3), requirements that apply to Soil (Section 4) and seeding (Section 5), and procedures for vegetation management (Section 6).

2. MONITORING AND REPORTING

Within the spring of the first year of operation, the Facility will be surveyed for soil conditions and target weed species. Weed and soil surveys will then be conducted annually in the early spring with the results promptly submitted to Oregon Department of Energy (ODOE). Once there is sufficient vegetative cover, soil monitoring will cease but weed monitoring will continue annually. The survey reports will promptly be provided to ODOE and will include a schedule and methods for soil remediation and weed treatment, if required, for ODOE's approval. Target weeds must be treated before going to seed.

Annual monitoring will be conducted at measurement plots proximal to the baseline measurement locations (described in the Construction Vegetation and Soil Management Plan), and:

- Within the solar array fence line (includes roads, solar array, O&M area, and fence lines, etc.) approximately one plot per 400 acres (i.e., 25 sample plots for a 10,000 acre facility);
- Along the transmission line corridor, approximately one plot along the 0.5-mile corridor.

Additionally, during Facility operation, the Facility will have full-time operations and maintenance (O&M) staff who will monitor and treat target noxious weeds as a part of routine O&M activities. Recorded noxious weed infestations will be marked for immediate treatment or removal. Operations staff will document noxious weed infestations during normal operations, maintenance activities, and during regular vegetation monitoring efforts.

3. NOXIOUS WEEDS

This Plan prescribes methods to prevent and control the spread of target noxious weeds during Facility operation. The Certificate Holder and its contractors will be responsible for carrying out the methods described in this Plan. Noxious weed designations and baseline (i.e., pre-construction conditions) are described in the Construction Vegetation and Soil Management Plan.

3.1 PREVENTATIVE METHODS

During Facility operation, the Certificate Holder will use the following preventive measures to prevent the spread of weeds from outside of the site and from one area inside the site boundary to another:

- Machinery and other equipment (e.g., for mowing or panel washing) will be cleaned before use to remove seeds and prevent new noxious weed introductions. Cleaning will occur before equipment transfer on and off the site and before movement from one side of the site to another.
- Vehicle access will be limited to designated routes.
- Vehicle traffic will be limited in noxious weed-infested areas (if any).

Weed treatment measures, described in Section 3.2, will be implemented where noxious weed populations are present. The weed control measure chosen will be the best method available for the time, location, and species of weed.

3.2 TREATMENT METHODS

The Certificate Holder will implement the following noxious weed treatment measures in areas where target weed infestations are identified:

- Noxious weeds will be treated via biological, mechanical or chemical control designated in this Plan
- Existing or new populations of A listed noxious weeds will be documented in a noxious weed log and eliminated on an ongoing basis. The noxious weed log will describe the weed treatment methods and timing.
- If any ground disturbance activities are required for Facility maintenance, the disturbed area will be revegetated to limit the ability of noxious/invasive species to grow once the native community is established. The revegetation will follow a phased approach in which the initial seed mix may contain mostly rapidly establishing, non-invasive, non-native species, and subsequent seeding(s) will contain primarily native species.

If noxious weed treatment is required, treatment may include herbicides, mechanical treatment, or species-specific treatments, as described below. Recorded noxious weed infestations will be marked for immediate treatment or removal. Operations staff will document noxious weed infestations during normal operations, maintenance activities, and during regular vegetation monitoring efforts.

3.2.1 HERBICIDE TREATMENT

The Certificate Holder will select herbicides, if used, based on information gathered from the Wasco County West and Pest Department (WCWPD) and/or the Oregon Department of Agriculture (ODA).

Prior to herbicide application, the Certificate Holder's contractor will obtain any required permits or approvals from the WCWPD and/or the ODA. A licensed contractor will perform the chemical

application in accordance with all applicable laws and regulations, strictly adhering to herbicide label instructions and manufacturer's guidelines. For example, manufacturer's guidelines recommend that herbicides only be applied under appropriate weather conditions (e.g., periods of low wind speeds, when precipitation is not imminent, etc.), that application sprayers be mounted low to the ground, and that sprayer booms incorporate specialized nozzles designed to produce large droplet sizes with limited drift potential. Adherence to these specifications and manufacturer label directions would minimize the potential for drift or transport of herbicides to off-site areas.

Vehicle-mounted sprayers (e.g., handgun, boom, and injector) may be used primarily in open areas that are readily accessible by vehicle. Hand application methods (e.g., backpack spraying) that target individual plants will be used to treat small, scattered weed populations in rough terrain. Calibration checks of equipment will be conducted at the beginning of spraying and periodically thereafter to ensure proper application rates are achieved.

Herbicides will be transported daily to the site with the following provisions:

- Herbicides will be premixed and delivered in returnable/refillable containers and transferred by closed system to application tanks to limit worker and environmental exposure and eliminate the need for disposal of herbicide containers in area landfills.
- Herbicides will be transported in a manner that will prevent tipping or spilling.
- Mixing of surfactants or other additives with water or other carriers and refilling of containers will typically be conducted at road crossings, and no mixing or filling will occur within 100 feet of open or flowing water, wetlands, or other sensitive resources; within 200 feet of private wells; or within 400 feet of public wells.
- Mixing and application procedures will be supervised by a licensed commercial applicator and monitoring will be conducted to ensure that proper mixing, application, cleanup, personal protection, and safety procedures are followed.
- All herbicide equipment and containers will be inspected daily for leaks.

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 exists:

- Wind velocity exceeds 20 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.

The Certificate Holder will develop a Facility Operations Spill Prevention, Control, and Countermeasure (SPCC) Plan that incorporates reasonable precautions to be taken to avoid spills of potentially hazardous materials. In the event of a spill, cleanup will be immediate. Herbicide contractors will be responsible for keeping spill kits in their vehicles and in herbicide storage areas

to allow for quick and effective response to spills. Herbicide spills will be managed according to the Facility Operations SPCC Plan.

Response to an herbicide spill will vary depending on the material spilled and the size/location of the spill. The order of priorities after discovering a spill are first to protect the safety of personnel and the public, second to minimize damage to the environment, and last to conduct cleanup and remediation activities.

Herbicide contractors will obtain and have readily available copies of the appropriate Safety Data Sheets and the product labels for the herbicides used. Herbicide spills will be reported in accordance with applicable laws and requirements. Further information regarding spill response and reporting will be provided in Certificate Holder's SPCC Plan.

The Certificate Holder will provide special consideration to aquatic resources 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.

3.2.2 MECHANICAL TREATMENT

Mechanical control methods are based on physical removal of plant material rather than treatment with a chemical. Mechanical methods can include activities such as mowing, disking, hand cutting, pulling, and digging. Mechanical methods are often utilized for small populations of weeds or in sensitive areas in which non-target effects of herbicide are of concern. For weed populations within sensitive areas, selective mechanical treatment can help control populations of noxious weeds with minimal impacts to native species. Some rhizomatous plants can be spread using mechanical methods; therefore, implementation will be species specific.

3.2.3 SPECIES-SPECIFIC TREATMENTS

The following weed management and treatment standards (timing, method, and application rates for each identified weed species of concern) have been established between WCWD, Certificate Holder, and ODOE.

TABLE 1 SPECIES-SPECIFIC TREATMENTS

Noxious Weed Species	Method and Timing of Control	Application Rate
Aegilops cylindrica (jointed goatgrass)	**Glyphosate** – Apply to actively growing plants emerged before bolt stage (i.e., stage of growth where growth is focused on seed development versus leaf development).	0.38 to 0.75 lb acid equivalent/ac
	Sulfometuron – Apply in fall or in late winter before jointed goatgrass is 3 inches tall.	1.33 to 2 oz/ac

Noxious Weed Species	Method and Timing of Control	Application Rate
Centaurea diffusa (diffuse knapweed)	**Picloram (Tordon 22k)** – Optimum time for application is from rosette to mid-bolting stage or when applied to fall regrowth. Under favorable growing conditions, application in summer can be effective if higher application volumes are used.	1 to 2 pt/ac
	Aminopyralid (Milestone) – apply when plants are actively growing, with the optimum time of application occurring from rosette to the bolting stages of development or in the fall.	5 to 7 fl oz/ac
Cirsium arvense (Canada thistle)	**Aminopyralid (Milestone)** – apply in spring to plants in the pre-bud stage or in the fall	5 to 7 fl oz/ac
	2,4-D + Fluroxypyr + Dicamba (E-2) – Apply to young, actively growing plants.	2 to 5 pt/ac (broadcast) 2.25 oz/gal (spot)
Cirsium vulgare (bull thistle)	**Aminopyralid (Milestone)** – apply in spring to plants in the pre-bud stage or in the fall	3 to 5 fl oz/ac
	2,4-D – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
Chondrilla juncea (rush skeletonweed)	**2,4-D** – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
	Aminopyralid (Milestone) – Spring or fall when rosettes are present.	5 to 7 fl oz oz/ac
	Clopyralid – Apply to rosettes in fall or up to early bolting in spring.	0.66 to 1 pt/ac
Convolvulus arvensis (field bindweed)	**2,4-D** – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
	Picloram (Tordon 22k) – apply during active growth. Annual retreatment will be required at rates at low end of rate range	2 to 4 pt/ac
Cynoglossum officinale (houndstongue)	**Picloram (Tordon 22k)** – apply during active growth.	2 to 4 pt/ac

Noxious Weed Species	Method and Timing of Control	Application Rate
	Annual retreatment will be required at rates at low end of rate range	
	Aminopyralid + Metsulfuron (Chaparral) – apply in either rosette or bolt stage. Application rates will vary based on life stage	2.5 oz/ac (rosette) 3.0 to 3.3 oz/ac (bolt)
	2,4-D – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
Hypericum perforatum (St. John's wort)	**2,4-D** – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
	Aminopyralid (Milestone) – Apply when plants are rapidly growing prior to bloom.	5 to 7 fl oz oz/ac
	Picloram (Tordon 22k) – apply during active growth. Annual retreatment will be required at rates at low end of rate range	2 to 4 pt/ac
Lepidium draba (whitetop)	**2,4-D** – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
	Aminopyralid (Milestone) – Apply in spring or early summer to rosettes or bolting plants or in fall to seedlings and rosettes.	3 to 5 fl oz/ac
Onopordum acanthium (Scotch thistle)	**2,4-D** – Apply to rosettes in the spring immediately before or during bolting.	2 to 4 pt/ac
	Aminopyralid (Milestone) – Apply in spring or early summer to rosettes or bolting plants or in fall to seedlings and rosettes.	5 to 7 fl oz/ac
	2,4-D + Fluroxypyr + Dicamba (E-2) – Apply to young, actively growing plants.	2 to 5 pt/ac (broadcast) 2.25 oz/gal (spot)
Potentilla recta (sulphur cinquefoil)	**Picloram (Tordon 22k)** – Apply during active growth or fall regrowth	1 pt/ac
	Aminopyralid (Milestone) – Apply to plants in pre-bud stage.	4 to 6 fl oz/ac

Noxious Weed Species	Method and Timing of Control	Application Rate
Rosa canina (dog rose)	**Triclopyr ester (Garlon 4 Ultra)** – Apply when plants are actively growing	1 to 8 qt/ac
	Glyphosate – Apply when plants are actively growing	2 to 5 qt/ac
Rubus armeniacus (Himalayan blackberry)	**Triclopyr ester (Garlon 4 Ultra)** – Apply when plants are actively growing	1 to 8 qt/ac
	Glyphosate – Apply when plants are actively growing	2 to 5 qt/ac
Salsola tragus (Russian thistle)	**Aminopyralid (Milestone)** – Apply when plants are actively growing	7 fl oz/ac
	Triclopyr ester (Garlon 4 Ultra) – Apply when plants are actively growing	1 to 8 qt/ac
	2,4-D – Apply when plants are actively growing	2 to 4 pt/ac
Taeniatherum caput-medusae (medusahead)	**Mowing** – Mechanical, non-herbicide treatment method. Mowing in the late spring, when flowering has begun but prior to seed development, can provide effective control	N/A
Ventenata dubia (Ventenata)	**Mowing** – Mechanical, non-herbicide treatment method. Mowing in the late spring, when flowering has begun but prior to seed development, can provide effective control	N/A
Verbascum thapsus (common mullein)	**Aminopyralid (Milestone) + 2,4-D** – Apply at rosette stage with surfactant	1 to 1.5 pt Tordon 22K + 1 lb a.e. 2,4-D per acre
	2,4-D + Fluroxypyr + Dicamba (E-2) – Apply to young, actively growing plants.	2 to 5 pt/ac (broadcast) 2.25 oz/gal (spot)

lb = pound, pt = pint, oz = ounce, ac = acre, gal = gallon, fl = fluid, qt = quart, N/A = not applicable, K = thousand

3.3 WEED DEPARTMENT SUPERVISOR REVIEW

Merle Keys, Weed Department Supervisor, provided input during the development of this Plan. Mr. Keys was provided with a copy of this Plan for review in August 2025. This Plan has been updated based on comments from Mr. Keys.

Merle Keys, Weed Department Supervisor

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4. SOIL

As described in Section 2, soil will be monitored annually during Facility operation until there is vegetative cover. Soil monitoring will likely be via a soil penetrometer or other appropriate method. Resistance is measured at 3-inch intervals until the meter goes above 300 psi, which is a level of soil compaction most roots cannot penetrate. For this test compaction would be measured at 3, 6, 9, and 12 inches if the soils allow.

If soil is compacted more than 10 percent above the surrounding undisturbed soils or baseline conditions, mitigation measures such as further decompaction of the impacted soils, additional nutrients or minerals to adjust pH, or the addition of composted organic matter will be taken. Soils may need to be loosened by mechanical scarification (tilling or ripping the soil) to an appropriate depth to reduce the potential effects of compaction. Remediation methods may be selected from this Plan, proposed by the certificate holder or ODOE and the Facility NPDES 1200-C permit, and applicable site certificate conditions.

If warranted, the Certificate Holder may also complete other types of soil testing, as listed below.

- Soil physical observations and estimations: these tests involve describing the physical characteristics of the soil, including describing the soil profile and determining aggregate size. Soil pits up to 36 inches will be dug in the sampling area. Soils will then be described by their topsoil depths, Munsell Color, and aggregate size. Topsoil depth is important for water storage and nutrient supply for plant growth. Generally, removal of the topsoil will result in loss of soil fertility, water-holding capacity, soil organic carbon content, and productivity. Soil structure is the arrangement and organization of particles in the soil. Soil structure affects the retention and transmission of water and air in the soil as well as the mechanical properties of the soil. This test only needs to be done once, prior to construction, because these characteristics will not change unless there are additional disturbances to the soil.
- Infiltration rate test: this test measures the rate at which water enters the soil, which depends on the soil type; soil structure, or amount of aggregation; and the soil water content (Lowery et al. 1996). This test will show the effects of compaction from construction; compacted soils will have less pore space, resulting in lower infiltration rates. Lower infiltration rates will result in more runoff (creating erosion issues) and less available water for plants.
- Nutrient test: this test will measure organic matter content and pH to determine the plant available nutrients in the soil which is an indicator for plant productivity. The organic matter content measurement gives the amount of stored nutrients, including organic carbon, in the soils that can be made available to plants based on the health of the soil microorganisms. Soil

pH is a measure of the acidity or alkalinity of a soil, which affects the availability of plant nutrients, activity of microorganisms, and the solubility of soil minerals.

Soil reclamation will be determined by the success of vegetative over the site, which includes weed management, as designated in this Plan. Once there is sufficient vegetative cover, soil monitoring does not need to occur annually. Any ongoing erosion issues during operation will be managed according to the NPDES 1200-C permit. If the NPDES 1200-C permit is no longer applicable to Facility operation, the Department or certificate holder may apply soil protection and erosion control measures designated in the permit to address any erosion issues.

5. SEEDING

If additional seeding is required during Facility operation (e.g., because of ground disturbance for maintenance), then seeding will follow the procedures and seed mix outlined in this Plan. All seeds will be obtained from a reputable supplier in compliance with the Oregon Seed Law (OAR 603-056). The final seed mix for areas within the solar array fence line area will include lower growing grasses and pollinator-friendly forbs compatible with desired vegetation conditions under the solar arrays (i.e., species whose mature height would not interfere with or shade the solar array). The proposed seed mix, which has been reviewed with landowners, is provided in Table 2.

TABLE 2 PROPOSED REVEGETATION SEED MIX

Plant Type	Nativity [a]	Common Name	Scientific Name	Percent of Mix
Grasses	N	Bluebunch wheatgrass	*Pseudoroegneria spicata*	15
	N	Idaho fescue	*Festuca idahoensis*	5
	N	Sandberg's bluegrass	*Poa secunda*	10
	N	Bottlebrush squirreltail	*Elymus elymoides*	5
	N	Prairie Junegrass	*Koeleria macrantha*	5
	I	Siberian wheatgrass	*Agropyron fragile*	10
	I	Crested wheatgrass	*Agropyron cristatum*	40 [b]
	I	Intermediate wheatgrass	*Thinopyrum intermedium*	
	N	Thickspike wheatgrass	*Elymus lanceolatus*	
	N	Slender wheatgrass	*Elymus trachycaulus*	
	I	Sheep Fescue	*Festuca ovina*	10
Forbs [c]	N	Oregon sunshine	*Eriophyllum lanatum*	<1
	N	Large-flowered collomia	*Collomia grandiflora*	<1
	N	Yarrow	*Achillea millefolium*	<1
	N	Deltoid balsamroot	*Balsamorhiza deltoidei*	<1 [b]
	N	Arrow-leaf balsamroot	*Balsamorhiza sagittata*	

[a] N = native to central Oregon; I = introduced forage species popular for conservation seeding
[b] Combine species from this set as necessary based on supply to meet specified percentage of total mix
[c] Forb seed supply is unlikely to be large enough to contribute significantly to the seed mix. Forb seed should be sourced and added to the seed mix to the extent possible.
Note: If designated quantities of specified native seeds cannot be sourced, the quantity deficit can be filled with other introduced forage species from this list.

Reseeding, site stabilization, and weed control include:

- Seeded areas will be temporarily stabilized to facilitate establishment. This can be accomplished by application of seedless, certified weed-free hydromulch containing a tackifier. Alternate methods such may be proposed by the revegetation contractor but will require prior written approval by ODOE and must provide demonstrated success in sites with similar wind and soil conditions.
- The seed and straw mulch used will be inspected and certified free of noxious weeds and seeds.
- The contractor(s) and/or Environmental Inspector will implement mulching and other appropriate practices, as required by the NPDES 1200-C permit, to control erosion and sediment during revegetation work.

Supplemental seeding of desirable species may be needed in some areas, if warranted. Fertilizer application will be limited in areas treated for noxious weeds, as fertilizer can stimulate the growth of noxious weeds, and the timing of revegetation activities will need to be coordinated with noxious weed treatments.

The seeding methods and timing of planting will be appropriate to the seed mixes, weather conditions (e.g., precipitation, wind speed, temperature, etc.), and site conditions (including area size, slope, and erosion potential) based upon consultation with ODOE, ODA, ODFW, WCWD, and the seed supplier. Seeding between late-fall and late-winter/early-spring is typically recommended; however, the Certificate Holder will consult with ODOE, ODA, and/or the seed supplier to determine the optimal timing for seed application based on climatic conditions of the particular year when construction and revegetation efforts are implemented.

The three common seed application methods that may be used for revegetation are broadcast seeding, drill seeding, and hydroseeding; each of these are discussed further below. Other seeding methods may be proposed for review and approval prior to revegetation efforts.

5.1 BROADCAST SEEDING

Broadcast seeding is the application of seed directly to the ground surface. This method may be chosen for areas with shallow and rocky soils, and the type of broadcast spreader would depend on the size of the area to be seeded and the terrain.

In this method, the seed mix would be broadcast using at least the application rates specified by the seed supplier for broadcast seeding. When feasible, due to the seasonality of when planting can occur, the entire area will be seeded after grading is complete but before placement of Facility components, providing more flexibility in seed application. In those instances where seeding occurs prior to installation of components, follow-up seeding will occur in areas temporarily

disturbed by installation and any areas that are deficient in vegetation from the first round of seeding. Immediately following seed application, hydromulch or certified weed-free straw would be applied. Broadcast seeding will not be employed if winds exceed 5 miles per hour. If certified weed-free straw is unavailable, the Certificate Holder or a designated construction contractor will identify a local source of straw. The local source of the straw will be approved by the county weed master and ODFW prior to purchase. This straw will either be crimped into the ground or applied with a tackifier.

5.2 DRILL SEEDING

Drill seeding can be used for larger areas with deeper soils and moderate to gentle terrain to accommodate mechanical equipment. This method provides the advantage of planting the seed at a uniform depth and may provide better soil to seed contact. Using a range seed drill, seeds will be sown according to the application rates recommended by the seed supplier. Drill seeding will be difficult after Facility components have been installed so it will primarily be used if seeding occurs after grading is complete but before components are installed or in areas that were temporarily disturbed during construction that do not have any permanent infrastructure (e.g., temporary access roads, laydown areas).

5.3 HYDROSEEDING

Hydroseeding is most applicable for areas drill or broadcast seeding machinery cannot access, this usually includes steeper sloped or narrow terrain, but can be used in all terrains. Soil bed preparation is also crucial for growth success and frequently includes tracking perpendicular to the slope to create micro conditions for seed. Flat grading and compaction are not recommended. Seeding rates increase by 30 to 50 percent of broadcast seeding rates or single applications per consultation with the seed supplier and ODFW. Prior to hydroseeding the tackifier and fertilizer, if included, will be reviewed and approved in consultation with ODOE.

6. VEGETATION MANAGEMENT

During Facility operation, all vegetation will be managed consistent with the applicable Wildfire Mitigation Plan, which includes but is not limited to the procedures listed below.

The following areas will be managed to be vegetation-free, noncombustible space, or gravel surface:

- Access roads will be graveled.
- 10-foot fire fuel break in accordance with County Fire Safety Standards along the fenced perimeter of the Facility will be maintained.
- Within a 10-foot perimeter of the inverter/transformer pads, collector substation and battery energy storage system will be graveled, similar noncombustible base, or vegetation free.
- Parking and O&M building perimeter will be graveled.

Vegetated areas will be maintained as follows:

- Vegetation along service roads will be managed by mowing or other vegetation removal.

- Vegetation within the fence line and below the solar arrays will be maintained by limiting vegetation to a height of 10 to 12 inches, with a minimum clearance of 12 inches from electrical equipment. Vegetation near, at, or taller than the maximum height will be removed or mowed.
- Mowing will be done in advance of fire season or in accordance with any fire restrictions.
- At no point will vegetation contact electrical equipment.
- Vegetation buildup in the fence line(s), will be removed.
- Any vegetation removed from the site will be disposed of and not stored on site. Certificate holder and contractors will prevent the accumulation of combustible "burn piles" on site.

7. PLAN UPDATES AND AMENDMENTS

As described in Section 2 of this Plan, there will be required monitoring within the spring of the first year of operation and annually thereafter. The survey reports will promptly be provided to ODOE and will include a schedule and methods for soil remediation and weed treatments at the site for ODOE to approve. Weeds must be treated before going to seed. Certificate holder will provide verification to ODOE that target weeds at the site have been treated.

The annual report required per OAR 345-026-0080 may cite the reports and correspondence submitted to ODOE regarding the monitoring, weed treatments, soil remediation, and any ODOE approvals. The annual report does not need to re-submit the survey data or this Plan to demonstrate compliance. Compliance will be demonstrated by ongoing and timely surveys and treatment for weeds.

Information from the survey and treatment reports may be used by the certificate holder or ODOE to establish the performance of this Plan. If determined by certificate holder or ODOE, adjustments or improvements must be proposed to ensure this Plan sufficiently addresses soil remediation, weed management and vegetation at the site. Any ODOE required updates shall be implemented within 14 days, unless otherwise agreed to by the Department based on a good faith effort to address wildfire hazard.

This Plan may be amended from time to time by agreement of the certificate holder and the Oregon Energy Facility Siting Council (EFSC) or ODOE, acting within its delegated authority of EFSC. Such amendments may be made without amendment of the site certificate. EFSC authorizes ODOE to agree to amendments to this Plan. ODOE will notify EFSC of all amendments, and EFSC retains the authority to approve, reject, or modify any amendment of this Plan agreed to by ODOE.

8. REFERENCES

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