Exhibit J

Wetlands and Other Jurisdictional Waters

Sunstone Solar Project
May 2024

Prepared for

Sunstone Solar, LLC

Prepared by

Tetra Tech, Inc.

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Acronyms and Abbreviations

Applicant	Sunstone Solar, LLC, a subsidiary of Pine Gate Renewables, LLC
Facility	Sunstone Solar Project
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OAR	Oregon Administration Rule
ODSL	Oregon Department of State Lands
ORS	Oregon Revised Statutes
USACE	United States Army Corps of Engineers

1.0 Introduction

Sunstone Solar, LLC, a subsidiary of Pine Gate Renewables, LLC (Applicant), proposes to construct and operate the Sunstone Solar Project (Facility), a photovoltaic solar energy generation facility and related or supporting facilities in Morrow County, Oregon. This Exhibit J was prepared to meet the submittal requirements in Oregon Administrative Rule (OAR) 345-021-0010(1)(j).

2.0 Analysis Area

The analysis area for wetland and other jurisdictional waters is the area within the proposed site boundary (Figure J-1). The proposed site boundary is defined in detail in Exhibits B and C, which include the information required by OAR 345-021-0010(1)(b) and (c).

3.0 Wetlands and Other Jurisdictional Waters

OAR 345-021-0010(1)(j) Information based on literature and field study, as appropriate, about waters of this state, as defined under ORS 196.800, including:

(A) A description of all areas within the site boundary that might be waters of this state and a map showing the location of these features.

There were no potentially jurisdictional wetlands or other Waters of the State determined to be present within the site boundary. The attached wetland delineation report (Attachment J-1) details the field surveys and results.

3.1 Definitions

Oregon Revised Statutes (ORS) 196.800(15) defines Waters of the State as:

> *…all natural waterways, tidal and non-tidal bays, intermittent streams, constantly flowing streams, lakes, wetlands, that portion of the Pacific Ocean that is in the boundaries of this state, all other navigable and non-navigable bodies of water in this state and those portions of the ocean shore, as defined in ORS 390.605, where removal or fill activities are regulated under a state-assumed permit program as provided in 33 United States Code 1344(g) of the Federal Water Pollution Control Act, as amended.*

In OAR 141-085-0510(110), the Oregon Department of State Lands (ODSL) defines wetlands as "[t]hose areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

3.2 Jurisdictional Versus Non-Jurisdictional Waters

Not all wetlands and streams are within the jurisdiction of state regulation per ORS 198.600. For the Facility, several jurisdictional distinctions are important to estimate impacts only to jurisdictional wetlands and other waters. These include determinations related to the following:

- Ephemeral streams, which generally are not under state jurisdiction, as distinct from perennial and intermittent streams (ODSL 2019); and
- Artificially created roadside and farm ditches, which are considered Waters of the State only if they contain food or game fish and are connected to Waters of the State (OAR 141-085-0515(8)).

Ephemeral streams are defined in the Oregon Streamflow Duration Assessment Method (Nadeau 2015) as streams that flow:

> *…only in direct response to precipitation. Water typically flows only during and shortly after large precipitation events. An ephemeral stream may or may not have a well-defined channel, the stream bed is always above the water table, and stormwater runoff is the primary source of water. An ephemeral stream typically lacks biological, hydrological, and physical characteristics commonly associated with the continuous or intermittent conveyance of water.*

In contrast, intermittent streams are defined by Oregon as "any stream which flows during a portion of every year and which provides spawning, rearing or food-producing areas for food and game fish" (OAR 141-085-0510(49)). Food-producing streams are typically one stream order above a fish-bearing stream.

This exhibit presents the Applicant's best professional judgment as to which wetland and other water features are jurisdictional under ODSL regulation. While Exhibit J uses the term "jurisdictional waters," the Applicant recognizes that final determination of agency jurisdiction will be made by ODSL, based on the information presented by the Applicant.

3.3 Delineation of Wetlands and Other Water Features

3.3.1 Methods

The Applicant conducted a desktop study of potentially jurisdictional wetlands and other waters to assist in planning for field delineations conducted in March 2022. Site-specific literature and Geographic Information System map layers reviewed as part of the desktop study included:

- National Wetland Inventory (NWI) maps (USFWS 2022);
- Hydric Soils List for Morrow County, Oregon (NRCS 2022a);
- The Natural Resources Conservation Service (NRCS) Soil Surveys of Morrow County in Oregon (NRCS 2022b);
- United States Geological Survey National Hydrography Dataset (NHD) (USGS 2022), which provided the location of potential streams; and

- Google Earth (2022), Morrow County, Oregon.

Field investigations for the delineation of wetlands and other waters were conducted in 2022 and included pedestrian surveys within the site boundary. Delineations were conducted utilizing techniques published in the 1987 United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008), and OARs for wetland delineations (141-090-0005 through 141-090-0055; ODSL 2001).

During the delineation effort, each other water encountered was examined for wetland characteristics consistent with Waters of the State definitions (see Section 3.2), and this evidence was documented using standard field data sheets. The location and extent of each other water (regardless of its characteristics) was mapped with Global Positioning System technology. Upland plots were also established at some survey locations with mapped NWI features to confirm that the site did not meet wetland criteria. Streams were characterized as ephemeral using the Oregon Streamflow Duration Assessment Method (Nadeau 2015).

Detailed descriptions of delineation methods for wetlands and other waters are provided in the Wetland Delineation Report (Attachment J-1). The report will be submitted to ODSL for written concurrence.

3.3.2 Results

Based on the results of site investigations conducted, no wetlands and 19 ephemeral streams were delineated within the site boundary. Appendix A in Attachment J-1 provides additional detail about each of the ephemeral streams. Ephemeral streams that were delineated in the analysis area are presumed not to be state jurisdictional.

Wetland presence was determined as per methods in the USACE Wetland Delineation Manual (Environmental Laboratory 1987) and the Arid West Supplement (USACE 2008). No wetland indicators were found at any of the low elevation sites on the landscape or within the ephemeral streambeds.

4.0 Effects on Wetlands and Other Jurisdictional Waters of the State

OAR 345-021-0010(1)(j)(B) An analysis of whether construction or operation of the proposed facility would adversely affect any waters of this state.

OAR 345-021-0010(1)(j)(C) A description of the significance of potential adverse impacts to each feature identified in (A), including the nature and amount of material the applicant would remove from or place in the waters analyzed in (B).

There are no Waters of the State within the site boundary; therefore, the Facility will not adversely affect Waters of the State. Drainages exist within the site boundary that are ephemeral and measures will be taken during construction to minimize impacts to these streams as well as to avoid impacts to any downstream Waters of the State, including the installation of appropriate Best Management Practices and revegetation after the Facility is constructed. These ephemeral streams are documented in the attached Wetland Delineation Report (Attachment J-1). As noted above, the Wetland Delineation Report will be submitted to ODSL for concurrence.

5.0 Information Supporting Lack of Requirement for Removal-Fill Permit

OAR 345-021-0010(1)(j)(D) If the proposed facility would not need a removal-fill authorization, an explanation of why no such authorization is required for the construction and operation of the proposed facility.

Based on the results of the March 2022 wetland delineation (Attachment J-1), the Facility will have no adverse impacts to wetlands or other jurisdictional Waters of the State because none are present within the site boundary. Therefore, the removal-fill authorization is not required.

6.0 Mitigation and Monitoring Program

OAR 345-021-0010(1)(j)(F) A description of proposed actions to mitigate adverse impacts to the features identified in (A) and the applicant's proposed monitoring program, if any, for such impacts.

The Facility will have no adverse impacts to wetlands or other jurisdictional Waters of the State. Therefore, no monitoring or mitigation is proposed.

7.0 Submittal Requirements

7.1 Submittal Requirements

Table J-1. Submittal Requirements Matrix

Requirement	Location
OAR 345-021-0010(1)(j) Information based on literature and field study, as appropriate, about waters of this state, as defined under ORS 196.800 including:	–
(A) A description of all areas within the site boundary that might be waters of this state and a map showing the location of these features.	Section 3.0, Figure J-1, and Attachment J-1
(B) An analysis of whether construction or operation of the proposed facility would adversely affect any waters of this state.	Section 4.0

Requirement	Location
(C) A description of the significance of potential adverse impacts to each feature identified in (A), including the nature and amount of material the applicant would remove from or place in the waters analyzed in (B).	Section 4.0
(D) If the proposed facility would not need a removal-fill authorization, an explanation of why no such authorization is required for the construction and operation of the proposed facility.	Section 5.0
(E) If the proposed facility would need a removal-fill authorization, information to support a determination by the Council that the Oregon Department of State Lands should issue a removal-fill permit, including information in the form required by the Department of State Lands under OAR chapter 141 Division 85.	N/A
(F) A description of proposed actions to mitigate adverse impacts to the features identified in (A) and the applicant's proposed monitoring program, if any, for such impacts.	Section 6.0

7.2 Approval Standard

OAR 345 Division 22 does not provide an approval standard specific to Exhibit J.

8.0 References

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual.* Wetlands Research Program Technical Report Y-87-1. U.S. Army Corps of Engineers, Waterways Experiment Station. January.

Google Earth Pro. 2022. Historical Aerial Imagery of the Study Area from 2015, 2013, 2012, 2011, 2006, 2005, 2003, 2001, and 1994.

Nadeau, Tracie-Lynn. 2015. Streamflow Duration Assessment Method for the Pacific Northwest. EPA 910-K-14-001, U.S. Environmental Protection Agency, Region 10, Seattle, WA.

NRCS (Natural Resources Conservation Service). 2022a. Hydric Soils National List; All States, March 2022. Available at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric. Accessed: March 2022.

NRCS. 2022b. Web Soil Survey. http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed March 2022.

ODSL (Oregon Department of State Lands). 2001. Administrative Rules for Wetland Delineation Report Requirements and for Jurisdictional Determinations for the Purpose of Regulating Fill and Removal within Waters of the State. Adopted July 1, 2001 and amended January 2013. https://secure.sos.state.or.us/oard/view.action?ruleNumber=141-090-0035.

ODSL (Oregon Department of State Lands). 2023. Removal-Fill Guide: Applying for permits to work in wetlands, rivers, streams, lakes, and other Oregon waters. 2023 edition. Available at

http://www.oregon.gov/dsl/WW/Documents/Removal_Fill_Guide.pdf. Accessed February 2023.

USACE. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2). ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USFWS (U.S. Fish and Wildlife Service). 2022. National Wetlands Inventory. Wetlands Data by State, Oregon. Available at: https://www.fws.gov/wetlands/Data/State-Downloads.html (Downloaded March 2022).

USGS (U.S. Geological Survey). 2022. The National Hydrography Dataset (NHD); NHD Viewer. Available online at: https://viewer.nationalmap.gov/basic/?basemap=b1&category=nhd&title=NHD%20View. Accessed March 2022.

Figures

Sunstone Solar Project

Figure J-1 Overview, NWI, and NHD Map

MORROW COUNTY, OR

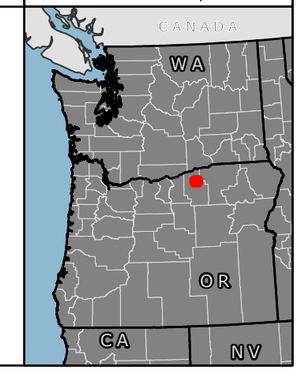
- Study Area/Site Boundary
- State Highway
- Local Roads
- Existing UEC Transmission Line

Wetlands and Waters

- Freshwater Emergent Wetland (NWI)
- Riverine (NWI)
- Lake/Pond (NHD)
- Intermittent Stream (NHD)
- Perennial Stream (NHD)

TETRA TECH

PINEGATE RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables Project Infrastructure; Tiger-Roads; ESRI-Aerial; USGS-NHD; USFWS-NWI	

1:40,000

WGS 1984 UTM Zone 11N

0 0.5 1 2 Miles

NOT FOR CONSTRUCTION

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Attachment J-1. Wetland Delineation Report

Wetland Delineation Report

Echo Solar Project

September 2022

Prepared for

PGR PINE GATE RENEWABLES | GETTING SOLAR DONE.

Prepared by

TETRA TECH

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Acronyms and Abbreviations

FAC	Facultative [indicator code]
FACU	Facultative Upland [indicator code]
FACW	Facultative wetland [indicator code]
GPS	Global Positioning System
kV	kilovolt
LRR	Land Resource Region
Manual	Wetlands Delineation Manual, Technical Report Y-87-1
NHD	National Hydrography Dataset
NI	No Indicator [indicator code]
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OAR	Oregon Administrative Rule
OBL	Obligate [indicator code]
Project	Echo Solar Project
Tetra Tech	Tetra Tech, Inc.
UPL	Upland [indicator code]
WETS	Wetlands

1.0 INTRODUCTION

Pine Gate Renewables, a wholly owned subsidiary of Pine Gate Renewables, LLC, contracted Tetra Tech, Inc. (Tetra Tech) to provide environmental and permitting support services for the Echo Solar Project (Project), a proposed solar photovoltaic power generation facility in Morrow County, Oregon (Figure 1) with an optional battery energy storage system. The Project will interconnect with the existing Blue Ridge 230-kilovolt (kV) transmission line that runs along Bombing Range Road and passes through the west portion of the Project Area. Tetra Tech performed a wetland delineation within the 10,992-acre Study Area on March 21 and 22, 2022.

2.0 LANDSCAPE SETTING AND LAND USE

2.1 Study Area

The wetland and waters Study Area is the Project Site Boundary, which represents the perimeter of the site of the proposed Project, its related and supporting facilities, temporary laydown and staging areas, and interior access roads. Table 1 shows the tax map and tax lot numbers that the Project passes through, which are shown on Figure 4.

Table 1. Tax Maps - Tax Lots

Tax Map	Tax Lot Numbers
01N26E	1300
01N26E	1700
01N26E	1900
01N26E	200
01N26E	2400
01N26E	2500
01N26E	300
01N26E	301
01N26E	302
01N26E	400
01N26E	402
01N26E	403
01N26E	404
01N26E	405
01N26E	500
01N26E	600
01N26E	700
01N26E	ROADS
02N26E	1101
02N26E	1200
02N26E	1201
02N26E	1500

Tax Map	Tax Lot Numbers
02N26E	1600
02N26E	1700
02N26E	1900
02N26E	2301
02N26E	2400
02N26E	2500
02N26E	2600
02N26E	ROADS

2.2 Landscape Setting

The Project is located within the Level III Columbia Plateau Ecoregion and within the Level IV Pleistocene Lake Basins and Umatilla Plateau Ecoregions (Thorson et al. 2003). In addition, the Project is within U.S. Department of Agriculture Land Resource Region (LRR) B, Northwest Wheat and Range Region (Natural Resources Conservation Service [NRCS] 2006). LRR B, Northwest Wheat and Range Region is equivalent to LRR B Columbia/Snake River Plateau Region in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* Version 2.0 (USACE 2008). The habitats within the Study Area are composed of cultivated crops, mixed shrub/scrub, and herbaceous grassland. Elevations within the Study Area range approximately from 970 feet in the northwest corner of the Study Area, to 1,350 feet in the southernmost portion of the area.

Plant species names and associated wetland indicator status ratings are from the State of Oregon 2020 Wetland Plant List (USACE 2020). The following wetland indicator ratings are ordered according to the percent likelihood of the plant occurring in wetlands; from most likely to least likely: Obligate (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Species with an indicator of NI (No Indicator) refer to plants that are not listed in the wetland plant list and are thereby considered to be Upland plants. Table 2 lists species that were dominant throughout areas of the Project and were documented in ephemeral waterways.

Table 2. Dominant Plant Species Present in the Project Waterways

Common Name	Scientific Name	Wetland Indicator Status
big sagebrush	*Artemisia tridentata*	NI (Upland)
green rabbitbrush	*Chrysothamnus viscidiflorus*	NI (Upland)
rubber rabbitbrush	*Ericameria nauseosa*	NI (Upland)
cheat grass	*Bromus tectorum*	NI (Upland)
intermediate wheatgrass	*Thinopyrum intermedium*	NI (Upland)
common stork's-bill	*Erodium cicutarium*	NI (Upland)
Russian thistle	*Salsola tragus*	FACU
common yarrow	*Achillea millefolium*	FACU
tall tumblemustard	*Sisymbrium altissimum*	FACU

2.3 NWI, NRCS Soils, and NHD Mapped Features

Prior to field work, Tetra Tech reviewed the National Wetlands Inventory (NWI), the National Hydrography Dataset (NHD), hydric soils data, and aerial photographs to identify potential wetlands and other waters, as described below.

Digital maps used in the field contained the NWI, NHD, and recent aerial photograph overlays. Figure 3 exhibits NWI-mapped features in the Study Area (NRCS 2022a; USFSWS 2022). Thirteen soil map units are mapped within the Study Area (Table 3). No soil map units are listed as hydric soil (NRCS 2021a, 2021b). Figure 4 shows the mapped soil units within the Study Area. Figure 5 shows recent aerial photographs of the Study Area.

Table 3. Soils Mapped in the Study Area

Map Unit Symbol	Map Unit Name	Hydric Rating
13D	Gravden very gravelly loam, 5 to 20 percent slopes	No
13E	Gravden very gravelly loam, 20 to 40 percent slopes	No
28E	Lickskillet very stony loam, 7 to 40 percent slopes	No
45A	Ritzville silt loam, 0 to 2 percent slopes	No
45B	Ritzville silt loam, 2 to 7 percent slopes	No
70B	Warden very fine sandy loam, 2 to 5 percent slopes	No
71A	Warden silt loam, 0 to 2 percent slopes	No
71B	Warden silt loam, 2 to 5 percent slopes	No
71C	Warden silt loam, 5 to 12 percent slopes	No
71E	Warden silt loam, 20 to 40 percent slopes	No
75B	Willis silt loam, 2 to 5 percent slopes	No
75C	Willis silt loam, 5 to 12 percent slopes	No
78	Xeric Torriorthents, nearly level	No

3.0 SITE ALTERATIONS

Site alterations are those activities that directly or indirectly impact wetlands and other waters in such a way that the function or area of the feature changes significantly. A significant alteration would be one that renders the feature non-functioning, or one that changes the boundaries of the feature. Land use in the Study Area is generally dominated by agriculture and ranch roads. An existing wind project (Wheatridge Wind Project) is located outside of the western boundary of the Study Area. Agricultural development and ranch access road crossings may have affected the geographic size of other waters.

4.0 PRECIPITATION DATA AND ANALYSIS

Precipitation data for the period preceding and during field work were collected from the National Weather Service Station, Hermiston, Oregon (NOAA 2022). Historical climate data including average monthly precipitation were reviewed in the NRCS Wetlands (WETS) table for Boardman, Oregon (NRCS 2022b).

For the 10-day span preceding field work (which occurred on March 21-22, 2021), 0.26 inches of precipitation were measured (NOAA 2022). For the Water Year October 1, 2021 through March 2022,

precipitation was 105 percent of average due to above average precipitation that was outside of the normal range in October and December 2021, as well as in March of 2022, which made up for below average precipitation in January and February 2022 (Table 4). Based on the precipitation data for the 3 months prior to the 2022 site visit, it was estimated that groundwater levels were about average for that time of year.

Precipitation levels did not affect the delineation of other waters, as determinations of intermittent versus ephemeral streams were made using indicators described in the Streamflow Duration Assessment Method (Nadeau 2015), which relies on multiple indicators independent of the presence or absence of hydrology.

Table 4. 2022 Precipitation Data – Current and Historical (Inches)

Precipitation	Oct 2021	Nov 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022[3]	Water Year Total
Recorded Monthly Precipitation Totals[1] (inches); Hermiston, OR	1.25	1.15	1.78	0.93	0.13	0.82	**6.06**
WETS Average Monthly Precipitation[2] (inches); Boardman, OR	0.63	1.07	1.30	1.20	0.88	0.68	**5.76**
Recorded Precipitation Relative to WETS Average Monthly Precipitation	198%	107%	137%	78%	15%	120%	**105%**
Normal Monthly Range of Precipitation[2] (inches)	0.31-0.75	0.60-1.30	0.75-1.58	0.74-1.46	0.48-1.06	0.43-0.82	**N/A**

1. National Weather Service, Hermiston, OR Climate Station.
2. WETS Table for Boardman, Oregon, years 1971-2022.
3. Recorded monthly precipitation through March 21, 2022.

5.0 METHODS

5.1 Pre-field Work

In preparation for the field work, Tetra Tech reviewed NWI, NHD, hydric soils data, and aerial photographs to identify potential wetlands and other waters, as described in the preceding sections. Tetra Tech prepared digital field maps with these data and uploaded these maps onto Samsung Android data collection tablets to assist field staff in identifying the locations of probable wetlands and non-wetland waters within or adjacent to the Study Area.

Wetlands and surface water data were obtained from the U.S. Fish and Wildlife Service NWI (USFWS 2022), which includes NWI and miscellaneous wetland mapping by state and federal agencies, non-governmental organizations, academia, and consultants, and from the U.S. Geological Survey NHD (NRCS 2022a). Soils data were also obtained from the NRCS (NRCS 2021).

The following guidance documents and procedures were reviewed:

- Arid West Supplement (USACE 2008);
- Wetlands Delineation Manual, Technical Report Y-87-1 (the Manual) (USACE 1987);
- Streamflow Duration Assessment Method for the Pacific Northwest (Nadeau 2015);
- Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979); and
- Oregon Administrative Rule (OAR) 141-090, Administrative Rules for Wetland Delineation Report Requirements and for Jurisdictional Determinations for the Purpose of Regulating Fill and Removal within Waters of the State.

5.2 Field Work

Field investigations for the delineation of wetlands and other waters included pedestrian surveys within the Study Area, which were conducted on March 21 and 22, 2022. The desktop wetland data were used to focus the wetland delineation field effort, while the desktop surface water data were used to focus the non-wetlands water evaluation, as necessary.

5.2.1 Wetland Delineations

Wetland presence was determined per methods in the Manual and the Arid West Supplement. No wetland indicators were found at any of the low elevation sites on the landscape nor were they found within the ephemeral streambeds. A sample site was taken in the place where there was the most likelihood of finding hydric conditions; data sheets describing the site are in Appendix A.

5.2.2 Non-wetland Waters Evaluations

- Flow duration for non-wetland waters was determined using criteria in the Streamflow Duration Assessment Methodology (Nadeau 2015). It was performed at locations on each stream that typified the stream's hydrology, channel, and adjacent vegetation characteristics.

Streamflow Duration Assessment Methodology Forms for each stream are provided in Appendix A. Details on mapping methods are presented in Section 8.0.

- The centerline of all non-wetland waters was recorded as a line feature and buffered to the stream width determined in the field. All delineated streams were less than or equal to 6 feet in width.

6.0 WETLANDS, NON-WETLAND WATERS, AND OTHER FEATURES

Datasheets and the field photos are sequentially arranged by feature number to field verified wetlands, streams, or NHD confirmation points (Appendix A and Appendix B).

6.1 Wetlands

Mapped NWI data show two wetlands along ST-01. Running north-south along the larger basin that crosses Highway 207, a freshwater emergent wetland is mapped flowing into a riverine wetland. A sample plot was dug in the downstream-most point where the mapped NWI riverine was within the Study Area and hydric conditions were not found. Upon investigation, the mapped NWI features were not wetlands and no wetlands were found within the Study Area.

6.2 Non-wetland Waters

The Project boundary has upwards of 30 mapped NHD features. All NHD features were inspected and in many instances were found to be swales with no bed or banks in cropped winter wheat fields. Many delineated ephemeral drainages run down a steep hillside toward ST-01. This hillside is primarily herbaceous, with some sagebrush, but the drainages themselves are dominated by tumbleweeds and Russian thistle. Below these drainages, ST-01 runs north-south through a small valley. Here, and slightly to the east in ST-02 and ST-03, the ephemeral streambeds include cheatgrass, yarrow, and sagebrush as dominant vegetation. On the eastern side of the Study Area, ST-11 runs in a strip of disturbed grassland between cultivated fields. ST-105 is another ephemeral channel located just north of ST-11. This channel runs between an excavated area used as an access road and shooting range to the north and a cultivated crop field with a cobbly substrate. Details about all non-wetland waters delineated during field investigations are included in Table 5.

Table 5. Delineated Waters

Feature Name	Map Number[1]	OHWL Width (feet)	Flow Duration	Flow Direction	Photo Number[2]
D-01 (Ditch)	14	2	Ephemeral	South	32
ST-01	12, 13, 14, 15, 16	2	Ephemeral	North	1, 2, 5, 27
ST-02	16	1	Ephemeral	West	28, 29
ST-03	16	1	Ephemeral	South	30, 31
ST-04	16	1	Ephemeral	East	41
ST-05	16	1	Ephemeral	Northeast	42
ST-06	16	1	Ephemeral	Northeast	44
ST-07	16	1	Ephemeral	Northeast	49

Feature Name	Map Number[1]	OHWL Width (feet)	Flow Duration	Flow Direction	Photo Number[2]
ST-08	16	1	Ephemeral	Northeast	46, 47, 50
ST-08b	16	1	Ephemeral	Northeast	50
ST-09	15	1	Ephemeral	Northeast	51
ST-10	15	1	Ephemeral	East	54
ST-11	19, 22, 23, 24	1.5	Ephemeral	North	60, 61, 62, 85
ST-100	13	1	Ephemeral	East	N/A
ST-101	14	2	Ephemeral	East	3, 4
ST-102	17	1	Ephemeral	Northeast	64
ST-103	17	1	Ephemeral	East	68
ST-104	16	1	Ephemeral	Northeast	70
ST-105	18, 21	1	Ephemeral	East	78, 79, 80, 81

1. See Appendix A.
2. See Appendix B.
OHWL = ordinary high water line

7.0 DEVIATION FROM NWI, NHD, AND LOCAL WETLAND INVENTORIES

Deviations are features that are mapped by the NWI and NHD that differ from field observations. Table 6 provides a list of the wetlands and waters delineated as deviations. The Project does not cross any mapped Local Wetland Inventory areas (ODSL 2022).

Table 6. Deviations from NWI and NHD

Feature Name	Map Number	Photograph Number	NHD Classification	NWI Classification	Reason for Deviation
XBB-01	2	6	None	None	Orthoimagery showed potential drainage, no bed or banks in active cropland.
XBB-02	3	7	Intermittent Stream	None	No bed or banks in active cropland.
XBB-03	3	8	Intermittent Stream	None	No bed or banks in active cropland.
XBB-04	4	9	Intermittent Stream	None	No bed or banks in active cropland.
XBB-05	2	10	Intermittent Stream	None	No bed or banks in active cropland.
XBB-06	2	11	Intermittent Stream	None	No bed or banks in active cropland.
XBB-07	1	12	Intermittent Stream	None	Orthoimagery showed potential drainage, no bed or banks in active cropland.
XBB-08	1	13	None	None	No bed or banks in area between crop fields.
XBB-09	1	14	Intermittent Stream	None	No bed or banks in active cropland.
XBB-10	1	15	Intermittent Stream	None	No bed or banks in active cropland.
XBB-11	1	16	Intermittent Stream	None	No bed or banks in active cropland.
XBB-12	6	17	Intermittent Stream	None	No bed or banks in active cropland.
XBB-13	6	18	Intermittent Stream	None	No bed or banks in active cropland.
XBB-14	6	19	None	None	Orthoimagery showed potential drainage, no bed or banks in active cropland.
XBB-15	6	20	Intermittent Stream	None	No bed or banks in active cropland.
XBB-16	8	21	Intermittent Stream	None	No bed or banks in active cropland.

Feature Name	Map Number	Photograph Number	NHD Classification	NWI Classification	Reason for Deviation
XBB-17	9	22	Intermittent Stream	None	No bed or banks in active cropland.
XBB-18	9	23	Intermittent Stream	None	No bed or banks in active cropland.
XBB-19	11	24	Intermittent Stream	None	No bed or banks in active cropland.
XBB-20	11	25	Intermittent Stream	None	No bed or banks in active cropland.
XBB-21	11	26	Intermittent Stream	None	No bed or banks in active cropland.
XBB-22	10	35	Intermittent Stream	None	No bed or banks in active cropland.
XBB-23	10	36	Intermittent Stream	None	No bed or banks in active cropland.
XBB-24	7	37	Intermittent Stream	None	No bed or banks in active cropland.
XBB-25	4	38	None	None	Orthoimagery showed potential drainage, no bed or banks in active cropland.
XBB-26	4	39	Intermittent Stream	None	No bed or banks in active cropland.
XBB-27	5	40	Intermittent Stream	None	No bed or banks in active cropland.
XBB-28	16	43	None	None	Drainage has no bed or banks beyond this point.
XBB-29	16	45	None	None	Drainage has no bed or banks beyond this point.
XBB-30	16	48	None	None	Drainage has no bed or banks beyond this point.
XBB-31	15	52	None	None	Drainage has no bed or banks beyond this point.
XBB-32	15	53	None	None	Drainage has no bed or banks beyond this point.
XBB-33	18	56	Intermittent Stream	None	No bed or banks on NHD.
XBB-34	18	57	Intermittent Stream	None	No bed or banks on NHD.
XBB-35	19	58	None	None	Orthoimagery showed potential drainage, no bed or banks in active cropland.
XBB-36	23	59	Intermittent Stream	None	No bed or banks in active cropland.
XBB-37	11	63	Intermittent Stream	None	No bed or banks in active cropland.
XBB-107	17	66	Intermittent Stream	None	No bed or banks in active cropland.
XBB-108	17	67	Intermittent Stream	None	No bed or banks in active cropland.
XBB-110	17	69	None	None	Drainage has no bed or banks beyond this point.
XBB-112	16	71	None	None	Drainage has no bed or banks beyond this point.
XBB-113	5	72	Intermittent Stream	None	No bed or banks in active cropland.
XBB-117	18	76	Intermittent Stream	None	No bed or banks in active cropland.
XBB-118	20	77	None	None	Orthoimagery showed potential drainage, no bed or banks in active cropland.
XBB-123	21	82	Intermittent Stream	None	No bed or banks in area with shallow soils between crop fields.
XBB-125	23	84	Intermittent Stream	None	No bed or banks in active cropland.

8.0 MAPPING METHODS

Waterway boundaries, photograph locations, and sample plot locations were recorded using Juniper Geode series Bluetooth Global Positioning System (GPS) receivers. The Geode uses Global Navigation Satellite System and Satellite-Based Augmentation System technology to collect data with real-time, sub-meter accuracy under ideal conditions (Juniper Systems 2018). The Project typically had ideal data collection conditions and this level of GPS accuracy or better was observed during data collection.

The centerline of delineated waters were recorded as line features, using GPS units set to collect vertices every 2 seconds. Field staff walked the centerline of the channel with the GPS unit in hand, at a pace consistent with creating an accurate representation of the waterway feature. The location of sample plots was recorded as a point feature consisting of the average of 30 GPS-recorded positions.

All delineated waters are considered to be completely contained within the Study Area unless otherwise noted. Delineated other waters that extend outside of the Study Area are noted as such on Figure 4.

9.0 RESULTS AND CONCLUSIONS

Using methods recommended in the Manual and Arid West Supplement, no wetland features were found within the surveyed Study Area. Waterways within the Study Area were all found to be ephemeral and are summarized in Table 7.

Table 7. Summary of Identified Other Waters

Feature	Number of Features	Acres
Ephemeral	19	1.48
TOTAL	**19**	**1.48**

10.0 DISCLAIMER

This disclaimer is included according to OAR 141-090-0035(12)(j):

> This report documents the investigation, best professional judgment, and conclusions of the investigator. It is correct and complete to the best of my knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-0005 through 141-090-0055.

11.0 REFERENCES

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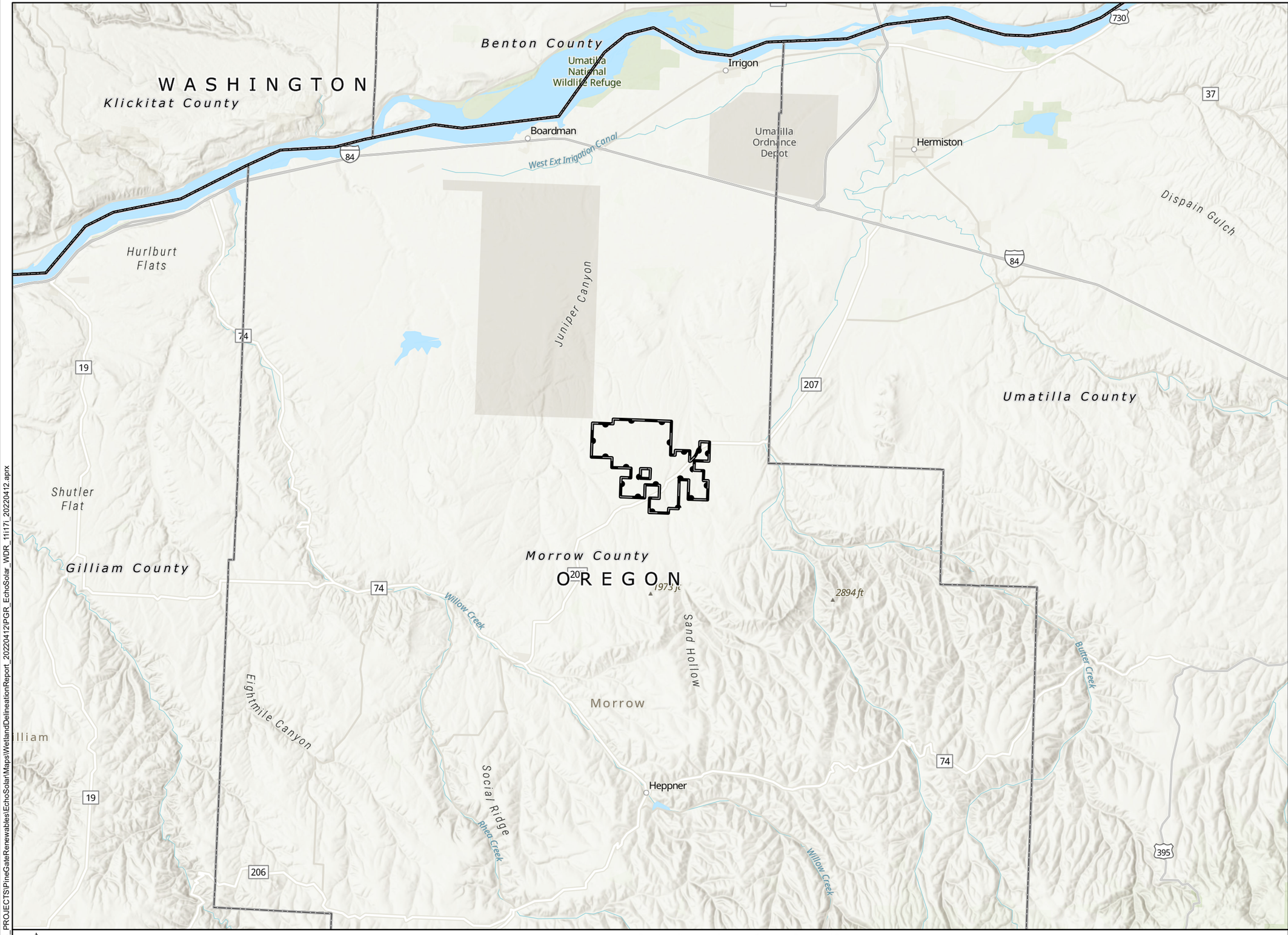
FIGURES

Echo Solar Project

Figure 1
Project Location

MORROW COUNTY, OR



- Study Area
- County Boundary
- State Boundary

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Topographic	

1:300,000 WGS 1984 UTM Zone 11N

0 1 2 4 6 8 10 Miles

NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 2 National Wetlands Inventory Map

MORROW COUNTY, OR

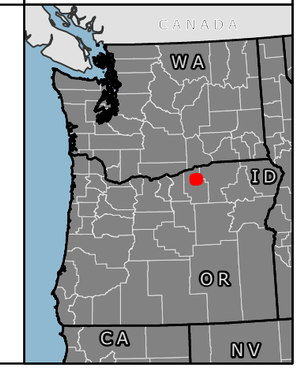
- Figure 4 Index Map Grid
- Study Area
- Township 16S Range 15E Section
- State Highway
- Local Roads
- City/Town

Wetlands and Waters

- Freshwater Emergent Wetland (NWI)
- Riverine (NWI)
- Lake/Pond (NHD)
- Intermittent Stream (NHD)
- Perennial Stream (NHD)

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; USGS-NHD; USFWS-NWI	

1:40,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 Miles

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Map Unit Symbol, Map Unit Name

13D - Gravden very gravelly loam, 5 to 20 percent slopes
13E - Gravden very gravelly loam, 20 to 40 percent slopes
28E - Lickskillet very stony loam, 7 to 40 percent slopes
45A - Ritzville silt loam, 0 to 2 percent slopes
45B - Ritzville silt loam, 2 to 7 percent slopes
70B - Warden very fine sandy loam, 2 to 5 percent slopes
70C - Warden very fine sandy loam, 5 to 12 percent slopes
71A - Warden silt loam, 0 to 2 percent slopes
71B - Warden silt loam, 2 to 5 percent slopes
71C - Warden silt loam, 5 to 12 percent slopes
75B - Willis silt loam, 2 to 5 percent slopes
75C - Willis silt loam, 5 to 12 percent slopes
78 - Xeric Torriorthents, nearly level

*All mapped soils in the Project Study Area are non-hydric.

Echo Solar Project

Figure 3 Soils Legend

MORROW COUNTY, OR

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; NRCS-Soils	

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Echo Solar Project

Figure 3.1 Soils Map

MORROW COUNTY, OR

Figure 4 Index Map Grid

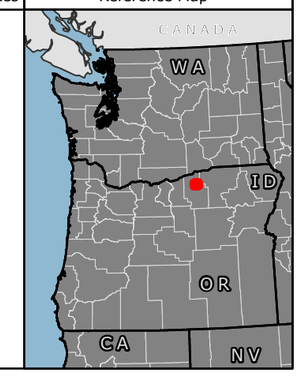
Study Area

Hydric Classification - Presence

Not Hydric

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; NRCS-Soils	

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0 0.5 1 2 Miles

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Echo Solar Project

Figure 4 Wetland Delineation Index Map

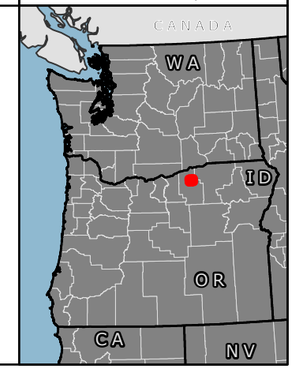
MORROW COUNTY, OR

- Figure 4 Index Map Grid
- Study Area
- Sample Plot
- Photo Point
- Culvert
- Field Delineated Stream* (Maximum OHWL Width)

Wetland and stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Topographic	

1:40,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 Miles

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Echo Solar Project

Figure 4.1
Wetland Delineation Map

MORROW COUNTY, OR

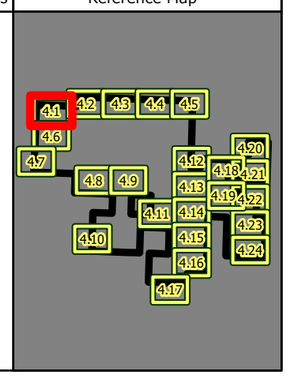
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.2 Wetland Delineation Map

MORROW COUNTY, OR

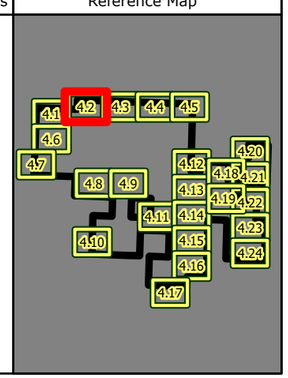
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

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1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

Echo Solar Project

Figure 4.3 Wetland Delineation Map

MORROW COUNTY, OR

20

21

29

28

XBB-02 (#7)

XBB-03 (#8)

Taxlot 02N26E0000ROADS

Taxlot 02N26E000001200

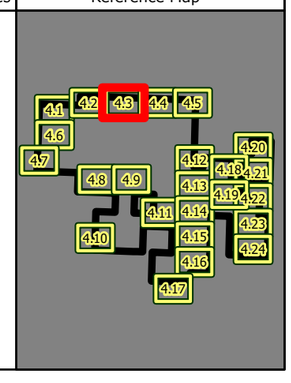
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

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Echo Solar Project

Figure 4.4 Wetland Delineation Map

MORROW COUNTY, OR

21

22

28

27

XBB-03 (#8)

XBB-04 (#9)

Taxlot
02N26E0000ROADS

XBB-25 (#38)

XBB-26 (#39)

Taxlot
02N26E000001200

Taxlot
02N26E000001101

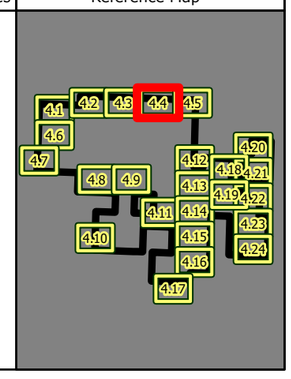
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

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Echo Solar Project

Figure 4.5 Wetland Delineation Map

MORROW COUNTY, OR

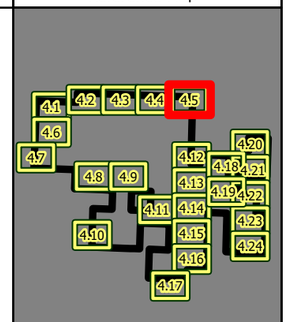
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

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Echo Solar Project

Figure 4.6 Wetland Delineation Map

MORROW COUNTY, OR

25

30

36

31

Taxlot 02N26E000001200

Taxlot 02N26E000001500

Taxlot 02N26E000001201

Taxlot 02N26E0000ROADS

Taxlot 02N26E000001600

XBB-15 (#20)

XBB-14 (#19)

XBB-12 (#17)

XBB-13 (#18)

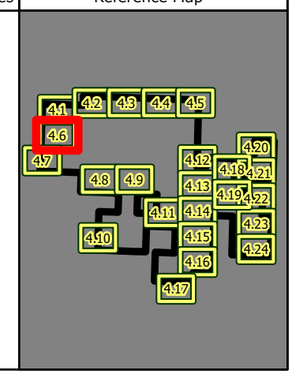
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

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Echo Solar Project

Figure 4.7 Wetland Delineation Map

MORROW COUNTY, OR

Taxlot 02N26E000001600

Taxlot 02N26E000001700

Taxlot 02N26E000001200

36

31

1

6

XBB-24 (#37)

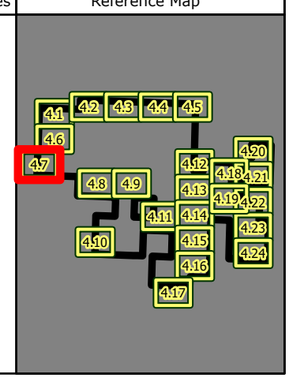
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.8 Wetland Delineation Map

MORROW COUNTY, OR

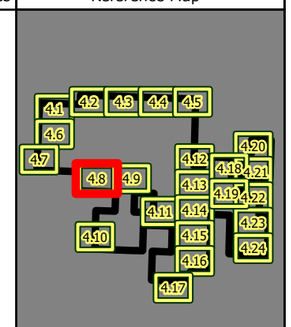
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N

0 0.13 0.25 0.5 Miles

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Echo Solar Project

Figure 4.9 Wetland Delineation Map

MORROW COUNTY, OR

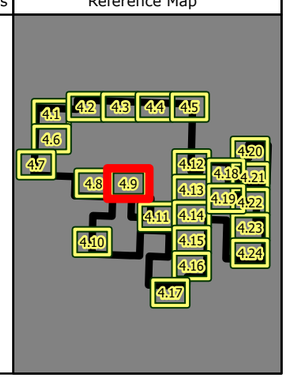
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.10 Wetland Delineation Map

MORROW COUNTY, OR

Taxlot 01N26E0000ROADS

Taxlot 01N26E000001700

Taxlot 01N26E000001300

XBB-22 (#36)

XBB-23 (#35)

7 8 9 16 17 18

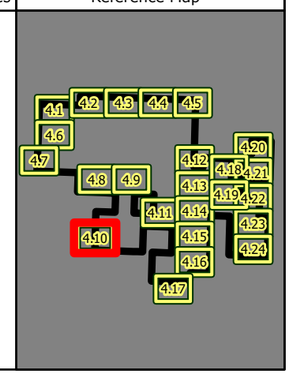
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.11 Wetland Delineation Map

MORROW COUNTY, OR

XBB-37 (#63)

XBB-20 (#25)

XBB-19 (#24)

XBB-21 (#26)

Taxlot
01N26E000000400

Taxlot
01N26E0000ROADS

4

3

9

10

- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

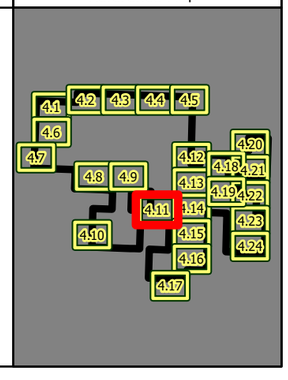
TETRA TECH

AVANGRID RENEWABLES

Data Sources

Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots

Reference Map



1:5,000

WGS 1984 UTM Zone 11N

0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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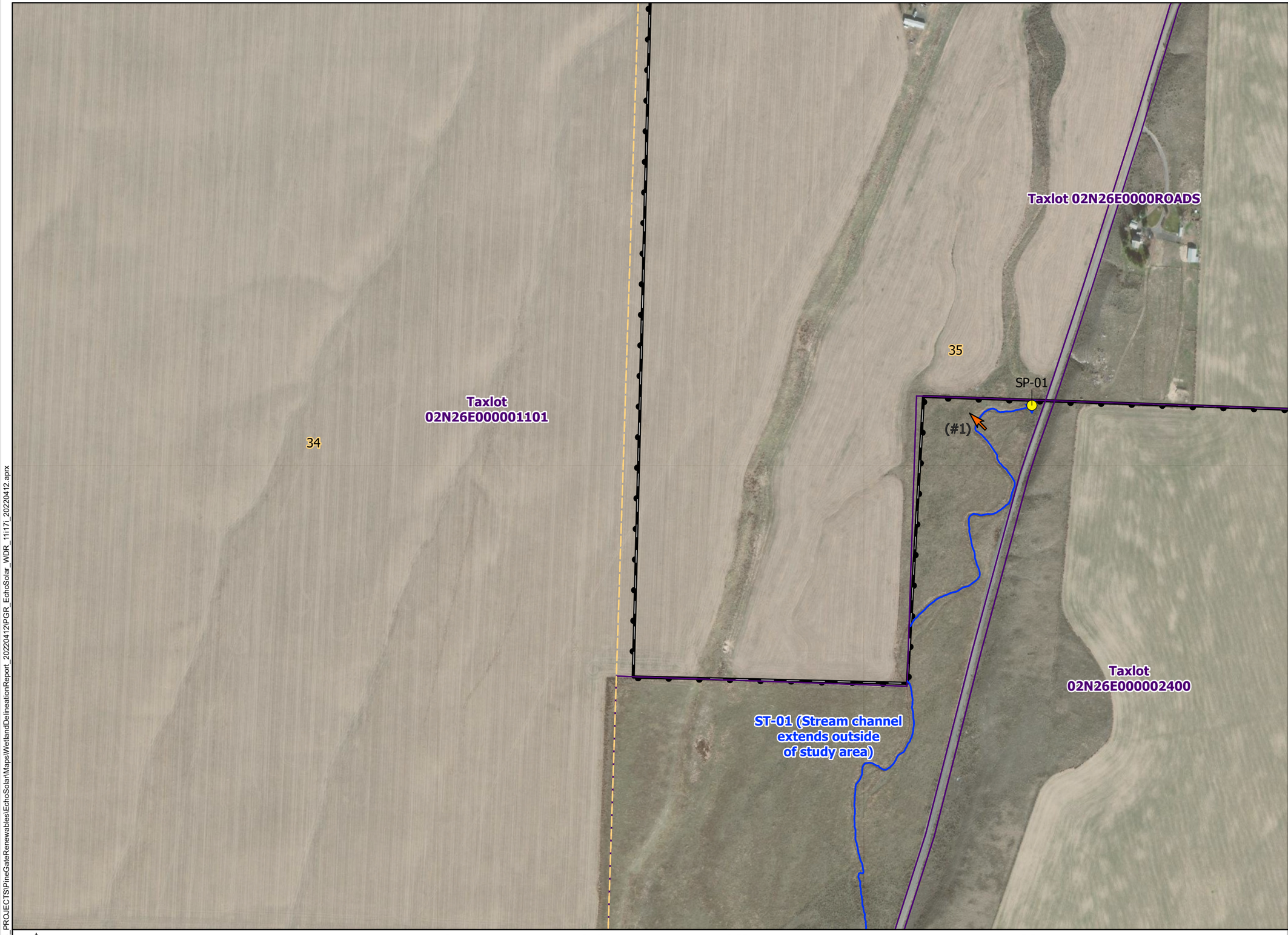
Echo Solar Project

Figure 4.12 Wetland Delineation Map

MORROW COUNTY, OR



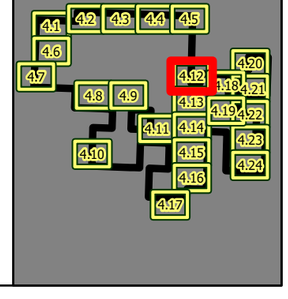
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Field Delineated Stream* (Maximum OHWL Width)
- Sample Plot
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

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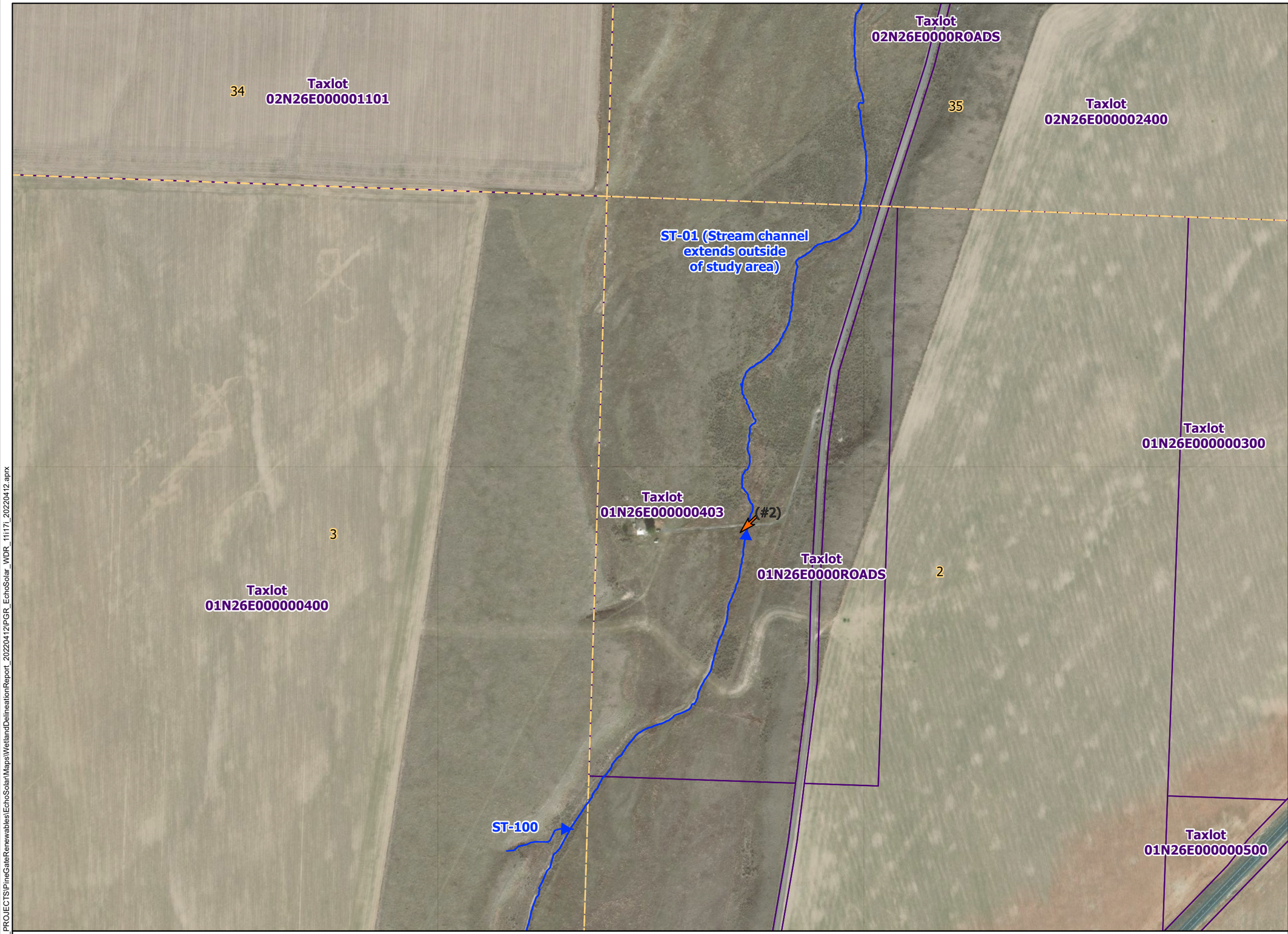
Echo Solar Project

Figure 4.13 Wetland Delineation Map

MORROW COUNTY, OR



- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Culvert
- Field Delineated Stream* (Maximum OHWL Width)
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9 4.10 4.11 4.12 4.13 4.14 4.15 4.16 4.17 4.18 4.19 4.20 4.21 4.22 4.23 4.24

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.14 Wetland Delineation Map

MORROW COUNTY, OR

Taxlot 01N26E000000403

Taxlot 01N26E000000300

ST-100

(#4)

ST-101

3

2

Taxlot 01N26E0000ROADS

(#3)

Taxlot 01N26E000000400

Taxlot 01N26E000000500

(#5)

Taxlot 01N26E000000405

(#33)

(#32)

D-01

10

11

(#34)

XBB-21 (#26)

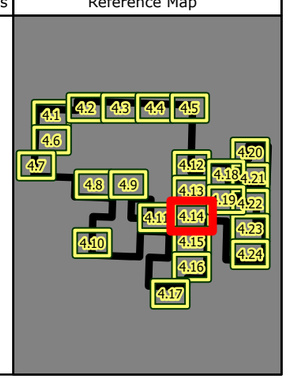
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Culvert
- Field Delineated Stream* (Maximum OHWL Width)
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N

0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.15 Wetland Delineation Map

MORROW COUNTY, OR

XBB-21 (#26)

(#34)

Taxlot 01N26E000000402

Taxlot 01N26E000000404

10

Taxlot
01N26E000000400

11

(#55)

(#54) XBB-32 (#53)

ST-10

Taxlot 01N26E0000ROADS

XBB-31 (#52)

(#51)

ST-09

(#46) (#50)

ST-08

(#47)

ST-08b

- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Culvert
- Field Delineated Stream* (Maximum OHWL Width)
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9 4.10 4.11 4.12 4.13 4.14 4.15 4.16 4.17 4.18 4.19 4.20 4.21 4.22 4.23 4.24

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.16 Wetland Delineation Map

MORROW COUNTY, OR

XBB-31 (#52)
(#51)
ST-09
10
(#46)
(#50)
ST-08
(#47)
ST-08b
XBB-30 (#48)
(#49)
ST-07
11
XBB-112 (#71)
Taxlot
01N26E000000400
(#30)
(#31)
(#70)
ST-03
ST-104
(#29)
(#28)
ST-02
Taxlot
01N26E000002400
Taxlot 01N26E0000ROADS
14
XBB-29 (#45)
ST-06
(#44)
15
XBB-28 (#43)
ST-05
(#42)
ST-01 (Stream channel extends outside of study area)
ST-04 (Stream channel extends outside of study area)
(#41)
(#27)
Taxlot
01N26E000002500

- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Culvert
- Field Delineated Stream* (Maximum OHWL Width)
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9 4.10 4.11 4.12 4.13 4.14 4.15 4.16 4.17 4.18 4.19 4.20 4.21 4.22 4.23 4.24

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.17 Wetland Delineation Map

MORROW COUNTY, OR

Taxlot
01N26E000002500

XBB-108 (#67)

(#65) XBB-107 (#66)

15

(#68)

ST-103

XBB-110 (#69)

(#64)

14

Taxlot
01N26E0000ROADS

22

23

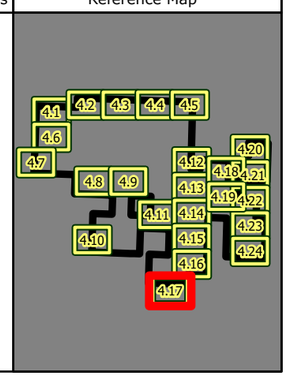
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Field Delineated Stream* (Maximum OHWL Width)
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N

0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.18 Wetland Delineation Map

MORROW COUNTY, OR

Taxlot 02N26E000001101

XBB-117 (#76)

35

Taxlot 02N26E000002400

36

Taxlot 02N26E0000ROADS

(#81)

(#83)

XBB-123 (#82)

Taxlot 02N26E000002301

Taxlot 02N26E000002600

Taxlot 01N26E000000302

XBB-34 (#57)

XBB-33 (#56)

Taxlot 01N26E000000301

2

Taxlot 01N26E000000300

Taxlot 01N26E0000ROADS

Taxlot 01N26E000000200

1

Taxlot 01N26E000000400

- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Field Delineated Stream* (Maximum OHWL Width)
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

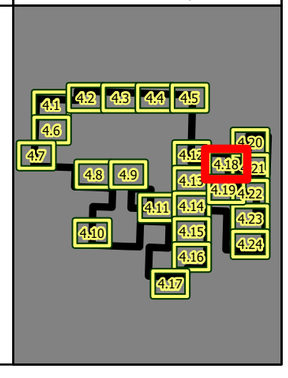
TETRA TECH

AVANGRID RENEWABLES

Data Sources

Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots

Reference Map



1:5,000

WGS 1984 UTM Zone 11N

0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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XBB-34 (#57)
Taxlot 01N26E000000302
XBB-33 (#56)
Taxlot 01N26E000000301
Taxlot 01N26E000000400
Taxlot 01N26E000000300
2
XBB-35 (#58)
1
Taxlot 01N26E000000200
Taxlot 01N26E000000500
Taxlot 01N26E0000ROADS
ST-11 (Stream channel extends outside of study area)

Echo Solar Project

Figure 4.19 Wetland Delineation Map

MORROW COUNTY, OR

- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Field Delineated Stream* (Maximum OHWL Width)
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

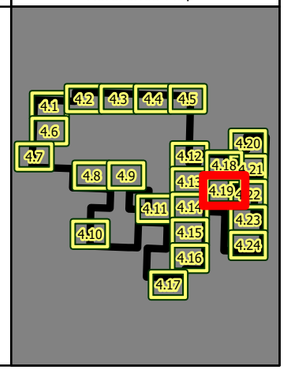
TETRA TECH

AVANGRID RENEWABLES

Data Sources

Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots

Reference Map



1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.20 Wetland Delineation Map

MORROW COUNTY, OR

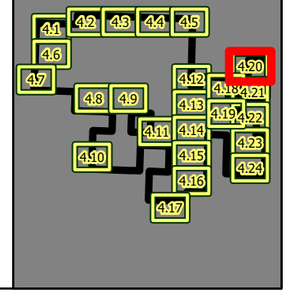
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.21 Wetland Delineation Map

MORROW COUNTY, OR

Taxlot 02N26E000002400

35

(#81)

36

(#83)

XBB-123 (#82)

Taxlot 02N26E000002301

Taxlot 02N26E000002500

31

(#80)

(#79)

(#78)

ST-105 (Stream channel extends outside of study area)

Taxlot 02N26E0000ROADS

Taxlot 02N26E000002600

Taxlot 01N26E000000302

Taxlot 01N26E0000ROADS

XBB-33 (#56)

Taxlot 01N26E000000200

1

6

- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Field Delineated Stream* (Maximum OHWL Width)
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

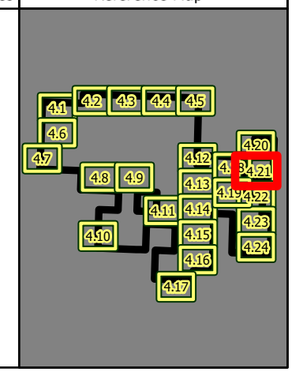
TETRA TECH

AVANGRID RENEWABLES

Data Sources

Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots

Reference Map



1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

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Echo Solar Project

Figure 4.22 Wetland Delineation Map

MORROW COUNTY, OR

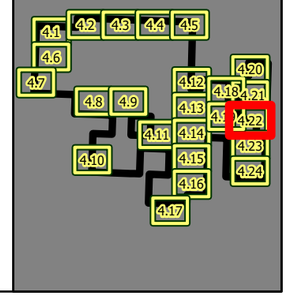
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Field Delineated Stream* (Maximum OHWL Width)
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

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Echo Solar Project

Figure 4.23 Wetland Delineation Map

MORROW COUNTY, OR

(#85)

Taxlot
01N26E000000200

1

6

XBB-36 (#59)

Taxlot
01N26E0000ROADS

(#62)

XBB-125 (#84)

ST-11 (Stream channel extends outside of study area)

Taxlot
01N26E000001900

12

7

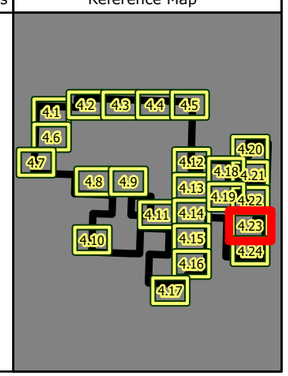
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Culvert
- Field Delineated Stream* (Maximum OHWL Width)
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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Echo Solar Project

Figure 4.24 Wetland Delineation Map

MORROW COUNTY, OR

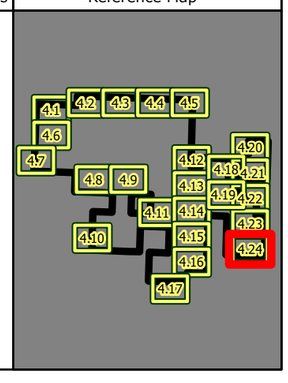
- Study Area
- Taxlot Boundary
- Township 16S Range 15E Section
- Field Delineated Stream* (Maximum OHWL Width)
- Photo Point (# Photo Number)

Stream channel boundaries, sample plots, and photo points were collected using sub-meter grade GPS devices collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

**All delineated streams are considered completely contained within the study area unless otherwise noted.*

TETRA TECH

AVANGRID RENEWABLES

Data Sources	Reference Map
Pine Gate Renewables-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Morrow County-Taxlots	

1:5,000 WGS 1984 UTM Zone 11N 0 0.13 0.25 0.5 Miles

NOT FOR CONSTRUCTION

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APPENDIX A: DATASHEET AND SDAM FORMS

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Echo Solar **City/County:** Morrow **Sampling Date:** 21-Mar-22

Applicant/Owner: Pine Gate Renewables **State:** Oregon **Sampling Point:** SP-01

Investigator(s): JCT, SMF **Section, Township, Range:** S T R

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** concave **Slope:** 1.0 % / 0.6 °

Subregion (LRR): LRR B **Lat.:** 45.610456 **Long.:** -119.5322 **Datum:** 11

Soil Map Unit Name: Xeric Torriorthents, nearly level **NWI classification:**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?**	Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉		
Wetland Hydrology Present?	Yes ○ No ◉		

Remarks: Most downstream point of swale within project area.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 5)			
1. Bromus tectorum	90	☑ 85.7%	UPL
2. Achillea millefolium	5	☐ 4.8%	FACU
3. Sisymbrium altissimum	10	☐ 9.5%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	105	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	15	x 4 =	60
UPL species	90	x 5 =	450
Column Totals:	105 (A)		510 (B)

Prevalence Index = B/A = 4.857

Hydrophytic Vegetation Indicators:

- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Cheatgrass quite dominant.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: SP-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/2	100					Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[3]

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: bedrock

Depth (inches): 4

Hydric Soil Present? Yes ○ No ◉

Remarks:

rock refusal

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): 0

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

no hydrology

Streamflow Duration Field Assessment Form

Project # / Name Echo Solar		Assessor Sara Frank, Jess Taylor	
Address Morrow County		Date 3/21/2022	
Waterway Name ST-01		Coordinates at downstream end (ddd.mm.ss)	Lat. 45.610456 N
Reach Boundaries Survey Corridor			Long. -119.5322 W
Precipitation w/in 48 hours (cm)	Channel Width (m) 2 feet	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status): None

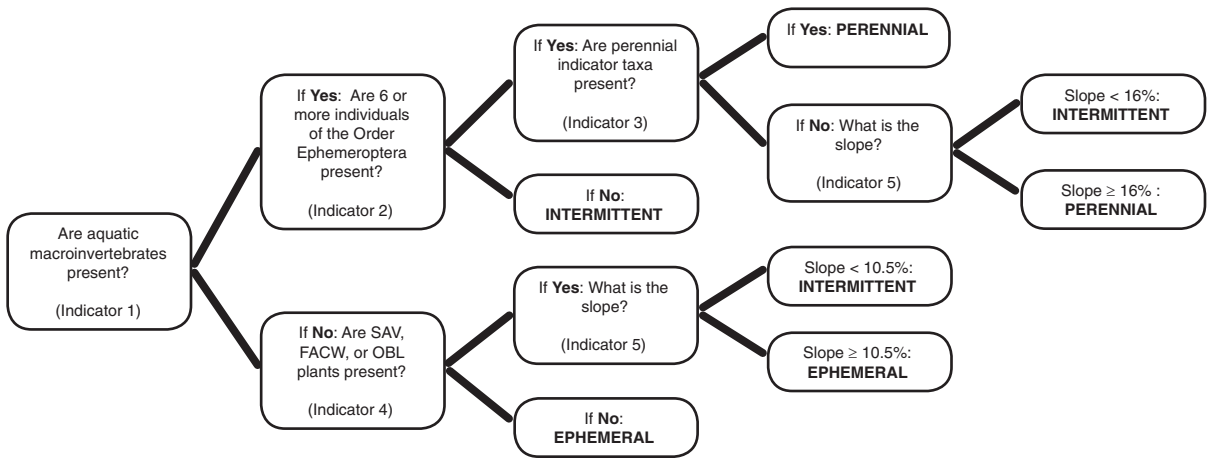
Observed Macroinvertebrates: None

Taxon	Indicator Status	Ephemer-optera?	# of Individuals

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☑ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☑ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☑ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☑ No
5. What is the slope? (In percent, measured for the valley, not the stream)	3 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☑ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Channel is fully vegetated, primarily with cheatgrass. Some tumblemustard, yarrow, and rabbitbrush also present.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name Echo Solar		Assessor Sara Frank, Jess Taylor	
Address Morrow County		Date 3/21/2022	
Waterway Name ST-02		Coordinates at downstream end (ddd.mm.ss)	Lat. 45.572007 N
Reach Boundaries Survey Corridor			Long. -119.540155 W
Precipitation w/in 48 hours (cm)	Channel Width (m) 1 foot	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status): None

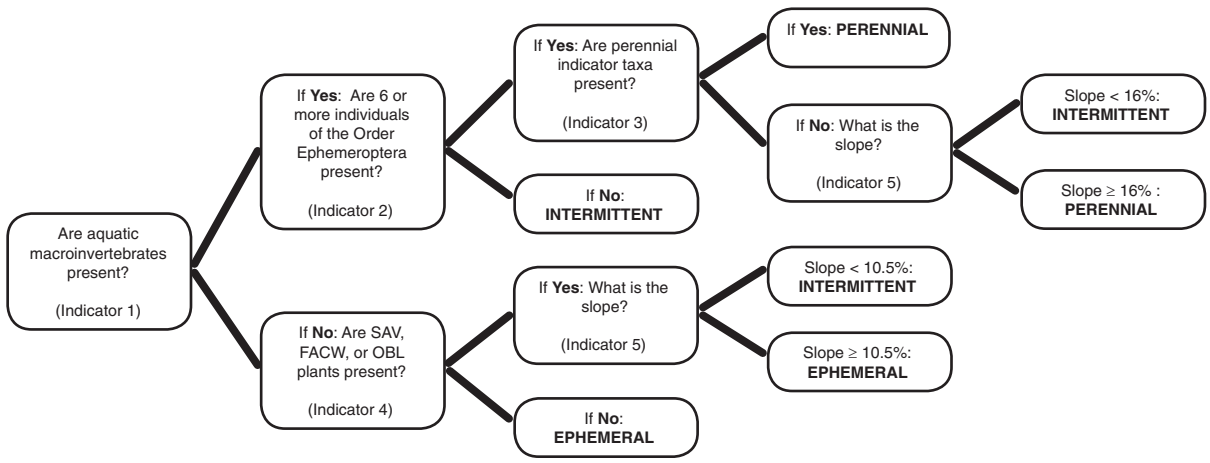
Observed Macroinvertebrates: None

Taxon	Indicator Status	Ephemer-optera?	# of Individuals

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☑ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☑ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☑ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☑ No
5. What is the slope? (In percent, measured for the valley, not the stream)	6 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☑ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Channel is very rocky. Vegetated with cheatgrass, sagebrush, and unkown bunchgrass too young to identify, but likely intermediate wheatgrass. In places, channel is full of russian thistle and tumble mustard.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name Echo Solar		Assessor Sara Frank, Jess Taylor	
Address Morrow County		Date 3/21/2022	
Waterway Name ST-03		Coordinates at downstream end (ddd.mm.ss)	Lat. 45.571519 N
Reach Boundaries Survey Corridor			Long. -119.530768 W
Precipitation w/in 48 hours (cm)	Channel Width (m) 1 foot	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status): None

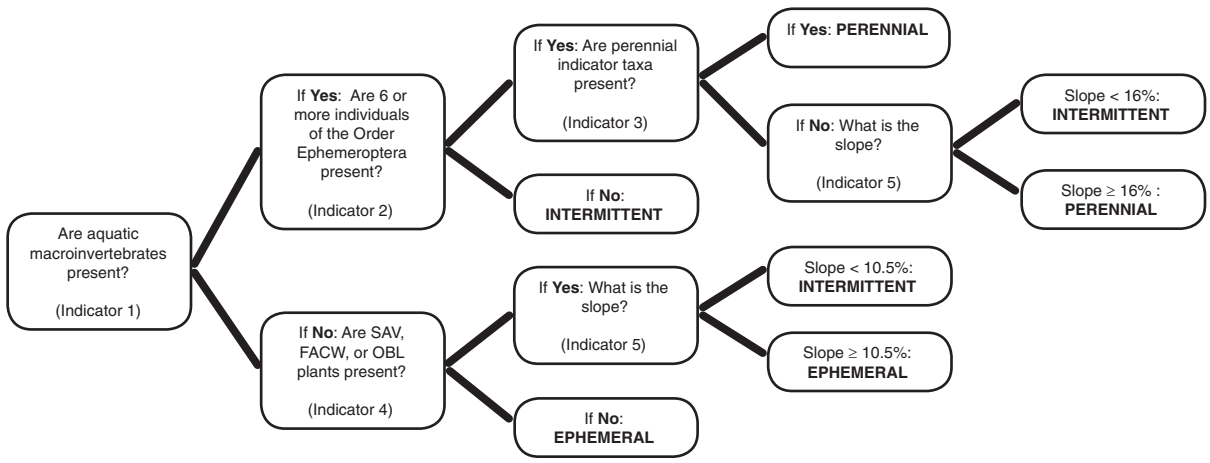
Observed Macroinvertebrates: None

Taxon	Indicator Status	Ephemer-optera?	# of Individuals

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☑ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☑ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☑ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☑ No
5. What is the slope? (In percent, measured for the valley, not the stream)	8 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☑ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Ephemeral channel mostly vegetated, but very rocky. Mostly full of same unknown wheatgrass in ST-02, cheatgrass, and stork's bill. Some very disturbed sagebrush.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name Echo Solar		Assessor Sara Frank, Jess Taylor	
Address Morrow County		Date 3/22/2022	
Waterway Name ST-04		Coordinates at downstream end (ddd.mm.ss)	Lat. 45.566816 N
Reach Boundaries Survey Corridor			Long. -119.539371 W
Precipitation w/in 48 hours (cm)	Channel Width (m) 1 foot	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status): None

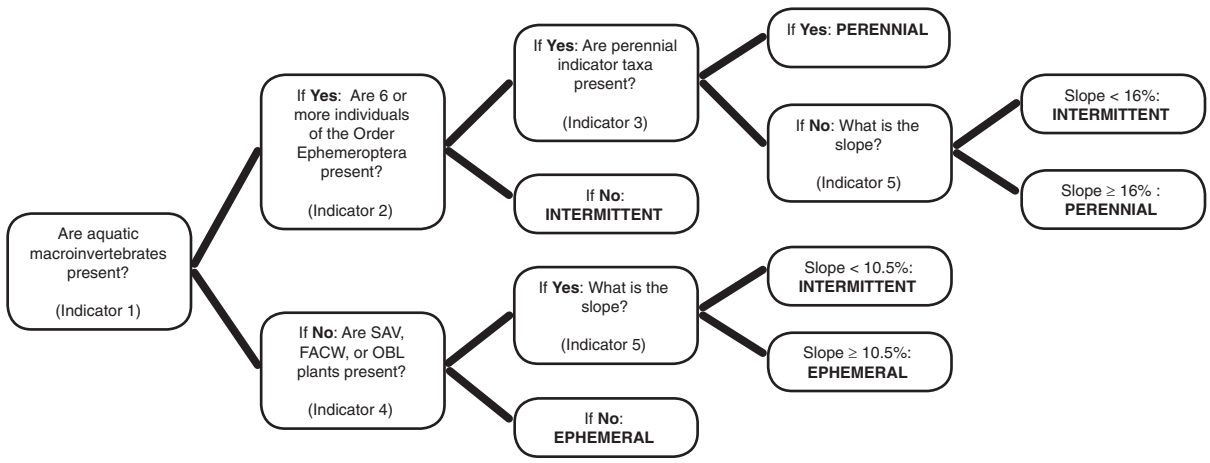
Observed Macroinvertebrates: None

Taxon	Indicator Status	Ephemer-optera?	# of Individuals

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☑ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☑ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☑ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☑ No
5. What is the slope? (In percent, measured for the valley, not the stream)	10 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☑ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Stream channel runs out of project area. Full of tumblemustard, cheatgrass, stork's bill, some disturbed sagebrush and rabbitbrush. Russian thistle and tumblemustard fill most of drainage around bend from photo.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name Echo Solar		Assessor Sara Frank, Jess Taylor	
Address Morrow County		Date 3/22/2022	
Waterway Name ST-05		Coordinates at downstream end (ddd.mm.ss)	Lat. 45.568759 N
Reach Boundaries Survey Corridor			Long. --119.539425 W
Precipitation w/in 48 hours (cm)	Channel Width (m) 1 foot	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status): None

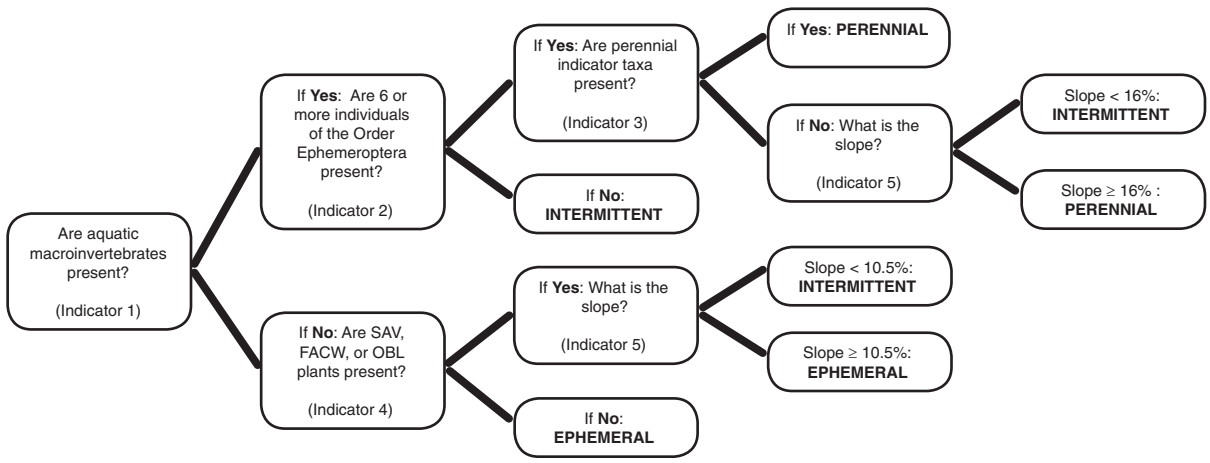
Observed Macroinvertebrates: None

Taxon	Indicator Status	Ephemer-optera?	# of Individuals

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☑ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☑ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☑ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☑ No
5. What is the slope? (In percent, measured for the valley, not the stream)	10 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☑ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

☐ Prolonged Abnormal Rainfall / Snowpack

☐ Below Average

☐ Above Average

☐ Natural or Anthropogenic Disturbance

☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Ephemeral feature vbegins on hill slope and winds through sagebrush, cheatgrass, yarrow, and tumblemustard.

Ancillary Information:

☐ Riparian Corridor

☐ Erosion and Deposition

☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name Echo Solar		Assessor Sara Frank, Jess Taylor	
Address Morrow County		Date 3/22/2022	
Waterway Name ST-06		Coordinates at downstream end (ddd.mm.ss)	Lat. 45.569618 N
Reach Boundaries Survey Corridor			Long. -119.540325 W
Precipitation w/in 48 hours (cm)	Channel Width (m) 1 foot	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status): None

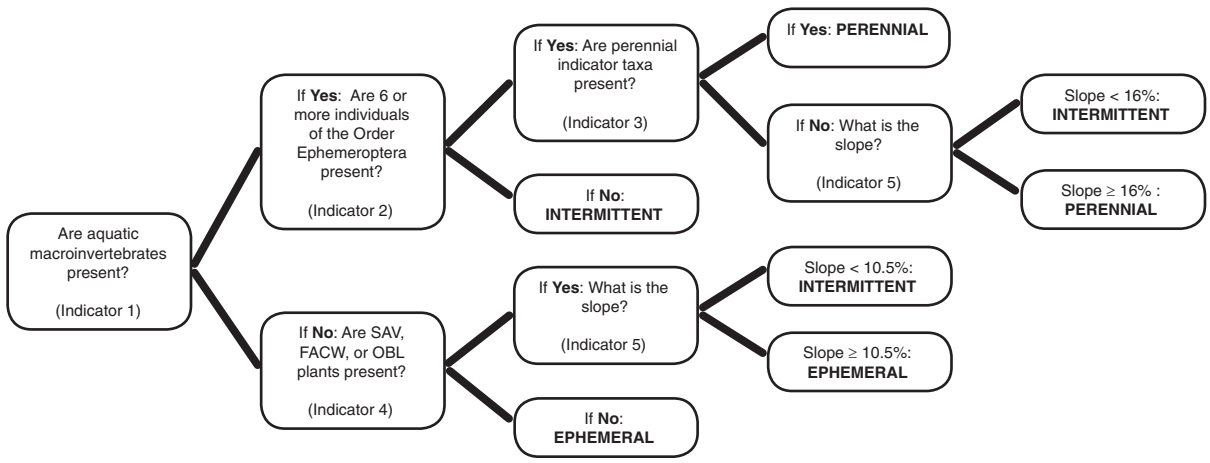
Observed Macroinvertebrates: None

Taxon	Indicator Status	Ephemer-optera?	# of Individuals

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☑ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☑ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☑ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☑ No
5. What is the slope? (In percent, measured for the valley, not the stream)	10 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☑ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Ephemeral feature vegetated with cheatgrass and rabbitbrush, storks bill and unknown bunch grass (too early to ID properly). Channel begins in cattle trail on top of slope and runs toward ST-01.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name Echo Solar	Assessor Sara Frank, Jess Taylor
Address Morrow County	Date 3/22/2022
Waterway Name ST-07	Coordinates at downstream end (ddd.mm.ss) Lat. 45.574552 N
Reach Boundaries Survey Corridor	Long. -119.543139 W
Precipitation w/in 48 hours (cm)	Channel Width (m) 1 foot
☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status): None

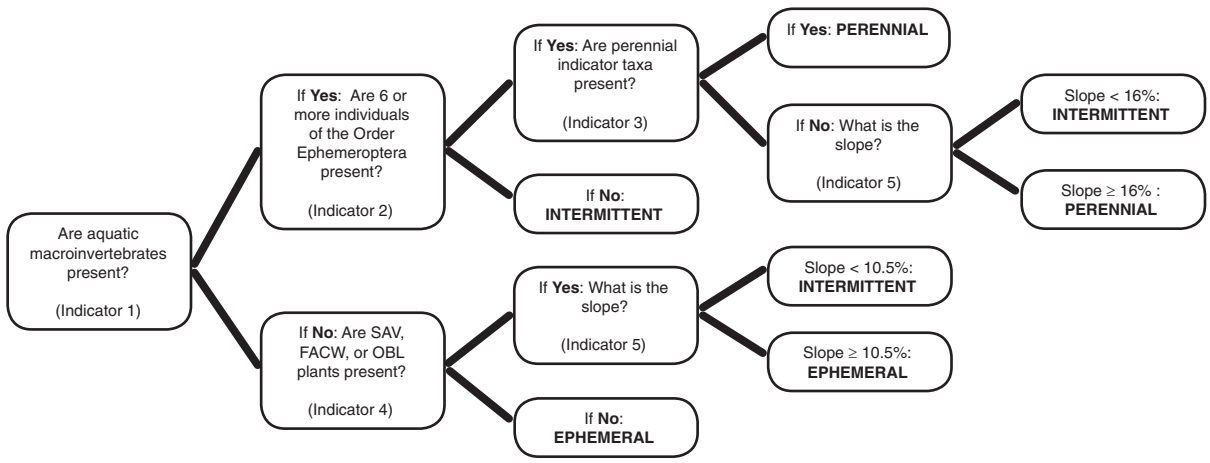
Observed Macroinvertebrates: None

Taxon	Indicator Status	Ephemer-optera?	# of Individuals

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☑ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☑ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☑ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☑ No
5. What is the slope? (In percent, measured for the valley, not the stream)	12 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☑ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Ephemeral drainage through sagebrush full of at least 3 ft of dead russian thistle and tumbleweeds. Vegetated towards upper hillslope, where channel is not as steep with cheatgrass and stork's bill.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name Echo Solar	Assessor Sara Frank, Jess Taylor
Address Morrow County	Date 3/22/2022
Waterway Name ST-08	Coordinates at downstream end (ddd.mm.ss) Lat. 45.575664 N
Reach Boundaries Survey Corridor	Long. -119.543349 W
Precipitation w/in 48 hours (cm)	Channel Width (m) 1 foot
☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status): None

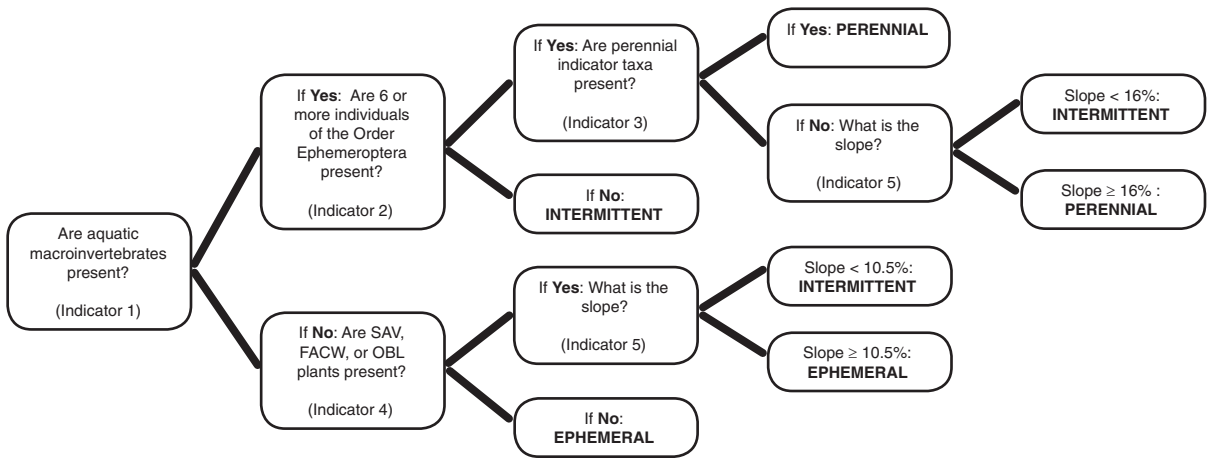
Observed Macroinvertebrates: None

Taxon	Indicator Status	Ephemer-optera?	# of Individuals

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☑ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☑ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☑ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☑ No
5. What is the slope? (In percent, measured for the valley, not the stream)	12 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☑ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Disturbed sagebrush and grasses that have not yet seeed along channel, but channel itself very full of tumbleweeds and dead russian thistle. Some rabbitbrush.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name Echo Solar		Assessor Sara Frank, Jess Taylor	
Address Morrow County		Date 3/22/2022	
Waterway Name ST-09		Coordinates at downstream end (ddd.mm.ss)	Lat. 45.5765 N
Reach Boundaries Survey Corridor			Long. -119.543769 W
Precipitation w/in 48 hours (cm)	Channel Width (m) 1 foot	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status): None

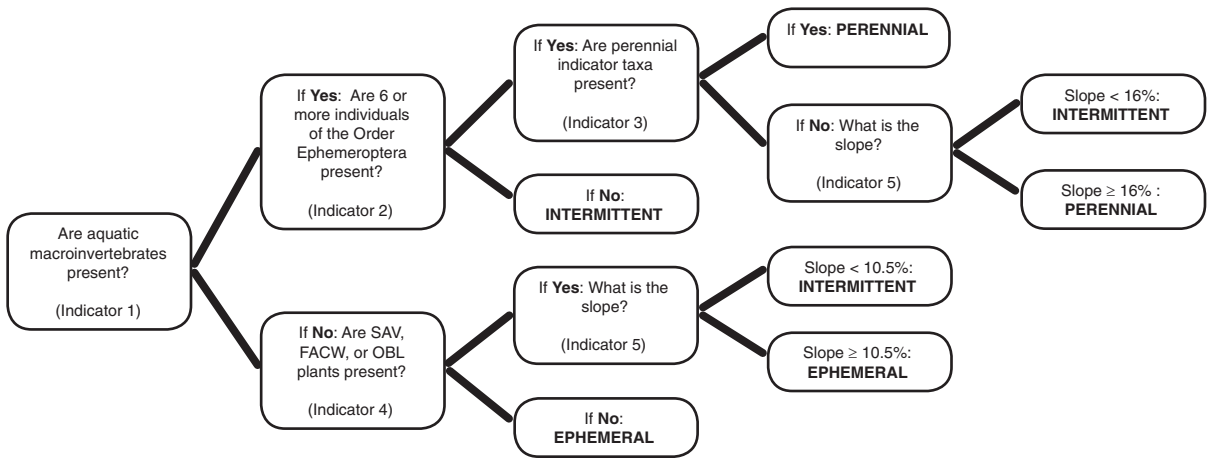
Observed Macroinvertebrates: None

Taxon	Indicator Status	Ephemer-optera?	# of Individuals

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☑ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☑ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☑ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☑ No
5. What is the slope? (In percent, measured for the valley, not the stream)	15 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☑ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Same as stream 08. Disturbed sagebrush and grasses that have not yet seeed along channel, but channel itself very full of tumbleweeds and dead russian thistle. Some rabbitbrush.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name Echo Solar		Assessor Sara Frank, Jess Taylor	
Address Morrow County		Date 3/22/2022	
Waterway Name ST-10		Coordinates at downstream end (ddd.mm.ss)	Lat. 45.578631 N
Reach Boundaries Survey Corridor			Long. -119.544417 W
Precipitation w/in 48 hours (cm)	Channel Width (m) 1 foot	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status): None

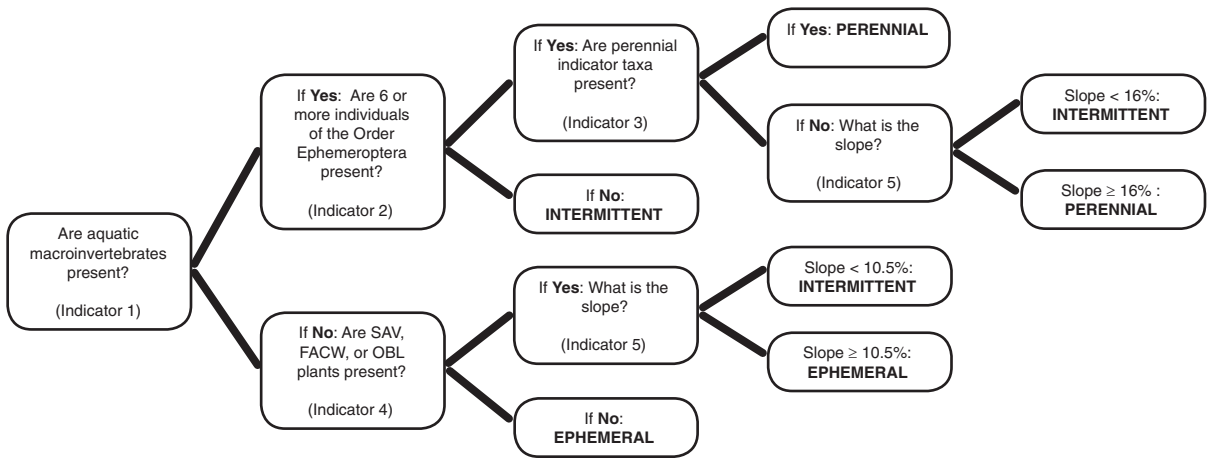
Observed Macroinvertebrates: None

Taxon	Indicator Status	Ephemer-optera?	# of Individuals

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☑ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☑ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☑ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☑ No
5. What is the slope? (In percent, measured for the valley, not the stream)	15 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☑ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Channel full of cheatgrass and tumblemustard

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name Echo Solar		Assessor Sara Frank, Jess Taylor	
Address Morrow County		Date 3/22/2022	
Waterway Name ST-111		Coordinates at downstream end (ddd.mm.ss)	Lat. 45.596005 N
Reach Boundaries Survey Corridor			Long. -119.510162 W
Precipitation w/in 48 hours (cm)	Channel Width (m) 1 foot	☐ Disturbed Site / Difficult Situation (Describe in "Notes")	

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status): None

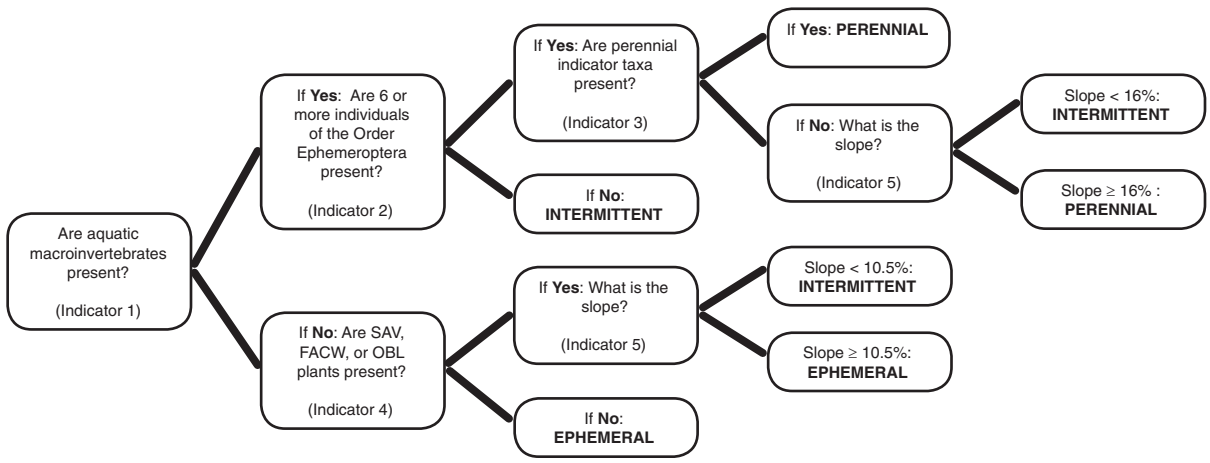
Observed Macroinvertebrates: None

Taxon	Indicator Status	Ephemer-optera?	# of Individuals

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☑ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☑ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☑ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☑ No
5. What is the slope? (In percent, measured for the valley, not the stream)	15 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☑ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Channel is primarily a gap between plowed fields and is full of tumbleweeds. Quite rocky with everything from pebbles to small boulders.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

APPENDIX B: PHOTOLOG

PhotoPoint_1. Photo Point. Looking NW. General characteristics of ST-01 in downstream. 3/21/2022. Surveyor: JCT.

PhotoPoint_2. Photo Point. Looking SW. Looking at culvert. 3/21/2022. Surveyor: JCT.

PhotoPoint_3. Photo Point. Looking NW. Garbage found throughout drainage. 3/21/2022. Surveyor: JCT.

PhotoPoint_4. Photo Point. Looking SE. General conditions of ST-101 where there is not garbage. 3/21/2022. Surveyor: JCT.

PhotoPoint_5. Photo Point. Looking SW. Sagebrush in drainage. 3/21/2022. Surveyor: JCT.

PhotoPoint_6. XBB Point. Looking S. No NHD, depression shown on aerial imagery. 3/21/2022. Surveyor: SMF.

PhotoPoint_7. XBB Point. Looking S. Slight depression where plowed fields meet residential property. 3/21/2022. Surveyor: SMF.

PhotoPoint_8. XBB Point. Looking S. Wide low spot where NHD line is shown. 3/21/2022. Surveyor: SMF.

PhotoPoint_9. XBB Point. Looking S. Wide low spot in a plowed field, no bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_10. XBB Point. Looking S. No bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_11. XBB Point. Looking SE. Low topo in freshly plowed field. No bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_12. XBB Point. Looking S. NO NHD line, but depression shown on aerial imagery. No bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_13. XBB Point. Looking SE. Wide low spot at bottom of steep hillside, no bed or banks found. 3/21/2022. Surveyor: SMF.

PhotoPoint_14. XBB Point. Looking S. No bed or banks found. 3/21/2022. Surveyor: SMF.

PhotoPoint_15. XBB Point. Looking S. Low topo, no bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_16. XBB Point. Looking SE. Low topo in plowed field, no bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_17. XBB Point. Looking N. No bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_18. XBB Point. Looking S. No bed or banks 3/21/2022. Surveyor: SMF.

PhotoPoint_19. XBB Point. Looking S. Aerial imagery shows low spot, no bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_20. XBB Point. Looking S. No bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_21. XBB Point. Looking SE. No bed or banks - plowed field. 3/21/2022. Surveyor: SMF.

PhotoPoint_22. XBB Point. Looking SE. No bed or banks - Plowed field. 3/21/2022. Surveyor: SMF.

PhotoPoint_23. XBB Point. Looking N. No bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_24. XBB Point. Looking S. No bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_25. XBB Point. Looking N. No bed or banks. 3/21/2022. Surveyor: SMF.

PhotoPoint_26. XBB Point. Looking N. No bed or banks. Plowed field. 3/21/2022. Surveyor: SMF.

PhotoPoint_27. Photo Point. Looking NE. ST-01 looking downstream into the study area. 3/21/2022. Surveyor: SMF.

PhotoPoint_28. Photo Point. Looking E. Rocky area within ST-02. 3/21/2022. Surveyor: SMF.

PhotoPoint_29. Photo Point. Looking NE. Representative photo of ST-02. 3/21/2022. Surveyor: SMF.

PhotoPoint_30. Photo Point. Looking N. Burm/ two track cuts off upslope of ST-03. 3/21/2022. Surveyor: SMF.

PhotoPoint_31. Photo Point. Looking N. Looking south. Cheatgrass fills ST-03 along with seed out wheat grass. 3/21/2022. Surveyor: SMF.

PhotoPoint_32. Photo Point. Looking S. Culvert flows into D-01. 3/22/2022. Surveyor: SMF.

PhotoPoint_33. Photo Point. Looking S. Tumble mustard and russian thistle collected at culvert intake. 3/22/2022. Surveyor: SMF.

PhotoPoint_34. Photo Point. Looking N. Low excavated area contains no wetland features. 3/22/2022. Surveyor: SMF.

PhotoPoint_35. XBB Point. Looking SE. No bed or banks in plowed field. 3/22/2022. Surveyor: SMF.

PhotoPoint_36. XBB Point. Looking SE. No bed or banks in plowed field. 3/22/2022. Surveyor: SMF.

PhotoPoint_37. XBB Point. Looking SE. No bed or banks in plowed field. 3/22/2022. Surveyor: SMF.

PhotoPoint_38. XBB Point. Looking S. No bed or banks. Low spot on aerial. 3/22/2022. Surveyor: SMF.

PhotoPoint_39. XBB Point. Looking S. No bed or banks in plowed field. 3/22/2022. Surveyor: SMF.

PhotoPoint_40. XBB Point. Looking S. No bed or banks in plowed field. 3/22/2022. Surveyor: SMF.

PhotoPoint_41. Photo Point. Looking SE. Looking down ST-04. 3/22/2022. Surveyor: SMF.

PhotoPoint_42. Photo Point. Looking NE. Photo from top of ST-05 looking toward ST-01. 3/22/2022. Surveyor: SMF.

PhotoPoint_43. XBB Point. Looking N. Drainage ends in basin and cattle trail cuts through as channel becomes impossible to follow. 3/22/2022. Surveyor: SMF.

PhotoPoint_44. Photo Point. Looking W. Cattle trail cuts away from channel behind sagebrush. 3/22/2022. Surveyor: SMF.

PhotoPoint_45. XBB Point. Looking NE. Channel ends in basin. 3/22/2022. Surveyor: SMF.

PhotoPoint_46. Photo Point. Looking E. Culvert inflow from plowed field full of tumbleweeds. 3/22/2022. Surveyor: SMF.

PhotoPoint_47. Photo Point. Looking W. Culvert flowing into ST-08. 3/22/2022. Surveyor: SMF.

PhotoPoint_48. XBB Point. Looking NE. No bed or banks. 3/22/2022. Surveyor: SMF.

PhotoPoint_49. Photo Point. Looking NE. Looking downstream, drainage full of tumbleweeds. 3/22/2022. Surveyor: SMF.

PhotoPoint_50. Photo Point. Looking NE. Looking downstream where ST-08 and 08b merge. 3/22/2022. Surveyor: SMF.

PhotoPoint_51. Photo Point. Looking E. Looking downstream through sagebrush. 3/22/2022. Surveyor: SMF.

PhotoPoint_52. XBB Point. Looking NE. Channel ends in basin. 3/22/2022. Surveyor: SMF.

PhotoPoint_53. XBB Point. Looking NE. No bed or banks after very narrow channel ends in basin. 3/22/2022. Surveyor: SMF.

PhotoPoint_54. Photo Point. Looking E. Looking into ST-10. 3/22/2022. Surveyor: SMF.

PhotoPoint_55. Photo Point. Looking N. Steep drop off into basin, no more channels between ST-10 and highway. 3/22/2022. Surveyor: SMF.

PhotoPoint_56. XBB Point. Looking S. No bed or banks on NHD. 3/22/2022. Surveyor: SMF.

PhotoPoint_57. XBB Point. Looking SW. Toe of slope - no bed or banks. 3/22/2022. Surveyor: SMF.

PhotoPoint_58. XBB Point. Looking N. Low spot on aerial, no bed or banks. 3/22/2022. Surveyor: SMF.

PhotoPoint_59. XBB Point. Looking NE. No bed or banks. Low spot on aerial. 3/22/2022. Surveyor: SMF.

PhotoPoint_60. Photo Point. Looking NE. Wide spot in ST-11, about 5ft wide here between plowed fields. 3/22/2022. Surveyor: SMF.

PhotoPoint_61. Photo Point. Looking N. Representative of ST-11. 3/22/2022. Surveyor: SMF.

PhotoPoint_62. Photo Point. Looking S. Culvert flows out through driveway and continues into ST-11. 3/22/2022. Surveyor: SMF.

PhotoPoint_63. XBB Point. Looking N. No bed or banks. 3/22/2022. Surveyor: SMF.

PhotoPoint_64. Photo Point. Looking SW. Errosional feature from hillside below irrigated crop. Full of russian thistle. No water. 1 ft wide. 3/22/2022. Surveyor: JCT.

PhotoPoint_65. Photo Point. Looking E. Built up burn downhill to irrigated crop field. Has plastic lining but no water. 3/22/2022. Surveyor: JCT.

PhotoPoint_67. XBB Point. Looking N. No bed or banks in cropfield. 3/22/2022. Surveyor: JCT.

PhotoPoint_68. Photo Point. Looking SE. Drainage from field to lower elevation all vegetated. 3/22/2022. Surveyor: JCT.

PhotoPoint_69. XBB Point. Looking E. Drainage has no bed or banks beyond this point. 3/22/2022. Surveyor: JCT.

PhotoPoint_70. Photo Point. Looking W. Culvert inflow. 3/22/2022. Surveyor: JCT.

PhotoPoint_71. XBB Point. Looking E. No bed or banks. 3/22/2022. Surveyor: JCT.

PhotoPoint_72. XBB Point. Looking SW. No access in field due to bio solid application. No bed or banks at this downhill location. 3/22/2022. Surveyor: JCT.

PhotoPoint_76. XBB Point. Looking SW. No bed or banks on NHD. 3/22/2022. Surveyor: JCT.

PhotoPoint_77. XBB Point. Looking S. No bed or banks. 3/22/2022. Surveyor: JCT.

PhotoPoint_78. Photo Point. Looking W. Shows conditions in cropland. 3/22/2022. Surveyor: JCT.

PhotoPoint_79. Photo Point. Looking W. Shows conditions in cropland. 3/22/2022. Surveyor: JCT.

PhotoPoint_80. Photo Point. Looking N. Shows conditions in cropland. 3/22/2022. Surveyor: JCT.

PhotoPoint_81. Photo Point. Looking NE. Culvert. 3/22/2022. Surveyor: JCT.

PhotoPoint_82. XBB Point. Looking SW. No bed or banks on NHD despite oversized culvert. 3/22/2022. Surveyor: JCT.

PhotoPoint_83. Photo Point. Looking NE. No bed or banks on NHD. 3/22/2022. Surveyor: JCT.

PhotoPoint_84. XBB Point. Looking NW. No bed or banks on NHD. 3/22/2022. Surveyor: JCT.

PhotoPoint_85. Photo Point. Looking NE. ST-11. 3/22/2022. Surveyor: JCT.