
EXHIBIT J

WETLANDS

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Attachment

Attachment J1: Wetlands and Other Waters Delineation Report

Introduction

OAR 345-021-0010(1)(j) *Information based on literature and field study, as appropriate, about waters of the state or waters of the United States, including:*

RESPONSE

The following sections describe the methodology used to complete this exhibit and address the requirements of OAR 345-021-0010(1)(j) Information based on literature and field study, as appropriate, about waters of the state or waters of the United States.

This exhibit has been prepared to present information necessary to support EFSC findings pursuant to OAR 345-21-0010(1)(j).

J.1 Analysis Area

The analysis area for Exhibit J is the area within the Facility site boundary.

J.2 Overview of Literature Review

The following information was reviewed prior to the field survey:

- Montague Wind Power Facility, Wetlands and Other Waters Delineation Report, Gilliam County, Oregon (CH2M HILL, 2010)
- DSL concurrence letter dated June 28, 2009, for DSL file WD#10-0083 (Montague) (DSL, 2010)
- USGS 7.5-minute topographic maps (digital format) (USGS, 2011a)
- USGS 100K National Hydrography Dataset - digital water course data (USGS, 2010b)
- Pacific Northwest Hydrography Framework (PNWHF) 24K Dataset – digital water course data (PNWHF, 2011)
- National Wetlands Inventory (NWI) digital data (USFWS, 2011)
- Soil Survey of Gilliam County, Oregon (Hosler et al., 1984)
- Hydric Soils List for Gilliam County (NRCS, 2006)
- Aerial imagery (USDA, 2005)
- Precipitation data from Climate Analysis for Wetlands (WETS) OR0265, Arlington (NRCS, 2010)

During the literature review of existing information, 151 drainages were identified within the analysis area for field verification. Twelve NWI-mapped wetlands are located in the analysis area, 11 of which are associated with the identified drainages. No hydric soils are mapped in the analysis area and no springs are mapped on the USGS maps in the analysis area.

J.3 Field Survey

A Baseline Wind Energy Facility-specific field survey was completed for the majority of the areas within the Facility site boundary. The Baseline Wind Energy Facility-specific field survey areas are displayed in Figure J1.

Certain areas within the Facility site boundary were surveyed previously. A wetlands and other waters delineation was previously conducted in portions within the Facility site boundary in 2010 as part of the permitting effort associated with the Montague Wind Power Facility (CH2M HILL, 2010). The areas covered in the Montague delineation effort, and unsurveyed as part of the Baseline Wind Energy Facility effort are also shown in Figure J1.

The Baseline Wind Energy Facility-specific field survey was conducted over the course of six days between September 7 and September 12, 2010. Wetland biologists surveyed the Baseline Wind Energy Facility-specific field survey area to identify isolated wetlands or other waters outside of drainages. Within this field survey area, the survey team visited each drainage to determine whether it contained stream channels, wetlands, or other waters. Twenty five sample plots were investigated and recorded throughout the field survey area in areas most likely to contain wetland features (i.e., depressional areas of low-lying topography, areas mapped as wetlands by NWI, areas mapped as drainages, and areas with potential dominance of hydrophytic vegetation). Field-verified stream channels were assessed using the Oregon Streamflow Duration Assessment Method to determine if they had ephemeral, intermittent, or perennial flow regimes. Streams identified outside both the Baseline Wind Energy Facility and Montague Wind Power Facility field survey area were mapped from existing information.

To ensure that a Removal/Fill Permit will not be needed for construction that might occur in areas unsurveyed, the Applicant proposes a condition that requires the certificate holder to submit a pre-construction investigation report to DSL after determining the final design locations of Facility components and construction disturbance (see Section J.10.5 for proposed site certificate conditions). The condition will ensure that the Facility will have no impact on any State-jurisdictional waters identified in the pre-construction investigation.

J.4 Wetland Delineation

A delineation of wetlands and other waters, which consisted of a literature review and field study, was conducted to identify potentially jurisdictional wetlands and waters. The delineation was performed in accordance with Section 404 of the Clean Water Act (CWA) and the Oregon Removal-Fill Law. The delineation report (HDR, 2011) is included as Attachment J1 to this document. The report was submitted to the DSL and USACE in December 2011 for review and approval.

J.5 Description of Wetlands and Other Waters

The following sections address OAR 345-021-0010(1)(j)(A) through (F).

OAR 345-021-0010(1)(j)(A) *A description of all areas within the site boundary that might be waters of the state or waters of the United States and a map showing the location of these features.*

RESPONSE

Seven ephemeral drainages were identified within the Facility site boundary. No potentially jurisdictional wetlands were found. Complete descriptions of these waters, field data, and photographs are provided in the wetland and other waters delineation report in Attachment J1. Figure J1a through Figure J1g show the location of these seven ephemeral drainages.

J.5.1 Wetlands

No potentially jurisdictional wetlands were identified in the field survey area for the Facility. One wetland was identified in a swale within the Facility site boundary, but outside the field survey area. This wetland is located outside the area where construction is expected to occur. Additional investigations and a formal wetland delineation will be performed if the final layout includes construction activity near this wetland. Figure J1a through Figure J1g show the results of the field survey. None of the wetlands identified by CH2M HILL (2010) are located within the Facility site boundary.

J.5.2 Other Waters

Seven streams were identified and mapped in the field survey area. All of these streams (D3, D5, D40, D72, D131, D146, and D147) are small ephemeral drainages with poorly-defined bed and bank. D3 is a tributary to China Creek, D5 is tributary to Rock Creek, and D40, D72, D131, D146, and D147 are tributaries to Eightmile Canyon. D3 and D5 are located in the northwestern portion of the field survey area, with approximately 700 and 1,300 lineal ft of stream channel, respectively, within the field survey area. D40 is located in the northeastern portion of the field survey area and has approximately 100 lineal ft of channel in the field survey area. D72 is in the central portion of the field survey area, with approximately 2,100 lineal ft of stream channel in the field survey area. D131, D146, and D147 are in the southeastern portion of the field survey area and have approximately 200, 100, and 200 lineal ft of stream channel within the field survey area.

Five additional streams (S005, S006, S007, S204, and S209) were mapped outside the field survey area but within the Facility site boundary in the *Montague Wind Power Facility, Wetlands and Other Waters Delineation Report* (CH2M HILL, 2010). Stream S006 is the same waterway as D5 within the field survey area. Streams S006 and S007 are tributaries to Rock Creek, a tributary to the John Day River. Streams S005, S204, and S209 are tributaries to Eightmile Canyon.

All of the waterways identified within the field survey area and by CH2M HILL (2010) are ephemeral drainages that had no flow during the site investigations. The characteristics of these channels were similar, with poorly-defined bed and bank and no evidence of recent flow. It is unlikely that these waterways receive flow on an average year; conveyance is likely to occur only after severe precipitation events. Channel widths range from 2 to 15 ft for most waterways. Stream D131 was wider than the other channels, with widths ranging 11 to 36 ft. The stream beds are mostly unvegetated with some upland species such as sagebrush, rabbitbrush, Idaho fescue, and cheatgrass present.

None of the stream reaches within the field survey area provides spawning, rearing, or migration corridors or food-producing areas for fish. There is no fish use in Eightmile Canyon or its tributaries. D3 is a tributary to China Creek, which is not known to support

anadromous or resident salmonids. D5 and streams S006 and S007 (from CH2M HILL [2010]) are tributaries to Rock Creek, which supports resident redband trout and rearing and migration habitat for summer steelhead; however, D5 has no fish use and the portions of this stream within the field survey area are over 2 miles upstream from its confluence with Rock Creek. S006 has no fish use and the portions in the Facility site boundary are over a mile upstream from Rock Creek. Review of aerial photographs suggests S006 may not have a continuous channel outside the survey corridor connecting to Rock Creek, but this was not field-verified. The channel of S007 becomes undefined more than a mile from Rock Creek, before it leaves the Facility site boundary, and does not have a continuous channel connecting to Rock Creek. Additional information on these drainages is provided in the Wetland Delineation Report (Figure J1).

J.6 Effect on Waters of the State/United States

OAR 345-021-0010(1)(j)(B) *An analysis of whether construction or operation of the proposed facility would adversely affect any waters of the state, as defined under OAR 141-085-0010 [changed by DSL to 141-085-0510], or waters of the United States, as defined under Section 404 or the Clean Water Act.*

RESPONSE

J.6.1 Wetlands

Construction of the Facility will not impact wetlands. One wetland was identified within the Facility site boundary, but outside the area where construction is expected to occur. Additional investigations and a formal wetland delineation will be performed if the final layout the final layout includes construction activities near this wetland.

No additional wetlands were identified in the Facility site boundary in the *Montague Wind Power Facility, Wetlands and Other Waters Delineation Report* (CH2M HILL, 2010).

J.6.2 Other Waters

Delineated ephemeral stream boundaries were overlain with proposed facilities and areas of impact were identified (Figure J1a through Figure J1g). Facility components will be microsituated around these streams, where feasible, to avoid any temporary or permanent impacts to these areas.

Proposed access roads and underground collector lines will cross ephemeral streams in two locations. All seven of the ephemeral streams in the field survey area will not be considered jurisdictional under the State Removal-Fill Law because ephemeral streams are not included in the definition of waters of the state as defined under OAR 141-085-0510(91). Non-perennial streams are only considered jurisdictional under state law if they provide spawning, rearing, or food-producing areas for food and game fish, and none of the streams meet these criteria (OAR-141-085-0510[44]). No fish population uses the ephemeral streams for spawning or rearing. These streams are not food-producing areas for downstream waters that support fish because they are either too far upstream from fish-bearing waters or because they do not have a hydrological connection to fish-bearing waters. Ephemeral stream D40, D72, D131, D146, and D147 are tributaries to Eightmile Canyon, which does not support fish. D40 is the closest of these drainages to the Columbia River, a fish-bearing water; however, D40 is approximately 18 miles away from the

Columbia River, too far to be food-producing. D5 is a tributary to Rock Creek, a fish-bearing stream; however, its location in the field survey area is approximately 2 miles upstream of Rock Creek. Since D5 does not have a continuous channel connection to Rock Creek, it is not a food-producing area for Rock Creek, and will not be jurisdictional under the State Removal-Fill Law. Within the field survey area, D3 is located approximately 3.75 miles upstream of its confluence with China Creek, which may support fish populations; however, due to the distance upstream of China Creek, the steep grade of the channel in the upper reaches and the slight grade in the lower reaches, it is not a food-producing area for China Creek. The wetland and other waters delineation report was submitted to the DSL in December 2011 for review and concurrence with these jurisdictional determinations.

The *Montague Wind Power Facility, Wetlands and Other Waters Delineation Report* (CH2M HILL, 2010) was submitted to DSL and it was determined that the five ephemeral streams from this report that are within the Facility site boundary are not jurisdictional under the State Removal-Fill Law because ephemeral streams are not included in the definition of waters of the state as defined under OAR 141-085-0510(91). None of these ephemeral streams will be impacted by the Facility.

The ephemeral streams in the field survey area may be subject to regulation under the CWA if they are determined to have a significant nexus to traditional navigable waters by the USACE. Ephemeral streams have a significant nexus if they have more than a speculative or insubstantial effect on the chemical, physical, or biological integrity of the traditional navigable water.

The proposed Facility includes two crossings of ephemeral streams for new access roads and two crossings for underground collector lines (see Figure J1a and Figure J1d). Crossing sites and in-channel impact areas and volumes are summarized in Table J1. The two access road crossings and the two underground collector line crossings will occur in the same locations. The underground collector line crossings will entail temporary impacts for trench excavation and backfill.

Table J1: Approximate Impacts to Waters of the U.S. and State.

Stream ID	Activity	Area (sq ft)	Area (ac)	Removal Depth (ft)	Removal Volume (cy)	Removal Material	Fill Depth (ft)	Fill Volume (cy)	Fill Material
Permanent Impacts*									
D5	Culvert Crossing	112	0.0026	1.5	6.22	Gravel/silt	5.0	20.74	Gravel/riprap
D72	Culvert Crossing	80	0.0018	1.5	4.44	Gravel/silt	5.0	14.81	Gravel/riprap
Sub-Totals		192	0.0044	-	10.66	-	-	35.55	-
Temporary Impacts*									
D5	Electrical Crossing	7	0.0002	4.0	1.04	Gravel/silt	4.0	1.04	Gravel
D72	Electrical Crossing	5	0.0001	4.0	0.74	Gravel/silt	4.0	0.74	Gravel

Table J1: Approximate Impacts to Waters of the U.S. and State.

Stream ID	Activity	Area (sq ft)	Area (ac)	Removal Depth (ft)	Removal Volume (cy)	Removal Material	Fill Depth (ft)	Fill Volume (cy)	Fill Material
Sub-Totals		12	0.0003	-	1.78	-	-	1.78	-
Total Impacts*		204	0.0047	-	12.44	-	-	37.33	-

*Impact quantities shown are approximate values based on a preliminary level of design and are subject to change as the Facility design progresses.

The Applicant proposes a condition that will incorporate the measures to avoid impacts to jurisdictional waters to the extent practicable. The condition prohibits removal and fill of material from jurisdictional waters of the State in excess of the 50-cubic-yard limit for the project as a whole so that a Removal/Fill permit will not be needed.

J.7 Potential Adverse Impacts to Wetlands and Other Waters

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).*

RESPONSE

Construction of the Facility will not impact wetlands. No wetlands were identified within the field survey area.

Permanent impacts to ephemeral streams are anticipated from installation of access road culvert crossings of channels. Access road crossing impacts will include excavation of channel bed material, culvert placement, and rock and gravel fill placement over the culvert to create a road bed. Culverts will be adequately sized to pass anticipated storm flows. Riprap will be placed at the culvert ends for erosion control. Total in-channel excavation for access road crossings will be approximately 10.66 cubic yards; total fill will be approximately 35.55 cubic yards. Approximately 32 ft of stream channel length will be impacted (0.0047 acre).

Temporary disturbance for underground collector line crossing impacts will typically include in-channel excavation of approximately a 1-foot-wide by 4-foot-deep trench, placement of collector lines in the trench, backfill with gravel, and placement of native substrate on the streambed to original surface contours. Total temporary in-channel excavation will be approximately 1.78 cubic yards; total fill will be approximately 1.78 cubic yards. Approximately 2 ft of stream channel length will be temporarily impacted (0.0003 acre).

Total in-channel impacts to ephemeral streams for permanent and temporary impacts will be approximately 12.44 cubic yards of removal and approximately 37.33 cubic yards of fill and will affect approximately 34 ft of stream length (0.0047 acre).

J.8 Evidence That Fill and Removal Permit Need Not Be Issued

OAR 345-021-0010(1)(j)(D) *If the proposed facility would not need a removal-fill authorization as described under OAR 141-085-0018 [changed by DSL to 141-085-0540], an explanation of why no such authorization is required for the construction and operation of the proposed facility.*

RESPONSE

None of the ephemeral stream channels in the field survey area are potentially jurisdictional under the Removal-Fill Law because ephemeral streams that do not meet the criteria for jurisdiction as intermittent streams are not considered waters of the state (OAR 141-085-0510[44]; OAR 141-085-0510[91]) (see Section J.5).

J.9 Evidence That Fill and Removal Permit Can Be Issued

OAR 345-021-0010(1)(j)(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.*

RESPONSE

A removal-fill authorization is not required because none of the ephemeral streams in the field survey area is potentially jurisdictional under the Removal-Fill Law. Ephemeral streams that do not meet the criteria for jurisdiction as intermittent streams are not considered waters of the state (see Section J.5).

J.10 Mitigation and Monitoring Program for Impacts to Wetlands and Other Waters

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

RESPONSE

Adverse impacts to wetlands or other waters of the state will not occur. Construction of access roads and underground collector lines will result in permanent and temporary impacts to ephemeral streams that may be considered waters of the United States.

For both the maximum and minimum turbine layouts, careful consideration for minimizing stream crossing has been incorporated and the layouts proposed represent a design that avoids impacts to waters wherever possible.

J.10.1 Proposed Mitigation and Monitoring Measures

Where ephemeral stream impacts were unavoidable, Facility layouts were modified to minimize impacts. Efforts to avoid and minimize impacts that were incorporated into the design are summarized below.

J.10.1.1 Avoidance Prior to Construction

- Site turbines, roads, and staging areas during micrositing to minimize the number of stream crossings.
- Use existing roads to the maximum extent possible.
- Bury collector lines in the temporarily disturbed road shoulder, where feasible, or place them overhead to avoid impacts to ephemeral streams, canyons, or rugged terrain that will prevent the safe use of underground trenching technology.

J.10.1.2 Avoidance During Construction

The following protective measures will be implemented during construction of the Facility to avoid and minimize impacts:

- An onsite manager will be designated and will require the construction contractors to designate a Field Representative. The Field Representative will oversee the construction contractor's compliance with protective measures and coordination in accordance with regulatory agencies.
- Qualified biologists will visit the site before site development to flag sensitive resource areas, if present within the construction buffer area, including wetlands or other regulated waters.
- Erosion and sedimentation control measures and other construction BMPs will be employed to minimize or avoid construction effects on wetland and waters.

J.10.2 Proposed Best Management Practices

The Applicant proposes BMPs, which will be listed in the NPDES 1200-C construction permit, to ensure that impacts to the ephemeral streams are avoided to the maximum extent practicable.

J.10.3 Proposed Environmental Training Measures

The following measures will be implemented during Facility construction to avoid impacts:

- The Applicant will require the construction contractors to attend an environmental awareness training that will provide information on the sensitive environmental resources present onsite, the exclusion flagging/signing, permit requirements, and other environmental issues. The environmental awareness training will be conducted by qualified personnel.
- The construction contractor will be required to maintain a list of onsite construction personnel who have received the environmental awareness training.

J.10.4 Proposed Monitoring Measures

Qualified personnel will conduct environmental monitoring during construction. Qualified biologists will visit the site periodically during construction to oversee construction and permit compliance.

J.10.5 Proposed Site Certificate Conditions

Similar to the conditions proposed by previously-approved wind energy facilities in the vicinity of the Facility, the Applicant proposes the following conditions:

Condition 46

Before beginning construction, the certificate holder shall provide to the Department a map showing final design locations of all components of the Facility, areas that will be disturbed during construction, and wetlands and stream channels previously surveyed. For areas to be disturbed during construction that lie outside of the previously-surveyed areas, the certificate holder shall hire qualified personnel to conduct a pre-construction investigation to determine whether any jurisdictional waters of the State exist in those locations. The certificate holder shall provide a written report on the pre-construction investigation to the Department and the Department of State Lands (DSL) for approval before beginning construction.

Condition 47

The certificate holder shall avoid impacts to waters of the State in the following manner:

- (a) The certificate holder shall avoid any disturbance to delineated wetlands.*
- (b) The certificate holder shall not remove material from waters of the State or add new fill material to waters of the State such that the total volume of removal and fill exceeds 50 cubic yards for the Facility as a whole.*
- (c) The certificate holder shall construct support poles for aboveground lines outside of delineated stream channels and shall avoid in-channel impacts.*

J.11 References

- CH2M HILL. 2010. Montague Wind Power Facility Wetlands and Other Waters Delineation Report Gilliam County, Oregon. Prepared for Iberdrola Renewables, Inc.
- Oregon Department of State Lands (DSL). 2010. Wetland Delineation Report for Gilliam County; Multiple townships and tax lots within large project area south of Arlington, Oregon; WD#10-0083; App. #44209. Concurrence letter dated June 28, 2010.
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- U.S. Geological Survey (USGS). 2011a. 7.5-minute topographic maps (digital format); Shutler Flat, Hickland Butte, Mikkalo, and Wolf Hollow Falls Quadrangles. Accessed September, 2011.
- U.S. Geological Survey (USGS). 2011b. 100K National Hydrography Dataset - digital water course data. Accessed September, 2011. <http://nhd.usgs.gov/data.html>

Figures

Figure J1: Wetlands and Other Waters Index Map

Figure J1a - J1g: Wetlands and Other Waters Stream Crossings

ATTACHMENT

Attachment J1: Wetlands and Other Waters Delineation Report